

BARK AND AMBROSIA BEETLES
OF SOUTH AMERICA
(COLEOPTERA, SCOLYTIDAE)

Stephen L. Wood

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TABLE OF CONTENTS

ABSTRACT	i
PREFACE	v
INTRODUCTION	1
CLASSIFICATION	10
METHODS	19
SYSTEMATIC SECTION	20
ACRONYMS OF MUSEUM TYPE REPOSITORIES CITED	21
ACKNOWLEDGMENTS	22
FAMILY SCOLYTIDAE	23
KEY TO SUBFAMILIES, TRIBES	24
SUBFAMILY HYLESININAE	27
TRIBE HYLASTINI	27
TRIBE HYLESININI	28
TRIBE TOMICINI	45
TRIBE PHRIXOSOMINI	65
TRIBE BOTHROSTERNINI	71
TRIBE PHLOEOTRIBINI	115
TRIBE PHLOEOSININI	146
TRIBE HYPOBORINI	181
SUBFAMILY SCOLYTINAE	185
TRIBE SCOLYTINI	185
TRIBE CTENOPHORINI	237
TRIBE MICRACINI	301
TRIBE CARPHODICTICINI	332
TRIBE IPINI	334
TRIBE DRYOCOETINI	342
TRIBE XYLEBORINI	364
TRIBE CRYPHALINI	479
LABEL DATA FOR FIGURED SPECIMENS, plates I–CCXXX	530
PLATES I–CCXXX	
SUBFAMILY SCOLYTINAE, continued	541
TRIBE CORTHYLINI	541
SUBTRIBE PITYOPHTHORINA	544
TRIBE CORTHYLINI,	
SUBTRIBE CORTHYLINA	656
LITERATURE CITED	869
INDEX	882

BARK AND AMBROSIA BEETLES OF
SOUTH AMERICA (COLEOPTERA, SCOLYTIDAE)

Stephen L. Wood¹

ABSTRACT

This monographic review of the Scolytidae of South America presents keys and descriptions for the identification of 1339 species, including species in selected genera from Mexico and Central America. **Names rejected** from the South American fauna include (1) *Hylesinus atomarius* Chapuis, a senior name of *Acacaxis abundans* Lea, a species native to Australia; (2) *Scolytodes grandis* (Schedl), a rejected name based on a teratological composite holotype; and (3) *Mimiocurus oleanderi* (Schedl) (*Neodryocoetes*), an African species that was incorrectly named as a European introduction of a Neotropical species. **New replacement names** are presented as *Araptus plaumannianus* Wood (for *Brachydendrus plaumanni* Schedl), *A. praevius* Wood (for *A. frontalis* Wood), *A. nitens* Wood (for *Breviophthorus nitidipennis* Schedl), *A. semisulcatus* Wood (for *Neodryocoetes sulcatus* Nunberg), *Monarthrum amparae* Wood (for *Mimips brasiliensis* Schedl), *Scolytodes schoenmanni* Wood (for *Problechilus glaber* Schedl). **New combinations** are listed for *Acacaxis atomarius* (Chapuis) (from *Hylesinus*, =*Acacaxis abundans* Lea, an Australian species), *Amphicranus incisus* (Schedl) (from *Tricolus*), *A. sexdenticulum* Wood (from *Anchonocerus*), *Araptus brevisetosus* (Eggers) and *A. virtus* (Schedl) (from *Pityophthorus*), *A. celatus* (Schedl), *A. frontalis* (Schedl), *A. granulatus* (Schedl), *A. subsimilis* (Schedl), and *A. sub-sulcatus* (Schedl) (from *Brevipityophthorus*), *Corthyloxiphus aztecis* (Bright), *C. caliginis* (Wood), *C. furvus* (Wood), *C. morulus* (Wood), *C. tardus* (Wood) (from *Corthyocyclon*), *C. emarginatus* (Eggers) (from *Corthylus*), *Corthylus dubiosus* (Schedl) and *C. niger* (Schedl) (from *Metacorthylus*), *C. ustus* (Schedl) (from *Corthyocyclon*), *Cortisinus lobatus* (Eggers) (from *Sternobothrus*), *Gnatholeptus tenellus* (Schedl) (from *Neodryocoetes*), *Gnathotrupes assiduus* (Schedl) and *G. neoadjunctus* (Schedl) (from *Xyleborus*), *Gymnochilus vestitus* Eggers (from *Problechilus*), *Hylocurus longulus* (Nunberg) (from *Micracis*), *Metacorthylus subproprius* (Schedl), *M. subtruncatus* (Schedl), *M. vicinus* (Schedl), *M. truncatorus* (Schedl) (from *Amphicranus*), *M. volvulus* (Eichhoff) (from *Pterocyclon*), *Mimiocurus oleanderi* (Schedl) (an African species, from *Neodryocoetes*), *Monarthrum meuseli* (Reitter) (from *Xyleborus*), *Scolytodes brevis* (Eggers),

S. laevicollis (Eggers), and *S. pilosula* (Eggers) (from *Problechilus*), *S. bruchi* (Hagedorn) (from *Hexacolus*), *Sternobothrus ater* (Schedl), *S. bicostatus* (Schedl), *S. marginicollis* (Eggers), *S. paraguayensis* (Schedl), *S. pilosus* (Eggers), *S. pumilus* (Eggers), *S. transitus* (Schedl), *S. vexator* (Schedl) (from *Cnesinus*), *S. suturalis* (Eggers) (from *Bothrosternus*), *Theoborus crinitulus* (Wood) (from *Xyleborus*), *Tricolus collaris* (Blandford) (from *Amphicranus*), *Xyleborinus longulus* (Schedl) (from *Xyleborus*), *Xylechinus huapiiae* (Schedl) (from *Phthorophloeus*), *Xylechinus nahueliae* (Schedl) (from *Phthorophloeus*). **New alignment of genera in *Ips* and *Orthotomicus***: *Orthotomicus concinnus* (Mannerheim), *O. erosus* (Wollaston), *O. latidens* (LeConte), *O. mexicanus* (Hopkins), *O. orientalis* (Wood & Yin), *O. robustus* (Knotek), *O. spinifer* (Eichhoff) (from *Ips*). **New status** (removed from synonymy) *Phloeoborus nitidicollis* Chapuis [not *P. punctatorugosus* Chapuis], *Araptus caribaeus* (Blackman) [not *A. hymenaeae* Eggers], *A. micrographus* (Schedl) [not a homonym in *Pityophthorus*], *Camptocerus cinctus* Chapuis [not *C. suturalis* (Fabricius)], *Phloeoborus nitidicollis* Chapuis (not *P. punctatorugosus* Chapuis), *P. opacithorax* Schedl [not *P. scaber* Erichson], *P. ovatus* Chapuis [not *P. asper* Erichson], *Phloeotribus rudis* Eichhoff [not *P. setosus* Eichhoff], *Scolytopsis toba* Wichmann [not *S. puncticollis* Blandford], *Xyleborus incertus* Schedl [not a *X. rugosipennis* Schedl subspecies], *X. vitiosus* Schedl [not a synonym of *X. adelographus* Eichhoff], *X. acuminatus* Schedl [not a synonym of *X. grossmanni* Schedl], *Corthylus ater* Schedl [not a synonym of *C. letzneri* Ferrari].

New synonymy of genera includes *Corthylus* (= *Corthyocyclon* Schedl).

New synonymy of species in phylogenetic order includes (**Hylesinini**) *Hylesinus toranio* (Danthione) (= *H. antipodius* Schedl), *Phloeoborus signatus* Strohmeier (= *P. bodei* Eggers, *P. guayanensis* Eggers), *P. grandis* (Erichson) (= *Phloeotrupes punctatus* Schedl), *P. ovatus* Chapuis (= *P. granulatus* Eggers), *P. scaber* Erichson (= *P. lunatulus* Eggers), *P. cristatus* Chapuis (= *P. aspericollis* Strohmeier), (**Tomicini**) *Xylechinus chiliensis* (Nunberg) (= *X. sulcatus* Schedl), (**Diamerini**) *Acacaxis atomarius* (Chapuis) (= *A. abundans* Lea, from Australia),

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(**Bothrosternini**) *Cnesinus gracilis* Blandford (= *C. laetus* Schedl), *C. nitidus* Eggers (= *C. discretus* Wood), *C. sulcatus* Eggers (= *C. novateutonicus* Schedl), *Pagiocerus luederwaldti* Eggers (= *P. major* Schedl), *Bothrosternus truncatus* Eichhoff (= *B. striatus* Eggers), *Sternobothrus bicaudatus* (Blandford) (= *S. tuberculatus* Eggers), *S. costatus* (Chapuis) (= *Bothrosternus lacordairei* Chapuis), (**Phloeotribini**) *Phloeotribus collaris* Chapuis (= *P. despectus* Schedl), *P. nitidicollis* (Eggers) (= *P. neglectus* Schedl, *P. nebulosus* Wood, *P. levis* Wood), *P. rudis* Eichhoff (= *P. contractus* Chapuis, *P. peruensis* Schedl, *P. lineatus* Eggers, *Phthorophloeus striatus* Eggers), *P. subovatus* Blandford (= *P. argentinae* Blackman), *P. picipennis* Eggers (*P. boliviae* Blackman), *P. transversus* Chapuis (= *P. marginatus* Eggers), *P. setulosus* Eichhoff (= *P. armatus* Blandford), (**Phloeosinini**) *Dendrosinus ater* Eggers (= *D. paraguayensis* Eggers), *Pseudochramesus acuteclavatus* (Hagedorn) (= *Chramesus semibrunneus* Eggers), *P. setifer* Schedl (= *P. abbreviatus* Schedl), *Chramesus globosus* Hagedorn (= *C. eurypeterus* Schedl), *C. spinosus* Brethes (= *C. dentipes* Schedl), (**Scolytini**) *Cenomonyx galeritus* Eichhoff (= *Minulus barbatus* Eggers), *C. panamensis* (Blandford) (= *Loganius setulosus* Eggers, *L. similis* Eggers), *Camptocerus cinctus* Chapuis (= *C. charpentierae* Schedl), *C. costatus* Chapuis (= *C. seriatus* Eggers), *Scolytopsis toba* Wichmann (= *S. argentinensis* Eggers, *Scolytus bruchi* Schedl), *Scolytus carinatus* Chapuis (= *S. atratus* Chapuis), *S. caudatus* Eggers (= *S. conidens* Browne), (**Ctenophorini**) *Pycnarthrum pallidum* (Chapuis) (= *P. reticulatum* Schedl), *Scolytodes gracilis* Schedl (= *S. laevigatus* Wood), *S. guyanensis* Schedl (= *Hexacolus nardus* Schedl), *S. maura* Blandford (= *Prionosceles medius* Eggers, *P. ingae* Blackman), *S. unipunctata* (Blandford) (= *S. cylindricus* Schedl), *S. praeceps* Wood (= *S. tardus* Wood), *S. ater* (Eggers) (= *S. elongatissimus* Wood), *S. opaca* Wood (= *S. opimus* Wood), *S. vicina* (Eggers) (= *Prionosceles dubiosus* Schedl), *S. similis* (Eggers) (= *Prionosceles bolivianus* Eggers, *S. boliviensis* Wood), (**Micracini**) *Pseudothysanoes abbreviatus* Schedl (= *Neoglostatus squamosus* Schedl), *Hylocurus errans* Blandford (= *H. denticollis* Schedl), *H. vianai* Schedl (= *H. intermedius* Schedl), *H. giganteus* (Schedl) (= *H. pseudoimpar* Schedl, *H. interruptus* Schedl), *H. discifer* Eichhoff (= *H. bidentatus* Schedl), *H. retusipennis* Schedl (= *H. dubius* Schedl), (**Ipini**) genus *Orthotomicus* Ferrari (= *Pseudips* Cognato), (**Dryocoetini**) *Dendrocranulus columbianus* Schedl (= *D. limatus* Wood), *D. costalimai* Schedl (= *D. sechii* Schedl), (**Xyleborini**) *Dryocoetoides rusticus* Wood (= *Xyleborus haesitus* Schedl), *D. cristatus* (Fabricius) (= *D. caracicolai* Hopkins), *Xyleborus majusculus* Schedl (= *X. cachoerinhae* Schedl), *X. bolivianus* Eggers (= *X. parvipunctatus* Eggers, *X. rugosipennis* Schedl), *X. incertus* Schedl (= *X. oneratus* Schedl), *Taurodemus flavipes* (Fabricius) (= *Amphicranus perebeae* Ferrari), *Xylosandrus curtulus* (Eichhoff) (= *Anisandrus zimmermanni* Hopkins), *Xyleborinus buscki* Hopkins (= *Xyleborus longulus* Schedl), *X. saxeseni* (Ratzeburg) (= *Xyleborus opimulus* Schedl), *X. gracilis* (Eichhoff) (= *X. schoenherri* Schedl, apparently the male of *gracilis*), (**Cryphalini**) *Neocryphus argentinensis* Nunberg (= *Pacrylus cristatus* Schedl), *Scolytogenes jalapae* (Letzner) (= *Ernoporides knabi* Hopkins), *Hypocryphalus mangiferae* (Stebbing) (= *Cryphalus robustus* Eichhoff), *Cryptocarenus heveae* (Hagedorn) (= *C. acaciae* Schedl), *C. seriatus* Eggers (male may = *Hypothenemus laevigatus* Blandford holotype), *C. punctifrons* Schedl (= *C. brasiliensis* Schedl), *Hypothenemus arecae* (Hornung) (= *Stephenoderes obscurus* Eichhoff, *S. depressus* Eichhoff), *Trischidias atoma* (Hopkins) (= *Ernoporus nigrinus* Schedl), (**Corthylini**, **Pityophthorina**), *Araptus amazonicus* (Eggers) (= *Neodryocoetes sparsepunctatus* Schedl), *A. gracilentus* Schedl (= *Breviophthorus brasiliensis* Schedl, also new homonymy), *A. nudus* (Schedl) (= *Thamnophthorus dubiosus* Schedl), *A. granulatus* Schedl (from *Breviophthorus*), *Spermophthorus apuliae* Costa Lima (= *Conophthocranulus vianai* Schedl), *Pityophthorus terebrans* Schedl (= *P. apicinotatus* Schedl), *P. quadrispinatus* Schedl (= *P. gruneri* Schedl, *P. roppae* Schedl), *P. exsectus* Schedl (= *P. abbreviatus* Schedl), (**Corthylini**, **Corthylinea**), *Gnathotrupes longipennis* (Blanchard) (= *Gnathotrichus castaneus* Schedl), *G. velatus* Schedl (= *G. solidus* Schedl), *G. barbifer* Schedl (= *G. similis* Schedl), *G. fimbriatus* (Schedl) (= *Gnathotrichus frontalis* Schedl), *G. impressus* Schedl (= *G. pauciconcavus* Schedl), *G. nanus* (Eichhoff) (= *Gnathotrichus nanulus* Schedl), *G. consobrinus* (Eichhoff) (= *Gnathotrichus obnixus* Schedl, *Gnathotrichus corthyloides* Schedl, *Gnathotrichus sextuberculatus* Schedl, *Gnathotrichus quadrituberculatus* Schedl, *Gnathotrichus corthyliiformis* Schedl), *Tricolus plaumanni* Schedl (= *Pterocyclonoides octodentatus* Schedl), *Amphicranus gracilis* Eggers (= *Tricolus granulipennis* Schedl), *A. thoracicus* Erichson (= *A. elegans* Eichhoff, *A. retusus* Eichhoff, *A. crenatus* Eichhoff), genus *Monarthrum* Kirsch (= *Xyleborips* Reitter), *M. scrobiceps* (Eichhoff) (= *Eupterxylon comatum* Eggers, *Cosmocorynus latum* Schedl, *C. vagabundus* Schedl), *M. bicolor* (Ferrari) (= *M. sexdentatum* Eggers), *M. laterale* (Eichhoff) (= *Pterocyclon durum* Schedl), *M. fimbriticorne* (Blandford) (= *Pterocyclon obliquum* Schedl), *M. quadridens* (Eichhoff) (= *Anchonocerus brasiliensis* Schedl, *M. eumerum* Schedl), *M. brunneum* (Eichhoff) (= *Corthylus plagiatum* Eichhoff), *M. ingens* (Eichhoff) (= *Anchonocerus excavatus* Eggers), *M. gracilior* (Schedl) (= *Pterocyclon pennatum* Schedl, *P. glabriculum* Schedl), *M. nudum* (Schedl) (= *Pterocyclon appendiculatum* Schedl), *M. obtusum* (Eggers) (= *Pterocyclon quadridentatum* Eggers), *M. minutum* (Schedl) (= *Pterocyclon gibber* Schedl, *P. vernaculum* Schedl, *P. distans* Schedl), *M. laevigatum* (Eichhoff) (= *P. adjunctum* Schedl), *Microcorthylus parvulus* Ferrari (= *M. inermis* Wood), *M. diversus* Wood (= *M. hostilis* Wood), *M. glabratus* Schedl (= *M. pallidus* Schedl), *M. puerulus* Schedl (= *M. castaneus* Schedl, *M. porrectus* Schedl, *M. contractus* Wood), *Corthylus suturalis* Eggers (= *C. obliquus* Schedl), *C. ater* Schedl (= *C. columbianus* Schedl), *C. letzneri* Ferrari (= *C. strigilatus* Eggers), *C. punctatus* Eggers (= *C. nudipennis* Schedl,

C. oliveirai Schedl, *C. neotardus* Schedl, *C. tardulus* Wood), *C. abbreviatus* Eichhoff (= *C. dentatus* Eggers), *C. papulans* Eichhoff (= *C. brunneus* Nunberg), *C. serulatus* Eggers (= *C. argentinensis* Schedl).

Genera New to Science, *Corthyloxiphus* Wood (Corthylini), *Cortisinus* Wood (Phloeosinini).

Species New to Science (phylogenetic order), (**Hylesinini**) *Phloeoborus williei* Wood (Costa Rica), *P. minusculus* Wood (Panama), *P. marahuaci* Wood (Venez.), *P. niger* Wood (Costa Rica), *P. orinocensis* Wood (Venez.), *P. araguensis* Wood (Venez.), (**Tomocini**) *Xylechinus tuberculifer* Wood, *X. squamatilis* Wood, *X. aconcaquensis* Wood, *X. declivis* Wood, *X. solervicensis* Wood (all from Chile), (**Phrixosomini**) *Phrixosoma rubra* Wood (Venez.), (**Bothrosternini**) *Cnesinus pulchellus* Wood (Colombia), *C. excellens* Wood (Colombia), *C. schulzi* Wood (Suriname), *C. squamifer* Wood (Argentina), *C. hispidulosus* Wood (Brazil), *Pagiocerus eggersi* Wood (Brazil), *Bothrosternus rudis* Wood (Brazil), (**Phloeotribini**) *Phloeotribus pilifer* Wood (Peru), *P. hirticulus* Wood (Venez.), *P. schedli* Wood, *P. woytkowskii* Wood (Peru), *P. ebeneus* Wood (Mexico), *P. truncatus* Wood (Colombia), *P. incanus* Wood, (**Phloeosinini**) *Pseudochramesus golbachii* Wood (Paraguay), *Chramesus luteus* Wood (Colombia), *C. argentinae* Wood (Argentina), *C. dentellus* Wood (Ecuador), *Camptocerus annectens* Wood (Brazil), (**Scolytini**) *Scolytus bispinus* Wood (Brazil), *S. plaumanni* Wood (Brazil), *S. excavatus* Wood (Bolivia), *S. canellae* Wood (Brazil), *S. venezuelensis* Wood (Venez.), *S. obscuriceps* Wood (Brazil), (**Ctenophorini**) *Pycnarthrum tuberculiferum* Wood (Ecuador), *P. bahiae* Wood (Brazil), *Scolytodes ageratinae* Wood (Costa Rica), *S. tucumani* Wood (Argentina), *S. peruana* Wood (Peru), *S. gunnerae* Wood (Costa Rica), *S. sparsepilosa* Wood (Argentina), *S. nayaritensis* Wood (Mexico), (**Micracini**) *Pseudothysanoes multispinosus* Wood (Brazil), *Hylocurus flechtmani* Wood (Brazil), *H. plaumanni* Wood (Brazil), *H. colombianus* Wood (Colombia), *H. nodifer* Wood (Colombia), *H. woytkowskii* Wood (Peru), *H. declivis* Wood (Venez.), *H. inequidens* Wood (Brazil), *H. aequalis* Wood (Brazil), *Micracis minimus* Wood (Brazil), *M. tropicus* Wood (Colombia), (**Ipini**) *Acanthotomicus flechtmani* Wood (Brazil), (**Xyleborini**) *Sampsonius ensifer* Wood (Fr. Guyane), *Dryocoetoides versutus* Wood (Ecuador), *Theoborus paurus* Wood (Costa Rica), *Coptoborus nudulus* Wood (Brazil), *C. schulzi* Wood (Suriname), *C. spiculatus* Wood (Suriname), *C. inornatus* Wood (Brazil), *C. carumbensis* Wood (Paraguay), *C. attenuatus* Wood (Brazil), *C. cracens* Wood (Brazil), *C. gracilens* Wood (Brazil), *Ambrosiodmus alexae* Wood (Venez.), *Xyleborus pseudoferox* Wood (Brazil), *X. mimicus* Wood (Peru), *X. araguensis* Wood (Venez.), *X. rugulosipes* Wood (Costa Rica), *X. pseudoacuminatus* Wood (Costa Rica), *X. volutus* Wood (Columbia), *X. caldensis* Wood (Colombia), *Taurodemus colombianus* Wood (Colombia), *Xylosandrus peruanus* Wood (Peru), *Xyleborinus saginatus* Wood (Brazil), (**Cryphalini**) *Stegomerus longipennis* Wood (Brazil), *Acorthylus frontalis* Wood (Argentina), *Cryptocarenus tropicalis* Wood (Venez.), *C. amazonicus* Wood

(Brazil), *C. frontalis* Wood (Venez.), *C. beaveri* Wood (Brazil), *C. barinensis* Wood (Venez.), *Hypothenemus abhorrens* Wood (Brazil), *H. barinensis* Wood (Venez.), *H. meridensis* Wood (Venez.), *H. virolae* Wood (Venez.), *H. rugosipes* Wood (Venez.), *H. parvistriatus* Wood (Florida, USA), *H. ebenus* Wood (Brazil), (**Corthylini**, **Pityophthorina**) *Araptus excavatus* Wood (Mexico), *A. mucunavorus* Wood (Colombia), *A. pernicialis* Wood (Brazil), *A. plicatus* Wood (Venez.), *A. subaciculatus* Wood (Brazil), *A. uruguayensis* Wood (Uruguay), *A. liminarius* Wood (Venez.), *A. kirkendalli* Wood (Costa Rica), *A. guyanensis* Wood (Fr. Guyane), *A. convexifrons* Wood (Peru), *A. jaliscoensis* Wood (Mexico), *A. varius* Wood (Peru), *A. clusiae* Wood (Venez.), *A. playonensis* Wood (Costa Rica), *A. epistomalis* Wood (Mexico), *A. falaciosus* Wood (Brazil), *A. spiculatus* Wood (Venez.), *A. coumacomis* Wood (Colombia), *A. beaveri* Wood (Brazil), *A. gloriosus* Wood (Guatemala), *A. mirabilis* Wood (Colombia), *A. mirus* Wood (Venez.), *A. virolae* Wood (Venez.), *A. barinensis* Wood (Venez.), *A. punilus* Wood (Mexico), *A. equihuai* Wood (Mexico), *A. declivis* Wood (Brazil), *A. virtus* Wood (Brazil), *A. subconcentralis* Wood (Venez.), *A. pseudosimilis* Wood (Brazil), *A. virolavorus* Wood (Colombia), *A. araguensis* Wood (Venez.), *A. ocularis* Wood (Brazil), *A. guyanae* Wood (Fr. Guyane), *A. minus* Wood (Brazil), *A. micarius* Wood (Brazil), *A. cracens* Wood (Brazil), *A. reticulatus* Wood (Brazil), *A. parvistriatus* Wood (Mexico), *A. simplicis* Wood (Brazil), *A. eusimplicis* Wood (Brazil), *A. clematicolens* Wood (Venez.), *A. andinus* Wood (Venez.), *A. roupalae* Wood (Colombia), *A. parvulus* Wood (Colombia), *A. muticus* Wood (Colombia), *A. partilis* Wood (Venez.), *A. expers* Wood (Colombia), *A. submarginatus* Wood (Venez.), *A. schedlianus* Wood (Brazil), *Pityophthorus nigriceps* Wood (Colombia), *P. simplicis* Wood (Venez.), *P. similaris* Wood (Venez.), *P. minimus* Wood (Venez.), *P. splendens* Wood (Venez.), *P. nectandrae* Wood (Venez.), *P. podocarpus* Wood (Venez.), *P. icicae* Wood (Colombia), *P. imbellus* Wood (Venez.), *P. opacifrons* Wood (Venez.), *P. retifrons* Wood (Venez.), *P. eucracens* Wood (Colombia), *P. tucumanensis* Wood (Argentina), *P. reticulatus* Wood (Venez.), *P. barbosai* Wood (Brazil), *P. bahiae* Wood (Brazil), *P. vesus* Wood (Venez.), *P. moritzi* Wood (Venez.), *P. anacardii* Wood (Venez.), (**Corthylini**, **Corthylini**) *Gnathotrupes emarginatus* Wood (Brazil), *G. moraviae* Wood (Costa Rica), *G. kirkendalli* Wood (Costa Rica), *Tricolus angustatus* Wood (Venez.), *T. subopacus* Wood (Venez.), *T. subrufus* Wood (Venez.), *T. mystacinus* Wood (Colombia), *T. bicavus* Wood (Venez.), *T. parvus* Wood (Venez.), *T. rufodorsalis* Wood (Venez.), *T. abacis* Wood (Colombia), *T. brasiliensis* Wood (Brazil), *T. myrti* Wood (Colombia), *T. nayaritensis* Wood (Mexico), *T. undulatus* Wood (Brazil), *T. coloreus* Wood (Venez.), *Amphicranus apicalis* Wood (Mexico), *A. explicitus* Wood (Venez.), *A. attenuatus* Wood (Venez.), *A. bahiae* Wood (Brazil), *A. electilis* Wood (Brazil), *A. cracens* Wood (Venez.), *A. micidus* Wood (Mexico), *A. laureli* Wood (Venez.), *A. thunesi* Wood (Costa Rica), *A. araguensis* Wood (Venez.), *A. eggersianus* Wood (Venez.), *A. woytkowskii* Wood

(Peru), *A. quadridens* Wood (Venez.), *A. brevior* Wood (Venez.), *Monarthrum insidiosum* Wood (Venez.), *M. dolosum* Wood (Venez.), *M. lobellum* Wood (Mexico), *M. eggersi* Wood (Bolivia), *M. pseudoparvum* Wood (Colombia), *M. aztecum* Wood (Mexico), *M. tuberculatum* Wood (Mexico), *M. subimpressum* Wood (Argentina), *M. septulosum* Wood, (Colombia), *M. connexum* Wood (Venez.), *M. granulifer* Wood (Venez.), *M. hondurensis* Wood (Honduras), *M. furnissi* Wood (Mexico), *M. durangoensis* Wood (Mexico), *M. obscuriceps* Wood (Costa Rica), *M. obscurum* Wood (Venez.), *M. subcarinatum* Wood (Panama), *M. dentifrons* Wood (Panama), *M. canalis* Wood (Costa Rica), *M. marginatum* Wood (Colombia), *M. bituberculatum* Wood (Venez.), *M. carinifrons* Wood (Venez.), *M. granulatum* Wood (Venez.), *M. surinamensis* Wood (Suriname), *M. catarinensis* Wood (Brazil), *M. annulatum* Wood (Venez.), *M. semitruncatum* Wood (Mexico), *M. diligens* Wood (Mexico), *M. granosum* Wood (Colombia), *M. terminalis* Wood (Costa Rica), *Metacorthylus obscuriceps* Wood (Brazil), *M. granosus* Wood (Brazil), *M. subcostatulus* Wood (Venez.), *M. costatulus* Wood (Venez.), *Microcorthylus degener* Wood (Venez.), *M. tuberculifer* Wood (Venez.), *M. vietus* Wood (Colombia), *M. obscuriceps* Wood (Peru), *M. nebulosus* Wood (Brazil), *M. macer* Wood (Venez.), *M. inops* Wood (Venez.), *M. brevior* Wood (Venez.), *M. declivis* Wood (Brazil), *M. quadridens* Wood (Brazil), *M. simulans* Wood (Colombia), *M. absonus* Wood (Costa Rica), *M. parvus* Wood (Venez.), *Corthyloxiphus truncatus* Wood (Venez.), *C. willei* Wood (Costa Rica), *C. araguensis* Wood (Venez.), *C. punctatus* Wood (Venez.), *C. frontalis* Wood (Venez.), *C. apicalis* Wood (Venez.), *C. colombiae* Wood (Colombia), *C. usticus* Wood (Venez.), *C. antennatus* Wood (Colombia), *C. reticulatus* Wood (Venez.), *C. simplicis* Wood (Venez.), *C. declivis* Wood (Venez.), *C. carbonarum* Wood (Venez.), *C. obesus* Wood (Venez.), *Corthylocurus moritzi* Wood (Venez.), *C. pristinus* Wood (Brazil), *C. protuberans* Wood (Venez.), *C. medialis* Wood (Venez.), *C. setifer* Wood (Brazil), *C. reticulatus* Wood (Costa Rica), *Corthylyus cecropicolens* Wood (Venez.), *C. garai* Wood (Costa Rica), *C. pseudoexcisus* Wood (Peru), *C. minus* Wood (Costa Rica), *C. costulatus* Wood (Brazil), *C. coffeae* Wood (Colombia), *C. equihuai* Wood (Mexico), *C. merkli* Wood (Peru), *C. pseudovillus* Wood (Costa Rica), *C. pilifer* Wood (Brazil), *C. simplicis* Wood (Costa Rica), *C. montanus* Wood (Costa Rica), *C. confusus* Wood (Costa Rica), *C. electinus* (Costa Rica), *C. crassus* Wood (Fr. Guyane), *C. annexus* Wood (Costa Rica), *C. chiriquensis* Wood (Panama), *C. nigrescens* Wood (Brazil), *C. noguerai* Wood (Mexico), *C. nigricans* Wood (Brazil), *C. confertus* Wood (Venez.), *C. zulmae* Wood (Colombia), *C. araguensis* Wood (Venez.), *C. comitabilis* Wood (Brazil), *C. parvicirrus* Wood (Brazil), *C. splendidulus* Wood (Panama), *C. epistomalis* Wood (Brazil), *C. vohysiae* Wood (Venez.), *C. truncatiformis* Wood (Brazil), *C. atomus* Wood (Panama), *C. punctifrons* Wood (Brazil), *C. tuberculifer* Wood (Panama), *C. tuberosus* Wood (Venez.), *C. spinipennis* Wood (Costa Rica), *C. pseudoandinus* Wood (Colombia), *C. andinus* Wood (Colombia), *C. papuellus* Wood (Brazil), *C. cirrifer* Wood (Venez.), *C. antennarius* Wood (Brazil), *C. attenuatus* Wood (Venez.), *C. gracilior* Wood (Venez.), *C. gracilens* Wood (Brazil), *C. bellus* Wood (Venez.), *C. frontalis* Wood (Venez.), *C. schulzi* Wood (Suriname).

PREFACE

In past decades, forests and forest products in many areas of the world were considered to be unlimited. As the human population increased from less than 1 billion to more than 6 billion, much of it in the past century, most of the surplus forests of the world were greatly diminished. Measures of conservation once thought unnecessary are now thrust upon us whether or not we like it. The alternative to forest conservation is an enormous population crash infinitely greater than that experienced at Easter Island in prehistoric time when those people eliminated their only source of canoe production and, thereby, their only means of reaching their principal food resource (Diamond 1995). Their population dropped quickly from an estimated 15,000 to about 300 due to starvation or malnutrition.

Bark and ambrosia beetles have been among nature's principal foresters from ancient times until now. Their activities in the recycling of limited forest resources were considered beneficial. In some countries it has been a normal practice to ignore or disregard the loss of half or more of the annual forest production to damage caused by these insects. The effects of insect-transmitted diseases, timber destruction from insect attack in standing forests, either directly killing trees or interfering with seed production, and the devaluation of logs or forest products from devastation must be recognized, reduced, or eliminated in order to more efficiently utilize forest resources. Great progress has been made in these areas in Europe, North America, and several other regions in recent decades. In some other areas, a lack of knowledge and the vastness of the problem have resulted in the diversion of limited financial resources to needs given higher priority, thus, at least partly ignoring the problem. In country after country I have been told "These insects are not a problem here, because they attack only

unthrifty, diseased, and broken trees." Then I walk into their forests and find beetle devaluation and destruction they do not see. The problems are there to those who know where and how to look for them.

It is hoped that this volume will enable others to see the need to recognize the species of bark and ambrosia beetles that occur in or are exported from South America, to investigate their habits, behavior, etc., and to find out exactly what they are doing and why they are doing it in plant species that may ultimately determine our survival.

The compilation of this volume began on 5 December 1995, more than 6 years after my retirement from professional employment, and against my better judgement. However, the need expressed by plant protection colleagues was sufficiently urgent that it was apparent my declining talents were needed. My age was such that I never expected to see this volume completed. Because my time was limited and because curatorial assistance was lacking where some important repository collections occur, my search for the types of several species named early in the previous century could not be borrowed, and my age prevented me from traveling to search for them. While the US Forest Service, USDA (through Dr. Robert Haack) generously provided funds to prepare photographs for illustrations and for publication of the volume, and the M.L. Bean Museum (Brigham Young University) provided space and facilities in which I could work, without research assistants and limited travel funds, progress was slow. With generous advice from the museum staff, the entire volume was entered into the computer by myself. The magnitude of this project was enormous, but the opportunity to engage in this pioneer project has been most rewarding. It is hoped this volume will provide the stimulus for my successors to greatly expand and correct what was accomplished.

INTRODUCTION

This volume was written at the request of an informal consortium of European and Asian plant protection specialists who became alarmed by the apparent unrestricted exportation of raw, largely untreated logs from all South American countries to all parts of the world. Because the literature needed by plant protection specialists, entomologists, and foresters to adequately deal with the insect and disease problems associated with those logs did not exist, I was asked by representatives of that consortium to prepare a volume treating the traditional family Scolytidae (Curculionoidea, Coleoptera) as a first step directed toward the recognition of species that might unintentionally be exported from South America in those logs. The volume requested was to be patterned after the one treating North and Central American Scolytidae (Wood 1982).

In the World Catalog of Scolytidae (Wood & Bright c1992:1–1553) 5812 species are listed worldwide. Literature citations in the catalog indicate that 1126 of those species occur in South America. Virtually all of the citations in that literature refer to the isolated descriptions of species new to science and include little or nothing of the interspecific relationships, distributions, host associations, or economic importance of the species treated.

The purpose of this volume is to list and classify the available Scolytidae of South America in order to (1) clarify the nomenclature of existing nominate South American species of Scolytidae; (2) determine what species occur there; (3) prepare classification and identification keys that will enable workers to determine the species they encounter; (4) assemble existing information on the geographical, ecological, and host distributions for each species treated in so far as existing data permit; and (5) make this information available through publication of a volume designed to aid colleagues in identifying and solving problems associated with the investigation of South American Scolytidae species.

Although 1126 species of Scolytidae have been reported from South America, this region remains one of the most poorly known areas of the earth for this family of insects. Because more than half of the species reported from this vast area are known from a single collection (whether of 1 specimen or many from the same collection or site), I estimate that about one-third of the existing species that occur in South America have been found. If this volume will stimulate others to investigate in greater depth these fascinating and economically important insects and their activities in nature, and apply the new knowledge to the use and protection of our forest resources, the purpose of this volume will be achieved.

While the geographical area of concern here, South America, includes primarily those people who speak and understand either Spanish or Portuguese, the principal users of this volume are expected to reside in North America, Europe, Asia, and Africa. The most nearly universal language employed by scientists from all of those areas is English. For this reason, and because it is the language most familiar to me and the publishers, English was selected for this volume.

Large primaeval tracts of forest land still exist in parts of South America; however, as the human population increases, those areas are being converted to agricultural or urban use, being replaced by large forest plantations of exotic tree species, being exploited by domestic and foreign commercial timber interests, or are gradually coming under planned management. Eventually, most of these forest lands will be under managed care to some degree.

Forests satisfy a multiplicity of needs ranging from the most ethereal esthetic end of the spectrum to the economic realities of tree farming at the other end. They provide the oxygen we breathe, the fuel used by many of us to cook our food or warm our homes; they are a reservoir of food and medicine; they sustain vast populations of birds, mammals, and other animals, including many of us; and they are the source of timber and other products we use and admire. We are not alone on this planet, and we could never survive alone. Each of us must accept the responsibility to protect and perpetuate the ecosystems we share. Bark and ambrosia beetles share some of these same ecosystems and have a place there. An expanded knowledge of what they do and how they fit into world ecology will make this a more enjoyable place to be.

More than a decade has passed since the above paragraphs were written. It seems appropriate to add here a brief statement of the knowledge gained during that decade. The preparation of this manuscript progressed much as was anticipated in treating the Hylesininae and the Scolytinae from Scolytini to the Cryphalini. The groups were based primarily on my collections from Central America, Colombia, and Venezuela, and on the Plaumann and Flechtmann collections from southern Brazil. Excellent series, including both sexes of most species were available for study. As more and more material became available, especially from the equatorial area, problems began to emerge. Most available species from this area were taken either at light or at variously baited or impact traps. Almost none came from adequate series taken from known hosts or accompanied by biological data. An overwhelming number of "species" appeared, each represented by only 1 specimen or by 1 sex. This presented an increasingly difficult

problem in the preparation of identification keys and descriptions. For example, 1 box containing about 50 specimens of *Camptocerus* (Scolytini) was examined and was found to represent about 50 different species, almost none of which were represented in the 20 species in my key to the species of that genus. At that point, the description of species in this (equatorial) area from 1 specimen was discontinued, unless extenuating circumstances (i.e., uniqueness of taxonomic or phylogenetic position, distribution, or host) warranted description. The accumulation of isolated specimens from such collections should not be discouraged, because eventually those specimens will become identified and named. In order to accelerate progress toward that time when this is possible, field workers should make opportunities to collect single-gallery series and series from similar adjacent gallery systems in the same host plant, then correctly date and label those samples. Samples labeled only by a code or field number should be discouraged; they lead to gross errors in geographical distribution or in the identification of that species.

SCOLYTIDAE

The name *Scolytus* Geoffroy (1862:309) was first used for a genus considered worthy of separation from other wood- and bark-boring beetles. This group was raised to Scolytarii Latreille (1807:273), as a subfamily of Curculionidae, then to full family rank, Scolytidae, by Kirby (1837:91–97). The name Scolytidae was employed for this group almost consistently from 1837 to 1995 as a family of Curculionoidea which contained 5812 named species (Wood & Bright c1992). At that time Scolytidae, and several other traditional Curculionoidea family names in Coleoptera were reduced in rank and clustered into 1 enormous family, Curculionidae. This action, prompted by considerations for pure phylogeny, created chaos in the study of the “subfamilies” of Curculionidae, including Scolytidae and Platypodidae. Workers on other submerged “subfamilies” have expressed similar concerns. Because Scolytidae is still used as a family name in the Zoological Record and in the publications of most workers who specialize on this group of Curculionoidea, I have retained the name Scolytidae for use in this volume.

Classification and phylogeny are different disciplines having different objectives. Classification may utilize phylogeny, and phylogeny may utilize elements of classification, but they need not be synonymous. Classification was invented to ease the burden of memory on the human mind as larger groups of things needed to be sorted out and organized into smaller clusters. Classification is employed to make these clusters comprehensible and the individual units identifiable. Phylogeny is focused primarily on genetics and evolutionary descent.

Since about 1988, Curculionoidea specialists have differed radically on the classification and rank of groups within that superfamily. This group is variously estimated to contain in excess of 100,000 named species, more than

60,000 of which are placed in the family Curculionidae. When all existing species are named and cataloged, these numbers could double. This means that approximately 5–10 percent of the existing animal species are or will be placed in 1 superfamily, or 3–6 percent in 1 family. Even though the Scolytidae exhibit anatomical features worthy of separate recognition, such as the occurrence of a single median gular suture connected to a pair of clearly impressed preangular sutures (and supporting internal apodemes), unique tibiae that bear a row of socketed denticles derived from setae, and occupy a unique habitat, they, along with other equally distinct groups, were buried within 1 enormous family, Curculionidae.

In 1998, a world conference of specialists on the classification and behavior of Scolytidae was held at Budejovice in the Czech Republic, as part of the European Congress of Entomology, to discuss current research, new research, and problems faced by the 55 participants. It was unanimously agreed by this group that the overwhelming problem faced by these workers in their research was the burial of references treating Scolytidae literature, about 6000 species, in and among references to more than 60,000 additional species of Curculionidae in the Zoological Record. These workers missed the location of numerous references in the published literature significant to their research. In view of the economic significance of scolytid species, these oversights were associated with enormous losses of research time and potential funding for research. Several of the most dedicated and effective workers said they were changing their research to other fields of study because of this problem. If anatomical characters are insufficient to justify family rank for this group, surely the economic impact these beetles have on society should call attention to a genuine need. Effective research on Scolytidae cannot be done under the present circumstances of needless lost research productivity.

HISTORY

Although several of the species of Scolytidae listed in this volume were named in the eighteenth century (Linnaeus, Fabricius, Panzer, etc.), and hundreds more since then, this is the first attempt to compile a comprehensive taxonomic review of all known South American species of Scolytidae. Previous works included only a few species that were listed or incorporated into taxonomic reviews of mostly exotic genera or tribes that happened to include 1 or more species from South America.

Because of the uniqueness of this project, it was necessary to determine which species of Scolytidae occurred in South America. For this task a review was made of the species listed in the world catalog of Scolytidae (Wood & Bright c1992), where 1126 species were recorded as occurring in South America. To supplement this list, my experience of intensive collecting gained in Mexico (24 months spread over 1953–1968),

Central America (1963–1964, 1966), and in Venezuela (11 months) and Colombia (1.5 months) taught me that (1) many previously unreported species recorded from Mexico and Central America (Wood 1982) also occur in South America; (2) several exotic species have been introduced into both areas; and (3) most of the work reported from South America was done in Argentina, southern Brazil, and Chile. The scolytid fauna from vast areas was entirely unstudied, except for scattered incidental collecting and the publication of brief isolated descriptions of species thought to be new to science. The most significant early collections came from Plauermann (Santa Catarina, Brazil) and Viana (Argentina) that were sent to Schedl. Angelo Moreira da Costa Lima made substantial contributions to our knowledge of Scolytidae from southern Brazil from 1922 to 1967, although his efforts were hampered by his geographical isolation and limited opportunity for travel. Hans Reichardt was a young and enthusiastic worker who made most of his published contributions in Platypodidae, not Scolytidae. He collected extensively and organized scolytid material taken in Brazil, but his life was shortened by an automobile accident while returning from a collecting trip. Most other South American workers focused their primary attention on the study of economic problems resulting from scolytid activity, with little attention on classification or biological activities. The vastness of the South American scolytid fauna, limited resources, and problems with transportation have had a significant effect on the slow progress of the study of these insects in South America. A group of well-educated young investigators in several countries are a welcome recent addition to the labor force needed in South America, and much progress is expected there in the near future.

The publication of a modern reclassification of the subfamilies and tribes of Scolytidae (Wood 1978) and of Platypodidae (Wood 1993), and an invited presentation to the Forest Insect Section of the International Congress of Entomology, Kyoto, Japan, August 1980 (Wood, S.L. *in* Proceedings and abstracts of those meetings), entitled “The correlation of behavior and anatomical characters in Scolytidae (Coleoptera).” These contributions brought renewed worldwide interest in the fundamental traits of scolytids and the potential for predicting phylogenetic relationships that might be useful in solving economic problems associated with Scolytidae. A new higher level of interest, training, and cooperation, coupled with improving worldwide economic conditions and transportation attracted more highly trained workers to conserve, utilize, and protect forest resources worldwide.

BIOLOGICAL ACTIVITIES

Most bark and ambrosia beetle species live only in recently cut, injured, or unthrifty tissues of woody plants that are in the process of dying. Some species occur only in mature fruit or seeds, either before or after they

fall to the ground. Most species complete only 1 generation in this material, then abandon it to search for fresher host tissues in more suitable condition for reproduction. Host tissues must contain sufficient moisture and nutrients for completion of development. Such material usually bears wilted or yellowish green leaves. Older plant material is usually unattractive to the beetles; however, a few species apparently prefer older, drier material. A few species breed in healthy living tissue of vigorous plants and may or may not cause their death. A very few ambrosia beetles attack living trees and complete several generations in 1 plant without killing it. Permanent scars remain in the wood of such trees.

Bark and ambrosia beetles are usually the primary attackers of recently injured or felled woody plants. Some species may complete their entire life cycle (Fig. 1) in as few as 10 days (some *Scolytodes*), or others in 12 months or longer (*Phloeoborus*). A life cycle more commonly requires 20–90 days for completion. Most *Microborus* apparently complete 2 or more generations in bark of the same log without emerging.

In a healthy, undisturbed tropical forest, bark and ambrosia beetles are usually very rare. A small injury to the bark, only a few centimeters wide, can be an avenue for the entry into the host, which in a few generations can kill a large tree. Mass attacks, common to temperate climates, rarely occur in healthy tropical forests. However, such attacks do occur in natural tree falls, logging areas, at construction sites, landslides, etc. It is not uncommon to see a tree, selected for harvest, with scolytids hovering near or boring into it before the tree falls. Decked logs, in the forest or at the mill, commonly have the entire sapwood fully infested within a day or two, unless treated immediately to prevent attacks.

Frequent reference has been made to the terms “bark” and “ambrosia” beetles. This artificial division is based on behavior, not on anatomy or genetics. Bark beetles infest the phloem (inner bark) of their host. In this case, both larvae and adults feed directly on host tissue; they rarely penetrate the wood. Symbiotic fungi are usually, if not always, present but apparently serve in reducing or eliminating host response to the beetle attack. In this case the symbiotic fungi are apparently not a significant food source for these beetles. Each member of the new brood constructs its own individual exit hole for emergence from the bark. Ambrosia beetles are mostly wood-borers, xylomycetophagous, and penetrate rather deeply into the sapwood, much less commonly into the heartwood tissues. The walls of their tunnels are inoculated with fungal spores carried by the beetles which germinate to produce a mycelium, the spores of which are the primary food source of these beetles. It is probable that while all species utilize the mycelium as a food source, most ambrosia beetles are thought to consume a mixture of boring dust (xylem tissue) and mycelium. The brood of ambrosia beetles do not make individual mines (except for partial participation in forming a cradle) and exit their tunnel through the parent entry hole.

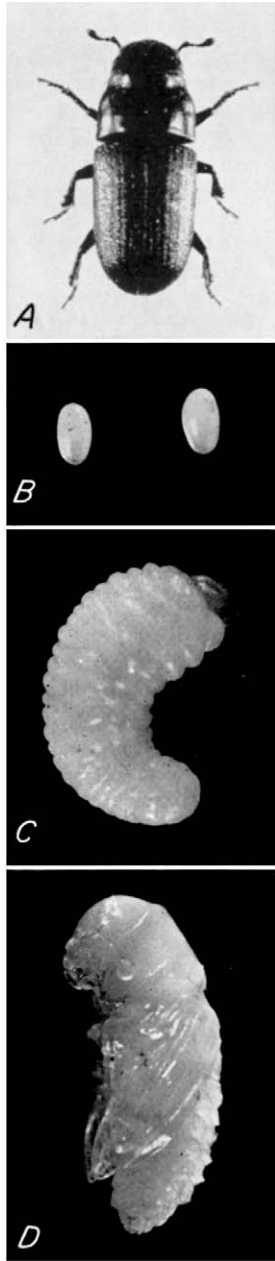


Fig. 1. The 4 life stages of *Dendroctonus brevicomis* (LeConte): A, adult; B, eggs; C, larva; D, pupa. (After Keen 1955:3.)

HOST SPECIFICITY

In temperate forests the overwhelming majority of scolytid species are phloeophagous (feed and breed in the inner bark or phloem) or myelophagous (feed and breed in the pith of small stems). There are few xylophagous (wood-boring) species. In tropical forests the reverse is true. There are few phloeophagous and myelophagous species, and the overwhelming majority of species are xylomycetophagous. Although exceptions

exist, many phloeophagous and some myelophagous species are host specific, that is, they feed and breed only in one host species or in a small group of closely related plant species. Xylomycetophagous species are usually polyphagous (each species feeds and breeds in variety of several to many plant species). This principle applies to temperate and tropical areas (Beaver 1979).

It has been observed by me, that host-specific (mono-phagous) species, when the host species is not available during the period of flight, can be capable of surviving for a generation in this biological emergency in another host species. But after doing so, they immediately revert to the normal host when the emergency or stress is removed.

Host Selection and Dispersal

Because most scolytids are able to survive only 1 generation in a given host plant, flight is essential to survival of the species. The original pioneer beetles in their flight (primary attraction) are attracted to volatile substances arising from the injured or dying tissue (Rudinsky 1966). When these substances are in the air, flight is oriented up-wind toward the source. When attractive odors are not detected, the dispersal flight tends to be random.

The objective of the dispersal flight is locating suitable new host tissue in which to live. In certain climates some species seek a host for hibernation or estivation and construct a feeding chamber in which to pass a seasonal period of stress. When warm or moist weather returns, they leave their feeding chambers and resume the search for a host in which reproduction can occur. Most *Dendrocranulus* appear to estivate in forest floor litter during the prolonged tropical dry season. When the rains resume they suddenly reappear in massive numbers.

Once a pioneer beetle finds an appropriate host, it bores into host tissue and begins the release of 1 or more chemical substances (pheromones) that are detected in flight by other members of the species (secondary attraction). By flying up-wind, these beetles are led to the source of the pheromones coming from the pioneer beetles of their species. This mass attraction quickly recruits a population adequate to overcome host resistance and insure the success of species survival.

In the Xyleborini and Coccotyphini pheromones have not been reported. Attraction to new hosts is dependant on host volatiles. In order to ensure reproduction, newly emerged pioneer females, whether previously mated or not, fly to the new host, where they begin a tunnel in the new host.

Galleries

The gallery systems of scolytids are unique and represent the product of a long and complicated evolution. The earliest known fossil galleries were found in the Lower Cretaceous (Brongniart 1877). They appear very

similar to some modern phloeophagous species. The Scolytidae probably first appeared during the Jurassic Period, although the earliest known fossils of adults are from the Upper Cretaceous. From these fossils and from my observations in the field of more than 2000 modern species of Scolytidae, I presume the group descends from small populations of very small curculionoid beetles, which resemble *Protoplatypus* and its allies, in moist tropical forests in broken or diseased trees. The host tissues were probably infested by various fungi that both softened the phloem tissues and enhanced their nutritional value. Initially, the feeding area was probably a protected cavity safe from predators in which the larvae wallowed in previously chewed and digested plant tissue. After some evolutionary time, a cave-tunnel with a definite entrance was formed, to secure the refuge from predators and parasites, that could be blocked by the posterior end of an adult beetle. In the early stages, eggs would have been scattered in the frass within this cave, where larvae and adults could feed. Modern *Trypophloeus* retain this cave-type tunnel for each pair of parents. In 1 modern Mexican *Pityophthorus*, multiple attacking males and females (up to 7 males and 13 females) have been taken from 1 central cave. A more advanced cave tunnel occurs in *Cryphalus*, *Ernoporus*, and *Liparthrum* as a flat, circular (tabular) cave that has egg niches around the peripheral margin, formed by the female parent, into which 1 egg is placed then sealed in by frass by the female parent. In many phloeophagous genera, the nuptial chamber is reduced in size and serves as a mating chamber and staging area for the removal of boring dust. In more advanced groups, feeding tunnels or egg niches are formed. In several myelophagous genera, such as *Sternobothrus*, space allows for only 1 egg gallery and eggs are placed at random in frass and the larvae extend the parent tunnel. In most primitive phloeophagous genera, the eggs are placed at random, and the larvae extend the parent tunnel (some *Scolytodes*). In most advanced phloeophagous genera, the eggs are placed in individual or multiple egg niches (*Orthotomicus*), and the larvae then make individual mines into the phloem.

A typical gallery system (Fig. 2) of a phloeophagous species consists of the following parts:

1. **Entrance hole:** The hole in the outer bark surface that permits entrance into the gallery system.

2. **Entrance tunnel:** The cylindrical tunnel extending inward from the entrance hole. It is usually very short, rarely longer than 1 cm, and usually extends from the bark surface to the cambium area. It serves as an entry into the nuptial chamber and as an area to stabilize and make secure the position of the parent beetle guarding the entrance hole.

3. **Nuptial chamber:** A tabular chamber having length and width dimensions slightly greater than the length of the beetle occupant. It serves as a temporary storage area for frass coming from egg gallery construction, etc., while the male expels this material through the entrance tunnel. It also serves as a turning area for

the beetle to reverse its position during egg gallery construction, oviposition, and nursery care. Copulation usually occurs with 1 or both parents in this chamber or with the female at the entrance of an egg gallery.

4. **Egg gallery:** When 1 or more females are admitted by the male to the nuptial chamber, each female begins to excavate her own egg tunnel. There are rarely more than 5 females in 1 gallery system. Egg tunnels may be either entirely in the phloem, partly in the xylem, or entirely in the xylem. They may be straight or curved, longitudinal, diagonal, or transverse with respect to the grain of the wood of the host plant. The female usually begins to cut egg niches into the sides of the egg gallery soon after her gallery is started. Each niche is large enough to contain 1 egg and adequate to admit the head of the female as she forms it. She will then reverse her position and return to deposit an egg. After again reversing her position she returns to the niche and packs the egg in with frass and oral secretions (beetles have maxillary glands, and do not have salivary glands), then she proceeds to the next niche. The number of eggs in 1 tunnel may vary from none to more than 120. Long egg galleries usually have a series of ventilating tunnels at irregular intervals that extend outward to near the bark surface, or breaking the surface. Whether or not they serve for ventilation, turning areas, oxygen-carbon dioxide exchange, easily opened escape exits, or some other function, has not been determined. In xylophagous and xylomycetophagous genera, this system is variously modified to adapt to the wood-boring habit.

5. **Larval mine:** After hatching, the larvae may (a) enlarge the niche into a cradle large enough to accommodate its adult body, while feeding on fungus mycelium or other products provided to them by the parent beetles; (b) enlarge the parent chamber, usually while feeding communally (in congress) with siblings; or (c) form individual mines. Larval mines may be short, little longer than the larval body (*Pityoborus*), or exceedingly long (some *Scolytus*). Though the egg gallery, nuptial chamber, and entrance tunnel may be kept entirely free of boring dust, larval mines are closely packed with frass (a mixture of boring dust, cast larval skins, excrement, etc.). Larval mines may be entirely in the phloem and not show on peeled bark, or entirely in the wood, but most are in the cambium area and show on the surface of peeled bark.

6. **Pupation chamber:** In most phloeophagous genera the terminal end of the larval mine is expanded slightly and cleared of frass to form a pupation chamber where transformation to the adult stage occurs. It may be formed in the outer bark, in the cambium area, or entirely in the xylem tissue. The new adult may then escape through an individual exit hole immediately after transformation; others may require a maturation feeding period before they emerge. The brood of most phloeophagous and myelophagous species emerge through their own exit hole, although *Pityoborus*, some Cryphalini, and most ambrosia beetles exit through the parent entrance tunnel.

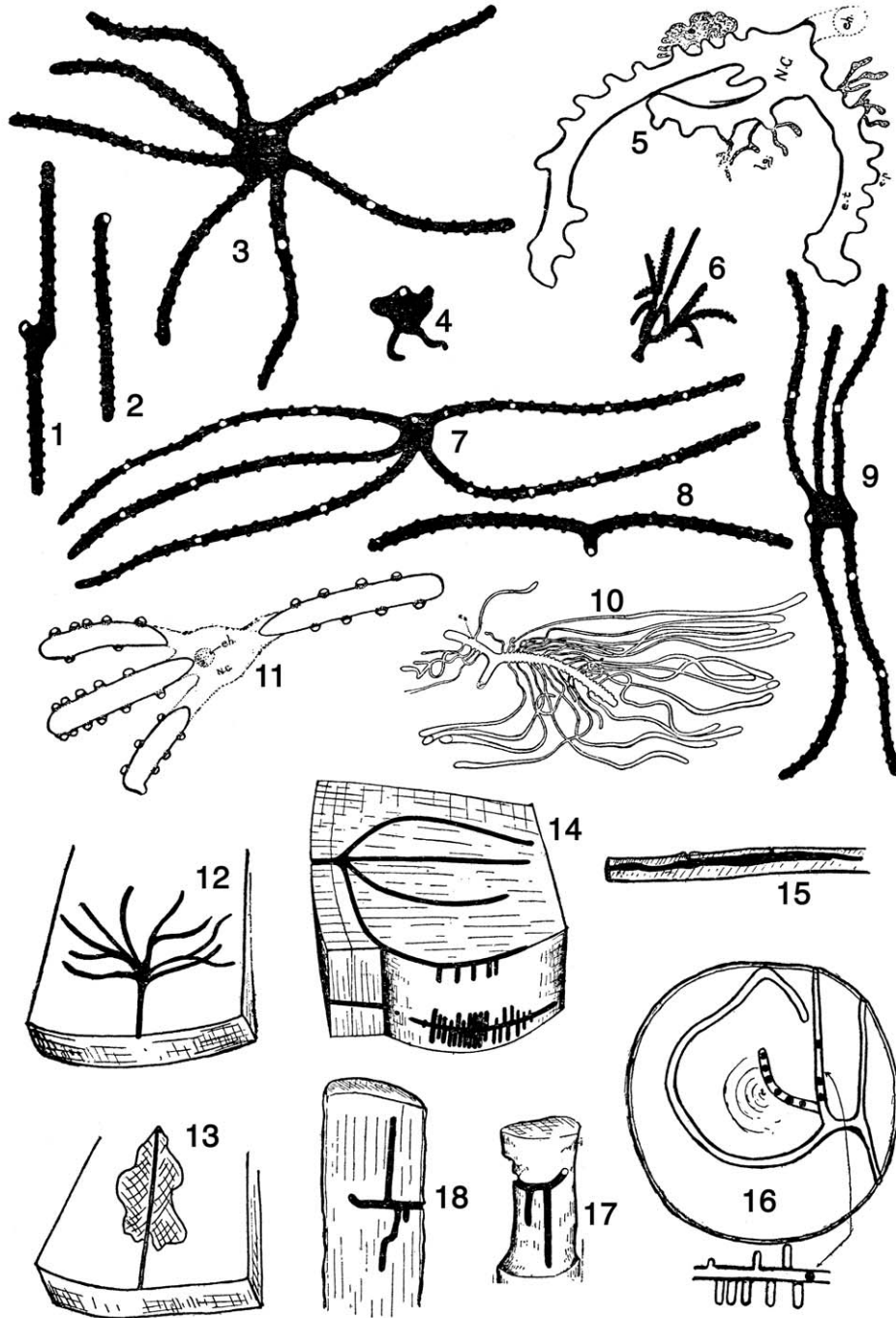


Fig. 2. The common kinds of gallery systems formed by Scolytidae: 1, biramous longitudinal; 2, monoramous longitudinal; 3, stellate, radiate, or multiramous; 4, cave-tunnel (2 postoviposition feeding tunnels are shown); 5, stellate system of *Orthotomicus concinnus* (Mannerheim) showing entrance hole (eh), nuptial chamber (NC), egg gallery (et), egg niche (ep), larval mine (lg); 6, modified stellate; 7, transverse biramous; 8, longitudinal stellate; 9, transverse biramous with larval mines added; 10, modified stellate with nuptial chamber entirely in the bark; 11, ambrosial stellate without cradles (*Xyleborus*); 12, ambrosial cave-tunnel (wood grain runs left to right; in 12 wood grain runs top to bottom); 13, ambrosial stellate with cradles (*Monarthrum*); 14, pith tunnel (*Micracisella*); 15, ambrosia stellate, modified with cradles (poor example of *Gnathotrichus*); 16, 17, 18, ambrosial branching tunnels (*Xyleborus obesus* LeConte). (After Swaine 1918:13.)

Xylophagous, xylomycetophagous, and most spermo-phagous galleries are of the same basic pattern as described above except they are adapted to a 3-dimensional space rather than a 2-dimensional one. In xylomycetophagous species that form larval cradles, the egg niche is enlarged by the larva. In some xylomycetophagous *Corthylus* species, the parents form the complete cradle and inoculate it with mycelial growth before the egg is laid. Groups that do not form egg niches or larval cradles may deposit eggs individually or in clusters in the parent galleries. The larvae may then extend the parent tunnels or feed on the mycelium in branches or chambers formed by the parents (Xyleborini).

Social Behavior

Among those wood-boring Coleoptera in which the adults excavate a tunnel and enter the host to reproduce, the Scolytidae have developed a distinctive social behavior. Most scolytid species infest hosts that are unthrifty, recently injured, or in a somewhat living but declining state. When beetles bore into their tissues, the hosts react by exuding quantities of resin to plug the wound and expel or drown the intruder. Using plant resins, a healthy tree can easily expel or drown a small number of attacking beetles. However, most scolytid species overcome this host resistance through mass attacks on their host plant. For this to be accomplished, an efficient method of quickly recruiting a large population is required. This is accomplished through the release of pheromones (sex attractants) about the time the pioneer attacking beetles reach the cambium area of the host. These volatile substances are formed in the insect body and are expelled with fecal pellets in the frass from the beetle galleries. The odors are carried through the air to both males and females in flight. By flying upwind, the beetles are led to the tree or branch under attack in numbers adequate to overcome the host. Pheromones may attract both males and females of the attacking species, but only a predetermined sex will initiate gallery construction. Members of the appropriate sex will select an area on the bark on which to begin an entrance hole and tunnel. They will vigorously defend that area by butting or dislodging the competitor. The serrations (denticles) on the anterior margin of the pronotum of many scolytids are used for territorial disputes on the bark surface. When the entrance gallery is of sufficient depth and a member of the opposite sex arrives, 1 or both sexes make sounds from stridulating devices (usually near the tips on the inner surface of the elytra or some part of the head), which are used for mate identification in some groups, tactile signals are used in others, and a complex pre-mating dance (Petty 1977) in others. The species-significant signals must be presented to species perfection before the entry-blocking sex will admit the potential mate. Without a fool-proof system of species identification, the reproductive

integrity of the species could not be defended. In outbreeding species the elytral declivity of the pioneer sex (beetle inside and blocking the entry hole) is often modified to receive premating signals from the potential mate. The head and parts of the anterior area of the pronotum may be modified to transmit signals by the potential mate on the outer bark surface. In inbreeders, modifications of the head and declivity rarely occur and are usually minor in magnitude when present.

Four mating systems are recognized in the Scolytidae. These are (1) monogyny, (2) harem (or heterosanguineous) polygyny, (3) inbreeding (or consanguineous) polygyny, and (4) gynogenetic parthenogenesis.

Monogyny is the most common mating system in Scolytidae. It occurs in all Platypodidae (except *Protoplatypus*?); in all Hylesiniinae (except a few Polygraphini and some southeast Asian Phloeosinini); in all Scolytini (except some neotropical *Scolytus*), in all Ctenophorini (except a few *Scolytodes*); in all Scolytoplatypodini, Cactopinini, Crypturgini, Xyloterini; in some phloeophagous Micracini; in many Cryphalini, Dryocoetini, and Corthylini. In monogynous species either sex may initiate the parental gallery, but the habit is consistent within a group. For example, in most *Scolytus* species the female makes the pioneer flight to a new host and begins the initial gallery to produce brood. Those groups in which the female begins pioneer attack tend to evolve toward inbreeding polygyny. Those groups in which the male begins the pioneer attack tend to evolve toward harem polygyny. Regardless of which sex initiates the pioneer attack, the female bores the egg galleries and egg niches. The male guards the entry from within the entrance tunnel and keeps the parent tunnels clear of frass, or leaves immediately after mating. In some *Ceyphalus* copulation occurs on the bark surface before boring begins.

During the dispersal flight, the pioneer attacking sex is exposed to longer periods of predation, storms, and other hazards than are potential mates. For this reason, a higher percentage of the pioneer sex die during dispersal than does the sex of potential mates. To counteract the effect of the disproportionate loss in the attacking sex, the 2 types of polygyny evolved. In harem (heterosanguineous) polygyny, the pioneer male selects a new host tree and bores in and forms an entrance tunnel and nuptial chamber. If the arrival of the female is delayed, he may begin 1 or more egg tunnels. He then guards the entry and admits about 1–5 (rarely up to 19) females to his chambers, then directs his attention toward receiving and expelling boring dust from the entry and blocking the entry with his elytral declivity to prevent the entry of intruders. Mating (copulation) may occur with both sexes in the nuptial chamber, but most commonly the anterior parts of the female are in the opening of an egg gallery and only the male is entirely in the nuptial chamber. Mating may occur repeatedly over several days. The female is responsible for boring the egg galleries, egg niches, and for oviposition and sealing the eggs into

their niche. She pushes the frass (boring dust, fecal material, and other debris) into the nuptial chamber. When the male is absent she may expel frass and block the entry. In some *Scolytus* (*laricis* Blackman, etc.), the male never enters the gallery system; mating occurs at the entrance hole with the female in the entry and the male on the outer surface of the bark. In *Cryphalus* mating may occur with both sexes on the outer bark surface (possibly also in *Hypocryphalus*). Harem polygyny is essentially similar to monogyny except that the male is busier and the available phloem tissues are occupied more quickly.

Inbreeding (consanguineous) polygyny provides a means to quickly remove defective genes from a population and also to stabilize and preserve an effective genotype. Males are haploid, flightless, usually small, rare, and modified; they rarely leave the brood chamber, have a short life span, and are a means to conserve the food resource and species energy to produce more females. The white, unsclerotized male begins mating with female siblings and/or his mother immediately after transformation. I have seen, on several occasions, lone males leave their moisture- and food-deficient brood tunnel and walk up and down their brood-tunnel branch in search of another tunnel containing food and additional mates. They are occasionally successful in their search. Unmated diploid females may leave the brood chamber and fly to a new host tree, where they form a new gallery system. This virgin female may then produce 1 to several haploid eggs, without previously mating, which develop into haploid males. These sons then mate with their mother to produce a brood of diploid females. Thus, a virgin female can quickly establish a new population at a distant locality. Economic control of inbreeding species is difficult. A disproportionate number of scolytid species introduced through commerce to distant areas practice inbreeding polygyny. They are able to establish a viable population from a virgin female (if haplodiploid or a single fertilized female).

Seasonal History

In tropical areas some scolytid species are active and breed throughout the year. Others are active only through the dry or "winter" season and disappear entirely during other seasons (*Dendrocranulus*). Berlese funnel leaf and other forest floor litter samples indicate that such species seek refuge during the wet season in litter where they estivate until favorable conditions return. Spermophagous species may adjust their period of activity to the seasons when acceptable mature seeds of their host plant are available to them. Whether they estivate or find other means of survival has not been determined for these species.

Scolytid populations in tropical areas are confronted by extreme factors of environmental resistance at a level not encountered in temperate climates. Factors such as disease, parasitism, predation, losses due to frequent and

intense rainfall, and others appear to reduce populations of most species to very low levels. Many perpetually rare species appear to be incapable of fully occupying the ecological niche to which they are adapted. For example, a severed woody liana 6–20 mm in diameter and 5 mm in length contained 23 small, very rare scolytid species; the largest representation of any species in this stem was 3 pair. Massive attacks by 1 species, common in temperate forests, are rare in tropical forests.

Life Cycle

The life stages required to complete 1 generation for a scolytid species are as follows (Fig. 1):

Egg: Once the parent gallery is established, eggs are produced by the female. They are smooth, oval in shape, white, translucent, delicate objects, varying in size from one group to another. In some Ctenophorini (*Scolytodes*) an egg may be almost one-third as large as the adult female body; in larger species (*Phloeoborus*) they can be proportionately much smaller. They vary in number in a single gallery system from as few as 3 (some *Corthylus*) to in excess of 100 in *Pycnarthrum*. The number is usually much higher in phloeophagous (bark beetles) than in xylomycetophagous (ambrosia beetles) species. Eggs may be scattered randomly among the frass in the parent gallery or in clusters in clean, rarely used branches of the tunnels. Most species place 1 egg in each niche (*Orthotomicus* may place several in each niche) prepared by the female parent; then it is sealed in by her with a mixture of boring dust and oral secretion. The newly hatched larva usually begins feeding immediately on plant tissue without entering the parent gallery. In some *Corthylus* (*Corthylini*), the parents form complete larval cradles, inoculate them with the ambrosial fungus, then deposit 1 egg in each cradle. Hatching may require as little as 3 days (some *Scolytodes*) or more than 30 days in species living at high altitudes or at other cool climates. Eggs hatch in 7–10 days for most scolytids under normal conditions.

Larva: The larvae are white, C-shaped, legless grubs, with lightly sclerotized, usually brown heads, which usually do not change in form as they grow. The number of larval instars varies from 2 to 5. Lekander (1968) gives the following data based mostly on European species: those said to have 5 instars are *Chaetoptelius*, *Hylurgopinus*, and *Dendroctonus micans* (Kugelann); these figures should be confirmed before 5 instars is accepted for any scolytid species; 4 instars were reported for *D. pseudotsugae* Hopkins, *D. simplex* LeConte, *Hylastes*, *Hylurgops*, and *Tomicus*; 3 instars for *Hylesinus*, *Polygraphus*, all Ipini, *Dryocoetes autographus* (Ratzeburg), and *Xyleborus*; and 2 instars for *Conophthorus*, *Crypturgus*, *Cryphalus*, and *Ernoporus*. The length of the larval period varies from 7 days in some *Scolytodes* to more than 2 years in subarctic *Dendroctonus*. Under ideal conditions larval development usually ranges from about 30 to 90 days. The larvae may feed communally (in congress) while extending the parent chamber

(*Cnesinus*, *Scolytodes*), or they may form individual, separate mines. Larval mines may be as short as the body length of the larva (*Pityoborus*), or long and tortuous (*Phloeoborus*, some *Phloeotribus*). Xyleborini and many *Corthylus* live in tunnels excavated by their parents and, apparently, make no tunnels of their own.

Pupa: The end of the larval mine is usually enlarged slightly and cleared of frass to form a pupal chamber. A few species may bore into the wood [*Scolytus rugulosus* (Muller)] or into the outer bark before forming the pupal cell. The length of the pupal stage may range from 2 days (*Scolytodes*) to more than 30 days, but it usually averages about 6–9 days under ideal conditions. It is rarely selected as the estivation or overwintering stage for any scolytid.

Adult: Following transformation to the adult stage, the beetles may emerge immediately (*Scolytus*), or they may require a period of maturation feeding before emergence (many genera). *Microborus* may not emerge from the host for 2 or more generations. Several species [*Scolytus multistriatus* (Muller)] will emerge from the brood host then fly to a green, living branch where a feeding tunnel is formed. Following a period of maturation feeding, or after hibernation, the beetles then fly to a host suitable for reproduction. It is not uncommon for the parent beetles to emerge, then complete a second, third, or fourth gallery system in the same host tree and produce an equal number of broods. A previously mated female will commonly produce a second brood either with a different male, or without the association of a male, thus giving the false impression that parthenogenesis has occurred. Although most parent adults die in their galleries, occasional individuals survive hibernation or estivation and participate in the production of an additional generation in a second year.

Reproductive cycles: In tropical America, cyclical activity in most species may be correlated with the wet and dry seasons and may be just as conspicuous as in summer and winter in temperate regions. Few comprehensive studies have been made in South America that aid in clarification of this topic.

Ecological Role in a Primary Forest

In temperate areas one of the greatest obstacles to continued growth of a forest is the recycling or removal of dead and dying plant material. In tropical areas the activities of termites, ants, other bark and wood-boring insects, fungi, and other agents of plant decay quickly remove and recycle fallen leaves and other plant material, such that mineral soil lies only a few centimeters below a thin layer of productive soil.

Losses in seed production caused by some *Coccotrypes*, *Scolytodes*, *Hypothenemus*, and isolated examples in several other genera can have a significant impact on native plant reproduction. As commercial tropical fruit and nut production increase, means of reducing losses must be found. Coffee berry-borer [*Hypothenemus hampei* (Ferrari)] damage to coffee production

has had an enormous impact on this crop over most of the 20th century and will continue to do so. Of equal severity is the damage to shrubs and trees in urban areas caused by *Xylosandrus compactus* (Eichhoff). This imported species is capable of killing the most vigorous terminal shoots and fruiting stalks of hundreds of shrub and tree species.

The most conspicuous scolytid damage I have seen in tropical American forests is the infestation of logs in decking areas in the forest and at the mill caused by ambrosia beetles (mostly *Xyleborus* spp., Platypodidae spp.). These xylomycetophagous species infest and stain the sapwood tissues. The logs of some tree species are mostly sapwood and, consequently, are bypassed in logging operations because it is not economically profitable to harvest them and then to lose a significant part or all of the wood to beetle damage. The infesting scolytid species are mostly polyphagous and attack logs from almost all commercially important tree species.

In a healthy standing tropical forest, the bole of most trees is rarely infested by ambrosia beetles. However, a very minor injury that cuts through the bark can attract an infestation that can quickly consume the entire tree. Massive attacks that kill standing trees are almost unknown in endemic South American forests. Such attacks should be anticipated in coniferous plantations when exotic, monophagous pest species are introduced into South America.

Relationships with Fungi

Numerous field observations and many laboratory tests have confirmed the belief that many Scolytidae are associated with mutualistic fungi. The relationships apparently range from the most casual or accidental relationships to intimate mutualistic bonds in which neither fungus nor beetle can survive without the other. In *Phloeoborus* the fungus apparently participates in making the wood more nutritious and easier to bore through. In others (some *Corthylini*) the mycelium, mixed with host tissue, becomes a significant food item. In *Corthylus* and some other *Corthylini*, the fungal spores appear to be the only food utilized. Most ambrosia beetles have developed cavities or pockets (mycetangia/micangia) in which fungal spores are stored and nurtured. The location and form of these structures provide important taxonomic characters for the recognition of some genera and species. They may be located in the oral cavity, at various locations on the prothorax notum, pleuron, or in the coxal cavities, at the base of the scutellum, or the base of the elytra. Mycetangia are described more fully in the publications of Francke-Grossmann (1931–1975), and they are reviewed briefly in Wood (1982:23–25).

Introduced Species

The geographical distributions of animal species are not constant but expand and contract in response to various

natural fluctuations in the environment. In addition, interaction between species may offer unexpected opportunities for range expansion or contraction. For example, human commerce has had a profound effect on the distribution of many Scolytidae (Marchant & Borden 1976, Wood 1982:25–27). The effect of human commerce on North American Scolytidae is summarized by Wood (1977:67–74) and Haack (2006:253–282). An average of about 1–3 breeding populations of exotic scolytid species are introduced to the USA in North America each year. It is expected that similar numbers are introduced to South America each year, but detection is much more difficult due to more diversified and inaccessible vegetation, to more difficult detection, to errors in identification of the species found, and to a limited trained labor force. A list of species introduced into South America reported in this volume is presented in Table 1.

Economic Losses Attributed to Scolytidae

In a primary growth natural forest the Scolytidae perform an important role in the maintenance of vigorous growth and in the early stages of recycling of dead plant tissue. However, their activities come in direct conflict with man when he diverts forest products for use in an economic or cultural system.

The loss of seed production in *Coffea* spp. [*Hypothenemus hampei* (Ferrari)], Brazil nuts [*H. obscurus* (Fabricius)], *Rhizophora* spp. [*Coccotrypes rhizophorae* (Hopkins)], *Podocarpus* spp. (*Araptus impensus* Wood), and in many other species of plants have been enormous. Except for the infamous coffee-berry borer, efforts to control spermophagous species in South America are said by local workers to be primitive or unknown. Although twig borers in forest plantations and in reforestation can be a significant problem for tree species, effective control of pest species had not been developed in trial plots I visited. Losses caused by Scolytidae in standing timber in tropical American forests were considered to be minor in areas visited by me, except where major storms broke trees or where minor injuries penetrated the bark and exposed even the smallest area of xylem. Significant losses of sapwood occurred in the felling of trees and decking of logs in both the forest and at the mill. Because of the high daily precipitation, the use of insecticides was impractical. The immediate removal of logs and sawing them into lumber, followed by kiln drying of the lumber and immediate shredding or burning the waste appeared effective in the areas I visited.

As the value of wood products increase, the need for scolytid pest control to preserve those products will increase. Several countries are experimenting with various methods of control. The exportation of raw unprocessed logs, most of them untreated and with bark on, from South American countries to other parts of the world, most of them untreated and with the bark on, appears to

be a source of disaster, especially for the importing countries. Experience with such importations in the USA appears to have resulted in damage to plantations, orchards, and nurseries that far exceed the value of the imported logs (unconfirmed oral reports).

Natural Control

Scolytid populations in South American forests tend to fluctuate significantly from season to season, from year to year, and from area to area. These fluctuations may be correlated with life cycle, biological opportunity, or other factors inherent in the populations. All organisms have the capacity to reproduce at a rate greater than is needed to perpetuate the race, but overproduction can destroy the pest food supply and severely disrupt the biotic community in which it lives. Among the factors that maintain population balance in the community are large numbers of insect parasites and predators that play a role in the natural control of populations. The published studies of these parasites and predators of South American scolytids are limited and are greatly hampered by the difficulty of identifying the species of scolytids and of their parasites and predators. The information vacuum will be filled as upcoming young workers mature in their professional development. A brief summary of this topic appears in Wood (1982:28–30).

CLASSIFICATION

HISTORY

The earliest scolytid species reported from South America were 14 species named by Fabricius (1801 and earlier), placed mostly in *Bostrichus*. Geoffroy (1762) established the first genus in this group, *Scolytus*, although species endemic to South America were not found in that genus until later. South American species were initially placed in various groups of Coleoptera, such as Bostrichidae (Latreille 1804, Erichson 1836), Curculionites or Curculionidae (Latreille 1807), or the non-Linnean Xylophaga (Ratzeburg 1837, Eichhoff 1864). The first valid family-group name used for these species was *Scolytarii* (Latreille 1807:273), established as a subdivision of Curculionites and based on *Scolytus* Geoffroy. Subsequent authors divided this group into various series of subfamilies and tribes (Hagedorn 1910, Wood 1978, etc.). This volume follows the classification of Wood (1978). At the present time approximately 6000 species of Scolytidae are known worldwide. The species are placed in about 227 genera. About 1339 species are listed here for South America. When all South American species are known, that number is expected to more than double. Obviously, this volume is a very preliminary first attempt to classify the South American scolytid fauna. It is of interest that the total number of previously named species included in this volume is smaller than the 1126 species cited in the literature before this

TABLE 1. Breeding populations of Scolytidae introduced into South America from abroad.

SPECIES	ORIGIN	INTRODUCED TO
<i>Ambrosiodmus rubricollis</i>	SE Asia	Japan, N America
<i>Coccotrypes aciculatus</i>	New Guinea	Panama, Brazil
<i>C. advena</i>	SE Asia, Indonesia	Florida, Brazil
<i>C. carpophagus</i>	Africa	Florida, S America
<i>C. cyperi</i>	SE Asia	Florida, S & C America
<i>C. dactyliperda</i>	Africa	S USA to S. America
<i>C. distinctus</i>	Sri Lanka	Florida to S America
<i>C. palmaris</i>	Africa	S America
<i>C. rhizophorae</i>	Indonesia	Florida to S. America
<i>C. rutschuruensis</i>	Africa	California to S America
<i>Dryocoetes autographus</i>	Europe, Asia	Brazil
<i>Euwallacea fornicatus</i>	SE Asia	Florida, Antilles Isl., S America
<i>E. validus</i>	Japan, E Asia	E USA to Brazil
<i>Hylastes ater</i>	Europe, N Asia	Chile
<i>Hylastinus obscurus</i>	Europe, N Asia	Chile
<i>Hylesinus toranio</i>	Europe, Asia Minor	Argentina, Chile
<i>Hylurgus ligniperda</i>	Europe, N Asia	Argentina, S Brazil, Chile
<i>Hypocryphalus mangiferae</i>	SE Asia, Indonesia	Florida to S America
<i>Hypothenemus africanus</i>	S Africa	S USA to S Brazil
<i>H. areccae</i>	SE Asia	Florida to S America
<i>H. birmanus</i>	SE Asia	Florida to S America
<i>H. fuscicollis</i>	Indonesia	C & S America
<i>H. hampei</i>	Africa	C & S America
<i>H. javanus</i>	Indonesia	Florida to S America
<i>Orthotomicus erosus</i>	Europe, N Asia	Chile
<i>O. laricis</i>	Europe, N Asia	Chile
<i>Premnobius ambitiosus</i>	Africa	(C?) & S America
<i>P. cavipennis</i>	Africa	Florida to S America
<i>P. sexnotatus</i>	(Africa?)	S America
<i>Scolytus kirschi</i>	Europe	S Brazil
<i>S. multistriatus</i>	Europe, N Asia	Argentina
<i>S. rugulosus</i>	Europe	USA to Peru & Argentina
<i>Xyleborinus saxeseni</i>	Europe, N Asia	N & S America
<i>Xylleborus pfeili</i>	Europe	S America
<i>X. similis</i> (established?)	Indonesia	S America
<i>Xylosandrus compactus</i>	SE Asia	Florida to S America
<i>X. morigerus</i>	SE Asia	Mexico to S America

project commenced. This was due to the large number of synonyms found, which greatly exceeded the number of species new to science that were known prior to this volume in the scolytid fauna of South America.

DISCUSSION OF CHARACTERS

A full discussion of characters presented in previous classifications of higher categories in Scolytidae, and their significance, is presented in Wood (1978). A brief summary of that discussion is presented here (Fig. 3A, B, C). Characters of greatest value in determining phylogenetic relationships and the limits of higher categories in the family include the following:

Head: In Curculionidae and the scolytid Hylesininae and primitive Scolytinae (Scolytini, Ctenophorini, Scolytoplatypodini, Carphodicticini), the median posterior portion of the head is essentially truncate (Fig. 4A). In the remaining Scolytinae (Micracini to Xyleborini and Corthylini), the median dorsal occipital area is produced caudad (Fig. 4B), an obvious specialization. The substrate condition of most Hylastini, Hylesinini, Hyorhynchini, and Scolytini may be more closely correlated with habit than with phylogeny. The preular sutures of these groups apparently prevented or altered the development of a true rostrum in Platypodidae and Scolytidae, since the anterior arms of the tentorium are intact, but they are either entirely absent or broken in Curculionidae (Wood 1982:34, 36, Fig. 11).

The eye varies from oval and entire to elongate and entire or emarginate to completely divided [into two separate parts]. While eye shape and position are very useful in the recognition of genera, it should be pointed out that some of the most aberrant eye-shapes occur in some of the most primitive tribes. In general, however, the oval, entire eye is primitive, departures involving elongation or emargination are specializations.

The antennal funicle may have a maximum of seven segments as in other curculionoids. Within Scolytidae the segmentation may be reduced to as few as three segments in the Hylesininae or one in Scolytinae. Reduction in the number of segments from seven is considered as specialization.

The antennal club is formed from three segments. In primitive scolytids, as in many other curculionoids, it is conical (Hylastini, some Hylesinini). Specializations may include compression (flat) or oblique truncation, either with or without the loss of sutures. The club may be symmetrical or asymmetrical, with the sutures equal on both sides or with the sutures on the posterior face strongly displaced toward the apex. In Phloeotribini the intersegmental lines are constricted, thereby forming a sublammellate club with independently movable segments.

Prothorax: The primitive prothorax apparently was short and more or less cylindrical. Specializations include a substantial reduction in the sternal areas accompanied by a change from widely separated to contiguous coxae. A precoxal costa was associated with that change in some primitive groups [Wood 1982:57, Fig. 20]. The dorsal area in specialized groups is declivitous on the anterior area, armed by asperities and much narrower anteriorly. In Diamerini, Bothrosternini (part), Scolytini, and Ctenophorini the lateral margin of the pronotum is costate. This costa appears to be a strengthening device associated with a subconcave pleuron in these comparatively primitive tribes. An analogous raised line in Cryphalini and Corthylini apparently has a different origin and function.

Mesothorax, elytra: While numerous characters of specific and generic interest occur on the mesothorax, items of phylogenetic interest involve the basal margins [of the elytra], interstriae 10, and the mechanism for locking the elytra in [in closed] position when at rest.

In all Hylesininae the basal margin of each elytron is procurved and armed by a series of crenulations. The curvature results from a sutural emargination formed to accommodate the depressed, rounded scutellum. The crenulations are shared by a few species of *Cnemomyx* (Scolytini), but otherwise are restricted to the Hylesininae. A few Diamerini and Bothrosternini have an elevated marginal costa in place of the crenulations. In Scolytinae the elytral bases form a straight transverse line across the body and the scutellum is large, flat, and flush with the [elytral] surface.

Most primitive tribes contain at least some members having interstriae 10 continued to the apex. In more specialized groups striae 9 and 10 converge near the middle of the elytra, thus eliminating the posterior half of interstriae 10.

On the sutural and costal margins of the elytra near the base are grooves that interlock at the suture with the opposite elytron and on the costal margin with the metepisternum. The details of these structures are useful in determining phyletic relationships of major groups.

Metathoracic tergum: In some Hylesininae (Diamerini, Bothrosternini, Phloeotribini, Phloeosinsini, Hypoborini, Polygraphini) the scutellar area of the metanotum fuses with the postnotum, thus eliminating the intersegmental suture. The intersegmental suture is present in the remaining Hylesininae and in all Scolytinae. In addition, the scutoscutellar suture follows a much shorter, more lateral route in those groups with a fused postnotum. These two characters make possible a major division of the Hylesininae.

Metathoracic pleuron: In Curculionidae, primitive Hylesininae, and primitive Scolytinae the pleural suture descends vertically from the pleural wing process to the groove on the episternum that receives the costal groove of the elytra. At that point the pleural suture turns abruptly and follows the groove caudad to near the pleural coxal process. The anterior end of the lower costa that forms the metepisternal groove is higher, often spinelike, and may persist when the remainder of the groove is lost. In the higher Hylesininae and higher Scolytinae the groove is lost, the episternal spine is displaced ventrad, and the pleural suture runs a much more direct route from wing process to coxal process, often quite remote from the position of the costal margin of the elytra [Fig. 5]. In Cryphalini the episternal spine is modified and in Corthylini it is lost and replaced by a small, transverse groove.

Legs: Tibial characters have been used extensively in scolytid classification. The primitive protibial form is thought to be similar to that of *Protohylastes* [Wood 1982, Fig. 35], which has three apical spines (Wood 1973: 77–90). The small mesal spine apparently becomes the apical spine of Scolytidae; the larger, middle spine becomes the apical spine of Platypodidae and the major lateral spine of Scolytini; and the smaller lateral spine in all other groups. The major lateral spine, and some supernumerary denticles, are not socketed [Fig. 6]. All of these lateral spines are replaced by socketed teeth (Wood 1982, Fig. 34), presumed to be of setal origin, in all higher groups (Wood 1978).

In several of the more primitive groups tarsal segment 3 is broad or bilobed. In Diamerini (part), Xyleborini (part), and Xyloctonini the tarsal characters are of some value in classifying genera of these tribes.

Abdomen: In Carphodicticini, Ipinini, Dryocoetini, Xyleborini, and all Platypodidae female abdominal segment 8 is visible, pubescent, and almost as large as in the male. In all other scolytids and most curculionids it is of reduced size, lacks pubescence, and is telescoped beneath and hidden by tergum 7 (Fig. 7).

In Hylastini, many Hylesinini, and Phloeotribini the posterior margin of male tergum 7 bears a median, bituberculate, stridulatory device that scrapes against the adjacent inner surface of the elytra. The value of this

INTRODUCTION

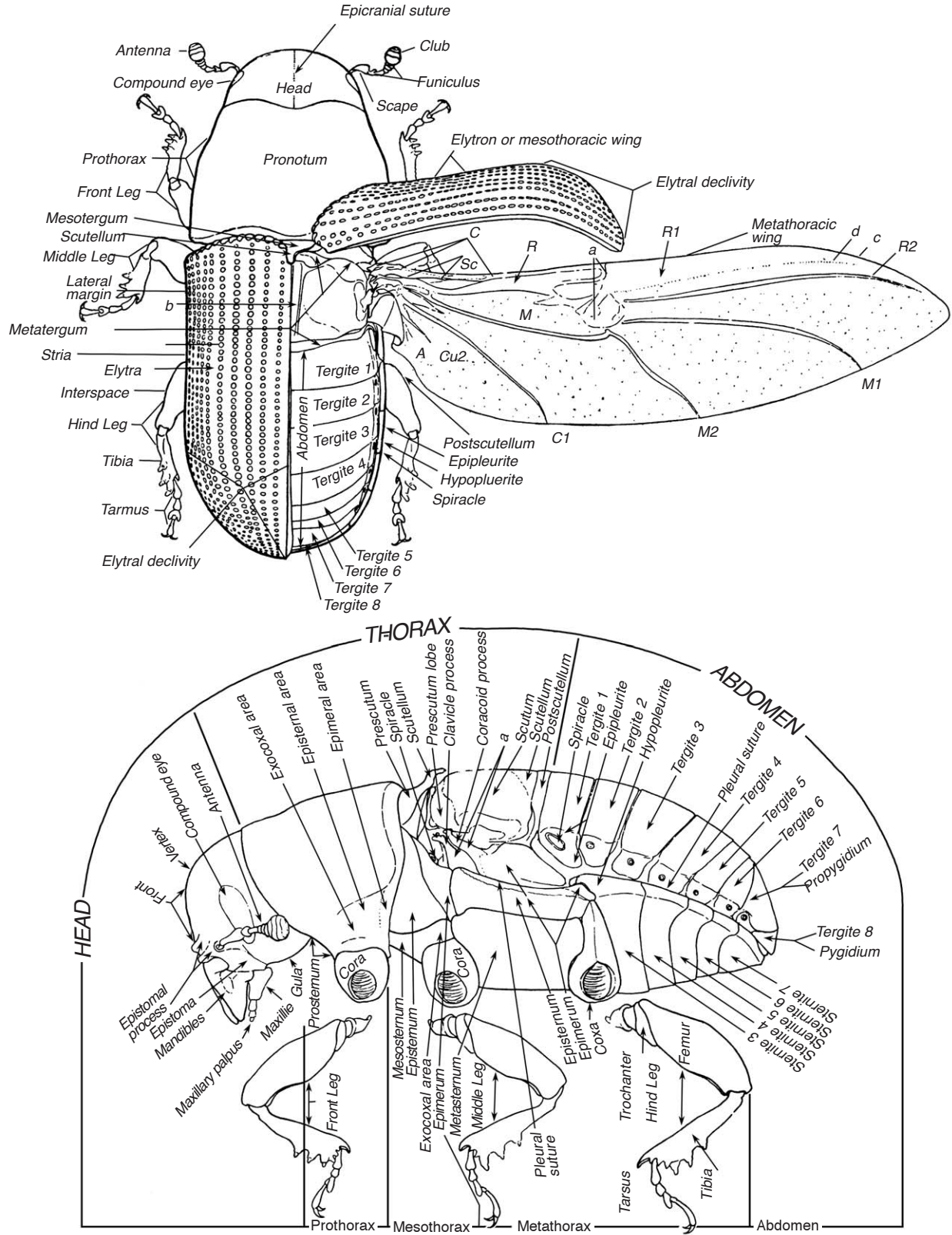


Fig. 3. A, B. *Dendroctonus valens* LeConte, (A) dorsal and (B) lateral aspects. Present usage of interstriae (=interspace in this figure), tergum and sternum (=tergite, sternite). (After Hopkins 1909:6, 9.)

THE SCOLYTID BEETLES

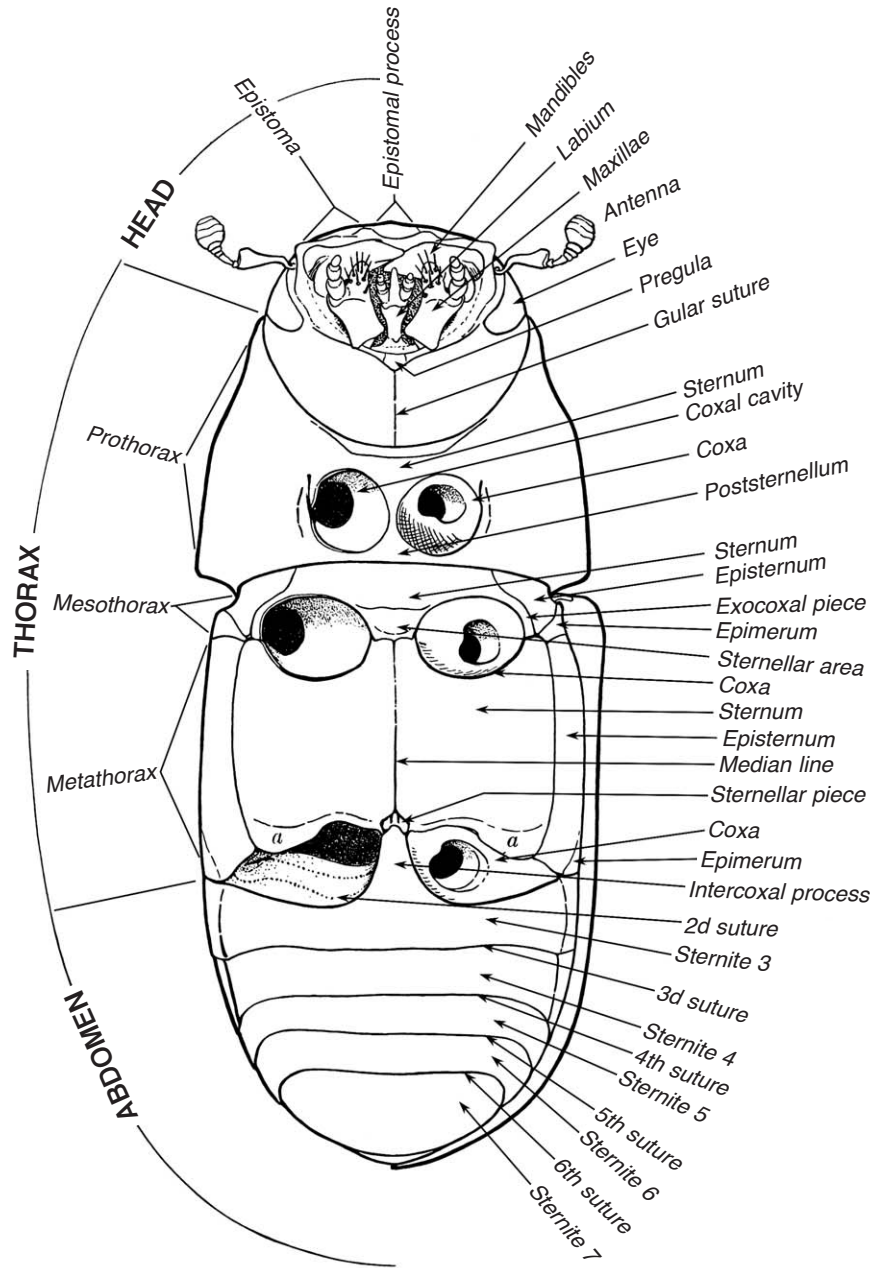


Fig. 3. *C. Dentreotonus valens* (LeConte), ventral aspect. (After Hopkins 1909:8.)

character is uncertain, it is not always present in groups that normally possess it. It may be significant that a comparable character occurs in most Platypodidae (Wood 1982:39–41).

Phylogeny

The Scolytidae and Platypodidae apparently arose as a monophyletic unit from the segment of the

Curculionoidea having one gular suture before preular sutures were lost in the remainder of the phyletic line that gave rise to the Brentidae, Attelabidae, Apionidae, and Curculionidae, but well after the groups having two gular sutures, or remnants of them (Belidae, Nemomychidae, Anthribidae) had branched from the main stem of evolutionary development. Long after the basic scolytid-platypodid characters and habits had been fixed, this evolutionary line radiated into three groups

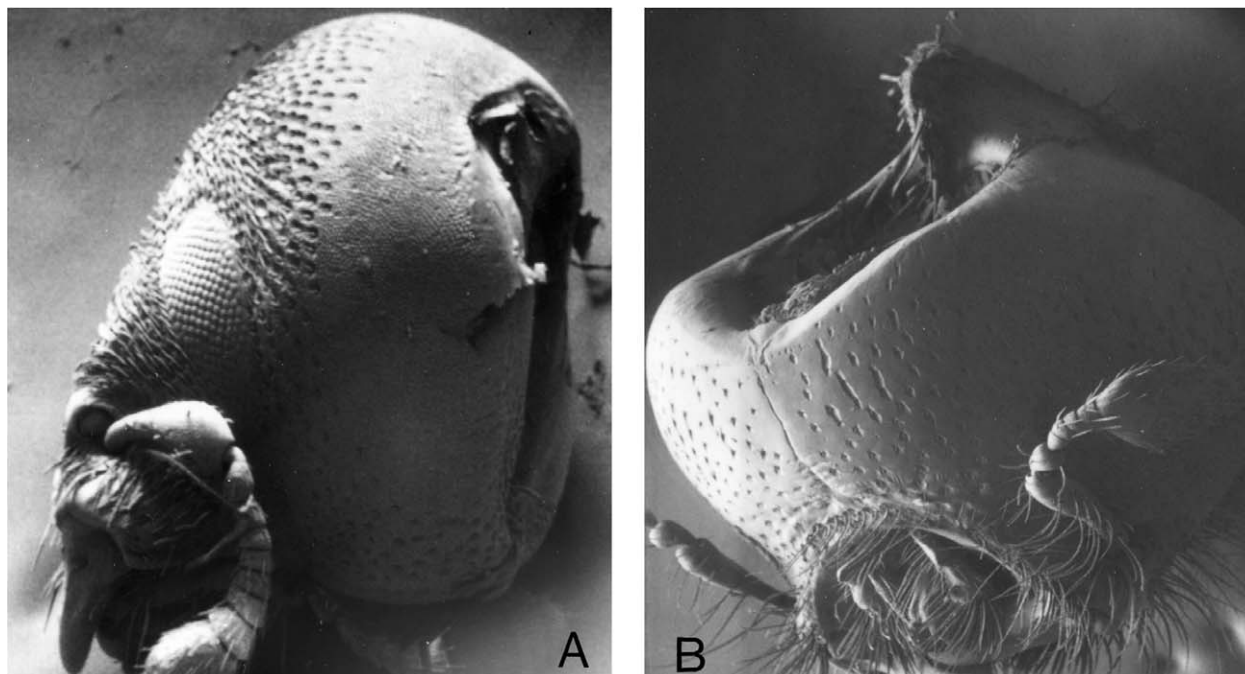


Fig. 4. A, *Hylastes nigrinus* (Mannerheim), lateral aspect of head; note antenna, and undeveloped dorsal occipital area (Left side near middle of foramen magnum damaged in preparation). B, *Ips woodi* Thatcher, ventrolateral aspect of head; note post-gula, gular suture, pregula, and extended dorsal occipital area. (After Wood 1978.)

at approximately the same geological time (possibly late Triassic to early Cretaceous). These three groups presently include representatives among their primitive tribes having (1) a 7-segmented antennal funicle, (2) a fully formed pubescent female tergum 8 basically similar to that of the male, (3) basically similar tibiae that lack socketed supernumerary spines on the lateral margins, (4) a fully developed interstriae 10, (5) the same general body habitus, and (6) the phloeophagous habit. The evidence is inconclusive as to which of these three groups branched from the main scolytoid evolutionary stem first; however, because of the somewhat larger number of primitive characters and the different appearance (probably based as much on distinctive habits as on genetics), coupled with unique specializations, the Platypodidae are regarded by me as the most primitive. For similar reasons the Hylesininae are considered to be more primitive than the Scolytinae. The Scolytinae are considered to represent the main line of scolytid evolution. The accompanying dendrogram [Wood 1982:43, presented here as Fig. 8] illustrates possible phylogenetic relationships of major groups within these families.

The most primitive known representative having hylesinine characters is *Protohylastes*. It could equally well be placed as the most primitive representative of the Platypodidae (Coptonotinae). It shares many characters with *Coptonotus*. Except for the antennal club and tibiae, it could be placed in the Hylastini with complete confidence. It is placed as an aberrant genus of

Coptonotini until more is learned about its structure and habits.

Platypodidae: The pregular sutures, numerous other structural details, and the shared ecological niche suggest a close relationship to the Scolytidae. The 7-segmented funicle (*Protohylastes* and *Coptonotus*), strongly procurved antennal sutures (*Coptonotus*), fully developed female abdominal tergum 8, complete interstriae 10, route followed by the scutoscuteellar suture, route followed by the metapleural suture, tibial characters, elytral locking mechanism, the polygynous habit in *Protoplatypus*, and other characters indicate a closer, but very primitive connection to Scolytinae rather than to Hylesininae. The closest affinity of Platypodidae (through *Protohylastes*) to Hylesininae appears to be through *Diameris* (Diamerini), which possesses several very specialized features. The closest affinity (through *Protoplatypus*) to Scolytinae appears to be through *Cnemonyx* (Scolytini), *Scolytodes* (Ctenophorini), Carphodicticini, and Scolytoplatypodini.

Hylesininae: The fusion of the metanotum to its postnotum [Fig. 5] apparently took place very early in hylesinine evolution as evidenced by the occurrence of tibiae without socketed teeth in both divisions (Hyorrhynchini, Diamerini, and Phloeotribini). More primitive characters, with fewer specialized ones, appear to be associated with Hylastini, Hylesinini, and Tomicini (listed in increasing order of specialization), with the Phrixosomini and Hyorrhynchini representing specialized relicts of otherwise primitive groups.

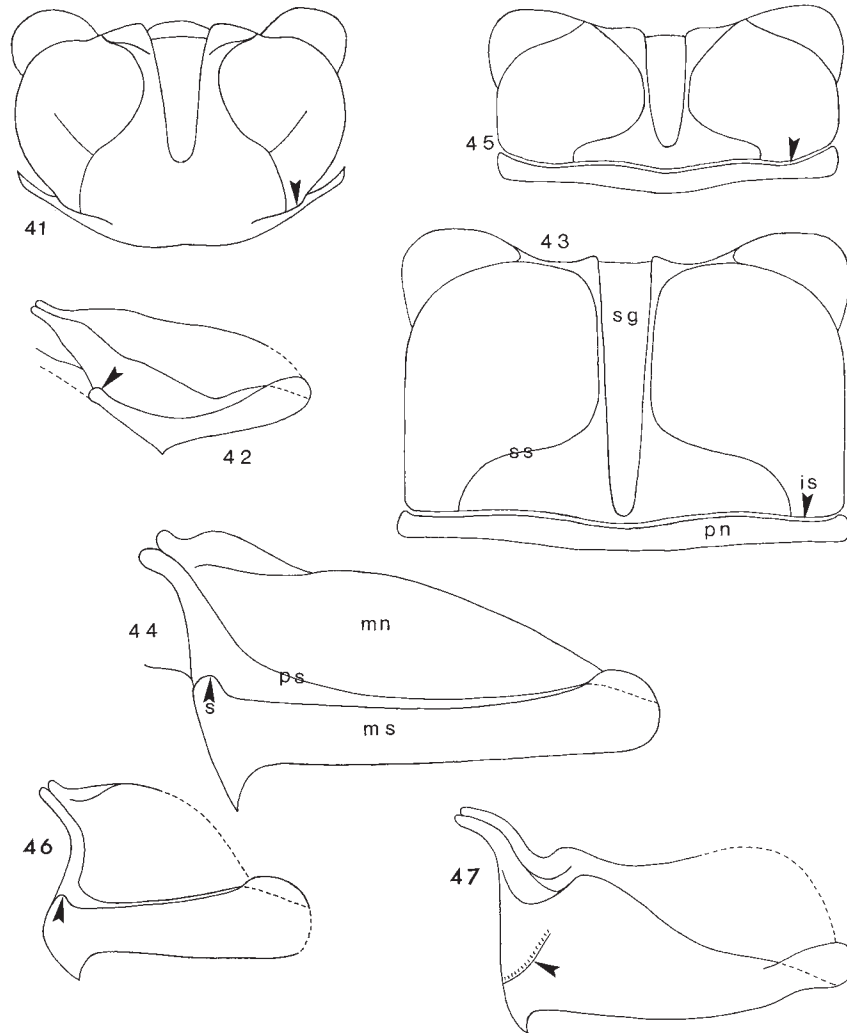


Fig. 5. Diagrams of Scolytidae metanota; 41, *Chramesus hickoriae* LeConte, dorsal aspect (arrow points to remnant of intersegmental suture); 42, same, pleuron (arrow at metepisternal spine); 43, *Hylastes nigrinus* (Mannerheim) dorsal aspect, with labels indicating intersegmental suture (is), postnotum (pn), scutellar groove (sg), and scutoscutellar suture (ss); 44, same, lateral aspect, with labels at metepimeron (mn), metepisternum (ms), pleural suture (ps), and metepisternal spine (s, marked by arrow); 45, *Cnemonyx panamensis* (Blandford), dorsal aspect (arrow points to intersegmental suture); 46, same, lateral aspect (arrow points to metepisternal spine); 47, *Pityophthorus crotonis* Wood, lateral aspect (arrow points to metepisternal groove that has replaced the spine of other tribes). (After Wood 1978).

In the more specialized hylesinine line are found the more primitive tibiae (*Diamerus*, *Aricerus*), pronotum (*Diamerus*), elytral bases (Bothrosternini, *Diamerus*), and other characters, but they also exhibit the greatest specializations (reduced funicular segmentation, aberrant antennal club with loss of sutures, etc.). The fusion of the postnotum obviously took place very early in hylesinine evolution, as evidenced in that group by the much greater structural and biological diversity. The Diamerini and Bothrosternini, which appear to be geographical replacements of one another, share the greatest number of primitive features; they also appear to have diverged further than the other groups from the original ancestral

line. The Phloeotribini also diverged rather early as evidenced by the protibia of *Aricerus* and by the very different, sublamellate, antennal club. The Hypoborini and Polygraphini appear to be specializations that diverged rather recently from the Phloeosinini.

The basic structural relationship of most Scolytinae to Platypodidae is closer than to Hylesininae, although the biological affinity is closer to most Hylesininae. The strongly procurved antennal sutures of *Coptonotus* (and the obscure lines that suggest obsolete sutures in other Coptonotinae and a few Platypodidae) is a common character in Scolytinae (Scolytini, Ctenophorini, Micracini, Xyloctonini), but occurs only in Diamerini (*Diamerus*)

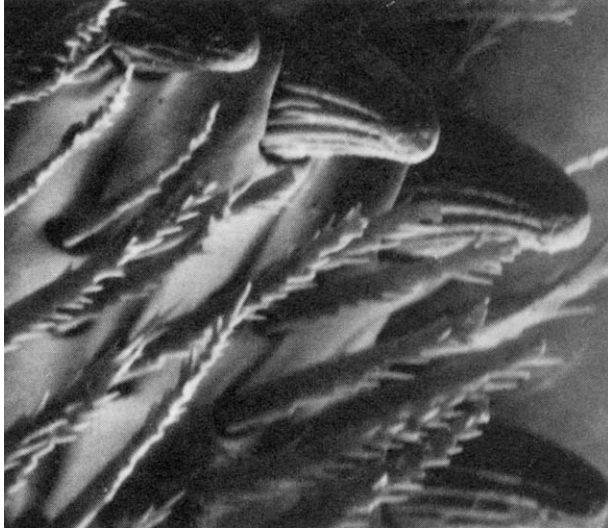


Fig. 6. Apex of prothoracic tibia of *Polygraphus rufipennis* (Kirby) showing socketed denticles at margin. (After Wood 1978.)

and Bothrosternini (*Pagiocerus*, *Eupagiocerus*) in the Hylesiniinae. The Scolytini apparently diverged very early from the main evolutionary line in Scolytinae, as evidenced by antennal, tibial, metapleural, and other characters. The divergence of Scolytoplatypodini and Ctenophthorini soon followed, as evidenced by a significant change in tibial characters, and these geographical replacements then diverged from one another. . . . [The Scolytini replace socketed lateral tibial spines with an unsocketed apical spine. Jordal (1998:95) demonstrated that socketed spines were lost in some of the Ctenophorini and that Scolytini apparently diverged from them]. Except for the socketed tibial teeth, Carphodicticini most nearly resemble my concept of a primitive platypodid in antennal, frontal, pronotal, coxal, metapleural, metatergal, and abdominal characters. However, the tibiae, and other characters, place it more nearly intermediate between *Protoplatypus* and Dryocoetini. The Crypturgini, Dryocoetini, Ipini, Xyloterini, and Xyleborini represent a unit of closely related tribes. Micracini and Cactopinini appear somewhat related, as do Xylotonini and Cryphalini. The relationship of Cortlylini to other tribes is not clear; they exhibit some very primitive features as well as many of the most specialized ones in the family (Wood 1982:41–44).

Biogeography

During much of the geological history since the Tertiary, South America was an island. Prior to that, about late Cretaceous or early Tertiary, South America was connected to western Africa. Supporting evidence of this connection comes from the genus *Phrixosoma* (Phrixosomini), a compact genus (in America) confined to Guttiferae hosts, where 9 species occur in tropical

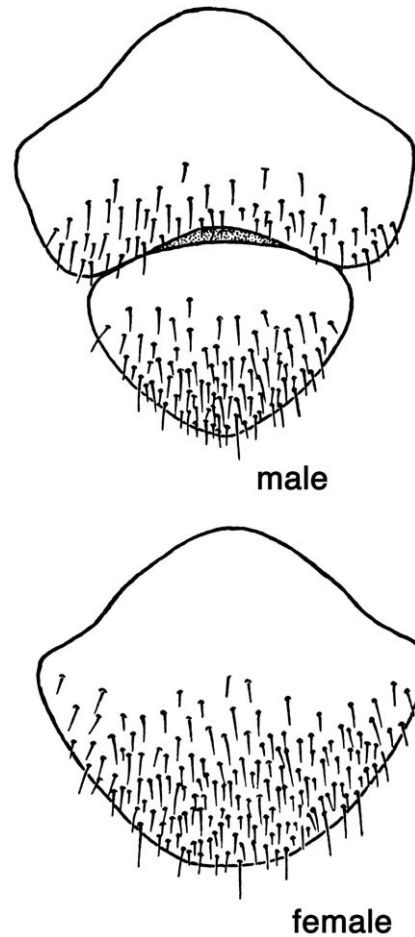


Fig. 7. Abdominal terga of *Cryphalus pubescens* Hopkins: Male, segments 7 and 8 (above); female segment 7 (below). (After Wood 1954:1087.)

Africa and 10 in tropical America. There are no known species in other parts of the world. In the genus *Acanthotomicus* (Ipini), containing 96 species of which 11 occur in tropical America, all of the American species appear to represent a single species group that is also represented in Africa. The 85 Eastern Hemisphere species are mostly in Africa, with small numbers in other species groups in southern Asia, Indonesia, and Australia. The Micracini occur in the Western Hemisphere from southern North America to southern Brazil, and also in tropical Africa. While America and Africa share no genera, almost all American genera share with Africa pairs of very closely related genera. The *Ambrosiodmus* (Xyleborini) contain 17 Central and South American species in the same large species group that occurs in western Africa. A massive ancient connection between eastern South America and western Africa is indicated by these examples.

A much older connection, probably through the Antarctic continent, to Australia is indicated by the occurrence of *Coptonotus* (2 species in South America)

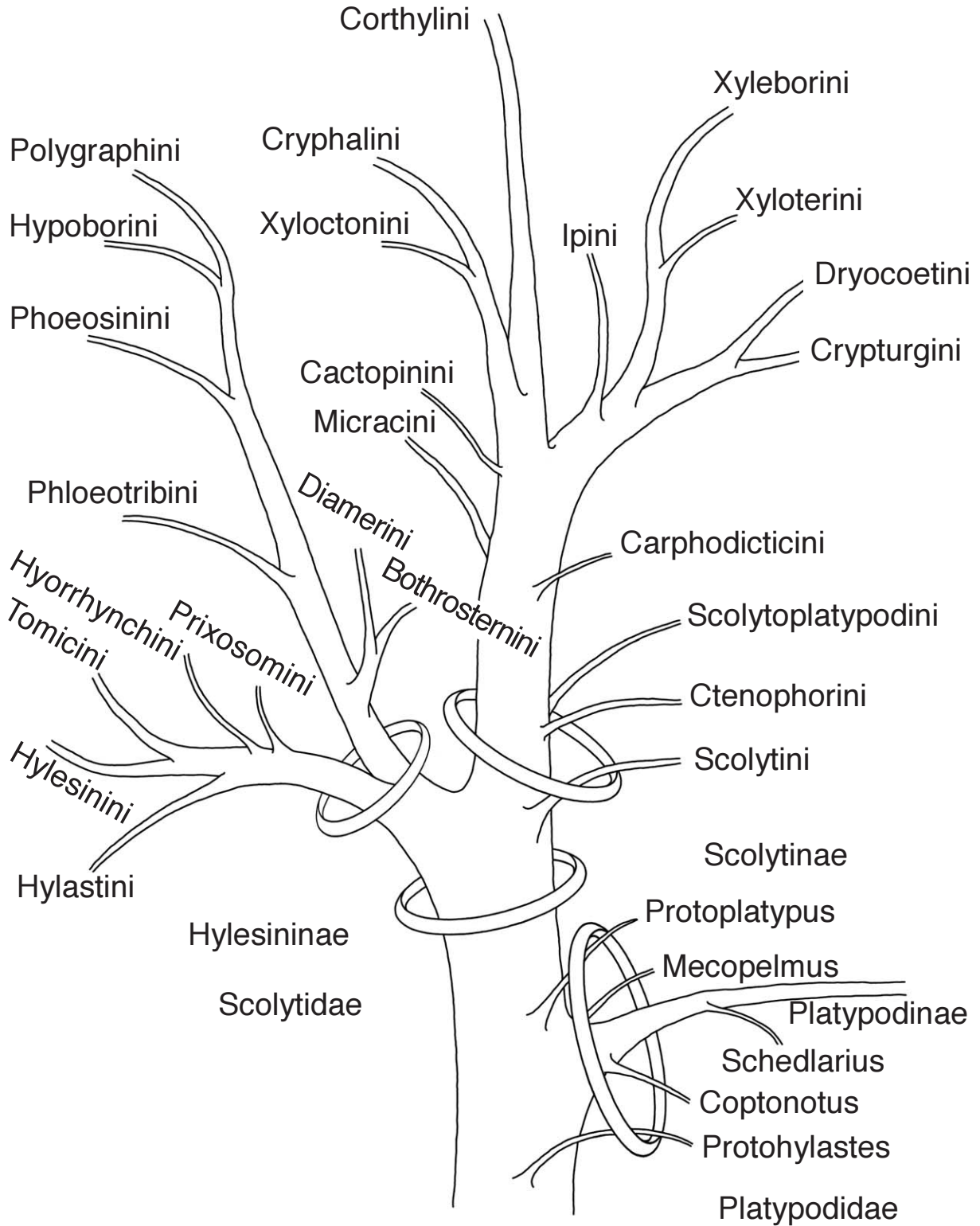


Fig. 8. Dendrogram illustrating possible phylogenetic relationships of major groups within the Scolytidae and Platypodidae. (After Wood 1982.)

and *Protohylastes* (1 or 2 species in Australia and adjacent islands). Allied species are unknown elsewhere. The Phloeotribini occur mostly in South America. One very primitive species that is allied to the South American fauna occurs in Australia. There are no other species in or near Australia or in southeastern Asia. About a dozen species occur in Europe and northern Asia that were obviously derived from North America in comparatively recent geological time.

Other Eastern Hemisphere connections with South America are possible but are not yet fully documented. Examples are: Hylesinini (*Phloeoborus* and *Dactylipalpus*); Tomicini (*Hylurgonotus* and *Pachycotes*); Phloeosinini (*Dendroterus*, *Chramesus*, *Pseudochramesus*, *Cortisinus*, *Cladoctonus*, *Hyleops*, etc.); Hypoborini (many *Liparthrum* in Europe and Asia, 6 in North America, 2 in South America); Carphodicticini (2 in India, 2 in South America); Dryocoetini (*Dendrocranulus* in southern North America and most of South America, *Thamnurgus* and *Xylocleptes* in Europe, southern Asia, and Africa); Cryphalini (*Hypothenemus*, *Trischidias* in America and Africa, greatly complicated by modern commerce and early slave trade); Corthylini (South America and Madagascar, but not Africa). One relict *Pseudothysanoes* in northern China is closely allied to a species in the western USA.

Almost a third of the known South American Scolytidae are in the tribe Corthylini and most of the higher genera (Corthylina) are endemic to South America and Central America north to the southern fourth of Mexico. In this group the species are poorly known from inadequate series and deserve much greater attention.

METHODS

During preparation of this volume, several practices commonly used by others were not followed. These include the following:

(1) Unless specified in the text, all specimens used here were examined by me. No records were based on the identification of others unless I saw the specimens and approved of the record from specimens I had compared to the types. On one or more occasions I visited the British Museum (Natural History), the Schedl Collection at Lienz, Austria, and again after this collection was transferred to the Naturhistorische Museum Wien (Vienna); loans of type material for comparison to my material were received from the Museum National d'Histoire at Paris before 1995 and in 2003; loans were also received from the Universidad de Sao Paulo and from numerous other sources on a limited basis. The loans of unidentified specimens for study came from Dr. Carlos Flechtmann (Brazil), Juan Barriga (Chile), and from many others.

(2) In preparation for this study, I spent, in intensive collecting, 11 months in Venezuela, 6 weeks in Colombia, 18 months in Central America, and 24 months in Mexico.

(3) Measurements of the length of specimens was from the anterior margin of the pronotum to the apex of the elytra, the head was never included, and the unnatural gap, when it occurred, between the posterior margin of the pronotum and the anterior margin of the elytra was deducted. The pronotum length was measured from a point between the median serrations on the anterior margin (when present) to the median posterior margin as seen from a position perpendicular to the median line on the disc; the width was measured at the widest point on the pronotum as seen from a position perpendicular to the median line of the disc. The measurements of the elytra for length were made from the basal margin of interstriae 3 (with the lines on the ocular grid on both left and right elytra) to the apical margin or the longest spine on the declivity, when it projected beyond the apical margin, as seen from a position perpendicular to the suture on the horizontal portion of the disc. The elytra width was taken from a point 1 visible scutellum length behind (caudad from) the posterior margin of the scutellum (with the line on the ocular grid simultaneously at an equal position on both lateral margins). The elytra disc length was made from the elytra length measurement from which the declivity measurement was subtracted; the declivity length was taken from the beginning of the declivity descent (at its base) to the elytra apex as viewed from the same position used to measure disc length. Minor variations in these measurements are to be expected, because no one can repeat the measurements in successive months and get the exact same values. Antennal measurements are less variable due to the less variable structure and position from which measurements are made. Most measurements were rounded off at the first digit to the right of the decimal except when that digit was a 4, 5, or 6, and on almost all measurements of the antennae where the second digit was often used. In some groups, especially in Corthylina, the color pattern on the elytral disc or the position of tubercles on the declivity were described when all punctures were either confused or absent. For those specimens, a knowledge of where the striae or interstriae are normally positioned must be utilized, because no visible orientation structures (such as obsolete striae) exist; however, the pattern or the existence of a tubercle may be of extreme importance to correct identification.

(4) All proportions of features measured were standardized; that is, the width was always divided into the length of the body, antennal club, pronotum, or elytra. The reverse method (length into width) was never used.

(5) When practical, the descriptions were standardized, and the inclusion of features with little or no taxonomic value were reduced or eliminated in order to avoid the illusion of describing differences where none actually exist.

(6) Distributions first give a summary outlining the most distant known limits of the range of the taxon. This is followed by political divisions (countries) presented in alphabetical order. When significant new records and

information were found outside of South America for a South American species, these are listed first. Because most species from tropical America are so poorly known, and in order to reduce the scattering of taxonomic data, species new to science from southern Mexico to Panama found since Wood (1982) was published are included, whether found by me or sent to me. Most keys to species for each genus contain the known species for Central America because of the high probability that these species also occur in South America.

For most species the full collection data are included, as given on specimen labels. Unusually common, widely distributed species, where hundreds of records exist, were reduced to only a list of the countries where they occur. The names of states or provinces were included wherever possible. Locality names and places were as given in *The Columbia Lippencott Gazetteer of the world*, Columbia University Press (1956) or in *Atlante Internazionale*, del Touring Club Italiano, Milano (1956).

(7) The authenticity of data taken from specimen labels is dependent on accuracy of locality, host identification, labeling, clarity of the printing or handwriting, correctness of labels being placed on the pin bearing the specimen, and absence or errors in remounting dislodged specimens from the original pin. Many labeling errors have been published in the literature; a few were detected and corrected in this volume.

(8) All of my studies for this volume were based on observations made with a stereoscopic American Optical microscope at magnifications of 10, 40, 80, and 120X, equipped with an ocular grid that consistently overstated the actual measurement by 0.5 mm in a 10 mm measurement (a 5 percent exaggeration).

(9) My use of the terms "interspace" and "interstriae" are not synonymous, as is the case with some workers. Interspace is a generic term referring to the space between 2 objects (such as the space between 2 punctures on the frons, pronotum, etc.). Interstriae is the space between 2 stria rows of punctures on the elytra; this space can exist only between 2 stria rows; consequently, only the plural form is valid. Occasionally I improperly cite the area between the elytral suture and striae 1 as "interstriae 1." This was done to conserve space, not from my lack of knowledge of correct usage.

(10) In the descriptive treatment of each species, the centered heading is the accepted name for the species treated. This name may be supplemented, for use in this volume only, by "n. status," "n. sp.," "n. comb.," etc. A departure from conventional systematic practice occurs on the first complete line following the centered heading for each species, when the name of the species treated is not given in its original combination, but instead, is listed in its currently accepted form, with the genus name used in the original combination placed in parentheses at the end of the literature citation. This was done because most nonprofessional users of this volume will not be trained in systems. It is a common

error of non-systematicists to assume the original combination to be the accepted correct name. It is hoped that this change will reduce the number of errors in citing the correct names of species.

There is considerable disagreement as to the correct spelling of the name of the former British Guiana. Even the residents of that country disagree on whether it is "Guiana," or "Guyana." The name was consistently spelled "Guiana" in this volume even though it is not the accepted English spelling. Similarly, correspondence with residents have printed the name "French Guyane" on their letterhead even though the name in French is quite different.

SYSTEMATIC SECTION

This is the first noteworthy attempt to comprehensively review and classify all known species of Scolytidae of South America. Minor taxonomic reviews involving some South American species have been made by Eichhoff (1878), Costa Lima (1923–1967), Eggers (1942), and Schedl (1937). Catalogs of the world fauna of Scolytidae, which include South American species, were compiled by Hagedorn (1910) and Wood & Bright (c1992). Most published articles that treat South American Scolytidae consist of isolated descriptions of species new to science, mostly by Eichhoff, Eggers, Schedl, and Wood. In Wood & Bright (c1992), the number of species cited as occurring in South America, in Wood & Bright was 1126. The present volume lists several species new to science that do not occur in South America, mostly from Mexico and Central America. These Mexican and Central American species were included in this volume (1) because of the high probability that they could also occur in South America, (2) because of where they fit in the classification of neotropical species, and (3) to place the descriptions in a major work treating neotropical scolytids, rather than in isolated journals.

Speculation as to the apparent completeness of our knowledge of the scolytid fauna of South America may be of interest, because more than half of the species (56 percent) reported here are known from only 1 specimen or from more than 1 specimen all taken at 1 locality, based on information associated with the compilation of this volume and on my knowledge gained while collecting in tropical America. It is estimated that more than 3000 species of Scolytidae will eventually be found in South America, exclusive of accidentally imported introductions. The study of sibling (or cryptic) species has scarcely begun. The existence of microhabitats in tropical forests is almost infinite when compared to temperate forests. It will take decades of intensive collecting for specialists to train themselves to find many of those microhabitats where unique species live.

INTRODUCTION

TABLE 2. Acronyms of museum type repositories cited.

BMNH	London	Natural History Museum (London)
BPBM	Honolulu	B.P. Bishop Museum
CAS	San Francisco	California Academy of Science
CNCI	Ottawa	Canadian National Collection of Insects, Arachnids and Nematodes
DEI	Muncheberg	Deutsche Entomologische Institute, moved in 2004 from Eberswalde to Muncheberg, Germany
DZUFP	Sao Paulo	see MZUSP
DZSA	Sao Paulo	see MZUSP
DZUSP	Sao Paulo	see MZUSP
EICHH	Hamburg	Hamburg Museum destroyed in 1944, WWII
FRI	Dehra Dunn	Forest Research Institute, New Forest near Dehra Dun, India
GPPT	Tbilisi	Scientific Research Institute of Plant Protection, Tbilisi, Georgia
IPKE	Muncheberg	see DEI
IRSNB	Brussels	Institut Royal des Sciences Naturelles de Belgique
IZM	Moscow	Institute of Zoology, Moscow, Russia
IZW	Warsaw	Institute of Zoology, Warszawa, Poland
MACN	Buenos Aires	Museo Argentino de Ciencias Naturalis
MCG	Genova	Museo Clivico Genova, Italy
MCZ	Cambridge	Museum of Comparative Zoology, Cambridge, USA
MHCG	Genova	see MCG
MNB	Berlin	Museum fur Naturkunde der Humboldt University at Berlin
MNHN	Paris	Museum National d'Histoire Naturelle
MNNH	Santiago	Museo Nacional de Historia Naturel, Santiago, Chile
MRCB	Tervuren	Musee Royal du Congo Belgique
MZU	Helsinki	Museum Zoologicum Universitatis, Finland
MZUSP	Sao Paulo	Museum de Zoologia, Universidade de Sao Paulo, Sao Paulo, Brazil
NHMB	Budapest	Naturhistorisches Museum Budapest, Hungary
NHMBS	Basel	Naturhistorischen Museum Basel, Switzerland
NHMW	Wien	Naturhistorisches Museum Wien (=Vienna, Austria)
NHR	Stockholm	Naturhistoriska Riksmusset, Sweden
NMPC	Prague	National Museum (Natural History), Praha, Czech Republic
SAM	Adelaide	South Australian Museum
SMTD	Dresden	Staatliches Museum fur Tierkunde, Germany
SMUK	Lawrence	Snow Museum, Kansas University, Lawrence, Kansas, USA
Strohmeyer	Muncheberg	see DEI
USNM	Washington	United States National Museum of Natural History, Washington
UWEM	Madison	Entomological Collection, University of Wisconsin, USA
UZM	Copenhagen	a discontinued acronym for UZMC
UZMC	Copenhagen	Universitets Zoologisk Museum, Denmark

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This study could not have been made without the aid of numerous curators of collections where the types of South American scolytids were deposited. Foremost among these is Heinrich Schoenmann, Naturhistorisches Museum Wien (Vienna, Austria), who prepared and sent loans of type and other specimens of Schedl, Eggers, Ferrari, and Eichhoff, and Natalia Vendenberg, U.S. National Museum of Natural History (Washington, USA), for loans of Hopkins, Blackman, and Eggers specimens. The entire staff at the Institut Royal des Sciences Naturelles de Belgique, Brussels, for loans of Chapuis,

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Apparently, due to the lack of staff or of appreciation for the magnitude and depth of this study, numerous requests for loans from the Museum de Zoologie, Universidade de Sao Paulo, Brazil; and the Museo Argentino de Ciencias Naturalis, Buenos Aires, Argentina, brought no response whatever when their cooperation was needed.

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FAMILY SCOLYTIDAE

Scolytidae are members of the Coleoptera superfamily Curculionoidea, in which there is only 1 median, gular suture. This family and the closely allied Platypodidae are the only members of this superfamily in which a pair of pregular sutures (after Hopkins 1911) branch from the anterior end of the gular suture and continue cephalad toward the bases of the mandibles (Wood 1986:6, 27). Massive internal apodemes reinforce these sutures, which do not occur in other Curculionoidea. The triangular pregula occurs between these arms. The tibiae are armed on the apical and lateral margins by unique, socketed denticles in almost all genera except *Scolytus* (they are also absent in Platypodidae). Corbels are never present in either family. The axis of the mandibular hinge is oblique to transverse, the cutting edge is on the mesal margin, and the hypostomal spine (of Cossonininae, etc., Curculionidae) is entirely absent (Wood 1986:10).

Scolytidae are readily distinguished from Platypodidae by the conspicuously shorter tarsal segment 1, segments 2–5 together are conspicuously longer than segment 1. The male spiculum gastrale is present in all Scolytidae; it is almost universally absent in Platypodidae. The eyes tend to be flattened against the head and are more irregular in outline (elongate, reniform, emarginate, etc.) and are rarely subcircular in outline. The larvae have a definite clypeus; in most Platypodidae the clypeus is vestigial and fused to the frons.

A few recent authors, including myself, have placed the Platypodidae as a subfamily of Scolytidae. While this action is probably correct, the present volume does not follow that course. The research needed to document this action has not yet been published.

Approximately 6000 species of Scolytidae are known. These are classified into 2 subfamilies, 25 tribes, and about 227 genera (Wood 1978, 1986, Wood & Bright c1992:1). While the size ranges from 0.53 mm (male *Trischidias*) to 18 mm (*Phloeoborus*), most species are 2.0–4.0 mm in length. Almost all species bore into tissues of their host to form characteristic gallery systems where pairing, mating, and reproduction occur in a constantly changing ephemeral habitat. Adults and larvae

may feed directly on host tissues (phloeophagy, myelophagy, xylophagy, spermophagy) or their gallery walls may be used for propagation of ambrosia fungi, the spores of which are used as food by both adults and larvae. This xylomycetophagous habit appears to have arisen independently at least 7 times within this family. Mating systems are diverse. Primitive genera tend to be bisexual, with loose pair-bonding between male and female. Either sex may initiate a new attack on the host, but the pattern will be constant and often characteristic for a genus or even a tribe. When the male initiates the attack, some genera or species may evolve toward something loosely resembling harem or outbreeding (heterosanguineous) polygyny. When the female initiates the attack, some genera or species may evolve toward inbreeding (consanguineous) polygyny; in this case, males may be dwarfed, anatomically altered, and genetically haploid. In this latter case, males may be produced parthenogenetically then mate with their mother or sisters to produce diploid females. In at least 2 species of *Ips*, females produce both diploid and polyploid females parthenogenetically.

While most species attack dying, unthrifty, weakened, diseased, broken or felled, or otherwise unthrifty trees, some attack and kill healthy, vigorous trees, and a few normally live in healthy, vigorous trees generation after generation without killing the host. The most destructive species have a mutualistic symbiotic relationship with fungi; the fungi actually kill the tree, the beetle is the vector that moves spores from tree to tree.

The need for immediate recruitment of a substantial adult population to overcome the resistance of a chosen host plant is vital to survival in aggressive species and has led to a high level of refinement in the Scolytidae. Pheromones (sex attractants) are produced by both sexes for this purpose. Some species are known to produce a dozen or more separate chemicals, each with its own special target and objective, in this pairing-mating interaction between the sexes. Pheromones may be less effective in tropical climates (possibly due to excessive rainfall and/or humidity) and are unknown in inbreeding species.

KEY TO SUBFAMILIES, TRIBES

(Modified from Wood 1978, 1986)

- 1. Basal margin of each elytron separately procurved and armed by a series of marginal crenulations (or less commonly by a continuous elevated costa in some *Bothrosternini*), usually with a scutellar emargination between them; scutellum usually small and rounded, depressed, or absent in some groups; pronotum weakly if at all declivous on anterior half, usually unarmed but crenulations sometimes present on anterolateral areas; head usually visible from above, somewhat wider; protibia usually wider; scales or deeply divided setae a common feature (subfamily **HYLESININAE**) 2
- Basal margins of elytra forming a straight, transverse line across the body, unarmed, rarely (some *Scolytini*, *Ctenophorini*, *Cryphalini*) with a weakly elevated continuous line; scutellum usually large, flat (rarely absent or highly modified in some *Xyleborini*); pronotum weakly to strongly declivous on anterior half and usually armed by many asperate crenulations, particularly on median half; head usually partly or entirely concealed from dorsal aspect, somewhat narrower; protibia usually narrower; scales or deeply divided setae an uncommon feature (subfamily **SCOLYTINAE**) 9
- 2(1). Scutellar area of metanotum and its postnotum separated by a suture-like intersegmental membrane; posterior part of scutoscuteilar suture strongly curved mesad to a point near crest of scutellar groove then continuing cephalad parallel to this costa for about two-thirds of metanotum length (except much less in *Phrixosomini*); metapleural suture descending subvertically from pleural wing process to metepisternal groove formed to receive corresponding costal groove and flange of elytron then abruptly angled and continued caudad along this groove to a point near pleural coxal process; scutellum visible; funicle 6- or 7-segmented or if 5 segmented then male frons not impressed, and antennal club symmetrical 3
- Scutellar area of metanotum and its postnotum completely fused on at least median third, intersegmental suture usually obsolete; scutoscuteilar suture less strongly curved, approaching costa of scutellar groove more gradually and continuing cephalad parallel to it for less than half length of metanotum (it never reaches margin of this groove in some groups); metapleural suture sometimes as described above, but more commonly running a more direct route from pleural wing process to pleural coxal process, often remote from locked position of costal margin of elytra for most or all of its course; scutellum either not visible or if visible, then funicle 5-segmented and male frons impressed (*Bothrosternini* with 6-segmented funicle but with a distinctive protibia) 6
- 3(2). Eye completely divided by an emargination, halves widely separated; scutoscuteilar suture remote from costa of scutellar groove; crenulations on basal margins of elytra low, often poorly formed; precoxal ridge on prothorax never present; antennal funicle 6-segmented; in *Guttiferae* hosts **Phrixosomini**
- Eye entire to feebly emarginate; scutoscuteilar suture parallel to costa of scutellar groove for two-thirds length of notum; precoxal ridge on prothorax present or absent; antennal funicle 5- to 7-segmented 4
- 4(3). Prothoracic precoxal area rather large, its lateral margins strongly, sharply elevated from anterior margin to coxae; crenulations on elytral bases usually poorly developed; antennal funicle 7-segmented, club conical, segment 1 almost as long as others combined; head somewhat prolonged, subrostrate, frons never sexually dimorphic; eye entire, rather short; in *Pinaceae* hosts **Hylastini**
- Prothoracic precoxal piece small, short, its lateral areas either elevated into a precoxal ridge or not; crenulations on elytral bases more conspicuously elevated, forming a definite row; antennal funicle variable, 5- to 7-segmented, club weakly to moderately flattened; head less distinctly rostrate, male frons usually impressed, eye oval to elongate, entire to feebly emarginate 5

KEY TO SUBFAMILIES AND TRIBES

- 5(4). Pronotum asperate on anterior areas (except asperities absent in *Hylastinus*); prothorax with elevated costate ridge from coxa to anterior margin; antennal funicle 6- or 7-segmented; mesal surface of elytra at base of suture immediately behind scutellum with an interlocking series of nodules and cavities, this lock interrupts groove and flange of suture (not visible when elytra locked in position) **Hylesinini**
- Anterolateral areas of pronotum usually unarmed; precoxal costa on prothorax absent; funicle 5- to 7-segmented; mesal surface of elytra at suture often with interlocking groove and flange continued to base without a series of nodules or cavities immediately behind scutellum . . . **Tomicini**
- 6(2). Outer apical angle of protibia with a curved bifid process, meso- and metatibiae with 1 or 2 (usually smaller) curved spines on outer apical angle extending beyond level of spine on inner apical angle; pronotum smooth or longitudinally strigose; funicle 6-segmented; lateral prosternal area usually subacutely elevated from coxa to anterior margin; anterior coxae rather widely separated; crenulations on elytral bases rather small or (rarely) replaced by a continuously elevated costa; eye entire **Bothrosternini**
- Outer apical margin of protibia armed by several teeth of about equal size, none of them extending beyond tarsal insertion; funicle 4- to 7-segmented; prosternal area with margins rounded, costa obsolete; eye varying from entire to emarginate to divided 7
- 7(6). Scutellum obsolete, elytral bases only slightly if at all emarginate at suture; tarsal segment 3 slender; mesal surface of elytra at suture usually without a special lock, groove and flange extend to base at position of scutellum; eye sinuate or entire; pronotum armed by a few scattered or clustered asperities; crenulations at bases of elytra restricted to area between suture and interstriae 5; funicle 3- to 5-segmented **Hypoborini**
- Scutellum visible, elytral bases notched for its reception; tarsal segment 3 stout, usually bilobed (slender in *Chramesus*); mesal surface of elytra at suture immediately behind scutellum with a series of interlocking nodules and cavities 8
- 8(7). Antennal club constricted at sutures and movable at intersegmental lines, segments frequently, strongly, asymmetrically extended as sublamellate lobes **Phloeotribini**
- Antennal club segments immovably, broadly fused at sutures; antennal club sutures often partly or entirely obsolete **Phloeosinini**
- 9(1). Lateral margins of pro- and metatibiae unarmed except for a single, apical, spinelike process that curves toward and extends beyond process of inner apical angle; lateral margins of pronotum subacutely elevated, costate; pleural suture descending subvertically from pleural wing process to groove receiving groove and flange on costal margin of elytra, at this point suture turns abruptly and follows groove caudad to metapleural coxal process; funicle 7-segmented, sutures of antennal club strongly procurved or obsolete **Scolytini**
- Lateral margin of protibia armed by more than 1 denticle, none of which exceed or curve toward inner apical process; pleural suture less strongly angulate, groove receiving flange of costal margin of elytra displaced ventrad from course followed by pleural suture; lateral margins of pronotum subacutely raised or not, antenna variable 10
- 10(9). Metepisternum visible throughout its length, slightly more than its dorsal half covered by elytra when in locked position, either with a conspicuous groove for reception of costal flange throughout its length or else groove represented at its anterior end by a denticulation or costate remnant near anterior end of metepisternum; antennal club varying from flat to obliquely truncate 11
- Metepisternum largely covered by elytra, usually not visible on its posterior half, its groove for reception of costal flange obsolete, a small, transverse callus (*Cryphalini*) or a small transverse groove (*Corthylini*) at anterior end of metepisternum; antennal club strongly flattened; antennal funicle 1- to 5-segmented, club never obliquely truncate 15

- 11(10). Lateral margins of pronotum subacutely elevated, basal margins of elytra usually finely elevated; procoxae rather widely separated; protibia with prominent outer apical process recurved, usually extending beyond tarsal insertion, posterior tibia tapered on apical third and armed by several small, socketed denticles; funicle 6- or 7-segmented; tarsi often retractable into tibial grooves **Ctenophorini**
- Lateral and basal margins of pronotum rounded; procoxae subcontiguous (except most Micracini and a few Xyleborini); protibiae with outer apical angle inconspicuous, armed by several small, socketed denticles; funicle 2- to 6-segmented; tarsi not retractable 12
- 12(11). Procoxae moderately separated; protibia with sides parallel, usually armed by denticles only on apical margin or posterior face; funicle 6-segmented; female frons often concave, male frons rarely concave (2 *Pseudothysanoes*) **Micracini**
- Procoxae contiguous (except Carphodicticini, some Xyleborini); protibia much wider apically, armed on lateral margin by several denticles; female frons rarely concave (a few Dryocoetini), male frons often concave, funicle 2- to 5-segmented 13
- 13(12). Eye emarginate, funicle 5-segmented; male dwarfed, deformed, and flightless; female meso- and metathoracic tibiae expanded to just beyond middle then arcuately tapered to apex, its apical two-thirds on outer margin armed by a row of numerous small, closely set teeth of equal size, these usually supplemented by a row of submarginal setae on posterior face; preular area depressed (except *Premnobius*); wood-boring, xylomycetophagous; male absent from parental gallery except as offspring **Xyleborini**
- Meso- and metathoracic tibiae more slender, more abruptly narrowed on apical fourth, lateral and apical margins armed by fewer, coarser teeth; eye sinuate on anterior margin; pronotum sometimes with raised line on basal or lateral margin; preular area not depressed; sexes of similar size and body form; habits varied but never xylophagous (woodboring) or xylomycetophagous 14
- 14(13). Eye shallowly sinuate to shallowly emarginate, its lower half distinctly narrower than above; protibia with 3–4 socketed teeth; antennal club rarely obliquely truncate (some *Orthotomicus*); procoxae contiguous, intercoxal piece longitudinally emarginate to absent, never complete; elytra moderately sulcate to elaborately excavated, with lateral margin usually armed by tubercles or spines; pronotum more strongly declivous and armed on anterior third, asperities usually larger (*Carphodicticini*) **Ipini**
- Eye sharply, rather deeply emarginate, lower half almost as wide as upper half; protibiae usually with four or more socketed teeth; procoxae either contiguous or distinctly, narrowly separated; elytral declivity flattened to convex, usually unarmed by spines or large tubercles (some male *Dendrocranulus* with 1 pair of spines are exceptions); pronotum either evenly arched from base to anterior margin or less strongly declivous on anterior third, asperities, when present, usually fine and abundant; antennal funicle 5-segmented, club more nearly obliquely truncate **Dryocoetini**
- 15(10). Costal margin of elytra slightly to moderately ascending from base of declivity to apex; basal end of metepisternum armed by a callus or partial groove of degenerating metepisternal spine; sutures on posterior face of antennal club more strongly displaced toward apex; funicle 3- to 5-segmented; tibiae more strongly flattened, usually armed by more than 4 denticles; vestiture commonly includes scales; eye usually entire, less commonly emarginate (*Hypothenemus*) **Cryphalini**
- Costal margin of elytra descending toward apex (except *Brachyspartus*); basal margin of metepisternum with a small, transverse groove (concealed when elytra in locked position), elytra in locked position more completely cover metepisternum, less than anterior third exposed on its ventral half; sutures on posterior face of antennal club only slightly displaced toward apex; funicle 1- to 5-segmented; tibiae more slender, rarely armed by more than 4 socketed denticles; vestiture rarely including scales; eye emarginate **Corthylini**

SUBFAMILY HYLESININAE

The concept of the subfamily Hylesininae presented here is that of Wood 1978, 1982, 1986; and Wood & Bright c1992. It may differ radically from the work of other authors.

The Hylesininae all have a row of rather distinctly elevated crenulations along the basal margin of the elytra. Each elytron may bear as few as 4 crenulations or more than 15. In *Hylastes* (Hylastini), they are poorly formed but are quite distinct. Some members of *Cnemomyx* (Ctenophorini, Scolytinae), allies of *galeritus*, also have well-formed crenulations, but these species are placed in Scolytinae because of the occurrence of

other sets of characters that clearly associate them with Scolytinae. This might indicate an evolutionary path along which Hylesininae evolved. The *Pycnarthrum* (Ctenophorini) also exhibit additional characters that suggest a connection to the Hylesininae.

Crenulations on the elytral base appear to aid the beetle in maintaining its position in the gallery when a predator attempts to enter or to pull the beetle from the defended entrance hole. The short, stout, subglobular body form apparently enhances the effectiveness of this trait.

TRIBE HYLASTINI

The distinctive antennae, tibiae, poorly developed crenulations on the elytral bases, and habits distinguish this tribe. Their natural distribution is restricted to the Northern Hemisphere, but commerce has introduced 1 species to *Pinus* plantations in the Southern Hemisphere.

GENUS *HYLASTES* ERICHSON

Hylastes Erichson, 1836:47. Type-species: *Bostrichus ater* Paykull, subsequent designation by Westwood 1838:39, Thomson 1859:146 (References in Wood & Bright c1992:43)

Description: Frons not sexually dimorphic; eye oval, entire; antennal scape elongate, funicle 7-segmented; precoxal ridge on prothorax strongly, acutely elevated from coxa to anterior margin of prothorax. Protibiae large, with several socketed teeth. Basal crenulations on elytra poorly developed; declivity convex, sculpture simple.

Distribution: About 35 species occur mostly from northern Africa through Europe to northern Asia, and in North America. At least 1 species (*ater*) has spread through commerce to South Africa, New Zealand, and South America (Chile).

Biology: Most species confine their breeding activity to Pinaceae roots at or below the ground level. A few also infest prostrate logs where the lower surfaces contact the ground. Newly emerged adults of a few species form maturation feeding tunnels in seedlings, particularly in nursery stock. Because of their subterranean habit they are usually overlooked until infestations are severe. Flying adults are occasionally attracted to light at night.

Hylastes ater (Paykull)

Plate I

Hylastes ater (Paykull), 1800:153 (*Bostrichus*). Lectotype ♀; Surrey-Bramshill, England; type not located, designated by Lekander 1965: 185 (Synonymy and references in Wood & Bright c1992:45–49)

Hylesinus chloropus Duftschmidt, 1825:102. Syntypes, sex?, Europe, not located

Hylastes pinicola Bedel, 1888:390. Syntypes, sex?, not located, replacement name for *ater* Paykull

Diagnosis: Imported to Chile *Pinus* plantations from Europe or northern Asia. Characters described below distinguish it from all other South American species.

Male: Similar to female except last visible abdominal sternum rather broadly impressed (broadly convex in female).

Female: Length 3.5–4.4 mm, 3.1 times as long as wide; color almost black, elytra slightly lighter and often somewhat reddish brown. Head subrostrate; frons planoconvex, with a fine, acutely elevated, median carina on lower half; antennal club small, conical, basal segment occupying almost half its length. Pronotum 1.2 times as long as wide, coarsely, deeply, closely punctured, glabrous. Elytra 1.8 times as long as wide, 1.7 times as long as pronotum; striae not impressed, punctures rather coarse, deep; interstriae twice as wide as striae, weakly subcrenulate (at 80X), with numerous, small, confused punctures; vestiture short, sparse, hairlike, length of each seta almost equal to diameter of a stria puncture. Tibiae large, much wider on apical third.

Distribution: Europe and N Asia, introduced to South Africa, New Zealand, and South America (Chile).

Chile: Lirquen, 12-VIII-1984, Pino Insigne, Mathei; Melpilla, Curacavi, 18-1987, J. Solervicens; Pto. Valpo y bavco, 21-IV-1987, R.H. Gonzalez; Valparaiso, VII-1981, *Pinus* sp., P. Ojeda; Valparaiso, 20-III-1988, trampa, J. Godoy.

Hosts: *Pinus* spp., in plantations.

Biology: All species are monogynous and breed in

the phloem tissues of roots of their hosts. In tropical areas they may also breed in logs where the bark is in contact with the ground.

Notes: The above treatment was based on my series of 20 specimens from Europe and Asia, and on 13 specimens from Chile.

TRIBE HYLESININI

Description: Male frons obscurely to deeply and extensively impressed, female flat to variously convex; eye oval to elongate, entire to feebly sinuate on anterior margin; antennal scape very short to elongate, funicle 6- or 7-segmented, club conical to moderately flattened, symmetrical or nearly so, 2 or more sutures indicated; procoxae narrowly to moderately separated, prothoracic precoxal ridge moderately to very strongly, acutely elevated; pronotum armed by a few asperities (except absent in *Hylastinus*); mesoscutellar area separated from post-

notum by a distinct suture; mesal surface of sutural groove of elytra just behind scutellum interrupted by a series of interlocking nodules and cavities; tarsal segment 3 usually wider than 2, often bilobed.

Biology: All species are monogynous; all are phloeophagous except the xylophagous *Phloeoborus*. The parental galleries are mostly biramous, although a few species that make a large turning niche near the entrance hole may have monoramous galleries.

Key to the Genera of Hylesinini

- 1. Antennal club subconical, with 3 sutures indicated; posterior face of protibia flattened to weakly convex, smooth, lateral margin armed by socketed teeth; frons convex in both sexes; pronotum without asperities; Chile; Leguminosae herbs or subshrubs; 2.0–2.5 mm **Hylastinus**
- Antennal club moderately to strongly flattened, with 2 or 3 sutures weakly indicated; posterior face of protibia somewhat convex, often indistinctly to rather coarsely, closely tuberculate; pronotum with at least a few crenulations; male frons modestly to strongly concave 2
- 2(1). Female propleuron without a mycetangium; tibiae armed by socketed teeth; eye entire, oval; elytral vestiture abundant; phloeophagous, mostly in Oleaceae; 1.7–4.8 mm **Hylesinus**
- Female propleuron with a large mycetangium; tibiae without socketed teeth, posterior face coarsely tuberculate; eye large, elongate; elytra usually glabrous or nearly so; xylophagous; 5.0–12.0 mm **Phloeoborus**

GENUS *HYLASTINUS* BEDEL

Hylastinus Bedel, 1888:388. Type-species: *Ips obscurus* Marsham, monobasic (References in Wood & Bright c1992:64)

Diagnosis: This European genus is unrelated to other members of the neotropical fauna. It is easily distinguished by characters summarized in the above key and by its habits.

Description: Sexes similar. Frons convex, with a dis-

tinct interocular impression; antennal scape elongate, funicle 7-segmented, club conical with 3 sutures; pronotum without any asperities; precoxal ridge on prothorax acute, strongly developed; elytra striate, declivity convex.

Distribution: Wood & Bright (c1992:64–67) list 4 species from Europe, N Africa, and Asia Minor, with 1 species (*obscurus*) introduced through commerce to North and South America.

Biology: Adults of *obscurus* bore into roots of their Leguminosae hosts.

Hylastinus obscurus (Marsham)

Plate I

Hylastinus obscurus (Marsham), 1803:57 (*Ips*). Syntypes, sex?; type-locality unknown, presumably England; syntypes presumed to be in BMNH, London (Synonymy and references in Wood & Bright c1992:64–67)

Scolytus crenatus Olivier, 1795:12. Syntypes, sex?; Paris, France; presumably in MNHN, Paris, not located; preoccupied by Fabricius 1787:37

Dermestes trifolii Muller, 1803:47. Syntypes, sex?; central Europe; not located

Hylesinus crenulatus Duftschmidt, 1825:104. Syntypes, sex?; Linz, Austria; probably MNB, Berlin, not located

Hylurgus fuscescens Stephens, 1830:365. Syntypes, sex?; London, England; BMNH, London

Hylurgus piceus Stephens, 1830:365. Syntypes, sex?; London, England; BMNH, London

Hylastinus kroaticus Fuchs, 1912:49. Syntypes, sex?; Croatia; not located

Hylastinus pilosus Eggers, 1944:140. Holotype ♂; Algeria; USNM, Washington

Diagnosis: Introduced from Europe; easily distinguished by the habits; by the size; and by the acute, strongly elevated precoxal ridges on the prothorax.

Male: Similar to female except for abdominal terga 7 and 8.

Female: Length 2.0–2.5 mm, 2.2 times as long as wide; color dark brown. Frons convex, with a small, conspicuous interocular impression; surface coarsely reticulate, with close, coarse, shallow, obscure punctures; vestiture hairlike, short, inconspicuous. Pronotum 0.9 times as long as wide; widest one-third pronotum length from base; surface coarsely, closely, deeply punctured, interior of most punctures obscurely reticulate; vestiture hairlike, moderately long, rather abundant. Elytra 1.4 times as long as wide, 1.9 times as long as pronotum; striae weakly impressed, punctures large, deep; interstriae distinctly narrower than striae, feebly convex, punctures rather fine, part of them with anterior margin subcrenulate, tuberculate toward declivity. Declivity convex, steep; striae slightly narrower, interstriae more strongly convex than on disc, each interstriae with a row of fine, pointed tubercles; vestiture of coarse, hairlike, interstitial setae, each about equal in length to diameter of a striae puncture, and medial rows of interstitial hair each about twice as long as ground setae.

Male: Similar to female except for abdominal terga 7 and 8.

Distribution: Europe, parts of northern Africa, and Asia. Introduced into North America, South America (Chile), etc.

Chile: Carillanca (Experiment Station north of Temuco); Malleco, Ericilla, IV-1977, trebol rosada; Victoria, Malleco Prov., 21-III-1973, *Trifolium pratense*, T. Posado [Schedl 1978:293].

Hosts: Listed in Europe include *Medicago sativa*, *Melilotus* sp., *Ononis natrix*, *Spartium scoparium*, *Trifolium pratense*, *Ulex europaeus*, *Cytisus bifloris*, *C. hirsutus*, *C. laburnum*, *C. nigricans*.

Biology: New parent adult tunnels are bored into the rhizomatous taproots of unthrifty or older plants in Europe and North America in the spring. Parent galleries are of the biramous type with eggs deposited in niches along the margins. Larvae mine at random through the root tissue. Pupation occurs during late summer. There is 1 generation each year. Adjustments in the life cycle to the climate of Chile have not been reported.

Notes: The above treatment was based on more than 100 specimens from North America and Europe, and on 8 specimens from Chile.

GENUS *HYLESINUS* FABRICIUS

Hylesinus Fabricius, 1801:390. Type-species: *Hylesinus crenatus* Fabricius, subsequent designation by Westwood 1838:39 (Synonymy and references in Wood & Bright c1992:74–90)

Leperisinus Reitter, 1913:41. Type-species: *Bostrichus fraxinus* Panzer = *Hylesinus varius* Fabricius, subsequent designation by Swaine 1918:70

Apidocephalus Wickham, 1916:18. Type-species: *Apidocephalus hydropticus* Wickham, monobasic

Diagnosis: Distinguished by the moderately ascending abdomen and costal margin on posterior part of elytra; ground vestiture of abundant scales, rows of erect interstitial setae usually present; eye oval, entire; antennal funicle 7-segmented, club distinctive.

Description: Frons sexually dimorphic, male variously impressed to deeply concave, female convex; eye oval, entire; scape elongate, funicle 7-segmented, club moderately flattened, slightly asymmetrical, with 2 or 3 sutures; pronotum wider than long, anterolateral areas armed by several crenulations; elytra striate, declivity convex, moderately steep, costal margin ascending on posterior third, abdomen ascending almost half distance to meet apex of elytra; vestiture of ground cover of short scales, interstitial rows of erect hair or scalelike setae usually present.

Distribution: There are 41 species listed worldwide by Wood & Bright (c1992:74–90), most of which occur from Europe and Asia to Australia and from North America south to Guatemala. Four species have been reported from South America, although only 1 of them appears to actually belong to this genus.

Biology: members of this genus breed in Oleaceae and Flindersiaceae hosts. All are monogynous and phloeophagous. The 20 or more species personally known to me form transverse, biramous parental galleries in the cambium area, which deeply engrave the wood. larval mines extend above and below the primary gallery, following the grain of the wood, and tend to be rather straight. It has been reported that some species pass seasons of stress (winter, dry season) in maturation tunnels in the outer bark at the base of their brood tree, others are reported from litter on the forest floor. It is probable that tropical species continue without interruption from 1 generation to the next.

Hylesinus toranio (Danthione)

Plate I

Hylesinus toranio (Danthione), 1788:270 (*Byrrhus*). Syntypes, sex?; Europe, not located (Synonymy and references in Wood & Bright c1992:83–85)

Bostrichus oleiperda Fabricius, 1792:366. Syntypes 2, sex?; Gallia meridionali; UZM, Copenhagen

Ips scaber Marsham, 1802:56. Syntypes, sex?; Horto Kensingtoniano, England; presumably BMNH, London

Hylesinus suturalis Redtenbacher, 1842:21. Syntypes, sex?; Europe; not located

Hylesinus esau Gredler, 1866:370. Syntypes, sex?; Tirol, Austria; not located

Hylesinus antipodus Schedl, 1951:17. Lectotype ♂; Rengo, Chile; Museo Nacional de Historia Natural, Santiago, present designation (References in Wood & Bright c1992:75). *New synonymy*

Diagnosis: This introduced species is the only member of the genus in South America; it is distinguished by characters presented in the key to genera.

Male: Similar to female except frons rather strongly, broadly concave from epistoma to slightly above upper level of eyes, with no indication of a median carina, punctures minute and setae almost obsolete.

Female: length 1.9–2.8 mm, 1.6 times as long as wide; color very dark brown, with vestiture somewhat variegated (pale, dark brown intermixed), vary individually and with age. Frons moderately impressed, median carina rather short, surface with at least some reticulation, punctures small, rather sparse. Pronotum with posterior area rather weakly projecting into scutellar notch; asperities in anterolateral areas moderately large and numerous, median half somewhat rugose, punctures large and with no reticulation; vestiture of fine, long hair, Elytra with about 12 larger basal crenulations; striae narrowly, rather deeply impressed; interstriae about 2–3 times as wide as striae, each armed on posterior half by a row of narrowly subcrenulate tubercles, these continue to base but increasingly confused cephalad, also with numerous fine punctures; vestiture conspicuous, moderately long, varying from pale to brown in color and from slender to rather stout hair.

Distribution: Europe, also to northern Africa, Asia Minor, and Japan. Introduced into South America (Argentina, Chile).

Argentina: “Argentina” (Wood & Bright c1992:80).

Chile: Marchigue, Colchagua, 2-XII-1977, ex olive, R. Charlin; Rengo, XII-1947.

Hosts: Recorded in Europe from *Fraxinus* spp., *Fagus* spp., *Olea Europea*, *Syringa* spp.

Notes: Much of the literature is recorded under the name *H. oleiperda* Fabricius, a junior synonym. The name *antipodius* Schedl, described from Chile, is also a synonym of *toranio*. Two male cotypes (actually syntypes) and 1 female of *antipodius* from the Museo Nacional de Historia Natural, Santiago, were examined and compared by me to my series from Europe. One of these male cotypes is here designated as the lectotype of *antipodius*. Although Schedl referred to a holotype, he never designated a holotype or lectotype.

Species Not Seen

Hylesinus bicolor Philippi & Philippi

Hylesinus bicolor Philippi in Philippi & Philippi, 1864:375. Syntypes; Prov. Valdivia invenit orn. Landbeck [Chile]; NHH, Santiago; pre-occupied by Brulle (1832:250)

Not located. If it is not a synonym of an introduced species, it probably belongs to another genus.

Excluded Species

Acacacis atomarius (Chapuis), n. comb.

Hylesinus atomarius Chapuis, 1860:29. Syntypes 2 ♂♂, 2 ♀♀; “Bresil”; IRSNB, Brussels (References in Wood & Bright c1992:75)

Acacacis abundans Lea, 1910:149. Syntypes, sex?; Hobart, Mt. Wellington, etc.; SAM, Adelaide (References in Wood & Bright c1992:192). *New synonymy*

Reported here for the first time is an error in identification and in labeling of an Australian species, *Acacacis abundans* Lea, which has been listed as thought it came from “Bresil.” The 2 male and 2 female syntypes were examined and were compared by me to a long series of this species I collected in Queensland, Australia, which was previously known as *Acacacis abundans*. Except for these 4 specimens, the species is not known from South America. The report from “Bresil” is regarded as an error in labeling. Therefore, this species is removed from the South American fauna. The genus *Acacacis* is a member of the tribe Diamerini that is known only from Asia in the Indo-Malayan and Austro-Malayan subregions, and from Africa.

GENUS *PHLOEOBORUS* ERICHSON

Phloeoborus Erichson, 1836:54. Type-species: *Phloeoborus rudis* Erichson, subsequent designation by Hopkins 1914:126 (Synonymy and references in Wood & Bright c1992:97–101)

Phloeotrupes Erichson, 1836:54. Type-species: *Phloeotrupes grandis* Erichson

Diagnosis: Recognized by the very large size and stout body form; by the modestly flattened, conical antennal club, with 2 sutures weakly marked; by the large female propleural mycetangium, which is ornamented by setae; and by the retractable metatarsi.

Description: Body length 5.0–14.0 mm, dark brown to black. Frons sexually dimorphic, male variously impressed, female convex; antennal scape elongate, funicle 7-segmented, club conical but moderately flattened, weakly marked by 2 sutures, closely, uniformly covered by abundant micropile; eye variously elongate (often subcontiguous above and below). Pronotum variable, with or without asperities; propleuron with a large mycetangium ornamented by hair in female, rarely present in male. Elytra with crenulations on bases poorly formed; striae usually impressed, punctures small to obsolete; declivity variously convex; vestiture usually obsolete.

Distribution: This exclusively neotropical genus is known from 24 species and is restricted to tropical rain

forests (Wood & Bright c1992:97–101) from Mexico (Veracruz) to northern Argentina.

Biology: Adults and larvae are xylophagous. They bore into broken, uprooted, or felled logs or limbs larger than 15 cm in diameter on the lower side at or near the site of contact with the ground. The radial tunnel extends inward about 2–5 cm into the xylem then branches into 2 to several short arms. The parental chambers are stained black by fungal growth, but the spores are apparently not used directly as food. Superficial studies suggest that the fungi act upon the xylem to soften and/or enhance its nutritional value. Eggs are placed in niches that are randomly distributed from which larvae bore long, meandering tunnels through the wood. Tissue decay is unusually rapid in

the vicinity of larval mines, but ambrosial growth does not appear inside the tunnels. Mycelial growth, however, is conspicuous inside of pupal chambers. Pupation may occur anywhere within the log, not necessarily near the surface. One generation each year appears synchronized with the dry season. By the time pupation occurs, tissue deterioration has advanced to the point where large logs can be torn apart by hand.

Notes: Because of the large size of specimens, this genus has attracted much attention and because erroneous identifications of species have listed occurrence of specimens taken from areas far beyond their natural distributions, all known species are treated here in the hope that order might be had in the classification of species.

Key to the Species of *Phloeoborus*

- 1. Pronotum unarmed by asperities; striae usually wider; punctures more distinct; pronotum somewhat triangular, surfaces of pronotum and elytra smooth, shining 2
- Pronotum armed by asperities at least on anterolateral areas, these usually accompanied by subasperate crenulations to or near base; pronotum somewhat quadrate; striae usually narrower; punctures minute to obscure; elytra and (usually) pronotum surfaces reticulate (1 exception) 10
- 2(1). Eyes narrowly separated above, spaced by distance equal to less than 3 diameters of a facet; interstitial crenulations on disc about half as wide as an interstriae, their posterior, subvertical faces marked by a puncture, most punctures bearing a tiny seta, its length shorter than diameter of a puncture 3
- Eyes more widely separated above by a distance equal to or greater than width of an eye; interstitial crenulations on disc more gently sloped, usually without a discernible puncture or seta . . . 7
- 3(2). Summits of interstitial crenulations on disc rounded, posterior face of each crenulation oblique 4
- Summits of interstitial crenulations on disc subacutely elevated, their posterior face vertical, particularly coarse near base 5
- 4(3). Interstriae mostly smooth, with almost no reticulation, crenulations more numerous, more closely spaced, their crest more conspicuously transverse; median carina in frontal impression more strongly, acutely elevated; Costa Rica to Bolivia, Paraguay, Argentina; 7.0–10.0 mm *signatus* **Strohmeyer**
- Interstriae weakly, minutely, mostly reticulate on disc and declivity, tubercles higher, less numerous, mostly less than twice as wide as thick; median carina on frontal impression weak, obtuse; Costa Rica; 7.8 mm *willei* **Wood**
- 5(3). Elytral declivity dull, rather strongly reticulate on both striae and interstriae, reticulation gradually reduced in disc until at base only interior of interstitial punctures with reticulation; color brown; Guiana; 6.6 mm *intermedius* **Eggers**
- Elytral surfaces mostly shining, weak reticulation often present on declivity and obscurely on posterior disc, interiors of punctures on discal interstriae never reticulate; color dark brown to black 6
- 6(5). Strial punctures on disc larger, interstriae twice as wide as striae; strial punctures within a row on disc separated by normal groove; interstitial crenulations on disc narrower, most less than one-third as wide as an interstriae, punctures behind crenulations usually present, distinct; reticulation on declivity obscure to absent; Belize to Argentina; 6.4–11.7 mm *rudis* **Erichson**

- Strial punctures on disc small, interstriae two and one-half to three times as wide as striae; strial punctures within a row mostly separated by a low, subacute, transverse partition; interstitial crenulations on disc larger, almost half as wide as an interstriae, crenulations averaging higher, more acute, punctures behind crenulations more obscure, often obsolete; reticulation on declivity usually present in some areas; (female not seen) Brazil (Sao Paulo to Rio de Janeiro); 8.3–8.5 mm
..... *freyi* Schedl
- 7(2). Frons with a strongly elevated, acute median carina extending from epistomal margin to upper level of eyes; pronotum smooth, shining, a puncture almost equal in width to combined diameters of four facets of an eye; antennal club wider than long, apex narrowly rounded; Brazil; 8.8–9.5 mm
..... *procerus* (Erichson)
- Frons with median carina extending from epistomal margin half distance to upper level of eyes; pronotum smooth, shining, largest punctures about equal in width to one facet of eye; interstitial surface undulating or with crenulations low, confused 8
- 8(7). Pronotum at or near anterior margin with punctures very small (diameter about equal to 1 facet of eye), circular in outline; discal interstriae 1–8 with rather close, transverse impressions at each puncture causing surface to undulate from base to declivity, none of these undulations crenulate; antennal club as wide as long, its apex broadly rounded; Brazil (Sao Paulo) to Paraguay; 7.9–12.5 mm *grandis* (Erichson)
- Punctures at and near anterior margin of pronotum larger (at least equal in diameter to 3 facets of an eye), at least one-third of them transversely elongate (each 2–4 times as wide as long); discal interstriae on basal one-third either smooth, with minute, simple punctures (no undulation or crenulation) or else closely, subacutely crenulate; antennal club longer than wide, its apex pointed 9
- 9(8). Pronotum minutely reticulate (80X); basal half of discal interstriae (weakly reticulate at 80X) essentially smooth, sparse minute, round punctures confused (no crenulations, calluses, or other elevations), posterior disc and declivity with widely spaced, uniseriate, subvulcanate pustules; male frons with subcrenulate rugae to upper level of eyes; Brazil (Nova Fribourg in Sao Paulo); 8.1–8.3 mm *mamillatus* Chapuis
- Pronotum smooth, shining (80X); discal interstriae minutely reticulate, with numerous, confused, subacute, transverse crenulations (transverse length of some crenulations equal to two-thirds width of an interstriae; frons broadly convex, smooth, shining from epistoma to vertex, with fine, shallow, round punctures; Brazil; 8.2–9.0 mm *ellipticus* Chapuis
- 10(1). Body 1.6–1.7 times as long as wide; eyes usually more widely separated above (1.8–3.6 times width of an eye); male frontal concave impression extending three-fourths distance from epistoma to upper level of eyes or to well above eyes; female pronotum unarmed by crenulations in 2 species (*punctatorugosus*, *nitidicollis*), crenulations present in males of all species 11
- Body more slender, 1.8–2.0 times as long as wide; eyes usually more narrowly separated above by 1.0 times width of an eye (except 2.0–2.5 in 3 species); male frontal impression more irregular, not always concave, restricted to about lower half of area below upper level of eyes 15
- 11(10). Male frons rather shallowly impressed on lower two-thirds of area below upper level of eyes; declivital tubercles absent or nearly so on interstriae 1–3; male pronotum mostly reticulate, with abundant, small asperities, female pronotum smooth, entirely devoid of asperities 12
- Male frons strongly impressed to upper level of eyes; declivital interstriae 1–3 tuberculate or crenulate to apex 13
- 12(11). Male frons more strongly, more broadly impressed, with tubercles extending well above eyes, pronotal asperities larger, extending to middle of pronotum, anterolateral angles much more prominently produced; female frons more strongly convex, particularly on middle half, punctures slightly larger; convexity from male and female upper frons to vertex gradual, uniform; surface of

- pronotum mostly smooth, shining, less reticulation seen only with greater magnification (80X); crenulations on posterior half of pronotum narrower, each less than one-third width of an interstriae, reticulate to their summits, fewer tubercles on lower half of declivity; Mexico (Veracruz) to Colombia; 4.6–8.1 mm *punctatorugosus* Chapuis
- Male frons much less strongly, less extensively impressed, tubercles less numerous, more rounded, ending above at upper level of eyes; anterolateral angles of pronotum much less strongly produced, smaller, sparse asperities confined to less than anterior one-third of pronotum; female frons more broadly convex, particularly on lower half, punctures slightly smaller; convexity on female frons on definite line between upper frons and vertex conspicuously more strongly, more abruptly convex; most of pronotum obscurely reticulate, seen with less magnification (40X); crenulations on posterior half of pronotum broader, most one-half as wide as an interstriae, their apical half (or more) smooth, brightly shining, slightly more tubercles on lower half of declivity; French Guyane to Brazil; 7.0–7.2 mm *nitidicollis* Chapuis
- 13(11). Male frons with margins of impressed area acutely elevated on upper one-third and lower one-fourth; interstitial crenulations wider, uniseriate, more widely spaced; Panama; 5.2 mm *minusculus* Wood
- Male frons with lateral crests of impressed area subacute to acute, lower half of impressed area with an acutely elevated median carina; interstitial crenulations on disc small, close, confused, occasionally uniseriate on declivity 1–3, surfaces rather coarsely reticulate 14
- 14(13). Male frons rather strongly impressed to slightly above level of eyes, a slight elevation on floor of impressed area near middle, median carina more strongly elevated on its dorsal one third, lateral crests not as high, summit more obtuse; pronotum more narrowly convex; elytral striae slightly wider, less abruptly impressed, interstriae more strongly convex, crenulations larger, transversely longer on disc and declivity; Mexico (Veracruz) to Brazil; 5.6–9.0 mm *asper* Erichson
- Male frons much more strongly impressed well above upper level of eyes, floor of concavity deeper, without a distinct elevation near middle, upper third of median carina less strongly elevated, lateral crests higher, more acute, a cluster of rather long setae on median surface near lower area; pronotum more broadly convex; elytral striae narrower, more abruptly impressed, interstriae weakly convex, crenulations lower, most less than one-fourth as wide as an interstriae; French Guyane to Brazil (Goias); 5.5–7.1 mm *ovatus* Eggers
- 15(10). Eyes more widely spaced above (2.0–2.5 times width of an eye); female frontal carina very short, often obscure (extending from epistoma to level of antennal insertion); pronotum with asperities restricted to anterior half or at least anterior from discal area 16
- Eyes more narrowly spaced above (less than 1.0 times width of an eye); median female frontal carina extending well above middle of area below upper level of eyes; pronotum with asperities on disc extending to base 20
- 16(15). Pronotal asperities confined to anterior half (including median area), posterior half closely, coarsely punctured (including lateral areas), spaces between punctures smooth, shining; discal striae wider; punctures distinct, interstitial crenulations more numerous, confused, forming close, uniseriate rows of pointed tubercles on declivity; elytra without any reticulation; Venezuela; 6.5 mm *marahuaci* Wood
- Pronotal disc punctured to base, crenulations in lateral areas extending to base, surface reticulate (except shining and finely punctured in *niger*), asperities mostly absent on median half from anterior to posterior margins 17
- 17(16). Asperities absent on median half of pronotum from anterior to posterior margin, punctures rather small, shallow, widely spaced, surface between punctures smooth, shining, asperities in lateral areas mostly small, except anterolateral angles each armed by 3–4 coarse asperities; discal striae more narrowly, deeply impressed, punctures obscure, strongly transverse interstitial crenulations less numerous, poorly formed tubercles on declivity much less numerous; color black; elytra with obscure reticulation at 40X; Costa Rica; 7.6 mm *niger* Wood

- Anterior part of pronotum (female only?) with a median groove (asperities absent at and near groove), a smooth, shining median line on basal one-fourth; surface of pronotum and elytra reticulate; larger, more slender species 18
- 18(17). Median groove on pronotum longer, occupying anterior one-fourth of pronotum length; interstitial setae short, stout, abundant, conspicuous; Guatemala; 9.0 *opacithorax* Schedl
- Median groove on female pronotum shorter, limited to anterior one-eighth of pronotum length (not evident in male); interstitial setae short, stout, sparse, inconspicuous 19
- 19(18). Median line of pronotum punctured on basal third; declivital interstriae 2 with a row of fine tubercles to apex; Peru; 7.3 mm *irregularis* Eggers
- Median line of pronotum without punctures on basal third; declivital interstriae 2 without tubercles; Colombia; 9.0–10.5 mm *grossus* Chapuis
- 20(15). Crenulations and asperities on pronotum weak, restricted to anterior half, punctured on posterior half 21
- Crenulations on pronotum continue to base at least in lateral areas, larger and closer 22
- 21(20). Female frons much more strongly impressed on lower half, median carina extending one half distance from epistoma to upper level of eyes; punctures on disc of pronotum subcircular, never confluent, their interiors reticulate; declivital interstriae 2 not impressed, tubercles continue to apex; color dark brown; Venezuela; 9.4–11.0 mm *orinocensis* Wood
- Female frons weakly impressed on lower half, median carina extending from epistoma to upper level of eyes; punctures on disc of pronotum mostly of irregular shape, at least half of them confluent, their interiors mostly smooth; declivital interstriae 2 modestly impressed, punctures absent on lower half; color reddish brown; Nicaragua; 7.5 mm *belti* Blandford
- 22(20). Crenulations on interstriae 2 and 4 on disc confused, strongly transverse, subacutely elevated; interstitial tubercles on declivity averaging smaller; Mexico (Veracruz) and Jamaica to Bolivia and Brazil; 7.3–9.2 mm *scaber* Erichson
- Crenulations on interstriae 2 and 4 uniseriate on at least posterior half of disc 23
- 23(22). Elytral disc obscurely reticulate, declivity weakly, distinctly reticulate; epistomal area weakly impressed; pronotum much more finely sculptured, crenulations low especially on basal half; tubercles on disc rather narrow, moderately high, acute, confused only near base of disc except on 3; Venezuela; at MV light; 10.4 mm *araguensis* Wood
- Elytral surface strongly reticulate on disc and declivity; epistomal area more strongly impressed; pronotum more coarsely sculptured, crenulations rather coarse to base; interstitial crenulations on disc from dorsal aspect each appearing one-fourth spherical in female, hemispherical in male, shining, confused at least on basal half; Colombia and Venezuela to Peru; 7.9–10.3 mm *cristatus* Chapuis

Phloeoborus signatus Strohmeyer
Plate III

Phloeoborus similis Eggers, 1942:272. Lectotype; Goyaz, Brazil; USNM, Washington, designated by Anderson & Anderson 1971:30 (References in Wood & Bright c1992:101)

Phloeoborus signatus Strohmeyer, 1909:248. Holotype; Jatahy, Brazil; DEI, Munchenberg (References in Wood & Bright c1992:101)
Phloeoborus bodei Eggers, 1930:164. Lectotype; Bolivia; USNM, Washington, designated by Anderson & Anderson 1970:6 (References and synonymy in Wood & Bright c1992:98). *New synonymy*
Phloeoborus guayanensis Eggers, 1942:268. Holotype; French Guyane; NHMW, Wien (References in Wood & Bright c1992:97). *New synonymy*

Diagnosis: Pronotal asperities absent; interstitial crenulations on disc less numerous, smaller, their crests rounded, accompanying punctures with minute setae (absent in rudis Erichson); area at base of declivity between crest of interstriae 9 and costal margin with two rows of punctures.

Male: Similar to female except smaller; impressed area of frons more distinct, dorsolateral margins slightly higher.

Female: Length 8.0–10.0 mm (male 7.0–8.3 mm), 1.9 times as long as wide; color very dark reddish brown; vestiture of very minute interstitial setae, each shorter than diameter of its puncture. Frons similar to rudis, except eyes separated above by half to full width of an eye. Pronotum and elytra similar to rudis, except for the following: striae punctures slightly larger; interstriae more convex, with crenulations less numerous and more nearly (but not) uniseriate, crests of crenulations not acute, most almost rounded, punctures at posterior face of crenulations usually with a minute bristle (shorter in length than diameter of its puncture); area between apex of interstriae 5 and crest of 9 more convex (not impressed); at base of declivity between costal margin and crest of interstriae 9 with two rows of punctures.

Distribution: Costa Rica to Argentina.

Costa Rica: 3 km SE Rio Naranjo, Guanacaste, 1-4-IV-1995, F.O. Parker (new record for Central America).

Argentina: Misiones Iguazu, 30-I-13-III-1945, Hayward-Wilink-Golbach.

Bolivia: Loma Alta, 23-XI-1956, G. Pinckert.

Brazil: Jatai in Goias; Minas, Seratao de Diamantina, Faz. das Melancias, 11-X-1902, E. Gounella; Santa Catarina.

Paraguay: Bernardino, K. Fiebrig.

Peru: Santi Beni, Dep. Junin, 18-IX-1935, 840 m, F. Woytkowski.

Notes: This report is based on the male holotype of *signatus* Strohmeier, on 1 male from Argentina, on 3 males from Bolivia, on 7 males and 7 females from Brazil (including 1 cotype), on 1 male and 2 females from Paraguay, and on 1 male and 1 female from Peru. I compared 2 males to the lectotype of *bodei* Eggers.

Phloeoborus willei Wood, n. sp.

Phloeoborus willei Wood: Holotype ♀; 6 km S San Vito, Puntarenas, Costa Rica; USNM, Washington, designated below

Diagnosis: Distinguished from *signatus* Strohmeier by the low, much weaker median carina on the female frons; by the less numerous, isolated, higher, narrower crenulations on the interstriae; and by the fine, weak reticulation uniformly distributed on the disc and declivity.

Female: Length 7.8 mm, 1.8 times as long as wide; color dark reddish brown. Frons less strongly, less extensively impressed than in *signatus*, a few weak punctures on upper third, median carina very weak, weakly acute; eye much narrower than in *signatus*, separated above by three fourths width of an eye; antennal club less strongly flattened, sutures more distinctly impressed, and micropubescence much less abundant than in other members of this genus. Pronotum 0.7 times as long as wide, outline from dorsal aspect obscurely subquadrate, transverse impression on anterior fourth more distinct

than in *signatus*, spaces between punctures less smooth. Elytra 1.4 times as long as wide, 2.2 times as long as pronotum; anterior margin of each elytron with about seven separate, small crenulations between bases of interstriae 2 and 5 (a weak non-crenulate costa in *signatus*); striae shallowly impressed on basal two-thirds of disc, punctures moderately large, rather shallow, interstriae two to almost four times as wide as striae, surface weakly, very finely reticulate, crenulations modestly confused, smooth, shining, moderately high, less than twice as wide as thick, crest narrowly rounded, posterior face on 1–4 on posterior half of disc each bearing a minute, slender seta. Declivity steep, broadly convex; sculpture with apex of interstriae 4–5 weakly elevated, then a weak impression from this summit to interstriae 9; crenulations smaller than on disc.

Distribution: Costa Rica.

Type material: The female holotype was taken 6 km S San Vito, Puntarenas Prov., Costa Rica, 19-21-III-1967, O.T.S. Course. The holotype is in the U.S. National Museum, Washington.

Phloeoborus intermedius Eggers

Phloeoborus intermedius Eggers, 1930:165. Holotype ♂; Guiana; NHMW, Wien (References in Wood & Bright c1992:99)

Diagnosis: Size, color, and body proportions as in *signatus* Strohmeier; differing from *signatus* by the more nearly crenulate interstitial tubercles (with their posterior faces usually vertical); by the strongly reticulate declivity on both striae and interstriae, reticulation continuing to base of disc at least in the interiors of interstitial punctures.

Male: Length 6.6 mm, 1.8 times as long as wide; color brown. Frons with sculpture as in *signatus*, vestiture more slender, distinctly longer. Pronotum about as in *signatus*, except interiors of punctures reticulate. Elytra similar to *signatus*, except posterior face of each subacute crenulation vertical (crenulations not as high or as sharp as in *rudis*); reticulation on basal one-third of disc confined to interiors of interstitial punctures, gradually spreading until at base of declivity entire interstriae and striae covered by reticulation. Declivital interstriae less strongly convex than in *signatus*, striae and interstriae continuously, strongly reticulate.

Distribution: Guiana: "Guiana."

Notes: The above treatment was based on the male holotype of *Phloeoborus intermedius* Eggers.

Phloeoborus rudis Erichson

Plate III

Phloeoborus rudis Erichson, 1836:55. Lectotype ♀; Brazil; MNB, Berlin, designated by Wood 1982:127 (Synonymy and references in Wood & Bright c1992:100)

Phloeoborus elongatus Chapuis, 1869:13. Holotype ♂; Brazil; IRSNB, Brussels

Phloeoborus rugipennis Eggers, 1942:271. Holotype ♀; San Salvador, Costa Rica; USNM, Washington

Diagnosis: Pronotal asperities absent; distinguished from *signatus* Strohmeier by presence of only one row of punctures at base of declivity between crest of interstriae 9 and costal margin; and by the much more acutely elevated interstitial crenulations.

Male: Similar to female except smaller; lower frons more strongly, more broadly impressed.

Female: Length 10.0–11.7 mm (male 6.4–9.0 mm), 1.8 times as long as wide; color very dark reddish brown to black. Frons below eyes more evenly, more strongly convex on upper half, shallowly impressed on less than lower half, an acutely elevated median carina (on lower one-third of area from epistoma to upper level of eyes) on impressed area; surface shining, punctures and vestiture obscure; eyes separated by a distance equal to width of 3 facets of eye. Pronotum 0.68 times as long as wide; anterolateral areas without asperities; surface smooth, shining except slight reticulation in anterior areas of some specimens; punctures rather large, deep, irregular but close in most areas; vestiture of a few minute bristles in anterior and lateral areas; propleura with a large mycetancium. Elytra 1.3 times as long as wide, 2.1 times as long as pronotum; striae impressed, punctures coarse, shallow; interstriae less than three times as wide as striae, feebly reticulate, crenulations moderately low, close, each one-fourth to two-thirds as wide as an interstriae, their crests acute; declivity convex, steep; vestiture restricted to a few short bristles, each about equal in length to diameter of a striae puncture.

Distribution: Belize to Argentina.

Argentina: Cited in Wood & Bright (c1992:100).

Brazil: Espirito Santo, 11-X-1920, No. 921, F. Hoffmann; Iguane, Sao Paulo, A.C. Brad; Mangaratiba, Rio de Janeiro, 19-XI-1914, R. Fischer; Roraima, Serra Grande, 11-20-X-1992, D.W. Davis; Val. du Rio Pardo, Sao Paulo, 12-1898, E. Gounelle; ys. Selviria, Fazenda, UNESP, 26-X-1989, *Psidium guajava* root, F. Movarao.

French Guyane: Cited in Wood & Bright (c1992:100).

Guiana: Cited in Wood & Bright (c1992:100).

Paraguay: "1932"; "K. Fiebrig."

Peru: Sani Beni in Junen, 18-IX-1935, 15-X-1935, F. Woytkowski.

Venezuela: 40 km E Canton, Barinas, 8-III-1970, 70 m, *Pouteria anibaefolia*, SLW; Campamento Rio Grande 30 km E Palmar, Barinas, 19-VI-1970, 200 m, *Licania densiflora*, SLW.

Hosts: *Licania densiflora*, *Pouteria anibaefolia*, *Psidium guajava*.

Biology: Monogynous, female apparently initiates the attack. On under side of large logs lying on the ground. One series in a root. New tunnels observed; oviposition had not started.

Notes: I examined 3 males and 6 females from Venezuela; 3 males and 25 females from Brazil; 2 males and 1 female from Paraguay. I also compared 2 females to the lectotype of *rudis* and 1 to the holotype of *rugipennis* Eggers. The male holotype of *elongatus* Chapuis was examined and compared to my series

Phloeoborus freyi Schedl

Phloeoborus freyi Schedl, 1955:274. Holotype ♂; Rio de Janeiro, Brazil; Frey Museum, subsequently transferred to NHMBS, Basel, Switzerland (References in Wood & Bright c1992:99)

Diagnosis: Distinguished from *rudis* Erichson by the distinctly smaller striae punctures on the disc, these punctures are separated within a row on the disc by low, transverse, subacutely elevated partitions; interstitial crenulations wider, higher, and punctures behind crenulations more obscure, often obsolete.

Male: Length 8.3–8.5 mm, 1.9 times as long as wide; color dark brown, almost black. Frons as in male *rudis*. Pronotum about as in *rudis*. Elytra 1.4 times as long as wide, 2.4 times as long as pronotum; striae rather strongly, narrowly impressed, punctures small, impressed; interstriae slightly more than twice as wide as striae, convex, obscurely reticulate in some areas, most crenulations half as wide as an interstriae, acute, subvertical behind, punctures often present, most obscure to obsolete. Declivity resembling *rudis*, except interstriae 9 from junction with 10 to middle of declivity much more narrowly, evenly costate, less acute to interstriae 1; punctures on crest of all interstriae much smaller, crests of rugae narrower, more acute, more consistently present.

Distribution: Brazil: Rio de Janeiro (Schedl 1955:274); Pau d'Alho itu, Sao Paulo, 15-XI-1960, U. Martins; Hansa Humboldt, Santa Catarina (Reitter paratype).

Notes: The above treatment was based on the Schedl paratype of *Phloeoborus freyi* Schedl at NHMW, Wien.

Phloeoborus procerus (Erichson)

Plate II

Phloeoborus procerus (Erichson), 1836:54 (*Phloeotrupes*). Holotype ♀; Brazil: MNB, Berlin (Synonymy and references in Wood & Bright c1992:99)

Phloeoborus sipolisii Fairmaire, 1887:16. Holotype, sex?; Minas-Geraes, Brazil; MNHN, Paris

Diagnosis: Pronotum unarmed by asperities; eyes above separated by twice width of an eye; frontal carina extending to upper level of eyes.

Female: Length 8.8–9.6 mm, 1.9 times as long as wide; color black. Frons similar to *rudis* Erichson except eyes separated above by twice width of an eye; convex, epistoma broadly, shallowly emarginate, surface coarsely, rather deeply punctured, median carina acutely elevated from epistoma to upper level of eyes; vestiture hairlike, sparse, moderately long below, inconspicuous. Pronotum 0.70 times as long as wide; without any asperities or other irregularities, surface smooth, brightly shining, punctures coarse, deep, spaced by 1–3 diameters of a puncture; glabrous. Elytra with striae narrowly, moderately impressed, punctures obscure; interstriae about three times as wide as striae, smooth, shining, crenulations mostly two-thirds as wide as an interstriae, somewhat uniseriate, their summit abrupt but not acute, punctures on their posterior slope not evident;

glabrous; declivity broadly, evenly convex; interstitial tubercles narrower, more widely spaced.

Distribution: Brazil: Encruzilhada, Bahia, XI-1972, 960 m, M. Alverenga; Ubatula, Sao Paulo, 22-X-1964, Moses 25392.

Notes: The above treatment was based on the female holotype of *Phloeotrupes procerus* Erichson and on 2 other females from Brazil.

Phloeoborus grandis (Erichson)

Plate II

Phloeoborus grandis (Erichson), 1836:54 (*Phloeotrupes*). Syntypes, 2 ♀♀; Brazil; MNB, Berlin (References in Wood & Bright c1992:99)

Phloeotrupes punctatus Schedl, 1976:64. Holotype ♀; Santo Leopoldina, Espirito Santo, Brazil; NHMW, Wien (References in Wood & Bright c1992:100). *New synonymy*

Diagnosis: Distinguished by the smooth, shining pronotum with very minute punctures; by the almost non-existent interstitial crenulations; and by the large, stout body form.

Male: As in female except frons more strongly impressed; pronotum with punctures much smaller, propleural fovea absent; interstitial elevations smaller.

Female: Length 7.9–12.5 mm, 1.7 times as long as wide; color black. Frons with upper half of area below upper level of eyes convex, smooth, with sparse, fine punctures, lower area moderately impressed (broadly, somewhat flattened), median half of epistomal margin modestly emarginate, a median carina present (somewhat inflated at its middle in 1 specimen), surface weakly reticulate, rather finely, obscurely punctured. Antennal club slightly wider than long, apex broadly rounded. Pronotum 0.78 times as long as wide, subquadrate; surface smooth, shining, punctures sparse, minute, largest about equal in diameter to 1 facet of eye, glabrous; pleural areas reticulate. Elytra 1.1 times as long as wide, 1.7 times as long as pronotum; crenulations on basal margins very poorly developed, submarginal crenulations not evident; striae narrowly, rather deeply impressed, punctures small, obscure; interstriae two to three times as wide as striae, surface smooth, shining, transversely impressed at obscure punctures, areas between punctures rounded (not at all crenulate). Declivity convex, steep; striae and interstriae narrower than on disc, low, obscure tubercles evident. Glabrous.

Distribution: Brazil to Paraguay.

Brazil: "Brasil 48404" (syntypes); Espirito Santo, Fruhstorker; Rio de Janeiro, Felipe; Ypiranga, cap., Sao Paulo, 4-I-1933, 1612, F. Halik.

Paraguay: San Bernardino, W. Eisenlohr V.

Notes: The above treatment was based on 1 female from Paraguay and on 1 male and 7 females from Brazil (two were syntypes).

Phloeoborus mamillatus Chapuis

Phloeoborus mamillatus Chapuis, 1869:14. Holotype ♂; Nova Fribourg, Brazil; IRSNB, Brussels (References in Wood & Bright c1992:99)

Diagnosis: Distinguished from *grandis* (Erichson) by the smaller size; by the subcrenulate upper frons; by the larger, transversely elongate, anterior pronotal punctures; and by the very different sculpture of the discal interstriae.

Male: Length 8.1–8.3 mm, 1.6 times as long as wide; color black, essentially glabrous. Frons triangularly impressed on lower three-fifths of area below upper level of eyes, lower half of impressed area with a median carina; area from dorsal end of carina to upper level of eyes, rather closely, moderately crenulate, a few small punctures above, surface reticulate; a few fine, short, hairlike setae in impressed area. Antennal club longer than wide, apex pointed. Pronotum 0.70 times as long as wide; subquadrate, without any crenulations; surface finely reticulate (40X), punctures on basal half small (each equal to twice diameter of a facet of eye), those on anterior half distinctly larger and most transversely elongate (four or more times as wide as long, a few at anterior margin transversely confluent). Elytra 1.1 times as long as wide, 1.7 times as long as pronotum; striae narrowly, moderately impressed; interstriae four or more times as wide as striae, surface obscurely reticulate (40X), weakly convex on basal half of disc and without any impressions or crenulations, sparse, minute punctures present; interstriae on posterior half of disc with central row of low obscurely submammiform or subvulcanate isolated elevations form a row increasing in size to declivity, height of largest equal to less than one-fifth of an interstriae. Declivity broadly convex, steep; elevations end at base of declivity except two on lower one-fourth on 1, one on 3, 5 with several, 9 carinate to junction with 2. Glabrous.

Distribution: Brazil: "Bresil, Deyr."; "N. Fribg." [Nova Fribourg, Sao Paulo].

Notes: The first of 2 male specimens in the Chapuis Collection (IRSNB, Brussels) is here designated as the lectotype of *P. mamillatus* Chapuis. Both specimens were used to prepare the above treatment.

Phloeoborus ellipticus Chapuis

Phloeoborus ellipticus Chapuis, 1869:15. Lectotype ♀; Brazil; IRSNB, Brussels, present designation (References in Wood & Bright c1992:99)

Diagnosis: Distinguished from *mamillatus* Chapuis by the smooth, shining, punctured frons and pronotum; by the finely, closely crenulate discal interstriae; and by the larger striae punctures.

Female: Length 8.2–9.0 mm, 1.6 times as long as wide; color black, essentially glabrous. Frons broadly convex from level of antennal insertion to vertex, smooth except limited reticulation at vertex, punctures rather large, moderately deep, with no granules or crenulation; area from epistoma to level of antennal insertion distinctly impressed and divided by a short median carina; a few hairlike setae in impressed area; antennal club longer than wide, apex pointed. Pronotum 0.67 times as long as wide; somewhat triangular; surface smooth, shining (40X),

punctures rounded on disc, distinctly impressed, each about equal to twice diameter of a puncture, twice as large toward anterior margin, a few near anterior margin transversely elongate (mostly no more than twice as wide as long). Elytra 1.1 times as long as wide, 1.4 times as long as pronotum; striae moderately, rather narrowly impressed, punctures rather small, obscure; interstriae about three times as wide as striae, moderately convex, finely reticulate (40X), transverse crenulations low, confused, wide (most at least half as wide as an interstriae), rather close, minute confused punctures scattered among crenulations. Declivity broadly convex, steep; crenulations end uniseriately at or near base of declivity, lower half of declivity without crenulations or tubercles, minute punctures present; striae narrower and deeper than on disc; interstriae 9 carinate to junction with 3.

Distribution: Brazil: "Bresil, Deyr."

Notes: The above treatment was based on the 3 female syntypes in the Chapuis Collection. The first of these female syntypes is here designated as the lectotype of *Phloeoborus ellipticus* Chapuis.

Phloeoborus punctatorugosus Chapuis

Phloeoborus punctatorugosus Chapuis, 1869:14. Holotype ♂; Nouvelle Grenada (now Colombia); IRSNB, Brussels (Synonymy and references in Wood & Bright c1992:98–100)

Diagnosis: Sexually dimorphic; male with frons impressed, pronotum partly asperate, elytral crenulations larger, more widely spaced, mostly uniseriate; female frons convex, pronotum entirely without asperities, elytral crenulations smaller, closer, confused.

Male: Frons convex above, a rather shallow, triangular, concave impression extending from epistomal margin about three-fourths of distance to upper level of eyes; a weak median carina in impressed area; surface minutely reticulate, dull, area below eyes (except in concave area) bearing low, isolated, transversely elongate tubercles. Pronotum with anterior two-fifths finely asperate except anterolateral angles unarmed; posterior areas with shallow, poorly formed punctures. Elytra with interstitial tubercles not as high as in female but wider, mostly uniseriate, much less numerous, more widely spaced within a row.

Female: Length 4.6–8.1 mm, 1.6 times as long as wide; color very dark brown, almost black. Frons broadly convex, almost smooth, shining (feebly reticulate at 80X), lower fourth moderately, transversely impressed, with a weak median carina on middle half of impressed area; punctures deep, rather coarse, uniformly distributed; eyes separated above by four times width of an eye; glabrous, except a few hairlike setae near epistoma. Pronotum 0.68 times as long as wide, quadrate, without any asperities, surface smooth, shining, rather finely, deeply, somewhat closely punctured. Elytra 1.1 times as long as wide; striae narrowly, abruptly, not deeply impressed, punctures fine, distinct; interstriae four times as wide as striae, minutely reticulate, crenulations rather small, sub-

acute, each about one-third to one-half as wide as one interstriae, close and confused on basal third of disc on 2–5, becoming uniseriate by declivital base, punctures not evident; declivity broadly convex; lower two-thirds with interstriae devoid of punctures and tubercles, except each with one or two very small tubercles irregularly placed.

Distribution: Mexico (Veracruz) to "Colombia."

Colombia: Calarca, Caldes, IX-X-1956, 57-2754, F.L. Gallego.

Hosts: *Coffea arabica*, *Inga* sp., *Psidium guajava*.

Notes: The population from Mexico to Colombia appears to represent 1, uniform species. The population from French Guyane to southern Brazil, named *nitidicollis* Chapuis, does not appear to be conspecific, and for this reason it is removed from synonymy and treated as a distinct species. Examined were 55 specimens from Mexico (Veracruz) to Panama. At the time this species was named, Panama was part of Colombia. It is possible that the "Nouvelle Grenada" (=Colombia) type locality for this species was actually in what is now Panama. Subsequent collections that actually came from Colombia are cited above.

Phloeoborus nitidicollis Chapuis, n. status

Phloeoborus nitidicollis Chapuis, 1869:14. Lectotype ♀; Nova Fribourg, Rio de Janeiro, Brazil; IRSNB, Brussels (References in Wood & Bright c1992:100)

Phloeoborus brevisculus Chapuis, 1869:14. Holotype ♂; Cayenne, Suriname; IRSNB, Brussels (References in Wood & Bright c1992:100)

Diagnosis: Very closely allied, but distinguished from *punctatorugosus* Chapuis by the more broadly (weakly) convex female frons, with punctures slightly smaller and with transition from upper frons to vertex much more abruptly rounded; and by the less numerous, larger interstitial crenulations, each crenulation on posterior half smooth and brightly shining.

Male: Frons shallowly, rather broadly impressed on lower half, a few granules between eyes. Pronotum finely, sparsely asperate near anterior margin, sparse, rather small granules on anterior third; posterior two-thirds smooth, minutely reticulate, small punctures moderately close. Elytra with interstitial crenulations smaller and not as close as in *punctatorugosus*.

Female: Length 7.0–7.2 mm, 1.7 times as long as wide; dark reddish brown (fully mature?); elytra glabrous. Frons as in female *punctatorugosus*, except more broadly (less strongly) convex, more distinctly impressed on lower half; punctures averaging distinctly smaller; median carina longer (almost half as long as distance from epistoma to upper level of eyes; about one-third as long in *punctatorugosus*); transition from upper frons to vertex conspicuously more abruptly rounded on a definite line. Pronotum 0.70 times as long as wide; about as in *punctatorugosus*, except reticulation on disc clearly visible at 40X (visible at 80X in *punctatorugosus*), glabrous. Elytra 1.3 times as long as wide, 2.0 times as long as pronotum; as in *punctatorugosus*, except interstitial crenulations

slightly larger, less numerous, crenulation surface usually smooth and shining to their base (usually reticulate to summit in *punctatorugosus*); crenulations near base of declivity usually wider, those on lower two-thirds of declivity mostly smaller.

Distribution: French Guyane to southern Brazil.

Brazil: Nova Fribourg, Rio de Janeiro; Jatai in Goias.

French Guyane: Cayenne.

Notes: The above treatment was based on the 2 female syntypes of *Phloeoborus nitidicollis* Chapuis in the Chapuis collection and on the male holotype of *P. brevisculus* Chapuis.

Phloeoborus minusculus, Wood, n. sp.

Phloeoborus minusculus Wood: Holotype ♂; Barro Colorado Island, Canal Zone, Panama; USNM, Washington, designated below

Diagnosis: The very small size and unusual male frons distinguish this species.

Male: Length 5.2 mm, 1.9 times as long as wide; color dark reddish brown. Frons strongly concave from epistoma to slightly above upper level of eyes, eye to eye on upper half (eyes separated by twice width of an eye), impressed area much wider on lower half, lateral margins acutely elevated on lower fourth, then subacute to middle, acute on lower portion of upper half of impression; surface in impressed area reticulate, punctures not evident; vestiture sparse, short, hairlike. Pronotum 0.65 times as long as wide; obscurely subquadrate; anterolateral angles with 1 large and 2 smaller crenulations, anterior fourth with small, confused crenulations, anterior margin armed on median third by an irregular row of small serrations; posterior areas almost smooth, obscurely reticulate, punctures shallow, moderately close, somewhat irregular in shape. Elytra 2.3 times as long as pronotum, 1.3 times as long as wide; striae narrowly, rather deeply impressed, small punctures obscure; interstriae weakly convex, reticulate, about 4 times as wide as striae; acute crenulations half to two-thirds as wide as an interstriae, confused at base on 2–5, uniseriate elsewhere, spaced within row by half to full width of an interstriae, narrower and closer near declivity. Declivity broadly convex; interstriae narrower; crenulations reduced to small tubercles or absent, a puncture on lower slope of each; vestiture mostly obsolete, a few minute interstitial setae on declivity.

Distribution: Panama.

Type material: The male holotype was taken at Barro Colorado Island, in the Canal Zone, Panama, 17-I-1953. Presumably taken at light. The holotype is in the U.S. National Museum, Washington.

Phloeoborus asper Erichson

Phloeoborus asper Erichson, 1836:55. Holotype ♂; Brazil; MNB, Berlin (Synonymy and references in Wood & Bright c1992:98)

Phloeoborus imbricornis Eichhoff, 1868:148. Holotype ♂; Mexico; Hamburg Museum, lost

Phloeoborus rugatus Blandford, 1897:153. Lectotype ♀; Chontales, Nicaragua; BMNH, London

Diagnosis: Male frontal impression extended to upper level of eyes, pronotum more coarsely sculptured than *punctatorugosus* Chapuis, elytra reticulate and with crenulations more numerous.

Male: Length 5.9–7.9 mm. Similar to female except most slightly smaller; frons strongly impressed to well above eyes, lateral margins subacutely elevated on lower fourth, strongly elevated but rounded on middle half, median carina acute, strongly elevated on lower half.

Female: Length 5.6–9.0 mm, 1.6 times as long as wide; color black. Frons convex, reticulate; punctures of moderate size, close, rather deep; median carina strong, extending from epistoma more than half distance to upper level of eyes; a few hairlike setae on lower fourth; eyes separated by distance equal to twice width of an eye. Pronotum 0.73 times as long as wide; anterolateral angles elevated, each armed by three basally contiguous, coarse, crenulations; anterior half finely asperate; a row of basally contiguous asperities arm median half of anterior margin. Elytra 1.07 times as long as wide, 1.9 times as long as pronotum; striae narrowly, deeply impressed, punctures obscure; interstriae about four or more times as wide as interstriae, moderately convex, reticulate, crenulations acutely elevated, close, each one-third to one-half as wide as an interstriae, punctures on posterior slope of crenulations very small, each bearing a tiny, short bristle. Declivity convex; interstriae narrower; asperities reduced in size, rounded, most replaced by a coarse puncture.

Distribution: Mexico (Veracruz) to Brazil.

Brazil: "Brazil" (holotype of *asper*).

Venezuela: 40 km E Canton, Barinas, 8-III-1970, No. 400, *Protium tenuifolium*, No. 371, *Pouteria anibaefolia*, SLW; Campamento Rio Grande 30 km E Palmar, Bolivar SLW.

Notes: Examined were 24 specimens from Venezuela. The male holotype of *Phloeoborus imbricatus* Eichhoff was lost in 1944 with the Hamburg Museum. It had been previously placed in synonymy by Chapuis (1869:8) and Strohmeyer (1909:25). Their placement is accepted as correct. It is probable that *P. granosus* Eichhoff and *P. sulcifrons* Eichhoff, treated below, are also synonyms of this species.

Phloeoborus ovatus Chapuis, n. status

Phloeoborus ovatus Chapuis, 1869:15. Lectotype ♂; Cayenne, Suriname; IRSNB, Brussels, designated by Wood 1982:123 (References in Wood & Bright c1992:98)

Phloeoborus granulatus Eggers, 1943:243. Holotype ♂; French Guyane; DEI, Muncheberg (References in Wood & Bright c1992:99). *New synonymy*

Diagnosis: Very similar to *asper* Erichson but clearly distinguished by characters presented in the above key and in the following description.

Male: Length 5.5–7.1 mm, 1.6 times as long as wide; color black. Frons rather deeply, broadly concave from well above upper level of eyes (15 percent of its length above eyes, less than 10 percent in *asper*), concavity

deeper than in *asper*, without a significant elevation on floor at middle of concavity, upper half of median carina less strongly elevated, lateral convexities more abrupt, higher, crest more acute, with 6–10 long setae on lower end on mesal surface; lateral margin below level of antennal insertion more acutely elevated. Pronotum 0.66 times as long as wide, more broadly convex; sculpture resembling *asper*. Elytra 1.07 times as long as wide, 1.9 times as long as pronotum; striae narrowly, abruptly, rather deeply impressed, punctures obscure to obsolete; interstriae three times as wide as striae, weakly convex (much less convex than *asper*), strongly reticulate, crenulations shining, most one-fourth as wide as an interstriae, some up to one-third as wide as an interstriae, all acute but not high (much lower and narrower than in *asper*). Declivity steeper and more broadly convex than in *asper*; interstriae less strongly convex and crenulations smaller than in *asper*.

Distribution: French Guyane and Guiana to Brazil.

Brazil: Jatai in Goias.

French Guyane: "Cayenne, Deyr."

Guiana: Brit. Guiana, Bartica District, IV-1957, E.J. Duffy, BM 1957-394; Maroni.

Notes: The above treatment was based on the male lectotype of *ovatus* Chapuis, on 2 male paralectotypes, and on my male homotype of *ovatus*, which I compared directly to the holotype, on the holotype of *granulatus* Eggers, which was also compared to my homotype of *ovatus*, and on 1 male from Brazil. These names represent synonyms of one another. It is not a synonym of *asper* Erichson.

Phloeoborus marahuaci Wood, n. sp.

Phloeoborus marahuaci Wood: Holotype ♀; N slope, Mt. Marahuaca, Amazonas, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished by the small size and slender body form; by the absence of reticulation on the pronotum and elytra; and by the restriction of asperities to the anterior third of the pronotum.

Female: Length 6.5 mm, 1.9 times as long as wide; color dark brown. Frons convex above level of antennal insertion; moderately, transversely impressed below level of antennal insertion, an obscure median carina in impressed area; surface smooth, shining, punctures close, coarse, deep; obscure hairlike setae restricted to impressed area. Antennal club weakly flattened; 2 transverse sutures on basal half. Pronotum 0.73 times as long as wide; subquadrate; asperities small, rather numerous, restricted to slightly more than anterior one-third; posterior areas smooth, shining, rather coarsely, closely, deeply punctured; glabrous. Elytra 1.3 times as long as wide, 2.0 times as long as pronotum; striae moderately impressed, punctures rather small, distinct; interstriae about three times as wide as striae, surface smooth, shining, crenulations less than one-third as wide as interstriae, each crenulation moderately high, its posterior face about vertical, crenulations confused except uniseriate

on posterior half of 1 and 4. Declivity convex, steep; striae not impressed, punctures larger and deeper than on disc; interstriae smooth, shining, each with a uniseriate row of moderately large, subacute, closely set tubercles, slightly smaller below; interstriae 9 finely serrate (dorsal aspect) from middle of disc to apex. Vestiture of minute setae, each arising from posterior margin of crenulations.

Distribution: Venezuela (Amazonas)

Type material: The female holotype was taken at the Benitez Camp, N slope Mt. Marahuaca, Amazonas, Venezuela, 1-25 May 1950. The holotype is in the U.S. National Museum, Washington.

Phloeoborus niger Wood, n. sp.

Phloeoborus niger Wood: Holotype ♀; 3 km SE Rio Naranjo, Guanacaste, Costa Rica; USNM, Washington, designated below

Diagnosis: Distinguished by the rather widely spaced eyes; by the absence of asperities on the median half of the pronotum, but with about 3 coarse asperities on lateral areas; and by the distinctive sculpture of the elytra.

Female: Length 7.6 mm, 1.7 times as long as wide; color black, dorsal areas glabrous. Frons moderately convex on dorsal 80 percent of area below upper level of eyes, moderately, transversely impressed from epistomal margin to level of antennal insertion, impressed area with a short, low, subacute median carina on slightly more than lower 20 percent; upper convex areas shining, weakly reticulate below, reticulation stronger above eyes, punctures rather small, moderately close, glabrous except sparse hair on impressed area below. Pronotum 0.63 times as long as wide; median half (median one-third anteriorly) smooth, shining (at 40X) punctures small, shallow, spaced by 2–5 diameters of a puncture from anterior margin to base; lateral areas mostly finely asperate, except anterolateral angles each armed by 4 coarse asperities; glabrous except on basal margin. Elytra 1.2 times as long as wide, 2.0 times as long as pronotum; striae narrowly, abruptly impressed, punctures small, obscure; interstriae about 4 times as wide as striae, surface shining, obscurely reticulate at 40X, crenulations low, rather sparse except at base, a few up to half as wide as an interstriae, some represented by fine punctures. Declivity convex, steep; striae deeper than on disc, interstriae more strongly convex, poorly formed crenulations rather broad, closer than on disc. Glabrous.

Distribution: Costa Rica (Guanacaste).

Type material: The female holotype was taken 3 km SE Rio Naranjo, Guanacaste, Costa Rica, VII-1992, at light, F.D. Parker. The holotype is in the U.S. National Museum, Washington.

Phloeoborus irregularis Eggers

Phloeoborus irregularis Eggers, 1942:270. Holotype ♂; Peru; BMNH, London (References in Wood & Bright c1992:99)

Diagnosis: Distinguished from *grossus* Chapuis by the punctured median line on the basal third of the

pronotum; and by the presence of a row of small tubercles on declivital interstriae 2.

Male: Length 7.3 mm, 1.7 times as long as wide; color dark reddish brown. Frons broadly impressed near epistoma, continuing (rather strongly) on median half to two-thirds distance from epistoma to upper level of eyes, an obscure, feeble, median elevation indicated on lower and upper thirds; surface obscurely reticulate to vertex, punctures small to irregular; rather obscure; impressed area with fine, short, sparse, hairlike setae. Pronotum 0.63 times as long as wide; anterior one-fourth of median line distinctly, shallowly sulcate; crenulations low, obtuse (none large or acute); punctures rather small, deep, close, their interiors and general surface rather strongly reticulate, crests between punctures and low asperities smooth, shining, sparse, short, hairlike setae present. Elytra 1.3 times as long as wide, 2.3 times as long as pronotum; striae narrowly impressed, small punctures mostly obscure; interstriae two to three times as wide as striae, convex, surface strongly reticulate, crenulations close, rather high (summits narrowly rounded, never acute) each transverse crenulation about two-thirds as wide as an interstriae. Declivity broadly convex, steep; strial punctures much larger than on disc, distinctly impressed; interstitial tubercles uniseriate on upper third, almost to entirely obsolete below. Vestiture restricted to declivity, of sparse, minute, interstitial hair.

Distribution: Peru: "Peru."

Notes: The above treatment was based on the male holotype.

Phloeoborus grossus Chapuis

Phloeoborus grossus Chapuis, 1869:13. Lectotype ♀; Colombie; IRSNB, Brussels, present designation (References in Wood & Bright c1992:99)

Diagnosis: Distinguished from *opacithorax* Schedl by the much shorter median groove near the anterior margin of the female pronotum; and by the smaller, much less abundant, less conspicuous interstitial setae.

Male (?): Smaller; median sulcus near anterior margin of pronotum absent; interstitial tubercles on declivity smaller, present on 2 to its apex.

Female: Length 10.5 mm (male 9.0), 1.9 times as long as wide; color dark reddish brown, vestiture sparse, minute, inconspicuous. Frons with lower half of area below upper level of eyes transversely impressed and divided by a median carina; upper half reticulate, irregularly, rather coarsely punctured; sparse vestiture mostly restricted to impressed area; eyes separated above by 1.15 times width of an eye; area above eyes more strongly reticulate, sparse punctures moderately coarse, shallow; antennae missing from type (in male longer than wide, a bit asymmetrical, apex blunt). Pronotum 0.68 times as long as wide; asperities absent on central area (median one-fourth at anterior margin, expanding to median three-fifths at base), small, except somewhat larger at anterolateral angles; median line on anterior one-eighth mod-

erately sulcate, basal one-third with median line impunctate; surface reticulate, punctures moderately coarse, irregular in size, spacing, and outline, more widely spaced on basal half of disc; vestiture minute, sparse, almost hairlike. Elytra 1.4 times as long as wide, 2.2 times as long as pronotum; striae distinctly impressed, punctures small, distinctly impressed; interstriae rather weakly convex, strongly reticulate, punctures minute, confused, sparse, transverse crenulations low, subacutely elevated, confused at base, uniseriate before base of declivity, each up to half as wide as an interstriae at base, less than one third as wide at base of declivity. Declivity broadly convex, steep; striae slightly wider, interstriae narrower than on disc; interstriae 1–8 each with a sparse row of moderately coarse tubercles (absent on lower one-third of 2). Vestiture of sparse, very short, slender, inconspicuous setae.

Distribution: Colombia: "Colombie, Dejean."

Notes: The above treatment was based on the 2 syntypes in the Chapuis collection. The first of these syntypes, a female, is here designated as the lectotype of *Phloeoborus grossus* Chapuis. The second syntype, a lectoparatype, is thought to be a male.

Phloeoborus opacithorax Schedl, n. status

Phloeoborus opacithorax Schedl, 1940:205. Lectotype ♀; Panzos, Guatemala; DEI, Munchenberg, present designation (References in Wood & Bright c1992:101)

Diagnosis: Resembling *scaber* Erichson but distinguished by having the eyes separated by twice the width of an eye; by the short, stout, abundant yellow setae on the pronotum and elytra; by the narrower (transversely), much more numerous, more strongly confused interstitial crenulations; and by the stouter body form.

Female: Length 9.0 mm, 1.7 times as long as wide; color dark reddish brown, vestiture very short, abundant, pale yellow. Frons with eyes separated by distance equal to twice width of an eye; lower one-third transversely impressed, divided by a rather strongly elevated, acute carina (equal in length to one-third distance from epistoma to upper level of eyes); middle one-third moderately convex, with reticulate, impunctate median line distinctly impressed; lateral areas of lower two-thirds subshining, rather coarsely, irregularly, subrugosely punctured, with rather abundant, recumbent, fine and coarse, hairlike setae; area above upper level of eyes convex, reticulate, rather coarsely punctured. Pronotum 0.64 times as long as wide; subquadrate, anterolateral angles each with 4–5 rather coarse serrations, anterior one-third moderately, coarsely asperate, basal half more finely, closely asperate; areas between crenulations strongly reticulate; median line on anterior one-third moderately, rather narrowly sulcate, part of this groove without crenulations, its surface reticulate; basal one-third with broad median line smooth, shining, impunctate, 2 similar shining and impunctate areas in lateral areas at

middle of pronotum about half distance from median line to lateral margin; vestiture of conspicuous, short, stout, recumbent setae of moderate abundance. Elytra 1.25 times as long as wide, 2.2 times as long as pronotum; striae narrowly impressed, minute punctures obscure; interstriae about six times as wide as striae, surface rugose-reticulate between crenulations, crenulations narrow (mostly less than one-third as wide as an interstriae), close, confused, sharply elevated, their upper half smooth shining, each with a short, stout, yellow seta arising from its posterior slope (collectively these setae conspicuous). Declivity steep, convex; interstitial crenulations becoming mostly uniseriate and decrease in size posteriorly. Vestiture as described above.

Distribution: Guatemala: Panzos, Staudinger & Bang-Hass.

Notes: The female syntype at DEI, Muncheberg, is here designated as the lectotype of this species. Because occasional females of *scaber* resemble this species, it was placed in synonymy (Wood 1974:285); however, the larger, stouter body form, more widely spaced eyes, and the abundant, yellow vestiture suggest that it should be restored to full species status.

Phloeoborus orinocensis Wood, n. sp.

Phloeoborus orinocensis Wood: Holotype ♀; Campamento Rio Grande 30 km E Palmar, Bolivar, Venezuela; USNM, Washington, designated below

Diagnosis: Eyes separated above by less than half width of an eye; pronotum subquadrate, with very small asperities restricted to anterior fourth; elytra reticulate, crenulations small, abundant, confused.

Female: Length 9.4–11.0 mm, 1.8 times as long as wide; color almost black, a slight reddish brown cast. Frons convex above, modestly, transversely impressed on lower half, with an acute median carina in impressed area; surface above smooth, with moderately close, deep punctures, in impressed area surface irregular; punctures obscure; vestiture of sparse, short, inconspicuous hair. Pronotum 0.66 times as long as wide; subquadrate; crenulations small, restricted to anterior fourth, punctures gradually decreasing in rugosity toward middle (crenulations not larger on anterolateral angles); posterior area (including punctures) obscurely reticulate, punctures moderately coarse, close, oval, interspaces mostly equal to not more than half diameter of a puncture. Elytra 1.3 times as long as wide, 2.0 times as long as pronotum; striae moderately, narrowly impressed, punctures small, distinct; interstriae about four times as wide as striae, weakly convex, reticulate, crenulations acute, each one-fourth to one-third as wide as an interstriae, rather close, confused, shining. Declivity steep, broadly convex; crenulations on interstriae 1–3 reduced in size to tubercles and uniseriate, obsolete on lower third; vestiture consisting of minute bristles arising from puncture on posterior slope of each crenulation or tubercle from base

of elytra to apex, their length equal to less than diameter of a striae puncture.

Distribution: Venezuela (Bolivar).

Type material: The female holotype and 7 female paratypes were taken at Campamento Rio Grande 30 km E Palmar, Bolivar, Venezuela, 12-VI-1970, 200 m, No. 551, *Licania densifolia*, S.L. Wood. The holotype and paratypes are in the U.S. National Museum, Washington.

Phloeoborus belti Blandford

Phloeoborus belti Blandford, 1897:151. Holotype ♀; Chontales, Nicaragua; BMNH, London (References in Wood & Bright c1992:98)

Diagnosis: Distinguished from *orinocensis* Wood by the smaller size; by the long female frontal carina; by the largely confluent punctures on the basal half of the pronotum; and by the distinctly impressed declivital interstriae 2 on which tubercles are absent from the lower half.

Female: Length 7.5 mm, 1.7 times as long as wide; color reddish brown. Frons weakly impressed on lower two-thirds, a distinct median carina from epistoma to upper level of eyes. Pronotum 0.66 times as long as wide; surface smooth, shining; asperities on lateral fourths low, obtuse (none large or sharp); punctures deep, rather small, of irregular shape, about half of them confluent, their interior almost smooth; glabrous. Elytra 1.25 times as long as wide, 2.2 times as long as pronotum; striae rather deeply, narrowly impressed, punctures small, distinct; interstriae about three times as wide as striae, surface obscurely reticulate, mostly shining, crenulations on basal two-thirds of disc confused, rather high, each about one-third as wide as an interstriae, becoming narrower and uniseriate toward declivity. Declivity rather steep, convex; interstriae 2 weakly, distinctly impressed, devoid of tubercles on lower half, uniseriate tubercles on 1 and 3–9; surface more strongly reticulate than on disc. Vestiture limited to declivital interstriae, short, hair-like, sparse.

Distribution: Nicaragua: Chontales, T. Belt.

Notes: The above treatment was based on the female holotype.

Phloeoborus scaber Erichson

Phloeoborus scaber Erichson, 1869:13. Lectotype ♀; Bahia, Brazil; MNB, Berlin, designated by Wood 1982:126 (Synonymy and references in Wood & Bright c1992:98–99)

Phloeotrupes caelatus Blanchard, 1846:204. Syntypes, sex?; Bolivia; MNHN, Paris

Phloeoborus sericeus Chapuis, 1869:13. Lectotype ♂; Cayenne; IRSNB, Brussels, designated by Wood 1982:126

Phloeoborus lumatulus Eggers, 1943:242. Lectotype ♀; Brazil; USNM, Washington, designated by Anderson & Anderson 1971:18 (References in Wood & Bright c1992:99). *New synonymy*

Diagnosis: Pronotal crenulations extend to base, larger; interstitial crenulations on disc more numerous, confused, transversely elongate, neither hemispherical nor one-fourth spherical (as seen from dorsal aspect).

Male: Similar to female except smaller; frons impressed more extensively than in *cristatus* Chapuis, with lateral areas less strongly elevated.

Female: Length 7.3–9.2 mm (male 6.3–7.5 mm), 1.7 times as long as wide; color dark reddish brown. Frons about as in *cristatus*, except upper half rugose, punctures obscure. Pronotum similar to *cristatus*, except asperities larger, more numerous, anterolateral angles more prominent, their crenulations much larger. Elytra 1.2 times as long as wide, 2.1 times as long as pronotum; similar to *cristatus*, except interstitial crenulations wider, half to two-thirds as wide as an interstriae, their main axis transverse (not one-fourth or half of a sphere); declivity similar to *cristatus*, except interstitial tubercles smaller.

Distribution: Mexico and Jamaica to Peru and Brazil.

Jamaica: Bonnie View, Port Antonio, 25-VII-1952, at light, A.M. Laessle (New record).

Bolivia: "Bolivia."

Brazil: Espirito Santo, 11-X-1920, No. 921, F. Hoffmann; Iguane, Sao Paulo, A.O. Brada; Jatai in Goias; Rondonia 62 km SE Ariquemes, 7-18-XI-1995, W.J. Hanson; Bahia; Santa Catarina.

French Guyane: "Cayenne."

Guiana: 1929, W. Robinson.

Venezuela: 8 km SW Bumbum, Barinas, 11-II-1970, 150 m, No. 319, *Ficus*, SLW; 40 km E Canton, Barinas, 3-III-1970, 70 m, No. 400, *Protium tenuifolium*, SLW; 10 km SE Miri, Barinas, 8 II-1970, 150 m, No. 304, *Brosimum*, SLW.

Trinidad: Simia, 1–15 July 1962, J. Maldonado C. (New record).

Hosts: *Brosimum* sp., *Ficus* sp., *Protium tenuifolium*.

Notes: The above treatment was based on 48 specimens; I compared 1 of these females to the holotype of *scaber* Erichson, 1 male to the holotype of *sericeus* Chapuis, and 1 female to the female lectotype of *lunatulus* Eggers. The "male holotype" and 11 paratypes of *lunatulus* were also examined. This "male holotype" (syntype) is here designated as the lectoallotype of *lunatulus* Eggers.

Phloeoborus araguensis Wood, n. sp.

Phloeoborus araguensis Wood: Holotype ♀; Rancho Grande, Aragua, Venezuela; USNM, Washington, designated below

Diagnosis: Eyes separated above by distance equal to width of an eye, an acutely elevated carina on lower half of area below eyes; asperities on pronotum poorly formed, punctures indistinct; interstitial crenulations mostly uniseriate, punctures not evident; lower declivity with some reticulation.

Female: Length 10.4 mm, 1.9 times as long as wide; color black, with a slight reddish brown cast (not fully mature?). Frons moderately convex, surface obscure, an acutely elevated median carina on slightly more than lower half. Pronotum 0.70 times as long as wide, somewhat subquadrate in outline; asperities small, poorly

formed, numerous on anterior half, rugosities continuing on median third to base; punctures in lateral areas obscure. Elytra with striae narrowly, moderately impressed, punctures small, distinct; convex, interstriae about five times as wide as striae, moderately convex, crenulations small, subacute, each about one-third as wide as interstriae, moderately confused on 3 and 4 on disc, all smaller and uniseriate on declivity; declivity broadly convex, all interstriae about equally convex, tubercles of moderate size, uniseriate; surface finely reticulate except shining tubercles; glabrous, except most tubercles on declivity bearing a very short, stout, inconspicuous bristle.

Distribution: Venezuela (Aragua).

Type material: The female holotype was taken at Rancho Grande, Aragua, Venezuela, 9-IV 1970, No. 402, at mercury vapor light, SLW. The holotype is in the U.S. National Museum, Washington.

Phloeoborus cristatus Chapuis

Phloeoborus cristatus Chapuis, 1869:13. Holotype ♂; Bogota, Colombia; IRSNB, Brussels (Synonymy and references in Wood & Bright c1992:98–99)

Phloeoborus radulosus Blandford, 1897:153. Syntypes, sex?; Ecuador; BMNH, London, Fry Collection at Basel, and Schaufuss Collection
Phloeoborus aspericollis Strohmeier, 1909:248. Holotype ♂; Llanos, Ecuador; DEI, Munchenberg (Synonymy and references in Wood & Bright c1992:98). *New synonymy*

Diagnosis: Pronotal crenulations extend to base; interstitial crenulations on disc much more numerous, apparently forming one-fourth of a sphere in female, hemispherical and less numerous in male.

Male: Similar to female except smaller; frontal impression extending almost to eyes, lateral margins much more strongly elevated above level of antennal insertion; crenulations on discal interstriae hemispherical, less numerous.

Female: Length 10.3 mm (male 7.9–8.3 mm), 1.8 times as long as wide; color black, with a slight reddish brown cast. Frons convex above, moderately, transversely impressed on lower fourth, impressed area with an acutely elevated rather strong, median carina; surface reticulate, coarsely, closely punctured above, punctures obscure in impressed area; vestiture sparse, short, hairlike; eyes separated above by a distance equal to slightly more than half width of an eye. Pronotum 0.66 times as long as wide, subquadrate; surface reticulate, asperate to base, asperities slightly larger on anterior half, punctures accompany some rugae on posterior half of disc; asperities not larger at anterolateral angles. Elytra 1.3 times as long as wide, 2.1 times as long as pronotum; striae rather weakly impressed, punctures moderately large, deep; interstriae weakly convex, about three times as wide as striae; surface strongly reticulate, crenulations acute, smooth, shining, each appearing to form one-fourth of a sphere, one-third to half as wide as an interstriae, close, confused, their posterior slope subvertical, with puncture often visible. Declivity convex, steep;

interstriae narrower, crenulations narrower and uniseriate, largely absent on lower third; vestiture of minute bristles at posterior margin of most crenulations and tubercles.

Distribution: Colombia and Venezuela to Brazil and Peru.

Brazil: "Brasilien."

Colombia: Bogota.

Ecuador: "Llanos."

Peru: Chanchamyo [River].

Venezuela: Rancho Grande, Aragua, 14-II-1969, blacklight, P. & P. Spangler, and 9-IV 1970, 1100 m, log, SLW.

Notes: The above treatment was based on 5 males and 1 female. The male holotype of *Phloeoborus cristatus* Chapuis was examined and compared by me to the other 4 males. These 5 specimens were also compared to the holotype of *P. aspericollis* Strohmeyer. I also compared to this type 1 male from Brazil and 1 from Peru; other males were unlabeled. Eggers (1929:53) cites *radulosus* Blandford as a synonym. He also placed *Phloeoborus aspericollis* Strohmeyer in synonymy with this species (Eggers 1943:241).

Species Not Seen

Phloeoborus gaujonii Fairmaire

Phloeoborus gaujonii Fairmaire, 1887:16. Holotype, sex?; Loja, Equateur; MNHN, Paris, not found (References in Wood & Bright c1992:99)

Holotype: Length 9 mm, black in color; near *asper* and *ovatus*; eyes approximate; frons with an obtuse median carina.

Notes: The type of *Phloeoborus gaujonii* Fairmaire should be in the Paris Museum; however, an effort to locate it was not successful. The probability is high that it is a synonym of either *asper* or *ovatus*. The above notes were gleaned from the original description of the type (Fairmaire 1887:16).

Phloeoborus granosus Eichhoff

Phloeoborus granosus Eichhoff, 1868:148. Holotype ♀ ♂?; Brazil; Hamburg Museum, lost (References in Wood & Bright c1992:99)

The original description of the holotype of *Phloeoborus granosus* Eichhoff is quoted from Eichhoff (1868:148) as follows:

"Subcylindricus, piceus, sericeo-nitens, fronte punctata convexa, rostro carinato, utrinque leviter impresso; thorace rugolis creberrimis tuberculisque levis scabro; elytris cylindricus subtiliter punctato-striatus, interstitiis planis tuberculisque subtransversis apice subseriatus crebre rugosis. Long. 4 line (about 9 mm)—Patr.: Brasilia."

Notes: This description could apply to several known Brazilian species. The type is presumed to have been lost with the Eichhoff collection in the Hamburg Museum. Before the type was lost, Eggers (1942:166) associated it with *asper* Erichson. Because the species is not identifiable, due to the loss of the unique type, I consider it to be a probable synonym of *asper* Erichson.

Phloeoborus sulcifrons Eichhoff

Phloeoborus sulcifrons Eichhoff, 1868:148. Holotype ♂; Brazil; Hamburg Museum, lost (References in Wood & Bright c1992:101)

The original description of the male holotype of *Phloeoborus sulcifrons* Eichhoff is quoted from Eichhoff (1868:148) as follows:

"Ovalis, convexus, piceus subnitidus, fronte profunde excavata, rostro medio argute, carinato utrinque profunde impresso; rugoso antice utriusque subimpresso, tuberculatoque, puncto utrinque discoidali laevi, basi medio impressa carinulata; elytris striatis, interstitiis planis creberrime rugoso-scabris—Long. 3 1/2 lin.—Patr. Brasilia int. (Mus. Dr. Haag)."

Eggers associated this type with *asper*. Without a type this species is unidentifiable. I consider it to be a probable synonym of *Phloeoborus asper* Erichson.

TRIBE TOMICINI

Frons weakly to moderately sexually dimorphic, male usually impressed, female usually convex; eye oval to ovate, entire; antennal scape elongate, funicle 5- to 7-segmented, club symmetrical, weakly to moderately flattened, usually with three or four sutures; pronotum unarmed by asperities (rare exceptions in some *Xylechinosomus* and *Xylechinus*); procoxae contiguous to narrowly separated, precoxal carinate costa absent; sutural groove on mesal surface of elytra continued to base without interlocking nodules and cavities; tibiae armed on lateral and apical margins by socketed teeth.

Biology: All species are monogynous; all are phloeophagous (except *Hylurgonotus*?). Parental galleries are biramous, except monoramous in *Dendroctonus*, *Hylurgus*, and some *Tomicus*. Those of *Sinophloeus* and *Hylurgonotus* are unknown. Eggs are placed in niches and packed individually in frass, except some *Dendroctonus* may place many eggs together in long grooves. Larval mines usually show on the surface of peeled bark. Symbiotic relationships with fungi are important in most genera as a means of overcoming host resistance to attack, not as a primary food source.

Key to the Genera of Tomicini

- | | | |
|-------|--|-----------------------|
| 1. | Metepisternal setae scalelike or plumose; antennal funicle 7-segmented | 2 |
| — | Metepisternal setae except <i>Xylechinus</i> (bifid in one <i>Hylurgonotus</i> having a 7-segmented funicle); antennal funicle 5- to 7-segmented | 3 |
| 2(1). | Anterolateral areas of pronotum often asperate; male frons moderately to strongly impressed; host <i>Araucaria</i> ; 1.3–3.4 mm scutellum, visible, large | <i>Xylechinosomus</i> |
| — | Anterolateral areas of pronotum unarmed; frons concavely impressed in both sexes and with a strongly developed, subacute, median carina; scutellum not visible, host <i>Araucaria</i> ; 2.4–3.1 mm | <i>Sinophloeus</i> |
| 3(1). | Ground vestiture on elytra scalelike; antennal funicle 5-segmented; median, frontal carina present or not; procoxae rather widely separated; coniferous and broadleaf hosts; 1.5–3.5 mm | <i>Xylechinus</i> |
| — | Ground vestiture on elytral disc hairlike, metepisternal setae hairlike except bifid in one <i>Hylurgonotus</i> (but funicle 7-segmented) | 4 |
| 4(3). | Protibiae armed on distal and lateral margins by 3 or 4 socketed teeth; male frons feebly to strongly impressed; antennal funicle 7-segmented; host <i>Araucaria</i> ; 2.7–4.6 mm | <i>Hylurgonotus</i> |
| — | Protibiae armed on distal and lateral margins by 5 or more socketed teeth; antennal funicle 5- or 6-segmented; male frons convex; introduced species in Pinaceae | 5 |
| 5(4). | Antennal funicle 5-segmented, club moderately flat with sutures at least slightly procurved; procoxae contiguous; hosts <i>Pinus</i> , <i>Picea</i> , <i>Pseudotsuga</i> | <i>Dendroctonus</i> |
| — | Antennal funicle 6-segmented, club conical, sutures straight | 6 |
| 6(5). | Procoxae contiguous; pronotum more slender, 0.95–1.1 times as long as wide, only slightly constricted on anterior third; erect interstitial setae abundant, confused; a short median carina from epistomal margin to level of antennal insertion; host <i>Pinus</i> ; 3.1–5.3 mm | <i>Hylurgus</i> |
| — | Procoxae moderately separated; pronotum stouter, less than 0.85 times as long as wide, strongly constricted on anterior third; erect interstitial setae in uniseriate rows; a fine median carina from epistoma to middle of frons; hosts <i>Pinus</i> and other Pinaceae; 2.5–4.5 mm | <i>Tomicus</i> |

GENUS *XYLECHINOSOMUS* SCHEDL

Xylechinosomus Schedl, 1963:209. Type-species: *Xylechinus taunayi* Eggers = *Hylastes contractus* Chapuis, original designation (References in Wood & Bright c1992:4104–105)

Diagnosis: Metepisternal setae scalelike; antennal funicle 7-segmented, club apparently with four or more sutures; male frons impressed.

Description: Frons sexually dimorphic, male shallowly to strongly impressed, female convex to shallowly

concave; eye oval, entire; antennal scape elongate, funicle 7-segmented, club weakly flattened, apparently with four or more sutures; pronotum usually unarmed by crenulations, a few small crenulations or rugosities in two species; precoxal ridge entirely absent; basal crenulations on elytra low, rather well formed; vestiture hairlike, with ground vestiture of scales in some species.

Distribution: Eight species have been reported from southern Brazil, Chile, and Argentina.

Biology: All species breed in *Araucaria* species. Apparently all species are phloeophagous.

Key to the Species of *Xylechinosomus*

- 1. Interstitial setae consisting of short, scales or hair, and long, erect, hairlike setae, long setae present on all declivital interstriae 2
- Interstitial setae consisting of short, recumbent scales and long, erect, hairlike setae; erect setae absent from most or all of declivital interstriae 2 and 4 4
- 2(1). Body larger; interstitial ground setae on declivity abundant, short, each scale about twice as long as wide; male frons with a strong, transverse impression near middle, a feeble, median carina often present; Brazil; *Araucaria brasiliensis*, *A. Angustifolia*; 3.0–3.4 mm ***brasiliensis*** (Schedl)
- Body smaller than 2.4 mm; interstitial ground setae either hairlike or sparse (subscalelike), each at least six times as long as wide 3
- 3(2). Discal interstriae at least three times as wide as striae, stria punctures very small; all elytral setae hairlike, very long and abundant, confused, particularly on declivity; frontal impression not as strong, a weak, median carina on lower half; Brazil; *Araucaria brasiliensis*; 2.4 mm ***hirsutus*** Schedl
- Discal interstriae about twice as wide as striae, stria punctures distinctly larger; elytral setae with long, erect setae confused on disc, almost uniseriate on declivity, short, ground setae present on declivity; lower half of male frons with no indication of a median carina; Brazil; *Araucaria angustifolia*; 2.3–2.4 mm ***pilosus*** Wood
- 4(1). Body larger; pronotum and elytra closely clothed by an abundant ground cover of scales; declivital interstriae 1 and 3 moderately elevated, 2 impressed; frons conspicuously concave and armed by a strongly elevated median carina; Argentina, Chile; *Araucaria araucana*; 2.5–3.0 mm ***valdivianus*** (Eggers)
- Body usually smaller than 2.5 mm; pronotum without scales, its vestiture hairlike; declivital interstriae about equally convex; frons without a median carina 5
- 5(4). Elytral declivity somewhat flattened on lower half, ventrolateral margin subacutely elevated from sutural apex to apex of interstriae 7; Brazil; *Araucaria angustifolia*; 2.1–2.8 mm ***contractus*** (Chapuis)
- Elytral declivity more narrowly convex, ventrolateral margin normally rounded, not conspicuously elevated; smaller species 6
- 6(5). Discal interstriae as wide as striae, crenulations absent; declivital interstriae 2 weakly convex, not impressed; ground setae on elytra minute, as wide or wider than long; male lower frons flat, area above frontal impression rugose-reticulate; Brazil (Rio Grande do Sul); 1.3 mm ***lucianae*** Mecke
- Discal interstriae almost twice as wide as striae, crenulations weakly to moderately elevated; declivital interstriae 2 weakly impressed, flat; ground setae on elytra of small scales, most longer than

- wide; male lower frons shallowly concave, surface smooth and brightly shining from epistoma to vertex 7
- 7(6). Discal interstriae about twice as wide as striae, punctures with anterior margin forming a fine tubercle, each tubercle about half as wide as an interstriae; erect interstitial setae rather stout, each about equal in length to half distance between rows; Brazil; *Araucaria angustifolia*; 1.3–1.5 mm *minimus* Schedl
- Discal interstriae about as wide as striae, crenulations rather coarse at base, as wide as an interstriae, becoming more nearly tuberculate at base of declivity; erect, interstitial setae more slender, each distinctly longer than distance between rows; Brazil; *Araucaria angustifolia*; 1.9–2.0 mm *sachtlebeni* Schedl

Xylechinosomus brasiliensis (Schedl)

Xylechinosomus brasiliensis (Schedl, 1951:95 (*Pseudohylesinus*). Syn-types, sex?; Nova Teutonia, Santa Catarina, Brazil; 2 ♀ in NHMW, Wien, others in Plaumann Collection (Synonymy and references in Wood & Bright c1992:105)

Xylechinosomus araucariae Schedl, 1963:210. Holotype ♂; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien

Diagnosis: Erect, declivital, hairlike setae present on interstriae 2 and 4; declivital ground vestiture of short, abundant scales; a larger species.

Female: Length 3.0–3.4 mm, 2.1 times as long as wide; color brown, vestiture pale. Frons convex, a weak interocular impression near middle, a weak, median carina from epistoma to upper level of eyes; surface very closely, coarsely, deeply punctured, becoming subgranulate on upper fourth; vestiture of fine, short hair. Pronotum 0.74 times as long as wide; widest at base, sides weakly arcuate on basal half, a strong constriction on anterior fourth; surface densely, rather coarsely, deeply punctured, subgranular on anterior fourth and basal third; vestiture of fine, short, recumbent hair of moderate abundance. Elytra 1.3 times as long as wide, 2.1 times as long as pronotum; striae weakly impressed, punctures small, deep; interstriae about three times as wide as striae, weakly convex, with numerous, confused, sharp crenulations, largest one-fourth as wide as an interstriae, numerous, confused, very small punctures also present; declivity broadly convex, steep, crenulations reduced in size and number to rows of uniseriate tubercles; vestiture of short ground vestiture (hairlike on disc, short scales on declivity, each scale about as long as wide) and long, erect, confused hair on disc, uniseriate bristles on declivity at least on interstriae 1–4.

Male: Similar to female except interocular frontal impression deeper, longer (occupying lower half of upper half of area below upper level of eyes); elytral interstriae more nearly granular, few very small crenulations present.

Distribution: Brazil: Curitiba, Parana, 13-I-1969, C.W. & L. O'Brien; Santa Catarina, Nova Teutonia; Rio Negro, Parana, 9-VI-1973, *Araucaria angustifolia*, Schoenherr.

Hosts: *Araucaria angustifolia*, *A. brasiliana*.

Notes: Seven specimens were examined. Two of these males were compared to the male holotype of *Pseudo-*

hylesinus araucariae Schedl. I compared 2 syntypes of *X. brasiliensis* Schedl directly to the type series of *araucariae* by. I regard them as 1 species.

Xylechinosomus hirsutus Schedl

Xylechinosomus hirsutus Schedl, 1963:211. Holotype ♂; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:105)

Diagnosis: Subcrenulate pronotal granules and very long, abundant, confused, hairlike, interstitial setae distinguish this species.

Male: Similar to female except lower third of frons flattened, carina absent; pronotal punctures normal, lateral margins not elevated; elytral vestiture less abundant, some setae shorter (one-fourth as long) and resembling a ground cover.

Female: Length 2.3–2.4 mm, 2.0 times as long as wide; color dark reddish brown, vestiture pale. Frons convex on upper third, transverse interocular impression rather long (on lower half of upper half), almost flat to weakly convex on lower third; a weak median carina on upper half of lower half; shining, with fine, sparse punctures on upper half, slightly larger and closer below; vestiture of fine, rather short, inconspicuous hair. Pronotum 0.75 times as long as wide; sides convergently arcuate on basal three-fourths, moderately constricted on anterior fourth; surface shining, very closely, rather deeply punctured, lateral margin of each puncture elevated, becoming subtuberculate in lateral areas; vestiture of fine, rather long, moderately abundant hair. Elytra 1.3 times as long as wide, 2.0 times as long as pronotum; striae not impressed, punctures small, deep; interstriae indistinctly convex, about three times as wide as striae, shining, with closely set, confused, rather high rugae, each about one-third as wide as an interstriae; declivity broadly convex, steep; interstriae with uniseriate tubercles; vestiture of abundant, confused, hairlike setae from base to apex, longest setae equal in length to width of two interstriae on disc and sides, equal to width of one interstriae on declivity.

Distribution: Brazil: Curitiba, Parana, 13-I-1969, C.W. & L. O'Brien; Telemaco Borba, Parana, *Pinus taeda*, Pedrosa-Macedo.

Hosts: *Araucaria angustifolia*, *A. brasiliana*.

Notes: I compared 1 male and 1 female to the Nova Teutonia type series of *X. hirsutus* Schedl.

Xylechinomus pilosus Wood

Xylechinomus pilosus Wood, 1985:274. Holotype ♂; Curitiba, Parana, Brazil; USNM, Washington (References in Wood & Bright c1992:105)

Diagnosis: Distinguished from *hirsutus* Schedl by the less abundant, shorter pronotal and elytra hair; by the absence of granules on the lateral margins of female pronotal punctures; and by other characters mentioned in the above key and below.

Male: Similar to female except frons rather strongly impressed from upper level of eyes to one-fourth frons length above epistoma, transversely flat, deepest near middle; hairlike setae on elytral disc slightly longer and interstitial crenulations on disc larger (each up to half width of an interstriae).

Female: Length 2.3–2.4 mm, 2.1 times as long as wide; color brown. Frons weakly convex from epistoma to upper level of eyes, without an interocular impression or carina; surface shining, punctures moderately large, shallow, obscure in central area, deeper on lower third; vestiture of short, sparse hair. Pronotum 0.76 times as long as wide; widest at base, sides subparallel on basal half, a moderate constriction on basal half; surface as in male *hirsutus*. Elytra 1.4 times as long as wide, 2.1 times as long as pronotum; striae weakly impressed, punctures rather coarse, deep; interstriae about twice as wide as striae, shining, crenulations very small, less than one-fourth as wide as striae, subacute, a setiferous puncture on posterior slope of each; declivity convex, steep, interstriae each armed by a row of small tubercles; vestiture on disc of moderately abundant hair, each seta about equal in length to width of an interstriae, on declivity a sparse ground cover of pointed scales (each about six times as long as wide) and uniseriate rows of long hairlike, bristles (length of each equal to distance between rows).

Male: Similar to female except frons rather strongly impressed from upper level of eyes to one-fourth frons length above epistoma, deepest (transversely flat) near middle; hairlike setae on elytral disc slightly longer and interstitial crenulations on disc larger (each up to half width of an interstriae).

Distribution: Brazil: Curitiba, Parana, 13-I-1969, C.W. & L. O'Brien.

Hosts: *Araucaria angustifolia*.

Notes: The above treatment was based on the male holotype and female allotype of *X. pilosus* Wood.

Xylechinomus valdivianus (Eggers)

Plate IV

Xylechinomus valdivianus (Eggers), 1942:15 (*Xylechinus*). Holotype, sex?; Valdivia, Chile; Hamburg Museum, lost (References in Wood & Bright c1992:15)

Diagnosis: This species is distinguished by having both pronotum and elytra densely clothed by variegated scales; by having declivital interstriae 1 and 3 modestly elevated; and by the strong, median, frontal carina in both sexes.

Male: Similar to female except frons moderately, broadly concave from upper level of eyes to level of antennal insertion, concavity deep in some specimens; scales on frons less numerous, carina higher; some specimens with a long, median, subcarinate crest on pronotum.

Female: Length 2.5–3.0 mm, 2.2 times as long as wide; color dark brown, clothed by a variegated pattern of dark and pale scales. Frons basically, weakly convex except central third with a circular, concave impression, a median carina from epistoma to deepest point in concavity, carina very strong on its lower half, weak above; surface finely, closely punctured; vestiture mostly scale-like in concavity to above eyes, hairlike elsewhere, short. Pronotum 0.82 times as long as wide; outline as in *pilosus* Wood except constriction on anterior fourth distinctly deeper; surface very closely, rather deeply punctured, lateral areas sparsely asperate, a few small granules continued to disc; vestiture of abundant scales, each slightly longer than wide, color variegated dark and pale. Elytra 1.5 times as long as wide, 2.1 times as long as pronotum; striae weakly impressed, punctures moderately large, deep, close; interstriae about twice as wide as striae, weakly convex on disc, 1 and 5 slightly, 3 more strongly convex toward declivity, each bearing a small, pointed, bristle-bearing tubercle; declivity moderately steep, basically convex, with interstriae 1, 3, 5, 9 moderately elevated, 3 and 9 join apically; vestiture of abundant dark and pale scales in a variegated pattern, each scale about as wide as long; tubercles on interstriae bearing erect, stout bristles on all discal interstriae and all except 2 and 4 on declivity.

Distribution: Chile: Caramavida, 5-II-1953, 20-XII-1956, 1000 m, *Araucaria* ramas, L.C. Pena; Cautin, Conguillio, 13-II-1979, J. Solervicens; Parque N. Nahuelbuta, 38 km W Angol, 4300 ft., 13-II-1968, C.W. & L. O'Brien; Pemehue, I-1896; Malleco, P.H. Nahuelbuta, Pehuenco, 22-I-1985, corteza de *Araucaria araucana*, S. Rottman; Malleco, Nahuelbuta, 4-II-1980, J. Solervicens. Argentina (specimens not seen).

Hosts: *Araucaria araucana*.

Notes: The above treatment was based on 34 specimens, 6 of which were compared to the type series of *Xylechinus valdivianus* Eggers.

Xylechinomus contractus (Chapuis)

Plate IV

Xylechinomus contractus (Chapuis), 1869:23 (*Hylastes*). Syntypes, sex?; St. Paul, Brazil; IRSNB, Brussels (Synonymy and references in Wood & Bright c1992:105)

Xylechinus taunayi Eggers, 1928:84. Lectotype, sex?; Campos do Jordao, Sao Paulo, Brazil; USNM, Washington, designated by Anderson & Anderson 1971:33

Diagnosis: Distinguished by the absence of erect setae on flattened declivital interstriae 2 and 4; and by the subacutely elevated ventrolateral margin of the declivity.

Male: Similar to female except upper half of frons rather strongly, subconvexly impressed; erect bristles on declivity shorter.

Female: Length 2.1–2.8 mm, 2.2 times as long as wide; color brown, vestiture pale. Frons convex from epistoma to above eyes; surface shining, punctures close, moderately large, deep; vestiture of short, sparse, fine, hairlike setae. Pronotum 0.77 times as long as wide; sides subparallel on basal half, a moderate constriction on anterior third; surface smooth, shining, punctures close, deep, moderately large; vestiture of short, sparse, hairlike setae, a few longer, coarse setae in lateral areas. Elytra 1.4 times as long as wide, 2.3 times as long as pronotum; striae weakly impressed, punctures rather coarse, deep, close; interstriae slightly less than twice as wide as striae, shining, crenulations acute, almost uniseriate, each about three-fourths as wide as an interstriae, posterior slope abrupt, more or less concavely impressed by large, bristle-bearing puncture; declivity convex above, rather steep, moderately impressed on lower half, interstriae 1, 3, 5 each bearing a row of fine tubercles, 2 and 4 unarmed, ventrolateral margin moderately elevated from suture to apex of 7; vestiture on disc and sides of ground cover of fine, short, recumbent hair; ground cover on declivity of abundant, short scales, each scale as long as wide, and interstitial rows of erect bristles (except absent on 2 and 4 on declivity), each bristle as long as distance between rows, spaced within a row by length of a bristle.

Distribution: Brazil: Curitiba, Parana, 13-I-1969, C.W. & L. O'Brien; Caieras, Sao Paulo, 30-VII-1955, H.F.G. Sauer.

Hosts: *Araucaria angustifolia*.

Notes: The above was based on the 2 female syntypes in the Chapuis Collection that were compared to my 21 specimens from Brazil.

Xylechinosomus lucianae Mecke

Xylechinosomus lucianae Mecke, 2004:217. Holotype, sex?; San Francisco de Paula Pro-Mata, Rio Grande do Sol, Brazil; Zool. Inst. Universitat Tubingen, Germany

Diagnosis: Distinguished from *minimus* Schedl by having the discal interstriae as wide as the striae and without crenulations; by the weakly convex declivital interstriae 2; by the minute ground setae on the elytra, each scale as wide or wider than long; and by the male frons being almost flat on the lower half, the area above the eyes rugose-reticulate.

Male: Length 1.3 mm, 2.2 times as long as wide; elytra dark brown, pronotum very dark brown. Frons feebly concave (almost flat on lower half, moderately concave on upper area to vertex), reticulate below, becoming rugose-reticulate toward vertex; punctures very small, shallow, moderately close; sparse, minute, hairlike setae from upper level of eyes to epistoma, longer and more numerous on epistoma. Pronotum 0.85 times as long as wide; sides on basal two-thirds moderately arcuate, a slight constriction before rather broadly rounded ante-

rior margin; surface strongly reticulate, weakly rugose on posterior half of disc, punctures small, shallow, close, uniformly distributed; vestiture of fine, short, recumbent hair uniformly distributed, about four stout erect setae on anterolateral area. Elytra 1.5 times as long as wide, 2.4 times as long as pronotum; disc occupying 66 percent of elytra length; striae feebly impressed, punctures rather large, deep; interstriae as wide or slightly wider than striae, almost smooth, shining, punctures minute, close, confused. Declivity steep, broadly convex; striae 1–3 about as on disc, punctures slightly smaller; interstriae 1–3 equally, weakly convex, without tubercles. Vestiture of minute ground scales on declivity, each scale as wide or wider than long; longer, erect, stout setae on interstriae 5–9 on posterior half of elytra.

Female: Similar to male except frons moderately, evenly convex; striae punctures on disc mostly longer; striae 1 and 2 on lower declivity more distinctly impressed, these punctures distinctly smaller.

Distribution: Brazil (Rio Grande do Sul): San Francisco de Paula Pro-Mata, 22-XI-1999, *Araucaria angustifolia*, R. Menke.

Notes: The above treatment was based on 2 male and 2 female paratypes.

Xylechinosomus minimus Schedl

Xylechinosomus minimus Schedl, 1963:212. Holotype ♀; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:105)

Diagnosis: This species is distinguished from others in the genus by the very small size; and by the short, erect interstitial setae.

Male: Similar to female except frons broadly, shallowly concave from level of antennal insertion to upper level of eyes, surface smooth, shining, punctures rather small; pronotal punctures slightly smaller.

Female: Length 1.3–1.6 mm, 2.2 times as long as wide; color dark brown, vestiture pale. Frons moderately concave from level of antennal insertion to vertex; punctures coarse, deep, surface between punctures smooth, shining below, obscurely reticulate above; a distinct transverse impression from epistomal margin to level of antennal insertion; hairlike vestiture fine, short, inconspicuous. Pronotum 0.82 times as long as wide; sides on basal half subparallel, feebly arcuate, anterior third moderately constricted; surface smooth, shining, punctures coarse, rather close (spaced by diameter of a puncture), rather deep; vestiture of short, fine, recumbent hair. Elytra 1.5 times as long as wide, 2.0 times as long as pronotum; striae rather weakly impressed, punctures coarse, deep, close; interstriae only slightly wider than striae, shining, subtuberculate crenulations uniseriate, each crenulation about three-fourths as wide as an interstriae, posterior face of crenulation abrupt, marked by a setiferous puncture; declivity broadly convex, rather steep, striae narrower than on disc, interstriae 2 and 4 devoid of tubercles, those on 1, 3, 5–9 minute; vestiture of ground cover of

moderately coarse, short, recumbent setae on disc and sides, on declivity of abundant short scales, and rows of erect interstitial bristles (except absent on declivital interstriae 2 and 4), each bristle about half to two-thirds as long as distance between rows, spaced within a row by length of a bristle.

Distribution: Brazil: Curitiba, Parana, 13-I-1969, C.W. & L. O'Brien; Nova Teutonia, Santa Catarina; Santa Catarina, 1930, W. Ehrhardt; Rio Negro, Parana, 9-VI-1973, *Araucaria angustifolia*, J. Schoenherr; Telemaco Borba, Parana, 31-X-2003, Klabin Papel e Cellulose, a-pinene + ethanol + sulcitol trap, *Pinus taeda* stand, C.A.H. Flechtmann.

Notes: The above treatment was based on my female homotype of *X. minimus* Schedl and on 9 other specimens to which it was compared.

Xylechinosomus sachtlebeni Schedl

Xylechinosomus sachtlebeni Schedl, 1963:209. Holotype ♀; Nova Teutonia, Santa Catarina; NHMW, Wien (References in Wood & Bright c1992:105)

Diagnosis: Distinguished from allied species by the absence of erect bristles on declivital interstriae 2 and 4; by the large punctures on the discal striae; by the rounded (normal) ventrolateral margin of the declivity; and by the much longer interstitial bristles that are uniseriate from base to apex.

Male: Similar to female except frons with a very slight, small impression at middle; interstitial setae slightly shorter; on declivity slightly stouter.

Female: Length 1.9–2.0 mm, 2.1 times as long as wide; color dark brown, elytra somewhat reddish brown. Frons moderately convex from weak epistomal impression to upper level of eyes; surface smooth, shining, punctures rather small, mostly spaced by one to two diameters of a puncture; vestiture short, sparse, hairlike. Pronotum 0.75 times as long as wide; widest at base, sides weakly arcuate, subparallel on basal half, anterior third with a moderate constriction; surface smooth, shining, punctures small, deep, spaced by one to two diameters of a puncture; vestiture of fine, moderately long, recumbent hair. Elytra 1.5 times as long as wide, 2.2 times as long as pronotum; striae distinctly impressed, punctures large, deep, close; interstriae slightly narrower than striae, shining, tuberculate crenulations uniseriate, almost as wide as interstriae, posterior face of each tubercle steep, marked by a setiferous puncture; declivity broadly convex, rather steep; striae narrower; interstriae 2 and 4 unarmed, tubercles on 1, 3, 5–9 much smaller than on disc, 2 feebly impressed; ground vestiture on disc very sparse, of fine, short hair, on declivity of abundant scales, each scale as long as wide; erect interstitial setae in uniseriate rows, each seta 1.5 times as long as wide on disc, slightly longer on declivity, spaced within a row by half length of a bristle, absent on declivital interstriae 2 and 4.

Distribution: Brazil: Curitiba, Parana, 13-I-1969, C.W. & L. O'Brien; Nova Teutonia, Sao Paulo.

Hosts: *Araucaria angustifolia*.

Notes: One male and 1 female were examined; these were compared to Schedl's type series.

Species Not Seen

Xylechinosomus humilus (Blanchard)

Xylechinosomus humilus (Blanchard), 1851:427 (*Hylesinus*). Holotype, sex?; Iles Valdives, Chile; not located (References in Wood & Bright c1992:105)

Efforts to locate this species have not been successful. The original description given by Chapuis 1869:24 is as follows:

"*H. humilus* Blanchard: Oblongus, opacus, niger; antennis et tarsi flavis; capite coriaceo-punctato, rostro brevi, fortiter et acute carinato; prothorace longitudine latiori, fortiter constricto, versus basin subtiliter reticulato-punctato, ad apicem punctato, linea media obsoleta; elytris subtiliter striato-punctatis, interstitiis rugoso-punctatis, parce pubescentibus, setis brevibus, latis, squammaeformibus uniseriatum ornatis, declivitate granulatis." Length 2.5 mm, Chili, Iles Valdives.

Blanchard (in Gay 1851/1852, p. 428) states that this species "fue hallada en los arboustos de la provincia de Coquimbo." The "Chili Iles Valdives" cited by Chapuis (1869:24) was either an error or else "Isles Valdives" must be a minor locality in Coquimbo Province which is not cited in atlases available to me. Chapuis gave no indication as to why he replaced "Coquimbo Province" of Blanchard with "Iles Valdives." Because the type apparently came from the beating of shrubs in Coquimbo Province, not from a definite host, it is possible the species belongs to another genus. I have not seen Gay's illustration of the type.

Xylechinosomus paranaensis (Schoenherr)

Xylechinosomus paranaensis (Schoenherr), 1994:63 (*Pteleobius*). Holotype, sex?; Telemaco-Borba, Parana, Brazil; DZUFF, Curitiba

Requests for a loan of type material were not answered.

GENUS *SINOPHLOEUS* BRETHES

Sinophloeus Brethes, 1922:433. Type-species: *Sinophloeus porteri* Brethes, monobasic (References in Wood & Bright c1992:105)

Diagnosis: Frons with a strongly developed, median carina, surface of frons strongly impressed in male, moderately impressed in female; antennal funicle 7-segmented; pronotum unarmed by asperities, not constricted on anterior third.

Description: Frons sexually dimorphic, strongly concave to vertex in male, moderately to below upper level of eyes in female, a strong median carina in both sexes; antennal funicle 7-segmented, club slightly flattened, marked by four sutures; pronotum wider than long, devoid of asperities; elytra with striae punctures present.

Distribution: Western parts of southern South America.

Biology: Breeds in branches of *Araucaria* spp. It is said to be phloeophagous (Schedl 1966:43).

Notes: The type-species, *porteri* Brethes, was found (see pp. 53, 57). A second, much smaller species (about 2.1 mm) was incorrectly named by Schedl as *Xylechinus spathifer* Schedl (see below on page 57). Unfortunately, the page of my notes containing the name and details of the transfer were lost during travel before a record could be made. (This species was from southern Chile or adjacent Argentina and is from *Nothofagus*). It is in the NHMW, Wien collection under a different generic name, and in the USNM, Washington.

Sinophloeus destructor Eggers

Plate IV

Sinophloeus destructor Eggers, 1942:15. Holotype, sex?; Chile; Hamburg Museum, lost

Diagnosis: Easily recognized by the distinctive frons; by the presence of subtuberculate nodules between punctures in a stria row; by the very coarse, long setae on the anterolateral areas of the pronotum; and by the host.

Male: Similar to female except frontal concavity extending from vertex to lower fourth of frons, much wider; deeper; carina higher and longer; anterolateral areas of pronotum with several low rugae, long bristles more numerous.

Female: Length 2.4–3.1 mm, 2.2 times as long as wide; color almost black, elytra usually reddish brown, vestiture often pale, especially on elytra. Frons with median half moderately concave from distinctly below upper level of eyes to middle of frons; an acutely elevated median carina from deepest point of concavity to two-thirds distance toward epistomal margin; surface obscurely subreticulate, punctures moderately large, close, deep, finer below; vestiture of fine, sparse, short, inconspicuous hair, a modest epistomal brush arising immediately above epistomal margin. Pronotum 0.73 times as long as wide; widest on weakly arcuate, subparallel basal half, moderately constricted on anterior fourth; surface smooth, shining, without any tubercles or granules, punctures moderately coarse, very close, deep; vestiture of fine, short hair at base of disc, becoming longer anteriorly, anterior margin and anterior half of lateral margin bearing several (about 40) very long, coarse, dark bristles. Elytra 1.6 times as long as wide, 2.3 times as long as pronotum; basal margin of each elytron armed by about 10 coarse, marginal crenulations, bases of interstriae 2–5 armed by several (total of 15) submarginal crenulations; striae not impressed, punctures small, deep, obscure, spaces between punctures within a row armed by conspicuous subtuberculate nodules to base of declivity; interstriae about twice as wide as striae, shining, closely subcrenulate, some crenulations subacute, their posterior slope steep and marked by a setiferous pore; declivity very broadly convex (somewhat flattened), moderately steep, stria punctures much larger than on disc,

interstriae narrower, each armed by a row of moderately large, pointed tubercles, interstriae 1 feebly elevated; vestiture of ground cover of short setae, slender, almost hairlike on disc, stout, almost scalelike on declivity, a few irregularly placed, very long interstitial bristles on disc and sides (on interstriae 3 and 5 only?).

Distribution: Argentina to Chile.

Argentina: Cited by Bright & Skidmore (1994:24).

Chile: Alto Caicupil, 12-I-1953, L.E. Pena; Arauco Caramavida, 20-XII-1956, 1200 m, *Araucaria* (ramas), G. Kushel; Cautin, Conquillio, 13-V-1979, J. Solervicens; Cautin, P.N. Los Paraguas, 20-II-1962, N. Elgueta; Cautin, P.N., Las Paraguas, 20-III-1962, N. Elgueta; Chillan, Elng Nr. 115, 1927, W. Zirk (cotype); Malleco, 30-I-1962, 1200 m, T. Valencia; Prov. Malleco, Lonquimay, 22-XII-1956, *Araucaria* (ramas), G. Kushel; Malleco, Nahuelbuta, 7-II-1980, *Araucaria araucana*, J. Solervicens; Malleco Galleque, 8-II-1991, *Araucaria araucana*, J. Solervicens; Malleco La Fusa, Lonquimay, 31-XII-1967, 900–1200 m, L.E. Pena; Malleco Liucura, Lonquimay, 1-9-I-1969, L.E. Pena; Pichinahuel, 8-II-1953, L.E. Pena; Prov. Malleco, Pemehue, 1350 m, 26-I-1946, *Araucaria*, G. Kushel; Malleco, 30-I-1962, 1200 m, T. Valencia; Pemehue, II-1894, 1896, Germain; Prov. Cautin, II-1921, Roble (= *Nothofagus obliqua*), C.E. Porter; Pemehue, 1894, II-1896, Germain; Nahuelbuta (Sudchile), 12-XI-1961, *Araucaria araucana*, in phloem von beblatterten Asten, W. Ruhm (Schedl 1966:43); P.N. Villarica, 2-II-1977, Solervicens.

Hosts: *Araucaria araucana*.

Biology: Schedl (1966:43) states “in phloem von beblatterten Asten.”

Notes: The report by Porter from Roble (= *Nothofagus obliqua*) in Brethes (1922:433) and Schedl (1966:43) must represent either an error in recording the host, or else Porter’s species was not the same as the one reported here. All other records are from *Araucaria araucana*. The above treatment was based on 41 specimens (see p. 57).

GENUS *XYLECHINUS* CHAPUIS

Xylechinus Chapuis, 1869:36. Type-species: *Dendroctonus pilosus* Ratzeburg, monobasic (Synonymy and references in Wood & Bright c1992:114–115)

Pruiniphagus Murayama, 1958:930. Type-species: *Pruiniphagus gumensis* Murayama, original designation

Squamasinus Numberg, 1964:431. Type-species: *Squamasinus chilensis* Numberg, original designation

Xylechinops Browne, 1973:283. Type-species: *Xylechinus australis* Schedl, original designation

Diagnosis: This genus is distinguished from other Tomicini genera by the 5-segmented antennal funicle and scalelike setae on the metepisternum.

Description: Frons usually not sexually dimorphic; median frontal carina sometimes present; antennal funicle 5-segmented, club conical, slightly flattened; pronotum unarmed or armed by asperities; procoxae moderately

separated; elytral striae indicated, sculpture rather simple.

Distribution: There are 36 species listed worldwide on all inhabited continents (Wood & Bright c1992:114–119), 12 of which were cited from South America and 9 from adjacent Central America.

Biology: All species are monogynous and phloeophagous. They breed in both coniferous and broadleaf hosts in biramous parental galleries in branches, seedlings, or small diameter tops of their hosts. In the dozen or more species known to me, attacks were made in unthrifty parts of standing trees near green tissue. I have never seen them in slash or felled trees.

Key to the Species of *Xylechinus*

- 1. Anterolateral areas of pronotum armed by seven or more acute, rather high asperate crenulations on each side (see also *huapiae*) 2
- Anterolateral areas of pronotum entirely unarmed by acutely pointed asperities (see also couplet 16) 6
- 2(1). Elytral ground cover of short, very stout scales, each scale about as wide as long, their apex rounded; erect interstitial bristles entirely absent; declivital striae 1 and 2 with punctures as large as on disc; punctures on pronotum very fine, shallow; female frons strongly convex, distinctly protuberant above epistoma; elytral declivity broadly sulcate between left and right interstriae 3; Chile; 2.2–2.4 mm (*variegatus* very much like this but lower frons more distinctly impressed) *chiliensis* (Nunberg)
- Elytral interstriae each with a row of erect bristles, each bristle about one and one-half to twice length of ground scales; punctures on declivital striae 1 and 2 conspicuously smaller than on disc 3
- 3(2). Scutellar notch at suture at base of elytra unusually deep, posterior margin of pronotum at median line armed by a large, acutely pointed spine projecting into scutellar notch; setae on pronotum stout, each about four to five times as long as wide, interstitial ground setae pale, each two to three times as long as wide, erect setae mostly dark in color, each about six times as long as wide; Argentina; 2.5 mm *nigrosetosus* Hagedorn
- Scutellar notch normal; posterior margin of pronotum unarmed by a large median spine 4
- 4(3). Basal area of each elytron with 12 or more coarse, submarginal crenulations on interstriae 2 to 5; discal interstriae each with a row of many tubercles, tubercles larger toward declivity; female frons with a very slight, short median carina at level of ocular sinuation; Chile; 2.3 mm *tuberculifer* Wood
- Basal area of elytra with few if any submarginal crenulations; interstriae without tubercles on disc or declivity, an occasional small granule present; frons with no indication of a median carina 5
- 5(4). Elytral ground cover of slender, often pointed scales, each scale about three to six times as long as wide; erect interstitial bristles in rows, almost scalelike, each about one and one-half to two times as long as ground scales, spaced within a row by almost twice length of a bristle; scales about 60 percent dark, 40 percent pale, variagated; punctures on pronotum moderately coarse, close, deep; female frons weakly convex, somewhat impressed above epistoma; elytral declivity convex; Chile; 1.8–2.0 mm *maculatus* Schedl
- Elytral interstriae with ground cover of short scales, each scale only slightly longer than wide, their apices rounded, each interstriae with a row of erect bristles, each bristle slightly longer than scales; pronotum with very small, shallow, close punctures; elytral declivity impressed as in *chiliensis* except punctures on striae 1 and 2 much smaller than on disc; Chile; 2.4 mm *squamatilis* Wood
- 6(1). Body stouter, 1.8–2.1 times as long as wide, elytra 1.6 to 1.7 times as long as pronotum; vestiture on pronotum slender, mostly hairlike; elytra sexually dimorphic, declivital interstriae 2 and 4 impressed and unarmed, 3 (and sometimes 1) armed by denticles in both sexes, larger and higher in male 7

TOMICINI

- Body more slender, 2.3 times as long as wide, elytra 2.3 times as long as pronotum; vestiture on pronotum clearly scalelike, varying from as long as wide to six times as long as wide; elytral interstriae without any tubercles on disc or declivity 8
- 7(6). Male frons concave; pronotum disc smooth, shining, more coarsely punctured; 11 crenulations on basal margin of each elytron coarser; discal interstriae without tubercles; male declivital interstriae 3 armed by a row of pointed, moderately coarse denticles, 1 unarmed; Argentina; 2.0 mm *squamiger* Schedl
- Male frons convex; pronotum reticulate near base, punctures much smaller; 15 smaller crenulations on basal margin of each elytron; discal interstriae each armed by tubercles; male declivital interstriae 3 and base of 1 elevated and armed by tubercles; Argentina; 2.1–2.6 mm *imperialis* (Schedl)
- 8(6). Vestiture on pronotum slender, almost hairlike; elytral declivity rather uniformly convex, interstriae 1 higher than 3 9
- Vestiture on pronotum stout, scalelike, each less than four times as long as wide; elytral declivity variously impressed, interstriae 3 distinctly higher than 1 (except striae 1 and interstriae 2 impressed in *freiburgi* but interstriae 1 higher than 3) 10
- 9(8). Interstriae with ground cover on basal half of disc of fine, short hair, of short scales on posterior half of disc and declivity; erect interstitial setae of fine, short hair on disc and declivity; declivital striae 1 to 4 narrowly, rather deeply impressed; pronotum surface granular; punctures small, close, obscure; Brazil; 1.7 mm *minor* Eggers
- Interstitial ground setae of stout, pointed subscales; erect interstitial setae scalelike, each about four to six times as long as wide; pronotum surface almost smooth, punctures close, shallow, rather large; funicle 7-segmented; Chile; 2.3 mm *Sinophloeus porteri* Brethes
- 10(8). Elytral declivity convex, interstriae 2 not impressed (feebly in *freiburgi*), interstriae 1 at least as high as 3; frons flattened to concave, never armed by a median tubercle or carina 11
- Elytral declivity shallowly to moderately sulcate, interstriae 2 impressed, 3 higher than 1; frons with a median tubercle or carina in both sexes 12
- 11(10). Male frons planoconcave from epistoma to upper level of eyes; Brazil; 2.1 mm *freiburgi* Schedl
- Male frons rather strongly concave on median half from level of antennal insertion to upper level of eyes; Argentina; 1.7–2.1 mm *nahueliae* (Schedl)
- 12(10). Scales in ground cover on pronotum and elytra rather slender, each seta about four times as long as wide; median tubercle on frons at or slightly below middle; impression on elytral declivity very shallow; punctures on declivital striae 1 and 2 rather coarse; Chile; 2.4 mm *aconcaguensis* Wood
- Scales in ground cover on pronotum and elytra very stout, almost as wide as long; tubercle or carina on frons above middle; punctures on declivital striae 1 and 2 smaller 13
- 13(12). Ground scales on pronotum and elytra large, more abundant, concealing about 80 percent of surface; frons more broadly, more strongly flattened, median carina on upper half weak, somewhat obscure; declivital interstriae 3 more strongly elevated, scales covering summit profusely abundant; Chile; 2.6 mm *vittatus* Schedl
- Ground scales on pronotum and elytra smaller, less abundant, concealing no more than 50 percent of surface; frons more narrowly, less broadly impressed, median carina and/or tubercle stronger; declivital interstriae 3 less strongly elevated, scales on its summit not more abundant than elsewhere 14

- 14(13). Body more slender, 2.3 times as long as wide; elytral declivity not as steep, less strongly impressed below; female frons almost flat below upper level of eyes, a very weak median carina from just below upper level of eyes to well above eyes; Chile; 2.2 mm *declivis* Wood
- Body less slender, 2.2 times as long as wide; elytral declivity slightly steeper, more strongly impressed below; male (?) with denticle on upper frons strongly developed 15
- 15(14). Strial punctures on disc rather coarse, interstriae very slightly wider than striae; base of interstriae 2 and 3 (combined) armed by about five submarginal crenulations; Chile; 1.9 mm *variegatus* (Chapuis)
- Strial punctures on disc smaller, interstriae twice as wide as striae; bases of interstriae 2 and 3 (together) with one or two submarginal crenulations; female with obscure asperities on pronotum 16
- 16(15). Declivity less strongly, more narrowly impressed, especially on lower half; ground setae on discal interstriae as wide as long (subcircular), erect setae more slender, at least eight times as long as wide; frontal setae finer, slightly shorter, more numerous; Chile; 2.6 mm *solervicensi* Wood
- Declivity more strongly, more broadly impressed, especially on lower half; interstitial ground setae on disc slightly longer than wide (elongate), erect setae stouter, about four to six times as long as wide; frontal setae coarser, longer, less numerous; Chile; 2.0 mm *huapiae* (Schedl)

Xylechinus chiliensis (Nunberg)

Xylechinus chiliensis (Nunberg), 1964:432 (*Squamosinus*). Holotype, sex?; Chili; NHMB, Budapest (Synonymy and references in Wood & Bright c1992:114–115)

Xylechinus sulcatus Schedl, 1966:100. Holotype ♀; El Hoyo, Chubut, Argentina; NHMB, Budapest (References in Wood & Bright c1992:119). *New synonymy*

Diagnosis: Anterolateral area of pronotum armed by several acutely pointed crenulations; punctures on pronotum fine, shallow; elytral scales about as wide as long; elytral declivity impressed between interstriae 3, broadly, shallowly sulcate.

Female: Length 2.2 mm, about 2.1 times as long as wide; color very dark brown, scalelike vestiture in variegated pattern (60 percent dark, 40 percent pale). Frons moderately convex, a slight impression at level of antennal insertion; surface obscurely reticulate, punctures rather fine, close, obscured by numerous scales. Pronotum 0.82 times as long as wide; widest at base, sides arcuately converging to weak constriction on anterior fourth; anterolateral areas armed on each side by about 5–7 acutely elevated crenulations, surface minutely reticulate-granulate, punctures fine, shallow, close, obscure; vestiture of rather abundant scales, each scale slightly longer than wide; elytra 1.6 times as long as wide, 1.9 times as long as pronotum; about three submarginal crenulations at base of interstriae 2–3; striae not impressed, punctures small, deep, very close; interstriae about twice as wide as striae, smooth, shining, punctures small, close, confused; vestiture of abundant scales, each scale as wide as long, without rows of erect bristles. Declivity steep, broadly impressed between broadly rounded interstriae 3; surface sculpture similar to disc.

Distribution: Argentina to Chile.

Argentina: Chubut, El Hoyo.

Chile: B. de Canquenes, Rancagua, E.P. Reed.

Notes: One female specimen was examined that was compared to Schedl's paratype of *sulcatus*. Schedl compared the holotype of *chiliensis* (Nunberg) and *sulcatus* Schedl and labeled them as the same species, although he never reported the synonymy. I confirmed this observation at NHMW, Wien in 1982.

Xylechinus nigrosetosus Hagedorn

Xylechinus nigrosetosus Hagedorn, 1909:737. Holotype ♂?; Argentina, Gebirge Neuquem; Hamburg Museum, lost (1 damaged syntype removed by Eggers in 1944, purchased by USNM, Washington, in 1945, taken on loan in 1945 by Schedl, now on loan to NHMW, Wien (References in Wood & Bright c1992:116)

Diagnosis: Distinguished by the absence of pronotal asperities; and by the presence of a large, pointed median spine on posterior margin of pronotum (no other scolytid with a similar spine).

Male (?): Length 2.4 mm, 2.2 times as long as wide; color medium brown (mature color?). Head missing from type. Pronotum 0.84 times as long as wide; surface largely obscured by oils and resin; posterior margin at median line extended slightly caudad (into scutellar notch) and armed by a large, conspicuous, sharply pointed spine, dorsal crest of spine longitudinally carinate; asperities absent; vestiture short, moderately abundant, rather stout (somewhat hairlike) on anterior one-third, very stout on posterior areas, about three times as long as wide. Elytra about 1.5 times as long as wide, about 1.9 times as long as pronotum; scutellar notch deeper than normal (to accommodate pronotal spine); apparently without submarginal crenulations;

striae narrow, slightly impressed, punctures small, rather deep; interstriae about three times as wide as striae, surface shining, punctures subgranulate, small, confused, central row of granules not larger. Declivity convex, rather steep; striae 1 to 4 deeply, narrowly impressed, shining, punctures obsolete; interstriae narrower than on disc, without tubercles. Vestiture of ground cover of slender scales, each about four to six times as long as wide, and central rows of erect scales, each about 1.5 times as long as ground setae, and varying from three to six times as long as wide, each less than half as long as distance between rows, spaced within a row by length of a seta; erect setae mostly darker in color, ground setae mostly pale (very poor condition); setae on declivity may consist mostly of erect scales.

Distribution: Argentina: Neuquen mountains.

Notes: The above treatment was based on the holotype, probably a male. This species was based on a syntypic series in the Hamburg Museum. During World War II, Eggers removed this and other selected specimens of other species and placed them in his personal collection because he feared the Hamburg Museum might be destroyed. This syntype became the holotype by survival, all others were destroyed when the Hamburg Museum was lost. It is in very poor condition.

Xylechinus tuberculifer Wood, n. sp.

Xylechinus tuberculifer Wood: Holotype ♀; Valparaiso, La Campana, Chile; MNHN, Santiago, designated below

Diagnosis: Anterolateral areas of pronotum with asperities; basal areas of each elytron with 12 or more coarse, submarginal crenulations at bases of interstriae 2–5; each discal interstriae with a row of tubercles that become larger toward the declivity.

Female: Length 2.3 mm, 2.0 times as long as wide; color very dark brown, scales variegated (about 50 percent dark, 50 percent pale). Frons moderately convex; epistoma with a small median tubercle at margin; weakly impressed at level of antennal insertion; surface rather coarsely reticulate, several small, subgranulate punctures, a feeble, shining longitudinal carina on central fourth; vestiture rather coarse, short, rather sparse. Pronotum 0.83 times as long as wide; widest at base, sides weakly arcuate, moderately converging cephalad from base; crenulations in lateral areas rather small; surface finely granulate, punctures rather small, shallow; vestiture of rather sparse scales, each 3–4 times as long as wide. Elytra 1.5 times as long as wide, 1.9 times as long as pronotum; bases of interstriae 2–5 armed by about 12 coarse, submarginal crenulations; striae narrow, weakly impressed, punctures deep, close; interstriae about three times as wide as striae, shining, closely, rather deeply punctured, punctures near center subtuberculate, becoming tuberculate by base of declivity; vestiture of rows of scales (each almost as wide as long) on both margins, central row bearing erect bristles (each about four times as long as wide, almost twice as long as ground scales),

not longer on declivity. Declivity steep, convex; striae more deeply impressed than on disc; interstriae narrower, as wide as striae on lower half, 2–4 more strongly convex, their tubercles larger, in rows.

Distribution: Chile.

Type material: The female holotype was taken at Valparaiso, La Campana, Chile, 27-X-1978, 700 m, ex bosque higrofilo, I. Solervicens. The holotype is in the Museo Nacional de Historia Natural, Santiago.

Xylechinus maculatus Schedl

Xylechinus maculatus Schedl, 1951:18. Syntypes ♀; Chile, Quillota; MNHN, Santiago, and NHMW, Wien (References in Wood & Bright c1992:116)

Diagnosis: Anterolateral area of pronotum armed by crenulations; elytral ground scales slender, each about six times as long as wide, erect bristles present; elytral declivity convex, not impressed.

Male: Similar to female except frons shallowly impressed from epistoma to upper level of eyes, course setae on margins more abundant, longer; pronotal asperities small, obscure.

Female: Length 1.8–2.0 mm, about 2.1 times as long as wide; color very dark brown, variegated scales (60 percent dark, 40 percent pale). Frons essentially convex, a moderate, transverse impression from just above epistoma to just below upper level of eyes, its deepest point transversely, weakly convex, feebly concave longitudinally; surface apparently reticulate, punctures fine, close, obscure, sparse vestiture apparently not scalelike. Pronotum 0.84 times as long as wide; lateral crenulations coarse, in two clusters, one at anterolateral margin, another in lateral area about one-third pronotum length from anterior margin; surface shining, punctures rather coarse, close, deep; vestiture of abundant, slender scales, each scale three to six times as long as wide. Elytra about 1.7 times as long as wide, about 2.5 times as long as pronotum; submarginal crenulations obsolete at base of interstriae 2–4; striae feebly impressed, punctures rather coarse, close, deep; interstriae less than twice as wide as striae, shining, punctures small, confused, ground cover of slender scales, each scale four to six times as long as wide, erect bristles stout, each one and one-half to two times as long as ground scales, about half as long as distance between rows, spaced within a row by about twice length of a bristle. Declivity evenly, rather steeply convex; striae punctures distinctly smaller than on disc; vestiture similar to disc.

Distribution: Chile: Cord. Chillan, 1899, Germain; Choapa, 272 km N Panam, 19-XI-1985, 23-I-1986, *Sena comingii* var. *coquimbensis*, M. Elgueta; Quillota; Cerro Robles, P. Santiago, 7-IV-1968, 6100 ft., C.W. & L. O'Brien; Pucocuai, 20-XI-1940, No. 449, G.H. Schwabe; Talco, La Varga (E. Carrizall), 3-XI-1991, M. Elgueta; Valparaiso, L. Penueles, 12-XI-1975, E. Vasquez.

Hosts: *Nothofagus pumilis*, *Sena comingii* var. *coquimbensis*.

Notes: The above treatment was based on 17 specimens from Chile. I compared 1 female directly to a female syntype in NHMW, Wien.

Xylechinus squamatilis Wood, n. sp.

Xylechinus squamatilis Wood: Holotype ♀; Banos de Cauquenes, Rancagua, Chile; USNM, Washington, designated below

Diagnosis: Distinguished from *maculatus* Schedl by the smaller, less numerous pronotal asperities; by the shorter, broader scales in ground cover of the pronotum and elytra; by the steeper, moderately sulcate elytral declivity; and by the larger size.

Female: Length 2.4 mm, 2.0 times as long as wide; color very dark brown, vestiture of scales in variegated pattern (50 percent dark, 50 percent pale). Frons about as in *chiliensis* (Nunberg). Pronotum about as in *chiliensis* except surface smoother, shining, punctures shallow, small to minute punctures intermixed, close. Elytra as in *chiliensis* except 1.4 times as long as wide, 1.9 times as long as pronotum; ground scales on disc about as wide as long, erect bristles much more slender (each about eight times as long as wide), separated within a row by length of a bristle; declivity steeper, a bit more narrowly impressed.

Distribution: Chile.

Type material: The female holotype was taken at Banos de Cauquenes, Rancagua, E.P. Reed. The holotype is in the U.S. National Museum, Washington.

Xylechinus squamiger Schedl

Xylechinus squamiger Schedl, 1979:60. Holotype ♂; Cordoba, Dep. de Calamuchita, El Sauce, Argentina; MACN, Buenos Aires (References in Wood & Bright c1992:119)

Diagnosis: Distinguished from *imperialis* (Schedl) by the smaller size; by the stouter body; and by an entirely different sculpture of the elytra and elytral vestiture.

Male: Length 2.0 mm, about 1.8 times as long as wide; color dark brown, pronotum almost black, vestiture pale. Frons moderately concave from epistoma to upper level of eyes on median three-fourths, central area smooth, shining, becoming closely, deeply, rather coarsely punctured toward margins; median line on lower half with a fine carina; vestiture of fine, moderately long, inconspicuous hair on all margins. Pronotum 0.83 times as long as wide; surface smooth, shining, punctures rather coarse, deep, close, spaced by less than half diameter of a puncture, smaller near anterior margin; vestiture sparse, hairlike. Elytra 1.1 times as long as wide, 1.4 times as long as pronotum; basal margin of each elytron armed by 11 coarse crenulations; striae narrowly, modestly impressed, punctures rather small, partly to mostly obsolete; interstriae almost four times as wide as striae, shining, with small, confused punctures, punctures bearing erect setae very feebly granulate. Declivity occupying slightly less than posterior half, rather steep, basically convex except shallowly sulcate between left and right

interstriae 3; interstriae 1 and 2 slightly impressed, unarmed, 3 slightly elevated, armed by a uniseriate row of about seven, moderately large, sharply pointed denticles; interstriae 4, 6, 8, and 9 unarmed, 5 and 7 each with one or two small denticles. Vestiture of fine, moderately abundant hair on most of disc, becoming scalelike on declivity, each scale rather short, four to six times as long as wide; erect rows of bristles not evident.

Distribution: Argentina: Cordoba, Dep. de Calamuchita, El Sauce.

Notes: According to the original description, this species was based on the male holotype that was deposited in MACN, Buenos Aires (publication), but a holotype is also at NHMW, Wien (see Wood & Bright c1992:3). The original description was probably based on the specimen at NHMW, Wien. The above treatment was based on the Wien specimen.

Xylechinus imperialis (Schedl)

Plate V

Xylechinus imperialis (Schedl), 1958:39 (*Pseudochramesus*). Syntypes ♂; Buenos Aires, Tigre, Argentina; NHMW, Wien (Synonymy and references in Wood & Bright c1992:116)

Xylechinus calvus Schedl, 1979:60. Holotype ♂; Buenos Aires, Pilar Island, Argentina; NHMW, Wien

Diagnosis: Antennal club more strongly flattened, slightly asymmetrical; pronotum larger; its vestiture almost all hairlike; elytra sexually dimorphic; all interstriae armed by tubercles in female, male declivity with interstriae 3 and base of 1 moderately elevated and armed by denticles, 2 impressed and unarmed.

Male: Similar to female except upper third of interstriae 1 on declivity elevated and armed by coarse denticles, lower 1 and all of 2 and 4 impressed, unarmed, 3 moderately elevated and coarsely armed, lower elevated area less extensive but higher and armed.

Female: Length 2.1–2.6 mm, 2.1 times as long as wide; color dark brown, vestiture 40 percent dark, 60 percent pale. Frons broadly convex, rugose-reticulate above eyes, smooth, shining below, punctures fine, close, deep; vestiture hairlike, fine, short, inconspicuous. Pronotum 0.85 times as long as wide; widest at base, sides convergently arcuate from base to anterior margin, constriction not evident; unarmed by asperities; surface reticulate, punctures shallow, close, moderately coarse; vestiture rather short, hairlike, a bit stouter in posterolateral areas. Elytra 1.3 times as long as wide, 1.8 times as long as pronotum; three crenulations on basal row in humeral (lateral) area unusually coarse; many submarginal crenulations at bases of interstriae 2–3; striae moderately impressed, punctures small, deep, close; interstriae three times as wide as striae, punctures small, deep, confused, each bearing a scalelike seta (slender, pointed on disc, broadly scalelike toward declivity), also armed by many small, confused, narrow, acutely elevated crenulations, becoming uniseriate toward declivity, each tuberculate crenulation about equal in width to one-fifth width on an interstriae. Declivity rather steep, more or less broadly

convex; striae 1, 2, and 3 ending about one-third declivital length before apex, interstriae 3 elevated almost from base and joining large elevation on lower third extending from suture to apex of 7, tubercles uniseriate, continued to elevated area; scalelike vestiture abundant, each scale as wide as long.

Distribution: Argentina: Buenos Aires, Tigre; Buenos Aires, Pilar Island; San Salvador de Jujuy, 21-X-1968, C.W. & L. O'Brien; RA, Tucuman, 24-IV-1955, R. Golbach; Salta, Los Toldos, 19-21-II-1960, 2400 m, R. Golbach.

Notes: The above was based on 1 female and 2 male specimens. I compared 1 male directly to the holotypes of *Pseudochramesus imperialis* Schedl and *Xylechinus calvus* Schedl.

Xylechinus minor Eggers

Xylechinus minor Eggers, 1928:84. Holotype ♀?; Sao Paulo, Brazil; on loan to NHMW, Wien from USNM, Washington (References in Wood & Bright c1992:116)

Diagnosis: Distinguished from *spathifer* Schedl by the smaller size; by the hairlike setae on the elytral disc; and by details in sculpture of the elytral declivity.

Female (?): Length 1.7 mm, 2.1 times as long as wide; color brown, prothorax darker. Frons rather narrowly flattened from epistoma to upper level of eyes; reticulate-granulate on at least upper areas, punctures obscurely indicated; a partial median carina on lower half (visible only in part on type); vestiture of fine, short, sparse hair, inconspicuous. Pronotum 0.77 times as long as wide; pronotum surface granular, punctures not evident; vestiture of fine, short, moderately abundant hair. Elytra 1.5 times as long as wide, 2.2 times as long as pronotum; striae slightly impressed, punctures small, deep; interstriae almost twice as wide as striae, shining, each with a central row of rounded tubercles, punctures minute, obscure. Declivity convex, moderately steep; striae 1 to 4 more strongly, more narrowly impressed than on disc; interstriae shining, punctures more numerous, more clearly indicated, 1 and 3 with tubercles smaller than on disc, reduced in size toward apex, 2 and 4 without granules or tubercles. Vestiture on basal half of disc of fine, short, rather abundant interstitial hair in ground cover, becoming subplumose to scalelike on posterior disc and declivity, each interstriae with a central row of slightly longer, erect hair, each seta almost equal in length to one-third of distance between rows, separated within a row by one and one-half or more times length of a seta.

Distribution: Brazil: Sao Paulo.

Notes: The above treatment was based on the holotype, presumably a female, of *Xylechinus minor* Eggers.

Sinophloeus porteri Brethes, n. comb.

Sinophloeus porteri Brethes, 1922:434. Holotype, sex ?; Province de Cautin, Chile; Brethes Collection at MACN, Buenos Aires (Synonymy and references in Wood & Bright c1992:105).

Xylechinus spathifer Schedl, 1955:256. Lectotype ♀?; Laguna de Malleca, Prov. Malleca, Chile, 900 m; NHMW, Wien, designated by Wood 1985:270 (Synonymy and references in Wood & Bright c1992:118). *New synonymy*
Pteleobius lomatiae Schedl, 1975:2. Holotype ♂; Nahuel Huapi National Park, Argentina; NHMW, Wien. *New synonymy*

Diagnosis: Distinguished from *minor* Eggers by the larger size; by the continuation of scalelike ground vestiture almost to bases of elytra; by the scalelike erect interstitial bristles; and by sculpture of the pronotum.

Male: Length 2.3 mm, 2.2 times as long as wide; color black, vestiture rather pale. Frons essentially concave, except feebly planoconcave on upper half in median area; smooth, brightly shining; punctures fine, sparse in central area, more numerous and slightly larger toward margins; lower half with a moderately strong carina; vestiture of moderately abundant, rather long, fine hair; vestiture rugose-reticulate. Pronotum 0.80 times as long as wide; surface shining, punctures large, moderately deep, very close, of irregular shape, interspaces equal to less than one-fourth diameter of a puncture. Elytra 1.5 times as long as wide, 2.1 times as long as pronotum; striae moderately impressed; interstriae slightly less than twice as wide as striae, shining, small punctures bearing ground setae distinctly, finely tuberculate, those of erect setae in central rows more strongly tuberculate. Declivity broadly convex, rather steep; interstriae almost smooth, except each with a central row of small, rounded tubercles. Vestiture with ground cover of numerous hairlike setae on disc, less numerous on declivity, and central rows of erect scales, each almost twice as long as ground setae, each widest near its apical end, about four to six times as long as wide.

Distribution: Chile: Prov. Malleca, Laguna de Malleca, 24-I-1946, 900 m, "Huechel" log, and Prov. Curico.

Host: *Lomatia hirsuta*.

Notes: The above treatment was based on the lectotype of *Xylechinus spathifer* Schedl, a male, and on 14 other specimens.

Xylechinus freiburgi Schedl

Xylechinus freiburgi Schedl, 1972:56. Holotype ♂; New Freiburg [Island], Brazil; NHMW, Wien (References in Wood & Bright c1992:115)

Diagnosis: Distinguished by the stout body and broadly convex, unique elytral declivity; and by the absence of a median tubercle or carina on the frons.

Male: Length 2.1 mm, 1.9 times as long as wide; color very dark brown (vestiture abraded on type). Frons broadly planoconcave from epistoma to upper level of eyes; entire surface rugose-reticulate, punctures minute, moderately abundant; vestiture of coarse, rather short, moderately abundant setae (badly abraded on type); without any indication of a median tubercle or carina. Pronotum 0.90 times as long as wide; surface rugose-reticulate, punctures small, shallow, of irregular shape; vestiture of moderately abundant scales, each about twice as long as wide (badly abraded and incrustated on

type). Elytra 1.4 times as long as wide, 1.9 times as long as pronotum; striae weakly impressed, punctures deep, coarse (except smaller toward base; interstriae as wide as striae, almost smooth, shining, punctures minute, moderately abundant, confused. Declivity broadly convex, steep; interstriae 1 distinctly elevated, 2 weakly impressed, 3 feebly elevated; striae 1 moderately, 2 weakly impressed, punctures rather strongly reduced in size from base toward apex; interstriae 4 to 6 (perhaps others) with obscure rows of very small granules near base. Vestiture mostly abraded on type, apparently of ground cover of scales (some pale, some tan), each about twice as long as wide on disc, only slightly longer than wide on declivity, and central rows of erect, slender bristles, each apparently one-half (disc) to two-thirds (declivity) as long as distance between rows, spaced within a row by length of a bristle.

Distribution: Brazil: Nova Friburgo (Rio de Janeiro).

Notes: The above treatment was based on the holotype of *Xylechinus freiburgi* Schedl, presumably a male.

Xylechinus nahueliae (Schedl), n.comb.

Xylechinus nahueliae (Schedl), 1979:59 (*Phthorophloeus*). Holotype ♀; Nahuel Huapi National Park, Argentina; NHMW, Wien (References in Wood & Bright c1992:225)

Diagnosis: Distinguished from *freiburgi* Schedl by the much more strongly, narrowly impressed frons above the level of the antennal insertions.

Male: Length 1.7–2.1 mm, 2.2 times as long as wide; color very dark brown, scales variegated, pale and dark. Frons broadly impressed from epistomal margin to level of antennal insertion, rather strongly impressed on median half from level of antennal insertions to upper level of eyes; surface shining, very finely, rather closely punctured on lower half, becoming rugose-reticulate above concavity; vestiture rather sparse, of coarse rather long hair mostly in lateral areas. Pronotum 0.74 times as long as wide; anterolateral areas with several small asperities; surface shining, punctures fine, irregular, close; vestiture scalelike, most scales about 4 times as long as wide, a few on anterior disc up to 8 times as long as wide. Elytra 1.5 times as long as wide; bases of interstriae 2 to 3 with a total of seven submarginal crenulations; striae not impressed, punctures rather coarse, deep; interstriae slightly wider than striae, almost smooth, shining, a central uniseriate row bearing erect setae, smaller punctures at margins bear ground setae. Declivity rather broadly convex, steep; interstriae 1 weakly elevated; sculpture about as on disc. Vestiture of suberect ground setae, each about twice as long as wide; erect bristles in uniseriate rows, each about 6 times as long as wide, each about half as long as distance between rows (irregular), spaced within a row by length of a bristle.

Female: Similar to male except frons irregularly convex; crenulations on pronotum distinctly larger.

Distribution: Argentina: Nahuel Huapi National Park, 15-X-1971, K. Naumann.

Notes: The above treatment was based on the female holotype, male allotype, and 1 female and 1 male paratype of *Phthorophloeus nahueliae* Schedl.

Xylechinus aconcaguensis Wood, n. sp.

Xylechinus aconcaguensis Wood: Holotype ♀; 10 km SE Zapallar, P. Aconcagua, Chile; USNM, Washington, designated below

Diagnosis: Pronotum unarmed by asperities; striae punctures on disc rather coarse, very close, interstriae only slightly wider than striae; interstitial scales slender; pronotal punctures dense, very close.

Female: Length 2.4 mm, 2.2 times as long as wide; color dark brown, scales 20 percent dark, 80 percent pale. Frons moderately convex, somewhat impressed above weakly elevated epistoma; a coarse, acutely pointed tubercle at center of frons; surface reticulate on upper half, becoming almost smooth below, punctures fine, partly obscured by rather stout, moderately long setae. Pronotum 0.90 times as long as wide; widest at base, sides convergently arcuate to weak constriction on anterior fourth; surface unarmed by asperities, densely, rather coarsely punctured, punctures separated by less than one-fourth diameter of a puncture; vestiture of scales, each scale about 4 times as long as wide (mostly pale, few dark). Elytra 1.7 times as long as wide, 2.3 times as long as pronotum; bases of interstriae 2–4 armed behind basal row by about 20 rather coarse, submarginal crenulations; striae punctures rather coarse, deep, spaced within a row by less than half diameter of a puncture; interstriae about one and one-half times as wide as striae, almost flat, confused punctures very small; vestiture of abundant scales in ground cover, each scale slender and about 4 times as long as wide, erect bristles in central rows slightly more slender than scales but only slightly longer (less than 1.5 times). Declivity steep, convex; only feebly, indistinctly impressed between left and right interstriae 3; interstriae 2 narrowed, apparently obsolete near apex; scales apparently reduced in size and number.

Distribution: Chile (Aconcagua).

Type material: The female holotype was taken 10 km SE Zapallar, P. Aconcagua, Chile, 23-XI-1967, C.W. & L. O'Brien. The holotype is in the U.S. National Museum, Washington.

Xylechinus vittatus Schedl

Xylechinus vittatus Schedl, 1966:100. Holotype ♂?; Chile; NHMW, Wien (References in Wood & Bright c1992:119)

Diagnosis: Distinguished by the comparatively large size; by the large, dense scales on pronotum and elytra; and by the rather strongly elevated declivital interstriae 3 that is ornamented by an abnormal profusion of scale-like setae.

Male (?): Length 2.6 mm, 2.2 times as long as wide; color dark brown, an abundance of pale and dark scales.

Frons broadly flattened above and below, a slight summit dividing frons transversely, a low median tubercle just above middle, with a low median carina extending from tubercle to above upper level of eyes; surface apparently subreticulate, with numerous small punctures; surface largely concealed by abundant, short, coarse setae. Pronotum 0.80 times as long as wide; surface apparently smooth, shining, with numerous fine, close punctures of various sizes; vestiture of numerous scales concealing most of surface; scales recumbent, each as wide as long, intermixed with less abundant, slightly longer, suberect, slender setae, setae forming a variegated pattern of pale and tan to brown scales. Elytra 1.4 times as long as wide, 2.0 times as long as pronotum; striae not impressed, punctures rather small, close, deep; interstriae about three times as wide as striae, surface smooth, shining, punctures minute, numerous, confused. Declivity basically convex except moderately sulcate on median one-third, rather steep; interstriae 3 rather broadly elevated on middle third, more narrowly, weakly elevated on upper one-third. Interstitial vestiture on disc of abundant scales, each slightly longer than wide, erect bristles almost twice as long as ground scales, rather stout; setae on middle one-third of interstriae 3 with scales erect and unusually dense; scales forming a variegated pattern of pale, tan, and brown.

Distribution: Chile: "867."

Notes: The above treatment was based on the holotype of *Xylechinus vittatus* Schedl, presumably a male.

Xylechinus declivis Wood, n. sp.

Xylechinus declivis Wood: Holotype ♀; 18 km W Rungue, P. Santiago, Chile, 4700 ft.; USNM, Washington, designated below

Diagnosis: Pronotum unarmed by asperities; striae punctures on disc small, spaced within a row by diameter of a puncture, interstriae twice as wide as striae; interstitial scales almost as wide as long; pronotal punctures much smaller, not as close.

Female: Length 2.2 mm, 2.3 times as long as wide; color dark brown, scales 40 percent dark, 60 percent pale. Frons feebly convex, almost flat on lower half, with areas of reticulation on upper half, somewhat smoother below; a very weak median carina on upper half; vestiture of moderately abundant, stout, almost scalelike setae; epistoma very weakly elevated. Pronotum 0.84 times as long as wide; widest at base, sides arcuately convergent to feeble constriction on anterior fourth; surface unarmed by asperities, obscurely reticulate, punctures rather fine, distinct, spaced by half to full width of a puncture; vestiture of abundant scales, each scale slightly longer than wide, about 40 percent dark, 60 percent pale. Elytra 1.7 times as long as wide, 2.2 times as long as pronotum; submarginal crenulations behind basal row minute to obsolete on interstriae 2–4; striae punctures small, deep, spaced within a row by half to full diameter of a puncture; interstriae twice as wide as striae,

weakly convex, smooth, shining, with numerous close, confused punctures; vestiture of ground cover of scales, each scale as wide as long, and erect bristles, each bristle about 6 times as long as wide and slightly less than twice as long as ground scales. Declivity rather steep, weakly impressed between interstriae 3 (almost transversely flat), interstriae 2 narrower, obsolete before apex, 3 feebly elevated, unarmed.

Distribution: Chile (Santiago).

Type material: The female holotype was taken 18 km W Rungue, P. Santiago, 24-XII-1967, 4700 ft., C.W. & L. O'Brien. The holotype is in the U.S. National Museum, Washington.

Xylechinus variegatus (Chapuis)

Xylechinus variegatus (Chapuis), 1869:40 (*Phloeosinus*). Holotype ♂; Chili; IRSNB, Brussels (References in Wood & Bright c1992:119)

Diagnosis: Anterolateral areas of pronotum unarmed by asperities; scales on pronotum and elytra stout, almost as wide as long; female frons armed at upper level of eyes by a small, laterally compressed tubercle; declivity moderately impressed, interstriae 3 obsolete on lower third.

Female: Length 1.9 mm, 2.3 times as long as wide; color dark brown. Frons with a weak, transverse impression just above epistomal margin, almost flat to upper level of eyes; surface smooth, shining, with minute, moderately abundant punctures; a laterally compressed, moderately large tubercle at or just below upper level of eyes. Pronotum about 0.96 times as long as wide; sides weakly arcuate, converging cephalad from base; anterolateral areas unarmed; surface shining, with moderately abundant micropunctures, setiferous punctures small; vestiture of ground cover of scales, each scale almost as wide as long, a few slender bristles on disc little longer than scales. Elytra 1.6 times as long as wide, 2.0 times as long as pronotum; bases of interstriae 2–3 with about six weak, submarginal crenulations; striae not impressed, punctures rather coarse, deep, close; interstriae as wide as striae, shining, each with a row of small scales (each scale as long as wide) on each margin, a central row of erect bristles (each less than twice as long as scales, each four to six times as long as wide), punctures small, not granulate. Declivity rather steep, broadly convex, shallowly impressed between interstriae 3; striae and interstriae narrower than on disc, interstriae 2 on right elytron attaining its apex, left side narrowed, almost obsolete by apex; vestiture about as on disc.

Distribution: Chile: Valparaiso, La Campana, 9-VIII-1979, 1000 m, B. esclerell., C. Vivar T.

Notes: The above treatment was based on the male holotype and on one female of *Phloeosinus variegatus* Chapuis. The type has declivital interstriae 3 a bit more strongly convex and interstriae 2 more strongly impressed. Sexual differences probably account for the differences.

Xylechinus solervicensi Wood, n. sp.

Xylechinus solervicensi Wood: Holotype ♂; Valparaiso, La Campana, Chile; USNM, Washington, designated below

Diagnosis: Anterolateral areas of pronotum unarmed by asperities; submarginal crenulations at base of interstriae 2–5 greatly reduced to obsolete; elytral declivity steeper, moderately impressed; male frons with a strong subacute carina at upper level of eyes.

Male: Length 2.6 mm, 2.2 times as long as wide; color very dark brown, scales variegated (50 percent pale, 50 percent dark). Frons broadly, very shallowly concave from epistoma almost to upper level of eyes; a moderately strong median carina from just below to just above upper level of eyes, highest near its lower end; surface apparently shining, finely, irregularly punctured (obscured by frass), vestiture rather coarse, long, moderately abundant except absent on median area above. Pronotum 0.88 times as long as wide; sides arcuately converging from base; anterolateral areas unarmed by crenulations; surface shining, punctures fine, close, shallow; vestiture of broad, short scales, each as wide as long, a few slightly longer, slender bristles also on disc. Elytra 1.6 times as long as wide, 2.0 times as long as pronotum; bases of interstriae 2 to 3 with about three to four submarginal crenulations (almost obsolete); striae not impressed, punctures small, deep, close; interstriae three times as wide as striae, shining, confused; vestiture of ground cover of short scales, each scale about as wide as long, and central rows of erect, slender bristles, each about half as long as distance between rows, spaced within a row by length of a bristle. Declivity steep, convex; moderately impressed between left and right interstriae 3; striae 1 and 2 distinct, interstriae 2 as wide as striae, moderately impressed, 1 feebly convex; no tubercles on interstriae; erect bristles shorter than on disc.

Distribution: Chile (Valparaiso).

Type material: The male holotype was taken at La Campana, Valparaiso, Chile, 20-IV-1979, 450 m, ex Mat. xerofilo, I. Solervicens; 1 paratype is from Rio Clarillo, Cordillera, Chile, 6/7-31/X-1989, C. Gonzales. The holotype and paratype are in the U.S. National Museum, Washington.

Xylechinus huapiiae (Schedl), n. comb.

Xylechinus huapiiae (Schedl), 1979:59 (*Phthorophloeus*). Holotype ♀; Nahuel Huapi National Park, Argentina; NHMW, Wien (References in Wood & Bright c1992:222)

Diagnosis: Distinguished from *solervicensi* Wood by the smaller size; by the interstitial ground setae on the disc being longer than wide while the erect setae are about four to six times as long as wide; and by the longer, coarser, less abundant frontal setae.

Male: Length 2.0 mm, 2.2 times as long as wide; color brown, pronotum darker, scales variegated, pale and tan. Frons broadly flattened from weakly elevated

epistoma to upper level of eyes, surface smooth, shining, with rather deep, moderately close punctures of moderate size; a strong median carina on upper half with its acutely pointed summit at its lower end; vestiture of long, rather fine hair of about uniform distribution. Pronotum 0.80 times as long as wide; surface mostly smooth, shining, shallow punctures of irregular small size; without asperities, a few very fine granules in lateral areas; setae of two kinds, most scalelike, each slightly longer than wide, a few slender, about 6 times as long as wide and about equal in length to scales. Elytra 1.5 times as long as wide, 2.1 times as long as pronotum; bases of interstriae 2 to 3 with two submarginal crenulations; striae weakly impressed, punctures rather coarse, deep; interstriae slightly less than twice as wide as striae, surface smooth except for obscurely impressed, subtransverse lines, punctures very small, moderately abundant, confused. Declivity rather broadly, moderately sulcate, steep; sulcus deepest on middle half, extending from deepest point at suture to interstriae 3, ending well before apical margin, striae and interstriae sculpture about as on disc. Vestiture of ground cover of short scales, each about one to two times as long as wide; erect bristles in central interstitial rows on and near declivity, each less than twice as long as a ground scale. Setae on pronotum and elytra a mixture of pale and tan.

Female: Similar to male except tubercles on lateral areas of pronotum distinctly larger and more numerous.

Distribution: Argentina: Nahuel Huapi National Park, 15-IX-1971, K. Naumann.

Notes: The above treatment was based on the female holotype and male allotype of *Phthorophloeus huapiiae* (Schedl).

Sinophloeus porteri Brethes

Sinophloeus porteri Brethes, 1925:202. Holotype, sex?; Loncoche, Chile; not given (References in Wood & Bright c1992:118)

Several attempts to locate authentic examples of this species were not answered. The original description is quoted as follows:

“Oblongus, piceus, funiculo pedibusque obscure ferrugineis, prothorace parum transverso, anterie subconstricto, supra subdense punctato, interstitiis politis, sat dense squamoso; elytris subcylindricis, grosse punctato-striatis, esquamis brevibus biseriatum ornatis. Long.: 1.8 mm.

“Oblong, d'un noir de poix, la tete lisse, sensiblement imprimee au front entre les yeux, avec ponctuation tres fine, le bord anterieur de l'epistome avec squamules relativement longues et fauves. Antennes avec la massue allongee, plus longue que la funicule, ses articles subegaux. Prothorax a peine plus large que long, progressivement retreci vers l'avant, sa surface assez densément ponctuee les espaces lisses; des squamules courtes et obscures assez denses, meles de quelques-unes fauves. Ecusson triangulaire transverse, avec ecailles fauves.

Elytres paralleles, de la largeur du prothorax et deux fois plus longues, ponctuees-striees, les points forts, les espaces luisants, couverts de squamules fauves en series de deux; declivite posterieure arrondie, sans sculpture speciale. Coxas anterieures non contigues; metasternum lisse, finement ponctue, une impression longitudinale en son milieu; premier segment de l'abdomen finement chagrine et luisant, aussi long que les deux segments suivants.

Note: See pp. 51, 53, and 57.

“Mr. le Dr. Porter recueillit cette espece a Loncoche [Cautin], en Febrier 1917” [Cautin, Chile].

GENUS *HYLURGUS* LATREILLE

Hylurgus Latreille, 1807:274. Type-species: *Bostrichus ligniperda* Fabricius, monobasic (References in Wood & Bright c1992:119)

Diagnosis: Metepisternal setae hairlike; antennal funicle 6-segmented; procoxae contiguous; pronotum as long as wide, only feebly constricted anteriorly; erect interstitial setae confused, abundant; a short median carina on lower frons.

Description: Frons not sexually dimorphic, a short median carina on lower fourth; antennal funicle 6-segmented, club conical, feebly flattened; pronotum as long as wide, weakly constricted anteriorly; elytra with erect setae confused, abundant.

Distribution: Three species are known. Two occur naturally in Europe, Asia Minor to northern Asia, and northern Africa; 1 occurs in northern India.; 1, *ligniperda*, has been introduced through commerce to Australia, South Africa, and South America.

Biology: All species attack *Pinus* spp. and are monogynous. Their monoramous parental galleries are made in the thick bark at the base of host trees.

Hylurgus ligniperda (Fabricius)

Plate V

Hylurgus ligniperda (Fabricius), 1787:37 (*Bostrichus*). Holotype, sex?; Germania; UZMC, Copenhagen (Synonymy and references in Wood & Bright c1992:119–122)

Bostrichus elongatus Herbst, 1793:117. Syntypes, sex?; Deutschland; not located

Hylesinus flavipes Panzer, 1795:61. Syntypes, sex?; article not seen; not located

Hylurgus longulus Kolenati, 1846:38. Syntypes, sex?; Shamlogh, territorii Airum, montis Kaepe-Dagh, provinciae Transcaucasicae Elizabethopol; not located

Male: Similar to female except frontal carina higher; hair on elytral declivity conspicuously longer and usually more abundant.

Female: Length 4.5–5.4 mm, 2.6 times as long as wide; color light brown to almost black (dependent on degree of maturity). Frons convex from vertex to weak constriction at level of antennal insertion, then feebly subinflated below, a rather strong median carina from epistoma almost to level of antennal insertion, its upper end more strongly, tuberculately elevated; surface shining, densely, coarsely punctured, becoming closely, finely

tuberculate on lower fourth; vestiture of sparse, fine, inconspicuous hair; antennal club conical, segment 1 occupying basal half, sutures straight. Pronotum 0.98 times as long as wide; widest at base, sides weakly, convergently arcuate on basal three-fourths, feebly constricted on anterior third; surface shining; punctures very close, rather coarse, deep; vestiture of short, sparse hair, longer at sides. Elytra 1.7 times as long as wide, 1.8 times as long as pronotum; striae feebly impressed, punctures moderately large, deep; interstriae about twice as wide as striae, densely armed by acute crenulations, each crenulation at base about half as wide as an interstriae, smaller toward declivity (about one-fourth as wide as an interstriae), their posterior slope steep, each marked by a setiferous puncture; declivity very steep, basically convex, interstriae 2 rather strongly impressed, interstitial tubercles reduced in size and numbers, absent on 2; vestiture of abundant, confused hair, equal in length on disc to width of an interstriae, twice as long on disc and more abundant.

Distribution: Native to Europe, Asia, and northern Africa. Introduced through commerce to South America, Australia, New Zealand, and South America (Argentina, Brazil, Chile, Paraguay, Uruguay) in *Pinus* plantations.

Argentina: Oral report, not confirmed.

Brazil: Gravata, Rio Grande do Sul, 1-VIII-1991, *Pinus taeda* stand ethanol trap, A. Phulatka (Schoenherr & Pedrosa-Macedo 1981); Telemaco Borba, Parana, 7-XI-2003, Klabin Papel e Cellulose forest, sulcatol + ethanol trap, C.A.H. Flechtmann; “Code 026, R.A. Beaver,” Brazil.

Chile: Melipilla, Curacavi, X-1988, J. Solervicens; San Carlos, 29-IX-1985, pino-cortez, SAG; Valparaiso, II-1988, 20-III-1988, Trampa, J. Godoy; Piedra Comadres, 12-16-I-1991, Roitman (also Ciesla 1988, unpublished).

Paraguay: Cited in literature? (oral report, not confirmed).

Uruguay: “Uruguay” (Wood & Bright c1992:119).

Hosts: *Pinus* spp. (in Europe and Asia also in *Picea*, *Larix*, and *Pseudotsuga*).

Biology: Phloeophagous in fresh stumps, slash, and the lower bole of larger trees under thick bark. Three generations each year were reported by Cogollor (1991, Pest Risk Importation Assessment). Adults may be found in Chile during any month of the year.

Notes: The above treatment was based on 17 European specimens that were identified by Pfeffer, Eggers, and Schedl, and on 4 from Chile.

GENUS *HYLURGONOTUS* SCHEDL

Hylurgonotus Schedl, 1952:448. Type-species: *Hylurgonotus brunneus* Schedl = *Hylurgus tuberculatus* Eggers, monobasic (References in Wood & Bright c1992:186)

Diagnosis: Metepisternal setae hairlike (bifid in on1 species); antennal funicle 7-segmented; protibia armed

on apical margin by 3 or 4 socketed teeth; male frons shallowly to strongly impressed.

Description: Frons sexually dimorphic, male frons shallowly to strongly impressed, female usually convex; antennal funicle 7-segmented, club conical, segment 1 occupying basal one-fourth to one-third; pronotum unarmed by asperities; elytral sculpture simple; protibia armed by 3 or 4 socketed teeth; vestiture hairlike, except 1 species (*tuberculatus*, with ground cover of scales on elytral declivity). Closely allied to *Pachycotes* of Australia and New Zealand.

Distribution: Four species occur in southern South America.

Biology: Largely unknown. All species infest *Araucaria* spp. Their gallery systems are apparently partly in phloem and partly in xylem tissues (Schedl 1966:43). The tunnels are stained black by fungi, but the extent to which they have adopted the xylomycetophagous habit is not clear. They apparently do not feed directly upon the spores. The closely allied *Pachycotes* are apparently, exclusively xylophagous.

Key to the Species of *Hylurgonotus*

- 1. Body more slender, more than 2.4 times as long as wide; protibia armed by four socketed teeth; pronotum surface between punctures rather strongly reticulate; basal segment of conical antennal club longer, occupying about one-third of club length 2
- Body stouter, 2.0–2.2 times as long as wide; protibia armed by 3 socketed teeth; pronotum surface between punctures smooth, shining; basal segment of antennal club shorter, occupying one-fourth length of club, club distinctly flattened 3
- 2(1). Mature color brown; declivital interstriae 2 constricted, obsolete before apex, impressed, 1 and 3 convex, 1, 3, 5–7 armed by pointed tubercles in female, 1–3 without tubercles in male, lateral areas devoid of coarse spines; declivity with ground cover of small scales; *Araucaria araucana* Chile; 3.6–4.2 mm *tuberculatus* (Eggers)
- Mature color dark black; declivital interstriae 1–4 about equally convex, smooth, shining, with a few inconspicuous, minute tubercles, basal margin of declivity with one conspicuous tubercle each on interstriae 1–6, lateral margin from sutural apex to apex of 7 armed by a row of a total of four large, pointed, almost spinelike tubercles; declivity almost glabrous, a few minute, hairlike setae in lateral areas; Chile; 3.5–4.4 mm *armaticeps* Schedl
- 3(1). Body smaller, stouter, 2.0 times as long as wide; elytral declivity usually with large, conical tubercles on all interstriae, except absent on 2 and (rarely) 4 in some males; interstitial tubercles mostly closer, coarser; Chile; 2.9–3.6 mm *solidus* (Schedl)
- Body larger, 2.2 times as long as wide; elytral declivity with interstriae 1, 2, and 4 in male, 2 and 4 in female without tubercles, tubercles mostly smaller, not as close, on disc more nearly rounded; Chile; 3.5–4.6 mm *antipodus* (Eggers)

Hylurgonotus tuberculatus (Eggers)

Plate VII

Hylurgonotus tuberculatus (Eggers), 1942:13 (*Hylurgus*). Holotype ♀; Bolivia oder Chile; Hamburg Museum, lost (Synonymy and references in Wood & Bright c1992:187)

Hylurgonotus brunneus Schedl, 1952:448. Holotype ♂; Gob. Rio Negro, Argentina; NHMW, Wien

Diagnosis: Antennal club conical, basal segment largest; pronotum reticulate; protibia armed by 4 socketed teeth; color brown; elytral declivity sexually dimorphic, with ground cover of scales.

Male: Similar to female except frons smooth, shining, punctures much smaller, less abundant, slightly impressed (flat transversely, weakly concave longitudinally), median carina absent, transverse carina very obscure; declivital tubercles absent on interstriae 1–3 and smaller on 4–9.

Female: Length 3.6–4.2 mm, 2.5 times as long as wide; color brown. Frons convex from epistoma to vertex; obscurely constricted on anterior third, surface weakly reticulate, punctures replaced by uniformly distributed, subacute tubercles, a moderate, subacute median carina on lower half, a low transverse carina above upper level of eyes on median fourth; hairlike vestiture fine, short, inconspicuous. Pronotum as long as wide, unarmed; surface reticulate, punctures rather large, coarse, moderately deep; glabrous. Elytra 1.8 times as long as wide, 1.8 times as long as pronotum; striae rather narrow, moderately impressed, punctures rather small, shallow, moderately, not clearly impressed; interstriae almost twice as wide as striae, moderately convex; surface obscurely subreticulate, numerous confused punctures obscurely indicated, a central row of them subtuberculate near base, becoming moderately tuberculate toward base of

declivity; declivity rather steep, basically concave but bisulcate, striae narrower, punctures larger, deeper; interstriae 1 and 3 moderately elevated, 2 impressed, constricted and eliminated before apex, each bearing a row of rather large, pointed tubercles on all interstriae except lower two-thirds of 2 (confused on 3); vestiture consisting of fine, short, sparse to absent hair on disc, of short, moderately abundant scales on declivity, each scale two to four times as long as wide, tubercles each bearing a hairlike bristle.

Distribution: Argentina to southern Chile.

Argentina: "Gob., Rio Negro."

Bolivia: Cited by Bright & Skidmore (1994:35).

Chile: Caramavida, 25-I-1953, L.E. Pena; Cautin, Conguillio, 6-II-1979, J. Solervicens; Cautin, Villarica, 20-VIII-1976, R. Genestier; Cherquenco, I-1954, L.E. Pena; Lago Icalma (Sudchile); Crest of Nahuelbuta, W of Angol, 29-I-1951, 1800 m, E.S. Ross; Lago Tromen (Sudchile); Malachuella/Lonquimay (Sudchile), W. Ruhm; Malleco, Nahuelbuta, 4-II-1980, J. Solervicens; Prov. Malleco, Pemehue, 17-I-1946, 1650 m, and 18-I-1946, 1550 m, G. Kushel; Pemehue, I-1896; Pininahuel, 23-VI-1954, L.E. Pena.

Hosts: *Araucaria araucana*.

Biology: Xylophagous, galleries apparently without ambrosial fungus (Schedl 1966:42–43).

Notes: The above treatment was based on 14 specimens. I compared 1 male to the male holotype of *brunneus* Schedl. The unique female holotype of *Hylurgus tuberculatus* Eggers was destroyed with the Hamburg Museum, but the species is easily recognized from the original description as a senior synonym of *brunneus*.

Hylurgonotus armaticeps Schedl

Hylurgonotus armaticeps Schedl, 1955:257. Holotype ♀; Llama, Cautin, Chile; NHMW, Wien (References in Wood & Bright c1992:187)

Diagnosis: Antennal club conical, basal segment largest; pronotum reticulate; protibia armed by 4 socketed teeth; mature color dark black; elytral declivity subglabrous, with 4 large spines on lateral margin, a transverse row of tubercles on interstriae 1–4 at basal margin.

Female: Length 3.5–4.4 mm, 2.4 times as long as wide; color black. Frons convex from epistoma to vertex; surface smooth, shining, rather coarsely, deeply, very closely punctured on upper half, more finely, deeply, less closely punctured on lower half; epistomal lobe with a very short, subcarinate median elevation; glabrous. Pronotum 0.91 times as long as wide, moderately constricted on anterior third, sides on basal half subparallel; surface obscurely reticulate, punctures rather coarse, moderately close on basal two-thirds, distinctly smaller anteriorly; glabrous. Elytra 1.4 times as long as wide, 1.7 times as long as pronotum, striae moderately impressed, punctures deep, rather small, spaced within a row by twice diameter of a puncture; interstriae almost twice as wide as striae, convex, smooth, shining, punc-

tures small, confused, moderately close, with no tubercles between basal subcrenulations and base of declivity; base of declivity rather abrupt, basal margin of each interstriae (1–4) armed by one obtusely pointed, moderately large tubercle; declivity very steep, broadly convex, interstriae 1–3 equally convex and unarmed, 2 ending before apex; a row of four very coarse, pointed tubercles on lateral margin from sutural apex to apex of interstriae 7, interstriae 4 with two small tubercles; glabrous except for a few fine hairlike setae in lateral areas.

Distribution: Chile: Llama, Cautin; Lonquimay, 10-11-I-1962, R.L. Usinger.

Hosts: *Araucaria* sp.

Notes: The above was based on 3 females, 1 of which I compared to the holotype of *Hylurgonotus armaticeps* Schedl.

Hylurgonotus solidus (Schedl)

Plate VI

Hylurgonotus solidus (Schedl), 1967:6 (*Blastophagus*). Holotype ♀; Nahuelbuta (W), Arauco, Caramavida, 720–1000 m, Chile; ZSSM, Munchen (References in Wood & Bright c1992:187)

Diagnosis: Antennal club distinctly flattened, segment 1 shorter, subequal in length to 2; pronotum with spaces between punctures smooth, shining; protibia armed by 3 socketed teeth; elytral declivity armed by closely set tubercles on all interstriae in female, some males with parts or all of 2 and 4 unarmed.

Male: Similar to female except frons shallowly concave from epistoma to upper level of eyes, punctures on lower fourth larger, deeper; discal crenulations lower, rounded, longitudinally thicker; declivital tubercles on interstriae 2 and 4 reduced in size and number, often partly to entirely obsolete; vestiture shorter, less abundant.

Female: Length 2.9–3.6 mm, 2.0 times as long as wide; color brown. Frons modestly convex on middle third, a distinct, transverse impression on lower third; surface shining, punctures mostly small, irregular, most not sharply impressed; an obscure median crest on middle third; vestiture sparse, hairlike, inconspicuous, a few coarse bristles in lateral areas. Pronotum 0.8 times as long as wide; widest at base, sides arcuately converging to moderate constriction on anterior third; surface smooth, shining, punctures irregular, very small to medium size, not uniformly distributed; subglabrous, a few large bristles in lateral areas. Elytra 1.3 times as long as wide, 1.8 times as long as pronotum; striae not impressed, punctures irregularly obsolete to minute and obscurely impressed; interstriae about three times as wide as obscure striae, coarsely, closely crenulate, most crenulations as wide as interstriae, acute, steeper posterior face of crenulations often marked by a fine puncture; crenulations narrower and tuberculate toward declivity; declivity very steep, broadly convex; declivital interstriae armed by pointed tubercles, smaller and

more widely spaced toward apex, striae punctures minute when present; vestiture restricted to rows of erect, long setae, hairlike on disc, bristlelike on declivity.

Distribution: Chile: Caramavida, 1-I-1954, L.E. Pena; Sierra de Nahuelbuta W of Angol, 1200 m, 2-I-1951, E.S. Ross & Michelbacher.

Hosts: *Araucaria araucana* (Wood & Bright c1992:187).

Notes: The above treatment was based on 7 specimens. I compared 1 of the females to the holotype of *Blastophagus solidus* Schedl.

Hylurgonotus antipodius (Eggers)

Plate VI

Hylurgonotus antipodius (Eggers), 1942:14 (*Blastophagus*). Holotype ♂; Valdivia, Chile; Hamburg Museum, lost (References in Wood & Bright c1992:187)

Diagnosis: Antennal club distinctly flattened, segment 1 subequal in length to 2; pronotum with spaces between punctures smooth, shining; protibia armed by 3 socketed teeth; elytral declivity with interstriae 1, 2, and 4 unarmed in male, 2 and 4 in female, others with pointed tubercles, lateral margin of declivity without large spines.

Male: Similar to female except frons rather strongly, broadly concave from near epistoma almost to to upper level of eyes; discal interstitial crenulations reduced to small irregularities, except larger, tuberculate near base of declivity; declivital interstriae 1, 2, and 4 unarmed, 3 and 5 with fewer, larger tubercles; a few very long, hairlike setae on sides especially near declivity.

Female: Length 3.5–4.6 mm, 2.2 times as long as wide; color brown. Frons convex from just above epistoma to upper level of eyes; surface reticulate, punctures fine, moderately close; vestiture sparse, hairlike, inconspicuous, a few long, coarse hairs in lateral areas. Pronotum 0.87 times as long as wide; widest on moderately arcuate sides of basal half, moderately constricted on anterior half; surface smooth, shining, punctures rather small, close, irregular in spacing; largely glabrous, a few coarse, hairlike setae in lateral areas. Elytra 1.5 times as long as wide, 1.7 times as long as pronotum; striae not impressed, punctures small, deeply, regularly impressed; interstriae three or more times as wide as striae, smooth, shining, crenulations almost uniseriate, almost as wide as interstriae, spaced within a row by half to full width of an interstriae, not as high as *solidus*, subacute. Declivity convex, moderately steep; crenulations reduced in width to pointed tubercles; tubercles absent on interstriae 2 and 4 and reduced in size and number on lower half of 1 and 3, subglabrous, a few short, hairlike setae scattered irregularly.

Distribution: Chile: Alto Caicupil, 7-I-1954, L.E. Pena; Arauco, Cord. Nahuelbuta, Caramavida, 1-6-I-1954, 1200–1400 m, L.E. Pena; Butamala, 23-I-1954, L.E. Pena; Malleco Galletua, 8-II-1991, *Araucaria araucana*, J. Solervicens; Malleco, Lonquimay, 22-XII-1956, *Araucaria*

(ramas), G. Kushel; Malleco Nahuelbuta, 7-II-1980, J. Solervicens; Valdivia, *Araucaria*, Izquierdo; Pemehue (Sudchile), Garmain; Nahuelbuta, 5-XI-1961, *Araucaria araucana*, Aste, phloem, W. Ruhm; Llama, 17-IX-1951; Cautin, Codoceo, W of Angol, 1800 m, 23-I-1951.

Hosts: *Araucaria araucana*.

Biology: Taken from the phloem of branches of the host.

Notes: The above was based on 24 specimens. I compared 1 of the males to the holotype of *Blastophagus antipodius* Eggers.

GENUS *TOMICUS* LATREILLE

Tomicus Latreille, 1802/3:203. Type-species: *Hylesinus piniperda* Fabricius, monobasic (Synonymy and references in Wood & Bright c1992:122–136)

Blastophagus Eichhoff, 1864:25. Type-species: *Hylesinus piniperda* Fabricius = *Dermestes piniperda* Linnaeus, monobasic

Myelophilus Eichhoff, 1878:400. Type-species: *Hylesinus piniperda* Linnaeus, automatic

Diagnosis: Metepisternal and elytral setae hairlike; antennal club conical, not flattened, funicle 6-segmented; procoxae moderately separated; erect interstitial setae uniseriate; frons usually with a median carina.

Description: Length 2.5–4.5 mm. Frons not sexually dimorphic, a short median carina near epistoma in most species; antennal club conical, sutures straight; pronotum unarmed by asperities or other irregularities; procoxae moderately separated, protibiae armed by 5 or more socketed teeth; elytra with striae indicated, declivity convex, steep.

Distribution: Six species occur in Europe, northern Asia, the Canary Islands, and northern Africa. One species was introduced through commerce to North America and the Philippine Islands.

Hosts: *Pinus* spp., *Picea* spp.

Biology: These monogynous, phloeophagous species form monoramous or biramous parental tunnels in the bole in moderately large to large trees. Newly emerged adults may form maturation feeding tunnels in twigs of larger trees or in the stems of nursery stock. They are capable of inflicting severe economic damage.

Notes: No species of this genus have been reported from South America. However, due to the large plantations of *Pinus* that are vulnerable to injury by these species, plantation managers should be familiar with these species and with methods of their control before they are found.

GENUS *DENDROCTONUS* ERICHSON

Dendroctonus Erichson, 1836:52. Type-species: *Bostrichus micans* Kugelann, subsequent designation by International Commission on Zoological Nomenclature 1963 (China 1963:276–278); (References in Wood & Bright c1992:136–186)

Diagnosis: Distinguished from *Tomicus* by the 5-segmented antennal funicle; by the moderately flattened

antennal club with procurved sutures; by the contiguous procoxae; and by the absence of a median frontal carina and presence of a conspicuous epistomal process.

Description: Length 2.5–9.0 mm; frons at least weakly, sexually dimorphic, epistomal process more strongly elevated in male; antennal funicle 5-segmented, club moderately flattened, sutures modestly procurved; pronotum unarmed; elytra with striae indicated, declivity convex, steep.

Distribution: Fifteen species are native to North America south to Nicaragua; 1 occurs in Europe, Asia Minor to northern Asia and Japan, and 1 occurs in China.

Hosts: *Pinus* spp., *Picea* spp., *Larix* spp., and *Pseudotsuga* sp.

Biology: These monogynous, phloeophagous species form monoramous parental tunnels in the bole of mod-

erately large to large trees. They include the most destructive insect species in pine forests known in the world.

Notes: Breeding populations of this genus introduced outside of the normal range have been found and eradicated in Israel and Japan. None have yet been found in South American plantations of coniferous trees, although *D. rufipennis* is said to have been intercepted there. Extreme vigilance must be exercised in order to detect and eradicate introduced populations of these exceedingly destructive species from South American plantations of conifers if or when an introduced population is found. Because of the extremely serious economic losses that could occur, immediate emergency action is imperative.

TRIBE PHRIXOSOMINI

Description: Frons not sexually dimorphic, often with a fine median carina; eye completely divided into separate halves; antennal scape elongate, funicle 6-segmented, club rather strongly flattened, slightly asymmetrical, unmarked by sutures (in some species) except 1 partly septate, up to 3 sutures indicated by setae (and septum in 1) in others; procoxae contiguous; tibiae armed on apical and lateral margins by several socketed denticles.

Biology: These monogynous, phloeophagous tropical species occur only in Africa and tropical America where they make bi- or triramous parental galleries. All known American species and most African species breed exclusively in hosts of the Guttiferae. Five African species have been recorded from non-Guttiferae hosts, 1 each from Euphorbiaceae, Passifloraceae, Sapotaceae, and 2 from Apocynaceae; it is not yet known if these were normal hosts, accidental or emergency hosts, or errors in host identification. Of the 22 species recorded by Wood & Bright (c1992:189–190), 13 occur in America (Central and South), 9 of which are reported from South America.

GENUS *PHRIXOSOMA* BLANDFORD

Phrixosoma Blandford, 1897:148. Type-species: *Phrixosoma rude* Blandford, monobasic (Synonymy and references in Wood & Bright c1992:189–190)

Bothryperus Hagedorn, 1909:742. Type-species: *Bothryperus psaltes* Hagedorn, monobasic

Neohylesinus Eggers, 1920:118. Type-species: *Neohylesinus quadrioculatus* Eggers, monobasic
Sphaerosinus Eggers, 1920:40. Type-species: *Sphaerosinus striatus* Eggers, monobasic

Diagnosis: The stout body, dark color, divided eye, unique antenna, and hosts distinguish this genus from all others.

Description: Length 1.6–4.0 mm, 2.0–2.3 times as long as wide; color usually black, vestiture rather pale. The sexes are similar. Frons convex, usually granular and with a fine median carina, sculpture and hairlike vestiture simple; antennal scape elongate, funicle 6-segmented, club flat, usually unmarked by sutures except part of 1 septate, some species with one to three sutures variously marked by setae. Pronotum simple, unarmed, setae hairlike; scutellum visible. Elytra with striae narrowly, rather deeply impressed, interstriae finely, closely tuberculate-crenulate; costal margin ascending behind.

Distribution: Tropical lowlands where hosts (Guttiferae) grow.

Biology: Only the bole or larger limbs of moderately large trees that have been recently felled, broken, or uprooted are infested. All known species are monogynous. Parental galleries are almost always biramous, rarely triramous in species that are normally biramous. Parental galleries may be predominantly transverse or longitudinal. Larval mines tend to be short, nondirectional, and show on peeled bark.

SCOLYTIDAE OF SOUTH AMERICA

Key to the Species of *Phrixosoma*

1. Transition in sculpture on female head at vertex abrupt, marked by an abrupt line (impressed or elevated) 2
- Transition in sculpture on female head from upper frons to vertex gradual, not marked by an abrupt line of impression or elevation 3
- 2(1). Transition from upper frons to vertex on female head obtuse, not impressed in lateral area above eye; interstitial setae on disc of very fine, confused hair; Bolivia to French Guyane; 3.2–3.6 mm *magna* Blackman
- Transition from upper frons to vertex more abrupt, distinctly, subconcavely impressed in lateral area above eye; interstitial setae on disc very stout, setae organized into three ranks on each interstriae; Mexico (Oaxaca) to Venezuela; *Rheedia edulis*, *Symphonia* sp.; 1.6–2.0 mm *minor* Wood
- 3(1). Pronotum disc smooth, shining, punctures near median area distinct, isolated, tending toward confluence laterally; setae on anterior half of elytral disc fine, hairlike, central row not longer or coarser; all setae coarser on posterior disc and declivity; setae on pronotum fine; Peru; 1.9 mm *peruviana* Eggers
- Punctures on pronotum obsolete, impressed areas mostly reticulate; interstitial setae rather coarse (except *obesa* where central row much longer) 4
- 4(3). Ground vestiture on elytral disc hairlike and central row on each interstriae erect, much longer, bristlelike, each bristle at least two-thirds as long as distance between rows; Costa Rica to Colombia; *Rheedia edulis*, *Symphonia globulifera*; 1.8–2.5 mm *obesa* Blackman
- Ground vestiture on elytral disc hairlike, stout, central row of bristles on each interstriae either not evident or shorter, stouter 5
- 5(4). Anterior margin of female pronotum in lateral area adjacent to eye with a large subquadrate, semi-transparent extension; Colombia; *Rheedia madruno*; 2.5–3.2 mm *frustrata* Wood
- Anterior margin of female pronotum in pleural area without a conspicuous extension at level of eye 6
- 6(5). Interstitial setae on disc confused, without distinct organization into ranks; punctures on pronotum disc not clearly evident 7
- Interstitial setae on disc organized into three distinct ranks on each interstriae, at least some punctures distinctly impressed on disc of pronotum 9
- 7(6). Declivital interstriae 1–3 with central tubercles largely to entirely obsolete; interstitial crenulations in disc mostly rounded (somewhat beaded); Venezuela; *Rheedia madruno*; 2.3–2.8 mm *viriosa* Wood
- Declivital interstriae 1–3 each with a row of numerous fine tubercles; discal interstitial crenulations subacute 8
- 8(7). Pronotum disc small, mostly confluent, obscure punctures (punctures not reticulate or granulate), interspaces smooth, shining (not convexly elevated into ridges); pronotal vestiture of rather fine, long hair; declivital striae 8 continuing and joining striae 3, 4 meets 7; tubercles on declivital interstriae 1–3 close, isolated, not forming an almost continuous crest; setae on declivital interstriae 1–3 confused; Brazil; 1.7 mm *brasiliensis* Schedl
- Pronotum disc with basic surface strongly reticulate, dull, punctures obsolete, interspaces smooth, shining, forming short, convex, mostly longitudinal irregular ridges; pronotal vestiture stout, shorter; declivital striae 8 ending before apex, 7 almost joining 3; declivital interstriae 1–3 with

- central tubercles small, very close, almost forming continuous crests, setae on 1–3 clearly three-ranked; Venezuela; *Rheedia madruno*; about 2.1 mm *barinensis* Wood
- 9(6). Posterior half of pronotum with most punctures confluent, spaces between punctures mostly convex, anterior third with numerous minute granules (punctures not evident); transition from all granular areas to all reticulate areas near vertex much more abrupt; Venezuela; *Rheedia madruno*; 1.5–1.7 mm *rubra* Wood
- Pronotum on posterior half smooth, shining, clearly, distinctly punctured, a few punctures confluent, many spaced by diameter of a puncture, anterior third with punctures smaller, more widely spaced, without granules; transition in sculpture from frons to vertex very gradual, shining areas intermixed with reticulation; Colombia; *Rheedia madruno*; 1.8–1.9 mm *crebra* Wood

Phrixosoma magna Blackman

Phrixosoma magna Blackman, 1943:392. Holotype ♀; Bolivia; USNM, Washington (References in Wood & Bright c1992:189)

Diagnosis: Female head with abruptly marked separation in sculpture between upper frons and vertex but not subconvexly impressed in lateral areas above eye; interstitial setae on disc of fine hair.

Female: Length 3.2–3.6 mm, 1.9 times as long as wide; color dark reddish brown (mature color?). Frons broadly, evenly convex, a very fine, low median carina on lower half; surface on type obscured by incrustation, apparently reticulate, finely, closely, shallowly punctured; vestiture of very fine, short hair. Pronotum 0.76 times as long as wide, widest near base, sides arcuately converging to broadly rounded anterior margin; densely, finely, obscurely punctured, interiors of punctures reticulate, spaces between punctures smooth, shining, spaces equal in width to one-third diameter of a puncture; vestiture of fine, short, moderately abundant hair. Elytra 1.2 times as long as wide, 2.1 times as long as pronotum; striae deeply, narrowly impressed, punctures elongate, partly confluent; interstriae three times as wide as striae, moderately convex, surface minutely, densely, transversely crenulate, crenulations subacute, each crenulation less than one-fifth as wide as an interstriae; posterior slope of each crenulation steep, marked by a setiferous puncture; vestiture of fine, short, confused, moderately abundant hair. Declivity broadly, evenly, rather steeply convex; interstriae narrower than on disc, crenulations reduced in size and number, obscure; setae slightly stouter.

Distribution: Bolivia to French Guyana.

Bolivia: Beni; Cosincho Regn, VIII-1925, G.L. Harrington.

French Guyane: Maroni, Le Moul.

Notes: The female holotype of *Phrixosoma magna* Blackman was examined and compared by me directly to the smaller Maroni female.

Phrixosoma minor Wood

Phrixosoma minor Wood, 1956:248. Holotype ♂; La Ceiba, Honduras; USNM, Washington (References in Wood & Bright c1992:189)

Diagnosis: Female head with abruptly marked separation in sculpture between upper frons and vertex and

with lateral areas on this line subconvexly impressed; setae on discal interstriae stout, organized into three ranks.

Male: Similar to female except transition between upper frons and vertex normal, not marked by an impression.

Female: Length 1.6–2.0 mm, 2.0 times as long as wide; color black. Frons similar to *magna* Blackman, but surface more granular; line between upper frons and vertex more sharply marked, more strongly impressed in lateral areas, subconvex above eye; hairlike setae slightly longer. Pronotum 0.77 times as long as wide; outline as in the Maroni specimen of *magna*; surface rather coarsely beaded on posterior half, areas dull between smooth, shining, convex ‘beads,’ anterior third finely granulate; vestiture of fine, short, semirecumbent hair. Elytra 1.3 times as long as wide, 1.8 times as long as pronotum; striae narrowly, rather deeply impressed, punctures small, obscure, spaced within a row by twice diameter of a puncture; interstriae at least twice as wide as striae, densely, acutely crenulate in three ranks, a seta arising from posterior base of each narrowly tuberculate crenulation; interstitial setae rather stout, close, each about equal in length to two-thirds width of an interstriae, in three ranks, those in middle rank slightly longer, especially on declivity. Declivity broadly convex, rather steep; sculpture about as on disc.

Distribution: Mexico (Oaxaca) to Venezuela.

Venezuela: 40 km SE Socopo, Barinas, 25-I-1970, No. 264, *Symphonia*, SLW; El Vigia, Merida, 19-XII-1969, No. 181, *Symphonia*, SLW.

Hosts: *Rheedia edulis*, *Symphonia globulifera*.

Biology: The bole and branches down to 3 cm in diameter were attacked. Egg galleries were biramous and transverse, although diagonal, triramous, and partly longitudinal egg galleries were not uncommon. Larval mines were short and wandered indiscriminantly.

Notes: The entire type series of *Phrixosoma minor* Wood and 216 other specimens were examined from Central America and 76 additional specimens from Venezuela.

Phrixosoma peruwiana Eggers

Phrixosoma peruwiana Eggers, 1951:148. Holotype ♂?; Peru, NHMW, Wien (References in Wood & Bright c1992:190)

Diagnosis: Distinguished by the distinctly punctured pronotum disc; and by the fine, hairlike setae on basal half of elytral disc, slightly coarser on posterior half and declivity.

Male: Length 1.9 mm, 2.0 times as long as wide; color almost black. Frons broadly convex, finely granular and with numerous close, small granules; a fine median carina on lower one-third; vestiture of fine, short, moderately abundant hair. Pronotum 0.75 times as long as wide; surface smooth, shining, median line smooth, shining, punctures near median line small, close, separate, becoming confluent in lateral areas toward base; vestiture of fine, short, moderately abundant hair. Elytra 1.5 times as long as wide, 2.0 times as long as pronotum; rather narrowly rounded behind; striae abruptly, narrowly, moderately impressed, shining, punctures minute, distinct; interstriae about three times as wide as striae, surface partly, obscurely reticulate, subshining, armed by numerous, rather coarse, close, partly confused tubercles. Declivity convex, moderately steep; interstriae reticulate, tubercles mostly uniseriate, interstriae 8 ending before its normal apex, 3 and 7 somewhat join at their apices. Vestiture of fine hair on basal one-third of disc, gradually becoming coarser near and on declivity, central row on a discal interstriae not longer, often coarser than adjacent setae.

Distribution: Peru: "Kirsch."

Notes: The above treatment was based on the male holotype.

Phrixosoma obesa Blackman

Phrixosoma obesa Blackman, 1943:393. Holotype ♀; Gatun, Canal Zone, Panama; USNM, Washington (References in Wood & Bright c1992:190)

Diagnosis: Upper frons and vertex not clearly marked along a definite line; interstitial setae on disc finely hairlike, confused, middle row almost twice as long as others.

Male: Similar to female except for abdominal terga 7 and 8.

Female: Length 1.8–2.5 mm, 1.9 times as long as wide; color black. Frons as in *minor* Wood. Pronotum 0.80 times as long as wide; outline as in *minor*; surface densely, rather finely punctured, many confluent, interiors reticulate, interspaces smooth, shining, mostly equal in width to half diameter of puncture. Elytra 1.2 times as long as wide, 1.7 times as long as pronotum; surface similar to *magna* Blackman, except erect middle row of interstitial setae with each seta almost twice as long as others especially on declivity. Declivity broadly convex, rather steep; crenulations reduced in size and number.

Distribution: Costa Rica to Colombia.

Colombia: 8 km S Colonia (near Buenaventura), Valle del Cauca, 9-VII-1970, No. 639, *Rhedia madruno*, SLW.

Hosts: *Rhedia edulis*, *R. madruno*, *Symphonia globulifera*.

Biology: The bole of felled trees 25–35 cm in diameter were attacked. Parental galleries in the phloem were

biramous and transverse. Larval mines destroyed entirely the phloem tissues but did not engrave the wood.

Notes: The above treatment was based on 36 Central American specimens, 1 of which I compared directly to the holotype, and on 1 specimen from Colombia.

Phrixosoma frustrata Wood

Phrixosoma frustrata Wood, 1971:3. Holotype ♀; 8 km S Colonia (near Buenaventura), Valle de Cauca, Colombia; USNM, Washington (References in Wood & Bright c1992:189)

Diagnosis: This is the only known member of this genus in which the anterior margin of the female prothoracic pleuron at eye level bears a large, quadrate process that projects forward over the piece that separates the upper and lower halves of the eye.

Male: Similar to female except process absent on anterolateral margin of prothorax.

Female: Length 2.5–3.2 mm, 1.6 times as long as wide; color almost black. Frons essentially as in *minor* Wood. Pronotum 0.70 times as long as wide, posterolateral angles one-third pronotum length from basal angle at scutellum; granulation on disc similar to *virtuosa* Wood except with granules smaller, closer; vestiture of fine, short, moderately abundant hair; anterior margin bearing a large semitransparent, quadrate extension on lateral area that fits over area between upper and lower halves of eye. Elytra 1.2 times as long as wide, 1.7 times as long as pronotum; striae narrowly impressed, punctures small, separated within row by twice diameter of a puncture; interstriae about as in *magna* Blackman, crenulations small, close, confused, setae short, stout, of uniform length. Declivity rather steep, broadly convex; sculpture similar to disc.

Distribution: Colombia: 8 km S Colonia (near Buenaventura), Valle del Cauca, 9-VII-1970, 30 m, No. 639, *Rhedia madruno*, SLW.

Biology: The biramous parental galleries were longitudinal.

Notes: The above treatment was based on the type series of 93 specimens.

Phrixosoma viriosa Wood

Plate VIII

Phrixosoma viriosa Wood, 1971:2. Holotype ♀; 40 km SE Socopo, Barinas, Venezuela; USNM, Washington (References in Wood & Bright c1992:190)

Diagnosis: Setae on discal interstriae confused, of subequal length; anterior margin of female pronotum in lateral area without a large, subquadrate extension.

Male: Similar to female except for abdominal terga 7 and 8.

Female: Length 2.4–2.7 mm, 1.8 times as long as wide; color almost black. Frons and pronotum about as in *frustrata* Wood except disc a bit less rugose; anterolateral margin without a large extension. Elytra 1.1 times as long as wide, 1.7 times as long as pronotum; interstriae with

general surface more strongly rugose-reticulate, confused crenulations distinctly larger than in *frustrata*, setae distinctly shorter, confused, of more uniform length. Declivity similar to *frustrata* except tubercles mostly obsolete, setae shorter.

Distribution: Venezuela: 40 km SE Socopo, Barinas, 25-I-1970, 150 m, No. 254, *Rheedia madruno*, SLW.

Biology: Parental galleries were biramous and longitudinal.

Notes: The above treatment was based on the type series of 98 specimens.

Phrixosoma brasiliensis Schedl

Phrixosoma brasiliensis Schedl, 1959:546. Holotype ♂?; Rio Caraguata, Mato Grosso [Brazil]; NHMW, Wien (References in Wood & Bright c1992:189)

Diagnosis: Distinguished by the small size; by the distinctive pronotum; and by details of the elytral declivity.

Male (?): Length 1.7 mm, 2.1 times as long as wide; color very dark brown (mature?).

Frons largely covered by glue (not visible), apparently somewhat flattened on lower one-third, median carina not evident. Pronotum 0.80 times as long as wide; median area on anterior one-third with numerous small tubercles; posterior areas smooth, shining, with fine, confluent punctures (almost no isolated punctures), interspaces not convex or elevated, with no reticulation or granulation on posterior half; vestiture of rather fine, long hair of moderate abundance. Elytra 1.5 times as long as wide, 1.9 times as long as pronotum; striae shining, abruptly, narrowly, moderately impressed, punctures small, distinct, interstriae 3 joining 9, 4 joining 5, 7, and 9. Declivity convex, rather steep; surface apparently, obscurely granulate, each interstriae with a central, uniseriate row of tubercles. Vestiture of rather coarse, moderately abundant, confused, hairlike setae of about uniform length.

Distribution: Brazil: Rio Caraguata, 21°48'.B, 52°27'.L, 400 m, F. Plaumann.

Notes: The above treatment was based on the holotype that is thought to be a male.

Phrixosoma barinensis Wood, n. sp.

Phrixosoma barinensis Wood: Holotype ♀; 40 km SE Socopo, Barinas, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *viriosa* Wood by having declivital interstriae 1–3 each with a central row of fine tubercles, by the stouter interstitial setae; and by the smaller size.

Female: Length 2.1 mm, about 1.8 times as long as wide; color almost black. Frons and pronotum about as in *viriosa* except posteromedian area of pronotum projecting less strongly into scutellar notch. Elytra similar to *viriosa* except interstitial setae slightly stouter, declivital interstriae 1–3 each armed by a central, uniseriate row of fine tubercles; tubercles and setae on posterior half of interstriae 3–5 on posterior half of disc and on declivity mostly three-ranked.

Distribution: Venezuela (Barinas).

Type material: The female holotype was taken 40 km SE Socopo, Barinas, Venezuela, 25-I-1970, 150 m, No. 254, *Rheedia madruno*, S.L. Wood. The holotype is in the U.S. National Museum, Washington.

Biology: The unique holotype was walking actively on the surface of the same tree that was under attack by the type series of *viriosa* Wood and *rubra* Wood. Whether it was attracted by volatile substances from the tree or from pheromones of the other species could not be determined.

Phrixosoma rubra Wood, n. sp.

Phrixosoma rubra Wood: Holotype ♀; 40 km SE Socopo, Barinas, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *crebra* Wood by the smaller size; by the closer, more abundant, more confluence of punctures on the pronotum disc; by the numerous, minute, subtuberculate granules on the anterior third of the pronotum; by the abrupt transition on upper frons and vertex from granular to reticulate areas; and by the reddish brown color.

Male: Similar to female except abdominal terga 7 and 8.

Female: Length 1.5–1.7 mm, 1.8 times as long as wide; color dark reddish brown. Frons convex, finely reticulate-granulate from epistoma to vertex, transition to reticulate at vertex abrupt, on a definite line; surface also with numerous, shining, fine granules; a weak median carina from epistoma almost to upper level of eyes; vestiture of fine, short, inconspicuous hair. Pronotum 0.75 times as long as wide; posterior half finely, very closely punctured, puncture interiors reticulate, most punctures confluent; anterior third of pronotum with numerous, minute tuberculate granules; basal margin acutely costate except in scutellar area. Elytra 1.3 times as long as wide, 1.8 times as long as pronotum; striae narrowly, deeply impressed, punctures small, distinct; interstriae about twice as wide as striae, crenulations three-ranked on each interstriae from base to middle of disc, middle row largest; interstitial setae three-ranked, stout, middle row on each interstriae distinctly longer, suberect. Declivity broadly convex, rather steep, only middle row of tubercles present.

Distribution: Venezuela (Barinas).

Type material: The female holotype, male allotype, and 15 paratypes were taken 40 km SE Socopo, Barinas, 25-I-1970, 150 m, No. 254, *Rheedia madruno*, S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Biology: The type series was attacking the same tree that contained the type series of *viriosa* Wood. They were just entering the bark and basic features of the tunnels were not yet apparent.

Phrixosoma crebra Wood

Phrixosoma crebra Wood, 1971:2. Holotype ♀; 8 km S Colonia (near

Buenaventura), Valle del Cauca, Colombia; USNM, Washington (References in Wood & Bright c1992:189)

Diagnosis: Distinguished from *rubra* Wood by the smooth, shining posterior half of the pronotum, with clear, distinct punctures, mostly not confluent, anterior third without granules; color darker.

Male: Similar to female except abdominal terga 7 and 8.

Female: Length 1.5–1.9 mm, 1.9 times as long as wide; color almost black. Frons similar to *rubra*. Pronotum 0.72 times as long as wide; outline as in *rubra*; surface smooth, shining, punctures shallow, distinct, mostly not confluent, their interiors not clearly reticulate; anterior third with punctures smaller, more widely spaced, not clearly armed by granules; vestiture fine, short, hairlike. Elytra 1.2 times as long as wide, 1.6 times as long as pronotum; as in *rubra* except interstitial crenulations three-ranked on basal two-thirds of disc, middle row of setae erect, longer.

Distribution: Colombia: 8 km S Colonia (near Buenaventura), Valle del Cauca, 9-VII-1970, 30 m, No. 640, *Rheedia madruno*, SLW.

Biology: The biramous parental galleries were mostly longitudinal.

Notes: The above treatment was based on the type

series of 51 specimens.

Species Not Seen

Phrixosoma striata (Eggers)

Phrixosoma striata Eggers, 1929:41 (*Sphaerosinus*). Holotype, sex?; Amer. bor.; ZMA, Amsterdam (References in Wood & Bright c1992:190)

Notes: This species (3.0 mm) was named from one specimen, labeled “Amer. bor.,” and deposited in the Amsterdam Museum. In September 1965, while I was visiting Schedl at his home in Lienz, Osttirol, Austria, he showed this specimen (on loan to him) to me and requested an opinion. It was immediately recognized as a member of the *Phrixosoma*, possibly a large *obesa* Blackman (1.8–2.5 mm) or a small *magna* Blackman (3.2–3.6 mm). In a prolonged search at the Amsterdam Museum this type could not be found. An unsuccessful search of the Schedl material at Vienna was also made. In all probability, this specimen is the senior synonym of a subsequently named species that is listed in the above key. Striking characters that would set it apart from other species were not seen.

TRIBE BOTHROSTERNINI

Description: Frons sexually dimorphic, male more distinctly impressed, female usually more elaborately ornamented by setae; eye entire to sinuate; funicle 6-segmented, club symmetrical, moderately flattened, sutures indicated; procoxae moderately separated; protibiae armed on outer apical angle by a bifid process exceeding inner apical angle; pronotum unarmed (about 10 exceptions in *Cnesinus*); row of crenulations on basal margins of elytra usually poorly developed, represented in some species by a continuous costa.

Distribution: This tribe is restricted to tropical America except for two *Cnesinus* that occur in the southeastern USA.

Biology: All species are monogynous, except inbreeding or parthenogenesis apparently occurs in certain *Both-*

rostermus. All are myelophagous, except that *Bothrostermus* and *Eupagiocerus ater* Eggers are xylomycetophagous. A primitive behavioral feature occurs in *Cnesinus annectens* Wood where a typical hylesinine transverse, biramous parental gallery is formed in the cambium tissues of the host, complete with egg niches. The young larvae then feed on phloem tissues for about 2 instars before following the parent-bored passage to the pith region where they complete larval development and pupation. In all other known species a longitudinal, biramous pith tunnel is formed by the parents; eggs are then deposited in clusters in the loose frass of this cavity. The larvae then feed in congress while extending the parental pith tunnel. Pupation occurs in the larval frass in this chamber.

Key to the Genera of Bothrosternini
(Adapted from Wood 1986:46)

- 1. Lateral margins of pronotum rounded 2
- Lateral margins of pronotum marked by sharply elevated costate to subcostate line (when doubtful discal striae minutely granular to base, with punctures obscure to base) 3
- 2(1). Sutures of antennal club transverse, straight; rostrum distinctly wider than distance between eyes; pronotum either longitudinally strigose or punctured; mostly pith borers of twigs and other small stems; 1.3–3.5 mm *Cnesinus*
- Sutures of antennal club strongly procurved; rostrum width at tip equal to distance between eyes; frons excavated in both sexes, with a median tubercle just above epistoma; body oval; seed borers; 1.9–3.2 mm *Pagiocerus*
- 3(1). Sutures of antennal club strongly procurved; pith borers in twigs and woody vines (mycetophagous in the only known South American species); 2.1–3.8 mm *Eupagiocerus*
- Sutures of antennal club transverse, straight 4
- 4(3). Proepisternal area partly excavated, with cavity densely filled by yellow pubescence, particularly in female; prothoracic intercoxal piece with a transverse, subcarinate crest; elytral interstriae usually not strongly carinate; ambrosia beetles in axial pith tunnels of woody vines; 1.9–3.3 mm . . .
..... *Bothrostermus*
- Proepisternal area normal, not conspicuously pubescent; prothoracic intercoxal crest absent; elytral interstriae often partly to entirely, narrowly carinate; pith borers in branches and twigs; 2.2–3.6 mm *Sternobothrus*

GENUS *CNESINUS* LeCONTE

Cnesinus LeConte, 1868:71. Type-species: *Cnesinus strigicollis* LeConte, monobasic

Diagnosis: Lateral margins of pronotum rounded; sutures of antennal club transversely straight; punctures

of pronotum varying from almost normal to longitudinally confluent and/or strigose.

Description: Length 1.3–3.5 mm, 2.4–3.2 times as long as wide; color reddish brown to almost black. Frons sexually dimorphic, convex above, variously impressed below, male sculpture simple, female often elaborately

ornamented by setae and carinae. Antennal club rather small, modestly flattened, 3 straight sutures usually present. Pronotum usually unarmed (several exceptions); punctures simple to confluent and strigose. Elytral sculpture rather simple; vestiture varying from hairlike to broad scales, with or without ground cover.

Distribution: Tropical America, with 2 species in southeastern USA. Wood & Bright (c1992:205–212) report 101 species, 54 of which were said to occur in South America.

Biology: All species are thought to be monogynous, although males are very rare or unknown in a few species. The female apparently initiates the new parental

gallery. All species, except *C. annectens* (see Tribe Bothrostermini above), are pith borers in small stems, mostly less than 1 cm in diameter, although some breed in stems up to 5 cm in diameter. None of the species known to me have the xylomycetophagous habit. The parental pith tunnel extends in both directions from the radial entrance tunnel. Eggs are deposited in clusters mixed with boring dust. Larvae feed in congress and extend the parental pith tunnel and emerge following pupation through the parental entrance hole. They attack severed, broken or unthrifty twigs and are of little or no economic importance under most circumstances.

Key to the Species of *Cnesinus*

- 1. Frons convex in both sexes above level of antennal insertion (a narrow, weak impression on median fourth in 2 species), never with an epistomal elevation or conspicuous brush of erect setae or transverse carina; interstitial punctures on disc uniseriate (rarely irregular on 2 or 3), usually minute, discal interstitial setae absent (two exceptions); punctures on pronotum distinct, rarely elongate (about twice as long as wide), almost never confluent; smaller species 2
- Frons variously impressed on lower half in both sexes, usually ornamented by a transverse epistomal elevation, a transverse pair of tubercles (female only), a brush of erect setae (only 1 row in most males), or a transverse carina (female only) near middle; punctures on pronotum either distinct or variously confluent; interstitial punctures on disc usually confused (at least on 3); both small and larger species 15
- 2(1). Basal margins of elytra armed by a continuous, acutely elevated costa from scutellum to interstriae 7; stout erect interstitial setae continue forward from declivity to middle of disc on 2 and 3 and almost to base on 1 (not in *beaveri* or 2 and in 3 *teres*) 3
- Basal margins of elytra weakly elevated, more rounded, usually subgranular or with punctures suggesting weak formation of crenulations; vestiture usually absent on elytral disc 7
- 3(2). Pronotum closely etched longitudinally by finely substrigose, elongate punctures (almost no confluence); interstitial setae absent on anterior half of disc; frons more broadly convex, setae finer, less conspicuous; Brazil; 1.3–1.5 mm *beaveri* Wood
- Pronotum surface smooth, shining, punctures subcircular to about three times as long as wide; frons narrower, male with lateral areas ornamented by setae; interstitial setae extending to base of disc on interstriae 1 4
- 4(3). Eye very coarsely faceted, separated above by width of an eye or less; punctures on declivital striae 1 and 2 only moderately impressed, interstriae without granules; female frons smooth and polished below eyes; Venezuela; *Nectandra*; 1.4–1.5 mm *teretis* Wood
- Eyes more finely faceted, separated above by twice width of an eye; declivital striae 1 and 2 strongly impressed, interstriae 2 usually with a few small granules 5
- 5(4). Body less slender, 2.6 times as long as wide; punctures on pronotum slightly smaller, closer, mostly two to four times as long as wide; interstriae 1 (without any tubercles on disc or declivity), 2–4 with tubercles confined to declivity; Brazil (Santa Catarina); 1.5–1.7 mm *plaumanni* Schedl
- Body more slender, 2.7 times as long as wide; punctures on pronotum slightly larger, not as close, mostly 4 times as long as wide 6
- 6(5). Declivity convex, interstriae 1 with a row of fine tubercles from base of disc to apex, 2 to 4 with declivital tubercles extending cephalad to posterior one-fourth of disc; Colombia; *Xelopia*; 1.5–1.6 mm *pulchellus* Wood

BOTHROSTERNINI

- Declivity rather strongly sulcate between left and right interstriae 4, 4 much higher than suture; all interstriae devoid of tubercles on disc and declivity; vestiture on disc of minute, very fine, short hair, on declivity of numerous short scales; Colombia to Venezuela; 1.2–1.7 mm *teres* (Chapuis)
- 7(2). Lower half of frons broader (1 species) or middle one-third (of area from epistoma to upper level of eyes) with a small to moderate shallow concavity on median one-fourth, lower margin of impressed area modestly elevated and armed on female by a transverse pair of tubercles (indefinite in 2 of these species); elytral declivity with interstriae 2 rather strongly impressed, distinctly wider than 1 or 3, its surface smooth, brightly polished, a few very minute punctures indicated 8
- Frons without an impression above level of antennal insertion; declivital interstriae 2 weakly or not impressed or wider than 1 or 3 10
- 8a(7). Frons broadly, moderately concave on lower half or more of area below upper level of eyes (female not seen) 8b
- Frontal impression restricted to much less than lower half; discal interstriae smooth, punctures uniseriate 9
- 8b(8a). Frons moderately concave on lower half of area below upper level of eyes, area at upper level of eyes rounded (unmodified); discal interstriae 2–5 weakly reticulate, punctures very small, confused (female not seen); Brazil (Santa Catarina); 2.5 mm *amplipennis* Schedl
- Female (?) frons more broadly, shallowly impressed three-fourths distance toward upper level of eyes, a low, subacute transverse carina on median half at upper level of eyes; epistomal callus feebly developed, with erect laterally compressed setae with a slightly reddish tint; frons more shallowly impressed on lower half, then evenly convex to above upper level of eyes (no carina); apex of elytral suture shallowly imarginate, apex of elytra at lateral end of emargination slightly flared upward and bluntly pointed; Brazil (Santa Catarina); 1.8–1.9 mm *bicinctus* Schedl
- 9(8). Female frons on median line at upper margin of concavity more evenly rounded without a definite tubercle, lower margin of concavity with a transverse pair of rather conspicuous denticles; pronotum less brightly shining, punctures larger, closer, especially on basal one-fourth, punctures longitudinally elongate; striae punctures distinctly larger; declivity with striae punctures minute, lateral convexities on interstriae 3 more broadly rounded; Venezuela; Bejuco blanco; 2.5–2.6 mm *alienus* Wood
- Female frons on median line at upper margin of concavity with a poorly formed, definite tubercle, lower margin of concavity with indefinite granules, without a definite, transverse pair of tubercles, vestiture less abundant, shorter; pronotum brightly shining, punctures minute, about as wide as long, smaller, more uniformly distributed; striae not impressed, punctures smaller; declivity with striae punctures conspicuously larger, lateral convexities on interstriae 3 more narrowly convex, subsulcate; Brazil; 2.7 mm *carbonarius* Schedl
- 10(7). Surfaces of head, pronotum, and elytra conspicuously reticulate throughout; striae impressed, continuously granular; striae punctures obscure; basal third of pronotum coarsely, closely shallowly punctured; Venezuela; *Vismia cayennensis*; 1.9–2.0 mm *reticulus* Wood
- Surfaces of pronotum and elytra smooth, shining; striae not granular or dull, punctures clearly, individually impressed 11
- 11(10). Frons transversely impressed on lower fourth, almost flat, lower three-fourths (including impressed area) ornamented by a brush of moderately long hair; anterior third of pronotum somewhat shagreened or not 12
- Frons with convex area extending almost to level of antennal insertion (1 exception), impressed area less extensive, frontal vestiture much less abundant, shorter, finer, less conspicuous; pronotum shining throughout, without any shagreening 13

- 12(11). Anterior one-third (or more) of pronotum shagreened, punctures mostly smaller, more elongate, each 2–4 times as long as wide, rarely confluent; interstitial punctures very small, equal to less than one-third diameter of a strial puncture; female frons with a tuft of short hair on central half; body color dark brown, pronotum much darker; Mexico (Oaxaca) to Brazil (Santa Catarina); *Coffea arabica*, *Persea americana*, *Serjania*; 1.9–2.3 mm ***gracilis* Blandford**
- Pronotum without any shagreening, surface shining, punctures mostly slightly larger, mostly less than twice as long as wide, several punctures confluent on basal half; interstitial punctures slightly larger, equal to at least half diameter of a strial puncture; body color medium brown; Venezuela to Guiana; 1.7 mm ***minusculus* Schedl**
- 13(11). Frons weakly, transversely impressed on lower third, convex above; pronotum closely strigose, all punctures longitudinally strigose, most confluent; sutural apex of elytra moderately produced, lower interstriae 1 and costal margin near suture on declivity moderately elevated; Brazil (Santa Catarina); 1.5 mm ***acuminatus* Schedl**
- Lower frons convex to level of antennal insertions; punctures on pronotum individually impressed, with little or no strigation or confluence 14
- 14(13). Frons more strongly convex, with several moderately coarse granules at and below (orad) summit, less conspicuous in male; setae on lateral areas of declivity shorter, coarser, subequal in length to those on interstriae 1 and 2, setae on 2 normal, erect; Bolivia, Peru, Venezuela; 2.3–2.4 mm ***nitidus* Eggers**
- Frons moderately convex, its summit usually not armed by granules in either sex; lateral declivital setae conspicuously longer and more slender; shorter on interstriae 1 and 2, setae on 1 conspicuously diverge away from suture; Argentina to S Brazil; *Acacia nigra*; 2.0–2.1 mm ***dividuus* Schedl**
- 15(1). Female frons without a transverse carina near middle, epistoma above callus ornamented by a multiple tiered brush (usually confused) of short, reddish brown setae of uniform length, a median elevation or transverse pair or large, pointed tubercles often immediately below these setae, male similar but less elaborately ornamented (elevation and tubercles usually absent); pronotal vestiture sparse to absent, surface usually punctured or less coarsely strigose; discal interstriae often (not always) uniseriately punctured, declivital setae usually uniseriate and without supplemental ground setae (most doubtful species with anterolateral area of pronotum armed by a row of about 5–9 crenulations) 16
- Female frons armed near middle by a transverse carina, male and female epistoma ornamented by a single row of pale, reddish brown setae well below carina; pronotum vestiture abundant, surface rather coarsely strigose; discal interstriae with punctures confused, abundant vestiture, and usually with a row of longer, erect bristles on each interstriae (never with a row of crenulations on anterolateral area of pronotum) 43
- 16(15). Anterolateral angles of pronotum without a row of rather coarse crenulations; pronotum usually without conspicuous vestiture; most or all of setae on discal interstriae obsolete; pronotal strigation usually coarser 17
- Each anterolateral area of pronotum armed by a sublongitudinal row of about 5–9 coarse crenulations; pronotum usually with conspicuous, abundant vestiture, longitudinal striation usually much more coarse; discal interstriae conspicuously pubescent to base 35
- 17(16). Female epistomal elevation strongly, acutely elevated at median line, its summit armed by 1 or a transverse pair of tubercles or denticles, upper half of frons less shining, less subglobular, its lateral areas with more, longer pubescence to above eyes 18
- Female epistomal elevation variously sculptured, never armed by a conspicuous median tubercle or transverse pair of tubercles; upper half of frons to above eyes smooth, shining, impunctate, a partial subglobular appearance, vestiture often entirely obsolete or reduced in size and number of setae 20

BOTHROSTERNINI

- 18(17). Larger species; female median epistomal elevation much larger; armed by a transverse, closely set pair of tubercles; interstrial punctures on disc numerous, confused; eyes more widely separated above, space between eyes equal to twice width of an eye; pronotum longitudinally strigose, punctures obscure, almost totally confluent; interstrial setae abundant, confused, moderately long, without recognizable central rows; Colombia to Peru; 3.1 mm *reticulatus* (Chapuis)
- Smaller species; pronotal punctures distinct, longitudinally elongate, few confluent; interstrial punctures on disc mostly uniseriate, disc mostly glabrous, setae on declivity in uniseriate rows; eyes separated above by half to full width of an eye 19
- 19(18). Female epistomal elevation armed by a single median tubercle; eyes large, coarsely faceted, separated above by a distance equal to one-half width of an eye; punctures on pronotum distinct, separate, each longitudinally etched (about 4–6 times as long as wide, almost never confluent); Colombia; 1.7–1.9 mm *excellens* Wood
- Female epistomal elevation armed by a transverse pair of rather widely spaced, moderately large, pointed tubercles; eyes separated above by distance equal to width of an eye; punctures on pronotum distinctly larger, closer, many confluent; Mexico (Oaxaca) to Colombia (?); *Coffea arabica*, *Persea americana*, *Serjania*; 2.4–2.8 mm *elegans* Blandford
- 20(17). Pronotal punctures longitudinally confluent; usually interstrial punctures on disc numerous, confused (2 species) or rows of erect interstrial setae extending to base (and on pronotum) and punctures uniseriate (1 species) 21
- Pronotal punctures distinct, mostly isolated, few confluent; interstrial setae uniseriate (rarely confused on 3), disc and pronotum almost glabrous 27
- 21(20). Larger, stouter species; discal interstriae with numerous, confused punctures; elytra and pronotum subglabrous; female epistomal elevation small, brush of reddish brown setae large and occupying almost lower half of area below upper level of eyes; Colombia; “matapalos”; 2.8–3.0 mm *colombianus* Wood
- Smaller, more slender species; discal interstriae with punctures mostly uniseriate, with setae extending to base and also numerous on pronotum; female reddish brown frontal brush much smaller, about half as large 22
- 22(21). Elytral declivity with interstriae 1–3 about equal in convexity and sculpture, 2 with setae to apex 23
- Elytral declivity with interstriae 1 flat or weakly elevated and without tubercles, 3 more strongly, more narrowly convex almost to apex, striae 1 and 2 obsolete or at least reduced on lower half (punctures present in *gibbus*), broadly flattened, smooth and shining, continuous with interstriae 2, a few punctures (origin interstriae 2?) sometimes present, uniseriate setae on (sometimes 1) 3, glabrous on lower half or all of 2 26
- 23(22). Elytral striae and interstriae rugose-reticulate to densely micropunctate, rather dull; declivity with both short strial and longer interstrial rows of setae; Brazil (Santa Catarina); 1.7 mm *pusillus* Schedl
- Elytral surfaces smooth, shining; mostly larger species; strial setae obsolete 24a
- 24a(23). Punctures of declivital striae 1 and 2 obscure but visible, interstriae 2 very narrow but present at least on upper half 24b
- Punctures on declivital striae 1 and 2 obsolete, interstriae 2 obsolete, setae absent 25
- 24b(24a). Declivital interstriae 2 narrow above, obsolete below (with setae present on upper half); apex of elytra normal; Venezuela (Cumana); 2.4 mm *gibbus* Chapuis

- Declivital interstriae narrow, continued to apex (with tubercles and setae present, apex of elytra at suture prolonged into a conspicuous, tapered spine longer than its basal width; Brazil (Mato Grosso, Sao Paulo); 1.7–1.9 mm *bispinatus* Schedl
- 25(24a). Pronotum distinctly wider than long; discal interstriae 2 and 4 with setae uniseriate; all setae on pronotum and elytra coarse; epistomal elevation (shining area larger, wider); Colombia; “matapalo & guamo seco”; 1.9–2.2 mm *foratus* Wood
- Pronotum distinctly longer than wide; discal interstriae 2 and 4 with setae confused; all setae on elytra and pronotum much more slender; shining area of epistomal elevation smaller; Colombia; *Quercus humboldtii*; 2.7–2.8 mm *deperditus* Wood
- 26(22). Declivital interstriae 1 and 2 flat, impunctate, and glabrous from base to apex; discal striae almost obsolete, punctures minute, interstitial punctures minute, confused; female epistomal callus weak, poorly formed, frontal impression extending almost to upper level of eyes; Brazil (Santa Catarina); 3.0–3.2 mm *schoenherri* Schedl
- Declivital interstriae 1 weakly elevated and uniseriately punctured to near apex; discal striae distinctly, rather abruptly impressed, punctures largely confluent, obscure, interstriae moderately punctured; female epistomal callus distinct, frontal impression ending well below upper level of eyes; Brazil (Sao Paulo to Santa Catarina); 2.0–2.3 mm *sulcatus* Eggers
- 27(20). Median half of posterior half of pronotum with punctures replaced by rounded granules, reticulate between granules; striae rugose-reticulate and without punctures from base to base of declivity; interstriae with small punctures close, confused; vestiture of fine hair; Brazil; 3.7 mm *grandis* Schedl
- Pronotal punctures on mesal half of basal half present, variously confluent, tubercles not evident 28
- 28(27). Declivital interstriae 1 and 2 with coarse, uniseriate setae to apex; basal half of pronotum with large, shallow, very close punctures, equally close but much smaller on anterior half; Suriname; 1.8 mm *schulzi* Wood
- Declivital interstriae 1 and 2 sometimes without rows of setae; punctures on basal half of pronotum subequal in size with those on anterior half 29
- 29(28). Female epistomal elevation smooth, brightly shining, its lower (orad) margin not sharply defined, a short row of setiferous punctures on lateral thirds separate shining area from margin, median third not separated from obscure median epistomal lobe, upper margin of elevation sharply, obtusely defined, reddish brown band of setae about two ranks thick, at least as wide as elevated area; setae on elytra very fine, rather long; Bolivia to Peru, elevation 3600–4100 m; 2.5–2.7 mm *bicolor* Eggers
- Lower (orad) margin of female epistomal elevation sharply defined, separate from epistomal margin, its upper margin poorly defined; elytral setae slender 30
- 30(29). Female epistomal elevation with much more than dorsal half covered by reddish brown brush of uniformly short setae, small lower area smooth, shining; most (more than half) of pronotum dull 31
- Female epistomal elevation much narrower, with more than lower half smooth, shining, its upper margin more narrowly (but obtusely) angled; pronotum mostly shining, less than anterior third dull 33
- 31(30). Female frontal elevation 0.76 times as wide as lower frons, smooth shining area extending from lower margin at lateral ends arcuate to slightly less than lower half at median line (not forming an angle); pronotum dull to middle on disc and much nearer base laterally, punctures moderately small; Venezuela; *Rubus*; 2.5–2.9 mm *fulgens* Wood

BOTHROSTERNINI

- Female frontal elevation 0.70 times as wide as lower frons, less than lower third on median one-fourth to one-half smooth, shining; pronotum dull almost to base 32
- 32(31). Punctures on pronotum oval, less numerous, weakly (if at all) strigose; female epistomal elevation narrower, its lower margin more strongly procurved; Brazil; 2.1 mm *bituberculatus* Schedl
- Punctures on pronotum distinctly strigose, much more numerous; epistomal elevation wider, its lower margin almost straight; Colombia to Venezuela; *Rubus*; 2.4–2.7 mm *bisulcatus* Schedl
- 33(30). Eyes larger, very coarsely faceted, separated above by slightly more (1.1 times) than width of an eye; female epistomal elevation 0.55 times as wide as width of lower frons; Colombia; *Coffea*; 2.2–2.5 mm *meris* Wood
- Eyes normal, much more finely faceted, separated above by twice width of an eye 34
- 34(33). Female epistomal elevation 0.55 times as wide as width of lower frons, smooth area much wider than long; pronotum smooth, shining over more than basal three-fourths, punctures rather fine, slightly strigose; Colombia; *Quercus humboldtii*; 2.3–2.5 mm *fulgidus* Wood
- Female epistomal elevation 0.40 times as wide as lower frons, smooth area distinctly longer than wide; pronotum smooth, shining over more than basal half, punctures very fine, not strigose; Colombia to Venezuela; “Uvo de Monte & Graptero”; 2.2–2.5 mm *triangularis* Wood
- 35(16). Vestiture on pronotum and elytra of abundant, short ground setae and also, on interstriae, uniseriate rows of erect setae 36
- Elytral vestiture of interstitial rows of erect setae, ground cover absent 41
- 36(35). Ground cover on pronotum and elytra of abundant, pale scales, each scale rather large, each about as wide as long; erect interstitial bristles spaced within a row by twice length of a bristle, their length equal to two-thirds distance between rows; Argentina; 2.2 mm *squamifer* Wood
- Ground cover on pronotum and elytra slender, varying from almost hairlike to rather coarse 37
- 37(36). Larger species; interstitial punctures on 1 and 2 of disc clearly impressed; erect bristles on declivity more slender, pointed, each much longer than distance between rows at least in female (long setae mostly absent in male *vestitus*) 38
- Smaller species; interstitial punctures on 1 (and sometimes 2) on disc obsolete; erect bristles on declivity usually stout, usually blunt, length of each equal to or shorter than distance between rows 39
- 38(37). Female epistomal callus with a small median tubercle on its lower margin, reddish brown brush of setae less extensive, consisting of about a double-ranked, transverse band; declivital striae 1 impressed, impunctate, as wide as interstriae 2 (on right side); Argentina to Bolivia; 2.8 mm *hispidus* Eggers
- Female epistomal callus unarmed by a median tubercle, brush of reddish brown setae much more extensive and of brighter color; declivital striae 1 narrowly impressed, half as wide as interstriae 2 (on right side); Venezuela; *Bambusa vulgaris*; 3.3–3.6 mm *vestitus* Eggers
- 39(38). Female epistoma unarmed; upper frons reticulate or smooth; erect interstitial setae extending at least to posterior half of disc 40a
- Female frons armed on epistomal margin by a pointed median spine or by a blunt, apically flattened spine occupying almost median one-fifth; median two-thirds of distance between eyes smooth, shining; discal interstriae granular, punctures not clearly evident; erect interstitial setae on or near declivity with longest setae equal in length to width of an interstriae 40b

SCOLYTIDAE OF SOUTH AMERICA

- 40a(39). Upper half of frons rather strongly reticulate; discal striae less abruptly, more widely impressed; discal interstriae very slightly wider than striae; declivital striae narrowly impressed, punctures minute to obsolete; Bolivia; 2.3 mm **setosus** Eggers
- Upper half of frons smooth, shining; striae abruptly, more narrowly impressed; interstriae twice as wide as striae; declivital striae 1 and 2 less strongly impressed, punctures distinctly, rather strongly impressed; Brazil (Mato Grosso) to Paraguay; 1.6–2.0 mm **advena** Schedl
- 40(b). Female epistoma armed by a small median conical tubercle; longest setae on and near declivity blunt, apically flattened; Brazil (Maranhao); 1.75 mm **hispidulosus** Wood
- Female epistoma armed on margin by a blunt, apically flattened spine occupying almost median fifth of epistoma width; longest setae on and near declivity mostly pointed; Argentina; 2.2 mm **ampliatius** Schedl
- 41(35). Reddish brown setae on upper slope of female epistomal elevation sparse, organized into a single transverse row; female frons armed near middle on median line by a moderately large tubercle (or very short, transverse carina); posterolateral areas of pronotum with many punctures separate, with little confluence; Colombia; *Coffea arabica*; 1.9–2.4 mm **robai** Blackman
- Reddish brown setae on upper slope of female epistomal elevation more abundant, spread over much larger area; female frons without a conspicuous tubercle near center; posterolateral areas of pronotum with almost all punctures confluent, not discernible 42
- 42(37). Lateral margins of lower female frons abrupt, area nearest emargination of eye less strongly elevated; reddish brown brush of setae much smaller, yellowish, comparatively dull; Venezuela; *Rubus*, *Vismia*; 2.3–2.5 mm **lucaris** Wood
- Lateral margins of lower female frons acutely elevated, dorsolateral end at situation of eye much more strongly elevated; reddish brown brush on female epistomal elevation much more extensively distributed and much more brightly colored (reddish); Colombia; *Coffea arabica*; 2.3–2.5 mm **coffaeae** Schedl
- 43(15). Elytral striae on disc strongly impressed, interstriae carinate to bicarinate (with central area subsulcate and uniseriately punctured between elevated margins), vestiture hairlike; transverse female carina almost straight, extending from eye to eye at level of ocular emargination 44
- Discal interstriae flat or convex, never carinate (or bicarinate), punctures confused, vestiture usually abundant, somewhat scalelike; female carina crescent-shaped, its arms extending slightly dorsolaterad, usually shorter and located lower on frons 45
- 44(43). Female frons above carina smooth, shining, usually with a few minute, impressed points; ground vestiture on elytral declivity less abundant, major setae usually finer, longer; rugae on pronotum usually coarser; Mexico (Oaxaca) to Colombia and Venezuela; *Persea americana*, unidentified Lauraceae sp., etc.; 2.0–2.3 mm **costulatus** Blandford
- Female frons above carina reticulate, dull; declivital ground vestiture more abundant, major setae usually coarser, shorter; pronotal rugae usually finer; Guatemala to Venezuela; *Guasuma ulmifolia*, *Oreopanax*, *Quercus*, etc.; 2.8–3.1 mm **porcatus** Blandford
- 45(43). Elytral apices extended caudad (behind), broadly emarginate at suture; declivital interstriae 1, 3, 5, and 9 elevated; elytra ground cover of broad scales, each scale almost as wide as long, scales on pronotum similar but slightly more slender; Costa Rica to Venezuela; *Serjania* and other lianas; 1.7–2.1 mm **squamosus** Wood
- Elytra more broadly rounded behind, not emarginate at suture; vestiture much more slender (more than 4 times as long as wide); declivital interstriae not elevated 46

- 46(45). Female frons without row of short, stout, reddish brown setae between epistoma and frontal carina (setae present in male, carina absent); transverse female carina at level of antennal insertion, very strongly, acutely elevated on median one-fourth of width of lower frons; body color dark reddish brown; Costa Rica to Venezuela; *Oreopanax capitata*, *Serjania*; 1.8–1.9 mm **denotatus Wood**
- Female frons with a row of reddish brown setae on epistoma; female frontal carina placed well above level of antennal insertion 47
- 47(46). Female frons broadly flattened below from epistoma to narrowly at upper level of eyes; transverse carina in impressed area at or slightly below middle, its (transverse) width occupying median one-fifth; Honduras to Colombia (?); *Valeria scandens*; 2.1–2.4 mm **adustus Schedl**
- Female frons convex on upper half (dorsad from carina), carina at margin of impressed area; female carina occupying one-third or more of width of frons 48
- 48(47). Eyes enlarged, very coarsely faceted, separated above by less than one-half width of an eye; Honduras to Venezuela; *Serjania mexicana*; 2.4 mm **ocularis Chapuis**
- Eyes normal, separated above by twice width of an eye; Honduras to Colombia; *Acacia pennatula*, *Coffea arabica*; 2.7–3.0 mm **adusticus Wood**

Cnesinus beaveri Wood

Cnesinus beaveri Wood, 1974:2. Holotype ♀; 260 km N Xavantina, Mato Grosso, Brazil; BMNH, London (References in Wood & Bright c1992:206)

Diagnosis: Frons rather strongly convex in both sexes to epistoma; pronotum longitudinally etched, punctures elongate, not confluent; basal margins of elytra armed by an acutely elevated costa; interstitial setae absent on anterior half of disc.

Female: Length 1.3–1.5 mm, 2.7 times as long as wide; color dark brown. Frons evenly convex from level of antennal insertion to vertex; surface strongly reticulate, punctures sparse, obscure; vestiture of sparse, short hair; eyes spaced above by 2.0 times width of an eye. Pronotum 1.1 times as long as wide; surface smooth, shining, punctures fine, longitudinally striate, each striation 2–8 times as long as wide; sparse vestiture confined to anterior third. Elytra 1.8 times as long as wide, 1.9 times as long as pronotum; crenulations on basal margins obscure; striae weakly impressed, punctures rather coarse, distinctly impressed; interstriae distinctly wider than striae, shining, almost smooth except for short, transverse lines, punctures fine, close, uniseriate. Declivity steep, convex; striae punctures slightly smaller and deeper than on disc; interstriae 1 distinctly, others weakly impressed; vestiture largely confined to declivity, of slender interstitial bristles, each bristle with its apical third appearing flattened, each two-thirds as long as distance between rows, spaced within a row by length of a bristle.

Distribution: Brazil: 260 km N Xavantina, Mato Grosso, 3-X-1-XII-1968, R.A. Beaver.

Hosts: *Guatteria* sp., *Siparuna guianensis* (Bright & Skidmore 1997:41).

Notes: The above treatment was based on the type series of *beaveri* of 6 specimens.

Cnesinus teretis Wood

Cnesinus teretis Wood, 1974:3. Holotype ♀; 7 km NW Socopo, Barinas, Venezuela; USNM, Washington (References in Wood & Bright c1992:212)

Diagnosis: Frons convex in both sexes above level of antennal insertion; eyes coarsely faceted, separated above by distance equal to less than width of an eye; declivital striae 1 and 2 strongly impressed, interstriae 2 armed by a few small granules.

Male: Similar to female except frons weakly, transversely impressed on lower half, more strongly convex above, surface reticulate.

Female: Length 1.3–1.5 mm, 2.7 times as long as wide; color dark brown, pronotum almost black. Frons moderately convex from epistoma to vertex, narrow, median two-thirds on lower half smooth, polished, devoid of punctures or setae; lateral areas below subreticulate, a row of setae on margin of eye above; eyes separated above by distance equal to half width of an eye. Pronotum 1.15 times as long as wide; punctures elongate. Elytra 1.6 times as long as wide, 1.6 times as long as pronotum; punctures small, shallow; interstriae twice as wide as striae, almost flat, smooth, shining, uniseriate punctures minute. Declivity steep, convex; striae impressed, interstriae 1 convex, punctures replaced by granules; vestiture confined to declivity, posterior half of discal interstriae 3, 5, and 7 consisting of coarse bristles up to twice as long as distance between rows, slightly longer than distance between bristles within a row.

Distribution: Venezuela: 7 km NW Socopo, Barinas, 13-II-1970, 200 m, No. 322, *Nectandra* twigs, SLW.

Biology: Pith borers in small twigs.

Notes: The above treatment was based on the type series of 37 specimens.

Cnesinus plaumanni Schedl

Cnesinus plaumanni Schedl, 1963:220. Holotype ♂; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:210)

Diagnosis: Distinguished from *pulchellus* Wood by the slightly more slender body form; by the smaller, shorter, closer punctures on the pronotum; and by the absence of tubercles on interstriae 1 from base to apex.

Male: Length 1.5–1.7 mm, 2.6 times as long as wide; color very dark brown. Frons with eyes separated above by about twice width of an eye, weakly convex from epistoma to vertex, surface microscopically, transversely etched; upper half with sparse, minute punctures on upper half and laterally below; vestiture of sparse, moderately long hair; epistomal callus not evident. Pronotum 1.2 times as long as wide; widest on anterior third, sides feebly constricted on posterior half; surface smooth, shining, punctures small, rather deep, close, elongate, most twice as long as wide. Elytra 1.7 times as long as wide, 1.7 times as long as pronotum; basal margin of elytra marked by a continuous costa; striae weakly impressed, punctures rather small, distinctly impressed; interstriae almost twice as wide as striae, surface shining, with a few transverse lines, punctures minute, uniseriate, without tubercles to base of declivity. Declivity broadly convex, steep; striae 1 slightly impressed, 2 and 3 not impressed, punctures smaller than on disc; interstriae 1 with a row of fine punctures to apex, 2 and 3 with punctures replaced by a sparse row of fine tubercles. Vestiture of rows of erect interstitial setae, short and more slender on disc (some extending to base), stouter and longer on declivity (some twice as long as distance between rows).

Female: Similar to male except frons rugose-reticulate, a few minute granules present, setae longer and slightly more numerous in lateral areas.

Distribution: Brazil: Santa Catarina, Nova Teutonia, XII-1955, IV-1956, F. Plaumann.

Notes: The above treatment was based on the male holotype, female allotype, and 2 paratypes of *plaumanni* Schedl. The female allotype of *Cnesinus bituberculatus* Schedl is an incorrectly identified member of this species.

Cnesinus pulchellus Wood, n. sp.

Cnesinus pulchellus Wood: Holotype ♂; 24 km E Barbosa, Antioquia, Colombia; USNM, Washington, designated below

Diagnosis: Closely allied to *beaveri* Wood except pronotum smooth, shining, punctures subcircular; eyes finely faceted, separated above by twice width of an eye; declivital striae 1 and 2 impressed, 2 with a few granules.

Male: Length 1.5–1.6 mm, 2.5 times as long as wide; color almost black. Frons convex above level of antennal insertion, rugose-reticulate on lower two-thirds, reticulate above, a few small, subgranulate punctures below eyes in lateral areas; a few short, stout setae below eyes in lateral areas. Pronotum 1.1 times as long as wide;

sides feebly constricted on posterior half; surface dull on anterior one-third, subshining behind, mostly minutely, longitudinally etched, punctures small, elongate, each about 3–6 times as long as wide; subglabrous except at margins. Elytra 1.6 times as long as wide, 1.6 times as long as pronotum; basal margins of elytra subacutely, moderately elevated; striae weakly impressed, punctures moderately coarse, very close; interstriae weakly convex, slightly more than twice as wide as striae, shining, mostly smooth, minute punctures almost uniseriate except confused on basal half of disc on 2. Declivity convex, very steep; striae 1 moderately impressed, 2 with several granules; vestiture largely confined to erect interstitial bristles on declivity, continued on interstriae 1, 3, and 5 to one-third disc length from base; bristles rather short, widely spaced.

Distribution: Colombia.

Type material: The male holotype was taken 24 km E Barbosa, Antioquia, Colombia, 18-VII-1970, 1200 m, No. 694, *Xelopia*, S.L. Wood; 1 male paratype is from El Bosque, Caicedonia, Valle del Cauca, Colombia, 30-VI-1959, *Coffea arabica* rama seca, J. Restrepo. The holotype and paratype are in the U.S. National Museum, Washington.

Biology: Taken from pith tunnels in small branches.

Cnesinus teres Blandford

Cnesinus teres Blandford, 1896:141. Lectotype ♂; probably Colonia Tovar, Aragua, Venezuela, NHMW, Wien, designated below (References in Wood & Bright c1992:212)

Diagnosis: Distinguished from *pulchellus* Wood by the strongly impressed elytral declivity, with no tubercles on any interstriae on disc or declivity; and by the vestiture on the elytral disc of fine, minute hair, of slender abundant scales on the declivity.

Male: Length 1.2 mm, about 2.7 times as long as wide; color black. Frons convex, lower third with a weak, transverse impression, surface dull, rugose-reticulate, with several minute, shining points (apparently minute granules); vestiture of sparse, short coarse hair on lower half; eyes rather finely faceted, eyes separated above by 3.0 times width of an eye. Pronotum 1.2 times as long as wide, widest near base, almost as wide one-third pronotum length behind anterior margin, sides distinctly constricted between these points; surface smooth, shining, punctures moderately small, rather close, each about 2–4 times as long as wide, confluence rare; glabrous. Elytra about 1.7 times as long as wide, 1.7 times as long as pronotum; basal margins each a continuous costa, with no submarginal crenulations; striae narrowly, abruptly, moderately impressed, punctures on 1 and 2 mostly lost through confluence, 3–8 with normal punctures; interstriae almost three times as wide as striae, shining, surface weakly, transversely wrinkled, punctures minute, abundant, confused. Declivity broadly, rather deeply sulcate from base to apex, abrupt, steep; striae not impressed, punctures distinctly impressed, interstriae 1 and 2

impressed, rising laterally to broadly rounded crest on 4–5, no granules or tubercles on any interstriae on disc or declivity; much of surface concealed by scales. Vestiture on disc of minute, fine, very short hair (each equal in length to less than one-third width of an interstriae), and rather abundant, short scales on declivity, each scale about 3–4 times as long as wide.

Female: Similar to male except frons with median half distinctly convex from epistoma to three-fourths distance to upper level of eyes, inflated area smooth, shining, impunctate, without setae, a few short, stout setae on lateral margin.

Distribution: Colombia to Venezuela.

Colombia: “Colombie, Thozey.”

Venezuela: Colonia Tovar, Aragua (probably near the Moritz home).

Notes: The above treatment was based on the syntype in the Chapuis Collection, IRSNB, Brussels. Four syntypes are in NHMW, Wien. This Chapuis syntype is here designated as the lectotype of *Cnesinus teres* Blandford. Two specimens taken by Moritz at Colonia Tovar are in the BMNH, London.

Cnesinus amplipennis Schedl

Cnesinus amplipennis Schedl, 1963:219. Holotype ♂; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien (References in Wood and Bright c1992:205)

Diagnosis: Rather remotely allied to *alienus* Wood and *dividuus* Schedl, distinguished by the frons being more broadly, more strongly impressed on lower half; by the reticulate elytral interstriae, with interstitial punctures confused; and by the poorly elevated granular basal margins of the elytra.

Male: Length 2.5 mm, 2.35 times as long as wide; color reddish brown. Frons broadly, moderately impressed and shallowly concave on slightly more than lower half, upper area broadly, rather strongly convex; surface reticulate from vertex almost to epistoma; without an epistomal callus, brush of setae, or tubercles; vestiture of fine, moderately abundant, rather short hair uniformly distributed on lower half; lower half with fine, shallow, moderately abundant punctures. Pronotum 1.0 times as long as wide; widest slightly anterior to middle; most of surface finely reticulate; punctures fine, shallow, rather close, elongate, most almost 4 times as long as wide, a few confluent; glabrous. Elytra 1.6 times as long as wide, 1.7 times as long as pronotum; basal margins abrupt, weakly elevated, obscurely subcrenulate; striae not impressed, punctures moderately small, shallowly impressed, shining, those on 1 mostly confluent, others separately impressed; interstriae about three times as wide as striae, surface finely reticulate, punctures minute, confused, rather numerous. Declivity convex, rather steep, occupying about one-third of elytral length; sculpture about as on disc except striae 1–4 feebly impressed, their punctures slightly deeper. Vestiture largely confined to declivity, mostly of uniseriate interstitial rows of bristles and sparse, almost hairlike ground setae.

Distribution: Brazil: Nova Teutonia, Santa Catarina 27°11' B, 52°23' L, VIII-1954, 300–500 m, F. Plaumann; Aracruz, Espiritu Santo, 16-I-1989, 2447.

Notes: The above treatment was based on the male holotype from Brazil and on 6 specimens from Aracruz that are probably this species.

Cnesinus bicinctus Schedl

Cnesinus bicinctus Schedl, 1954:29. Lectotype ♀; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:206)

Diagnosis: Apparently allied to *amplipennis* Schedl, distinguished by the smaller size; by the more extensively, shallowly impressed female frons, with a transverse carina at the upper level of the eyes; and by a small emargination at the apex of the elytral suture, with the apex of the elytra flared upward and bluntly pointed; the male frons is more shallowly impressed and lacks a transverse carina at the upper level of the eyes.

Male: Similar to female except frons different as in above diagnosis.

Female: Length 1.8–1.9 times as long as wide; pronotum almost black, elytra dark reddish brown. Frons moderately, rather broadly, shallowly concave from epistoma three-fourths distance toward upper level of eyes, a low, subacute transverse elevation on median half at upper level of eyes; area above epistoma bearing on median third a feebly developed epistomal callus bearing a dozen or more weakly, laterally compressed, obscurely reddish erect setae; surface above callus subshining, rather closely, finely punctured to and slightly above carina; vestiture (except on callus) of rather abundant hairlike setae of moderate length eye to eye from callus to vertex. Pronotum 1.0 times as long as wide; widest slightly anterior to middle of pronotum length; sides weakly arcuate on middle third, almost straight (diverging slightly) on basal third, broadly rounded in front; surface shining, finely, closely strigose on basal three-fourths, punctures in grooves scarcely evident on median half of strigose area, distinctly impressed on lateral thirds, anterior area obscurely strigose to somewhat finely granulose; vestiture of fine, hairlike, rather short, semirecumbent setae of moderate abundance. Elytra 1.8 times as long as wide, 1.9 times as long as pronotum, slightly wider at base of pronotum; basal margins with a row of very small, close crenulations; disc occupying basal 70 percent of elytra length; striae distinctly, narrowly impressed, punctures rather small, moderately impressed; interstriae about twice as wide as striae, smooth, brightly shining, punctures very small, confused except uniseriate on 1, slightly larger near base of declivity. Declivity steep, broadly convex, posterior outline rather narrowly emarginate at apex of suture, apex of elytra flared slightly upward, each angle bluntly pointed; striae 1 and 2 more narrowly impressed than on disc; interstriae 1–3 narrower than on disc, punctures uniseriate. Vestiture of

rather sparse, recumbent, short ground setae on disc and declivity and uniseriate rows of erect longer interstitial setae mostly on and near declivity.

Distribution: Brazil: Nova Teutonia, Santa Catarina, 27°11'B, 52°23'L, 9-X-1949, 300–500 m, F. Plaumann (holotype, allotype).

Notes: The above treatment was based on the female holotype and male allotype. Labels on these specimens have the sexes reversed.

Cnesinus alienus Wood

Cnesinus alienus Wood, 1974:3. Holotype ♂; 40 km SE Socopo, Barinas, Venezuela; USNM, Washington (References in Wood & Bright c1992:205)

Diagnosis: Basal margins of elytra granular, weakly elevated; middle third of frons on median one-fourth shallowly concave, its lower margin armed by a transverse pair of small tubercles; declivital interstriae 2 rather strongly impressed, wider than 1 or 3, its surface smooth, polished.

Male: Similar to female except frontal tubercles slightly larger.

Female: Length 2.3–2.5 mm, 2.7 times as long as wide; color dark brown, almost black. Frons basically convex, except central third of median one-fourth rather deeply concave, lower margin of concavity (at level of antennal insertion) armed by a transverse pair of widely separated tubercles; surface reticulate, almost rugose, a few small granules in lateral and lower areas; punctures minute, obscure; vestiture of fine, sparse hair. Pronotum 1.2 times as long as wide; surface mostly dull, obscurely reticulate to minutely, longitudinally etched; punctures small, each 2–3 times as long as wide; almost glabrous except on anterior one-fourth. Elytra 1.7 times as long as wide, 1.6 times as long as pronotum; striae weakly impressed, punctures small; interstriae almost three times as wide as striae, almost smooth, shining, punctures almost obsolete. Declivity steep, rather broadly sulcate; striae punctures minute, distinct; sutural interstriae slightly elevated, 2 strongly, broadly impressed, 3 abruptly, distinctly elevated on median side, devoid of granules, with fine uniseriate punctures except slightly confused on 2; vestiture confined to declivity, of interstitial rows of short bristles.

Distribution: Venezuela: 40 km SE Socopo, Barinas, 25-I-1970, 150 m, No. 273, “Bejuco Blanco” (a liana), SLW.

Biology: Pith borers in small stems.

Notes: The above treatment was based on the holotype and allotype.

Cnesinus carbonarius Schedl

Cnesinus carbonarius Schedl, 1952:354. Holotype ♀; Brazil; NHMW, Wien (References in Wood & Bright c1992:206)

Diagnosis: Very similar to *alienus* Wood except distinguished by median line above female frontal concavity rounded, margin below concavity armed by a trans-

verse pair of tubercles; by the coarser, elongate punctures on the pronotum; and by the declivital sculpture.

Female: Length 2.7 mm, 2.9 times as long as wide; color dark reddish brown. Frons as in *alienus* except upper margin of frontal concavity armed by a median tubercle; lower margin of female concavity with several indefinite granules, vestiture shorter, less abundant. Pronotum 1.5 times as long as wide; similar to *alienus* except surface smooth, more brightly shining, punctures smaller, most as wide as long, larger especially on basal one-fourth; glabrous. Elytra 1.9 times as long as wide, 1.4 times as long as pronotum; as in *alienus* except striae less strongly impressed, striae punctures on disc smaller; striae punctures on declivity much larger, lateral convexities subacute.

Distribution: Brazil: “Brasilien, Koelle.”

Notes: The above treatment was based on the female holotype.

Cnesinus reticulus Wood

Cnesinus reticulus Wood, 1974:2. Holotype ♀; Campamento Rio Grande 30 km E Palmar, Bolivar, Venezuela; USNM, Washington (References in Wood & Bright c1992:211)

Diagnosis: Surfaces of head, pronotum, and elytra reticulate; punctures on basal third of pronotum large, close, shallow, those on anterior half much smaller, not as close.

Female: Length 1.9–2.0 mm, 2.5 times as long as wide; color very dark brown. Frons strongly concave from level of antennal insertion to vertex; surface reticulate, obscure, shallow punctures feebly subgranulate; vestiture sparse, fine, short. Pronotum 1.1 times as long as wide, feebly constricted on posterior half; surface reticulate on posterior half, becoming somewhat shagreened anteriorly, punctures very coarse, close, shallow on basal third, much smaller, elongate, more widely spaced on anterior half. Elytra 1.7 times as long as wide, 1.7 times as long as pronotum; bases granular, obscurely subcrenulate; striae abruptly, weakly impressed, punctures confluent, subgranulate; interstriae almost flat, conspicuously reticulate, punctures minute, uniseriate (slightly confused on 2 and 3). Declivity steep, convex; striae and striae punctures obscure, interstriae 2 with a few obscure granules; vestiture restricted to declivity, of rows of erect interstitial bristles, each bristle about as long as two-thirds distance between rows, separated within a row by length of a bristle.

Distribution: Venezuela: Campamento Rio Grande 30 km E Palmar, Bolivar, 12-VI-1970, 200 m, No. 529, *Vismia cayennensis* twigs, SLW.

Notes: The above treatment was based on the holotype and on 1 paratype.

Cnesinus gracilis Blandford

Plate IX

Cnesinus gracilis Blandford, 1896:141. Holotype ♀; Volcan Chiriqui, Chiriqui, Panama; BMNH, London (Synonymy and references in Wood & Bright c1992:208)

Cnesinus substrigatus Blackman, 1943:376. Holotype ♀; Santander, Colombia; USNM, Washington
Cnesinus laetus Schedl, 1978:299. Holotype ♂; Corovado, Guanabara, Brazil; NHMW, Wien (References in Wood & Bright c1992:209).
New synonymy

Diagnosis: Among those species having the frons convex above the level of antennal insertion, this is the only species with a brush of moderately long hair over most of the frontal area.

Male: Similar to female except setae on frons shorter, less numerous, granules at summit of frons larger.

Female: Length 1.8–2.1 mm, 2.7 times as long as wide; color almost black. Frons transversely impressed (flat) on lower area, strongly, broadly convex above level of antennal insertion; surface subshining on impressed area, reticulate-granulate above, a few large granules on upper third; area from near epistoma to near upper level of eyes bearing an abundant brush of often reddish subplumose setae of uniform length, its length equal to about half width of an eye, most conspicuous in central area. Pronotum 1.1 times as long as wide; surface reticulate-granulate on posterior third, becoming rugose-reticulate by anterior fourth; punctures isolated, longitudinally elongate, about twice as wide on posterior fourth as on anterior fourth; subglabrous. Elytra 1.8 times as long as wide, 1.7 times as long as pronotum; striae weakly impressed, punctures confluent on 1, clearly separate on 2–5, small; interstriae almost smooth, shining, about three times as wide as striae, punctures minute, uniseriate except slightly confused on 2 and 3. Declivity steep, broadly convex, somewhat flattened on lower half on interstriae 2–3; striae punctures deeper than on disc; interstriae 2 and 3 with a few granules on upper half; vestiture confined to declivity, of interstitial rows of moderately long, erect bristles, each slightly longer than distance between rows.

Distribution: Honduras to Colombia.

Brazil: Nova Teutonia, 27°11'N, 52°23'W, VII-1972, 300–500 m, F. Plaumann; Corcovado, Guanabara, IX-1969, Alvarenga & Seabra.

Colombia: Santander, Valle del Cauca, 700–1300 m, *Coffea arabica*, R.P. Roba.

Hosts: *Coffea arabica*, *Serjania* sp., etc. (not identified).

Biology: Axial pith tunnels were in stems up to 1 cm in diameter.

Notes: The above treatment was based on 40 specimens from Central America. Blackman identified the Colombian specimen (not seen by me) and on the male holotypes of *substrigatus* Blackman and *laetus* Schedl. The 2 Brazilian females were identified by Schedl incorrectly as of *carbonarius* Schedl; they are both 2.3 mm in length and have the declivital setae a bit more slender than is normal for this species.

Cnesinus minusculus Schedl

Cnesinus minusculus Schedl, 1952:353. Holotype ♀; Guyan. Ven. Mor.; NHMW, Wien (References in Wood & Bright c1992:209)

Diagnosis: Distinguished from *gracilis* Blandford by the absence of shagreening on the anterior parts of the pronotum; by the larger, shorter, more confluent punctures on the pronotum; and by the smaller interstitial punctures.

Female: Length 1.7 mm, 2.6 times as long as wide; color medium brown. Frons as in female *gracilis* except granules slightly larger, more widely, more uniformly scattered; surface almost rugose-reticulate. Pronotum 1.1 times as long as wide; similar to *gracilis* except with no shagreening, surface smooth, shining, punctures larger, oval to almost twice as long as wide, many on posterior half confluent; glabrous. Elytra 1.7 times as long as wide, 1.7 times as long as pronotum; as in *gracilis* except interstitial punctures slightly larger (each about half as large as a striae puncture); disc glabrous. Declivity as in *gracilis* except erect interstitial setae slightly stouter.

Distribution: Venezuela (?): “Guyan. Ven. Mor.” [Handwritten in ink on dark blue-green paper of a kind regularly used by Eichhoff. Possibly it came from the Eichhoff Collection, through Eggers, to Schedl (Wood & Bright c1992:2–3)]. Because it came from Moritz in Venezuela, it could have been taken at Colonia Tovar near the Moritz home.

Notes: The above treatment was based on the female holotype.

Cnesinus acuminatus Schedl

Cnesinus acuminatus Schedl, 1978:298. Holotype ♀; Brasilien, Nova Teutonia, 300–500 m; NHMW, Wien (References in Wood & Bright c1992:205)

Diagnosis: Distinguished from all other species in this genus by the very small size; by the produced sutural apex of the elytra (not exactly acuminate), with the apices of the costal margin and of declivital interstriae 1 distinctly elevated.

Female: Length 1.5 mm, 2.6 times as long as wide; color very dark reddish brown. Frons shallowly, transversely impressed on lower half, convex above; surface minutely reticulate, rather dull; punctures minute, moderately numerous, uniformly distributed; vestiture of minute, inconspicuous hair, longer on epistomal margin. Pronotum 1.0 times as long as wide, widest at middle, anterior margin broadly rounded, sides on basal half weakly constricted; surface shining, moderately, closely, longitudinally strigose, punctures very small, most confluent; hairlike setae short, of fine hair near base, rather coarse on anterior fourth. Elytra 1.6 times as long as wide, 1.7 times as long as pronotum; basal margin elevated into a row of basally contiguous crenulations, about nine weak, submarginal crenulations; striae distinctly, abruptly impressed, punctures rather coarse, most partly confluent, almost obsolete near declivity; interstriae convex, about as wide as striae, each with a row of shallow punctures, partly obscured by wrinkled surface, almost subcrenulate on basal fourth of disc. Declivity confined to posterior third of elytral length, broadly convex, steep,

apex moderately produced; striae narrower than on disc, punctures deeper; interstriae slightly wider than striae except 2, more strongly convex than on disc except 2 on lower half, crests with small, irregular rows of tubercles, lower 1 near apex more strongly elevated and continuing more strongly to apical portion of costal margin (not attenuate as interpreted by Schedl); obscurely emarginate at suture. Ground vestiture of fine, sparse, short hair on disc, coarser and apparently more abundant near and on declivity; clearly defined erect setae not evident although a few longer setae appearing to fill that role.

Distribution: Brazil: Nova Teutonia, Santa Catarina, VII-1975, 300–500 m, F. Plaumann.

Notes: The above treatment was based on the female holotype and on 1 female paratype, both from Brazil.

Cnesinus nitidus Eggers

Cnesinus nitidus Eggers, 1943:376. Lectotype ♂; Bolivia: Cochabamba; USNM, Washington, designated by Anderson & Anderson 1971:22 (References in Wood & Bright c1992:210)

Cnesinus discretus Wood, 1985:271. Holotype ♂; Rancho Grande, Aragua, Venezuela; USNM, Washington (References in Wood & Bright c1992:207). *New synonymy*

Diagnosis: Distinguished from *dividuus* Schedl by the more strongly convex frons, with moderately coarse granules at and below summit; and by the shorter interstitial setae on lateral areas of the elytral declivity.

Male: Length 2.3–2.4 mm, 2.9 times as long as wide; color very dark brown, prothorax almost black. Frons similar to *gracilis* Blandford except convexity begins lower, almost level of antennal insertion. Pronotum about as in *gracilis*. Elytra similar to *gracilis* except discal striae less strongly impressed, particularly 1; interstitial setae on declivity distinctly shorter, finer.

Distribution: Bolivia, Peru, Venezuela.

Bolivia: Cochabamba.

Peru: Almirante, San Martin, 12-XII-1936, 1900 m, F. Woytkowski; Rioja, San Martin, 25-XI-1936, F. Woytkowski.

Venezuela: Rancho Grande, Aragua, 9-IV-1970, 1100 m, No. 414, tree branch, SLW.

Biology: Removed from pith tunnels in twigs.

Notes: The above treatment was based on 3 males, 1 of which I compared to the lectotype of *nitidus* Eggers, a third specimen was the holotype of *discretus* Wood, a synonym.

Cnesinus dividuus Schedl

Cnesinus dividuus Schedl, 1938:22. Lectotype ♀; Buenos Aires, Tigre, Argentina; NHMW, Wien, designated by Wood 1985:267 (Synonymy and references in Wood & Bright c1992:207)

Cnesinus dryographus Schedl, 1951:78. Lectotype ♀; Nova Teutonia, Brazil; NHMW, Wien, designated by Wood 1985:267

Cnesinus laevicollis Schedl, 1951:79. Lectotype ♀; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien, designated by Wood 1985:267

Diagnosis: Distinguished from *nitidus* Eggers by the smaller size; by the absence of granules on the frons;

and by the longer interstitial setae on the elytral declivity.

Male: Similar to female except a few fine granules present at and below summit of frons.

Female: Length 2.0–2.2 mm, 3.1 times as long as wide; color dark brown. Frons similar to *gracilis* Blandford except granules obsolete, setae very short, sparse, inconspicuous as in male. Pronotum similar to *gracilis* except punctures distinctly larger, closer. Elytra as in *gracilis* except basal crenulations slightly higher, striae 1 more strongly impressed; declivital setae much more slender, those on 3–5 conspicuously longer, some twice as long as distance between rows, those on 1 and 2 very slightly longer than distance between rows.

Distribution: Argentina to S Brazil.

Argentina: Buenos Aires, El Tigre.

Brazil: Nova Teutonia, Santa Catarina (27°11', 52°23'), IV-1950, 300–600 m, IV-1956, F. Plaumann; Agudos, Duraflora, Sao Paulo, ethanol trap, 20-XI-1984, *Pinus caribaea*, 25-III-1986, *Pinus oocarpa*, C.A.H. Flechtmann; Bocucatu, S.P., 25-IV-1990, ethanol trap in *Pinus*, *Eucalyptus* area, C.A.H. Flechtmann; MS: Tres Lagoas, CPC, Horto Barra do Moeda, ethanol trap, in *Eucalyptus grandis* stand, C.A.H. Flechtmann; MS: Selviria, UNESP Farm, 6-XI-1992, blacklight trap in *Brachiaria decumbens* pasture, C.A.H. Flechtmann; Telemaco Borba, Parana, 16-XI-2001, Klabin Papel e Cellulose, ethanol trap, *Pinus taeda* stand, C.A.H. Flechtmann.

Hosts: *Acacia nigra*.

Notes: The above treatment was based on 2 specimens from Argentina and 11 from Brazil. I compared 1 female directly to the female lectotypes of *dividuus* Schedl, *dryographus* Schedl, and *laevicollis* Schedl.

Cnesinus reticulatus (Chapuis)

Cnesinus reticulatus (Chapuis), 1869:29 (*Hylesinus*). Holotype ♀; Bogota [Colombia]; IRSNB, Brussels (References in Wood & Bright c1992:211)

Diagnosis: Dorsal margin of female epistomal callus armed by a closely set, transverse pair of tubercles; interstitial punctures numerous, confused; vestiture on pronotum and elytra slender, abundant; pronotum without crenulations.

Female: Length 3.1 mm, 2.6 times as long as wide; color reddish brown. Frons with upper third rather strongly convex, central area almost smooth, shining, lateral areas with confused hair; impressed below, epistomal margin continued as an acutely elevated crest less than half distance to upper level of eyes; epistomal callus smooth, shining, separated from epistomal margin only on lateral thirds by rows of small setiferous punctures, upper margin at median line elevated into a transverse pair of tubercles, upper slope of callus ornamented by a transverse double or triple row of reddish brown setae of uniform length. Pronotum 1.0 times as long as wide; median line subacutely costate on posterior two-thirds; surface coarsely, irregularly strigose, rugae irregular, shining, punctures confluent, not evident; vestiture of

abundant, fine, recumbent hair; coarser on all margins. Elytra 1.8 times as long as wide, 2.1 times as long as pronotum; striae 1 weakly, others not impressed, punctures very close; interstriae three to four times as wide as striae, densely covered by confused punctures, each puncture about half diameter of a strial puncture, surface shining. Declivity steep, broadly convex; striae 1 and 2 more deeply impressed, interstriae 2 distinctly impressed, punctures confused except uniseriate on lower half of 2; vestiture of abundant, fine, recumbent hair, coarser at sides and base of declivity.

Distribution: Colombia to Peru.

Colombia: Bogota.

Peru: Shishmay, Huanuco, 15-20-IX-1937, 3600–4100 m, highland lakes, F. Woytkowski.

Notes: The above treatment was based on the female holotype and on 1 female that I compared to the holotype of *reticulatus* (Chapuis).

Cnesinus excellens Wood, n. sp.

Cnesinus excellens Wood: Holotype ♀; La Rivera, Caicedonia, Valle de Cauca, Colombia; USNM, Washington, designated below

Diagnosis: Pronotum without crenulations; female epistomal callus armed by a median tubercle; eyes separated above by half width of an eye.

Male: Similar to female except epistomal elevation not evident, epistomal setae less conspicuous; setae on elytral declivity slightly longer.

Female: Length 1.7–1.9 mm, 2.9 times as long as wide; color dark brown, pronotum darker. Frons transversely impressed to distinctly above level of antennal insertion, evenly convex above; eyes coarsely faceted, separated above by half width of an eye; upper area of frons almost smooth, shining, glabrous, impunctate, lateral areas with a row of coarse setae at margin of eye almost to upper level of eye; epistomal elevation more than three-fourths as wide as lower frons, narrow (longitudinally), smooth, shining, its upper margin ornamented by a single row of yellowish brown setae of uniform length. Pronotum 1.2 times as long as wide; surface smooth, shining punctures small, isolated (not confluent), each 2–4 times as long as wide; vestiture of sparse, short hair confined to anterior third. Elytra 1.3 times as long as wide, 1.2 times as long as pronotum; basal margins subacutely elevated into a continuous costa, striae distinctly impressed, those on 1 and 2 mostly confluent; interstriae almost twice as wide as striae, weakly convex, smooth, shining, minute punctures uniseriate, glabrous except rows of erect setae sometimes extending to basal fourth on 1 and 3. Declivity steep, convex; striae 1 and 2 rather deeply impressed, interstriae 1–3 narrowly convex, weakly elevated, 2 and 3 with indications of feeble granules; vestiture of uniseriate rows of erect slender bristles, those on 3–5 each twice as long as distance between rows, half as long on 1, intermediate on 2.

Distribution: Colombia (Valle de Cauca).

Type material: The female holotype, male allotype, and 5 paratypes were taken at La Rivera, Caicedonia, Valle del Cauca, Colombia, 18-VI-1959, J. Restrepo. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Hosts: “Guamo verde.”

Biology: “En ramitas.”

Cnesinus elegans Blandford

Cnesinus elegans Blandford, 1896:140. Lectotype ♀; Guatemala: Cerro Zunil; BMNH, London, designated by Wood 1982:226 (References in Wood & Bright c1992:207–208)

Diagnosis: Distinguished by the widely spaced transverse pair of tubercles on the female epistomal callus; by the yellowish epistomal row of setae; and by the uniseriate interstitial punctures.

Male: Similar to female except epistomal callus smaller and without tubercles; declivital impression slightly deeper.

Female: Length 2.4–2.8 mm, 2.9 times as long as wide; color very dark reddish brown, pronotum often almost black. Frons convex on upper half, impressed (transversely flat) below, lateral margins subacute, their dorsal end at ocular situation; epistomal callus poorly formed, armed by transverse pair of moderately spaced, small tubercles; surface minutely reticulate-granulate, fine punctures obscure; vestiture consisting of a row of moderately coarse, rather long setae on upper slope of epistomal callus and on lateral margins to upper level of eyes; eyes separated above by 1.7 times width of an eye. Pronotum 1.17 times as long as wide; setae confined to anterior fourth, surface shining; punctures rather fine, deep, most elongate, at least half confluent with at least 1 other puncture. Elytra 1.9 times as long as wide, 2.0 times as long as pronotum; crenulations on basal margins clearly formed; striae 1 moderately, others weakly impressed, punctures rather small, moderately deep, confluent on 1; interstriae 1 and 2 slightly wider than striae, 3 and 4 twice as wide as striae, surface almost smooth, minute punctures uniseriate except moderately confused on 2 and 3, with rows of fine granules near declivity. Declivity convex, steep, slightly impressed between interstriae 3; striae 1 moderately impressed, interstriae 1 weakly convex, 3 and 4 each with a row of fine granules; interstitial vestiture confined to declivity except sparse on 1 and 3 to middle of disc, a few supplemental, shorter setae on declivity, each bristle slightly longer than distance between rows.

Distribution: Mexico (Veracruz) to Colombia (?) and Venezuela. The South American specimens reported by Schedl (1940:331), were not seen by me.

Colombia: Santander (Blackman 1943:376).

Brazil: Nova Teutonia, Santa Catarina 27°11'N, 52°23'W, VI-1972, F. Plaumann.

Hosts: *Arbutus*, *Rubus*, *Serjania* (not identified to species).

Biology: Taken from pith tunnels in twigs.

Notes: The above treatment was based on 41 specimens from Mexico to Honduras, some of which I compared to the holotype.

Cnesinus colombianus Wood

Plate VIII

Cnesinus colombianus Wood, 1967:84. Holotype ♀; El Bosque, Caicedonia, Valle del Cauca, Colombia; USNM, Washington (References in Wood & Bright c1992:206)

Diagnosis: Distinguished by the absence of pronotal crenulations; by the presence of numerous, confused interstitial punctures; by the larger size; and by the different female epistomal elevation.

Male: Similar to female except epistomal callus poorly formed, brush much smaller, yellowish.

Female: Length 2.8–3.0 mm, 2.3 times as long as wide; color dark reddish brown. Frons with upper half to just above eyes smooth, shining, a few minute punctures in lateral areas; lower half transversely impressed, lateral margins acute; epistomal callus with lower margin marked by a row of setiferous punctures except absent on median one-fifth, upper margin and impressed area bearing a large brush of reddish brown setae of uniform length; vertex punctate-rugose, transition to smooth frontal area abrupt; eyes rather widely separated above. Pronotum 0.95 times as long as wide; resembling *elegans* except median half on posterior two-thirds coarsely, deeply strigose. Elytra 1.5 times as long as wide, 1.7 times as long as pronotum; striae narrowly, moderately impressed, punctures small, distinct, close, not confluent; interstriae about twice as wide as striae, smooth, shining, punctures rather small, abundant, confused; glabrous. Declivity convex, rather steep, feebly impressed on interstriae 2; striae 1 and 2 more deeply impressed, interstitial punctures more nearly uniseriate; glabrous except at sides.

Distribution: Colombia: El Bosque, Caicedonia, Valle del Cauca, 23-VI-1959, matapalos, J. Restrepo.

Notes: The above treatment was based on the type series of 26 specimens. In the original description of this species the sexes were reversed.

Cnesinus pusillus Schedl

Cnesinus pusillus Schedl, 1948:267. Holotype ♀; Blumenau, Brazil; NHMW, Wien (References in Wood & Bright c1992:211)

Diagnosis: Distinguished by the striae and interstitial rugose-reticulate to densely micropunctured surfaces; by the conspicuous rows of small, striae punctures; and by the small size.

Male: A male, presumed to be this species (Nova Teutonia, in Eberswalde collection), has the discal interstriae smooth, shining; epistomal callus reduced, brush yellowish, with one row of setae.

Female: Length 1.7 mm, 2.5 times as long as wide; color dark reddish brown. Frons with epistomal callus broad, short, brush on its upper slope rather large,

about 3–5 ranks deep; transverse impression restricted to lower half, large, central, shining, impunctate area extending to upper level of eyes, a sparse brush of long setae at sides and above. Pronotum 1.0 times as long as wide; surface shining, finely, rather closely strigose on anterior two-thirds, more coarsely on basal third; vestiture of fine, moderately abundant, rather short hair. Elytra 1.6 times as long as wide, 1.8 times as long as pronotum; bases of elytra almost with a continuous costa, crenulations obscure; striae distinctly impressed, punctures obscure, lost through confluence, surface rugose-reticulate; interstriae distinctly wider than striae, with dense micropunctures (rugose-reticulate in some areas), punctures fine, uniseriate. Declivity broadly convex, rather steep; striae 1 to 3 less strongly impressed than on disc, punctures deeply impressed, much larger; interstriae 1 to 3 weakly, about equally convex, each with a uniseriate row of punctures to apex. Vestiture mostly on declivity except extending to base on interstriae 1; on declivity consisting of rows of fine, short striae hair and, on interstriae of a few fine, short ground setae and rows of closely placed erect bristles, each bristle as long as distance between rows, separated within a row by about half that distance.

Distribution: Brazil: Blumenau (Santa Catarina).

Notes: The above treatment was based on the female holotype and on 1 female paratype.

Cnesinus gibbus (Chapuis)

Cnesinus gibbus (Chapuis), 1869:28 (*Nemophilus*). Holotype ♀; Cumana [Venezuela]; IRSNB, Brussels (References in Wood & Bright c1992:208)

Diagnosis: Distinguished from *sulcatus* Eggers by the visible declivital striae 1 and 2, with interstriae 2 strongly narrowed (but present) and devoid of setae.

Female: Length 2.4 mm, 2.5 times as long as wide; color dark reddish brown. Frons apparently similar to *sulcatus* except epistomal callus wider (head detached, partly obscured by glue and resin). Pronotum 1.02 times as long as wide; moderately strigose on anterior third, rather coarsely strigose on middle third (crests narrower than grooves), crests shorter on posterior third, some grooves short enough to resemble punctures; sparse setae on margins. Elytra 1.6 times as long as wide, 1.8 times as long as pronotum; rather coarse submarginal crenulations at bases of interstriae 2–5; striae weakly impressed, punctures rather coarse, moderately deep, not confluent; interstriae about twice as wide as striae, smooth, shining, somewhat wrinkled, punctures small, modestly confused on 2–5, no granules. Declivity broadly convex, steep; striae at base more strongly impressed than on disc, punctures confluent, obscurely visible to apex; interstriae 1 narrower, feebly elevated, with punctures to apex, 2 equally narrow on upper half, obsolete on lower third, with uniseriate punctures on basal half, with setae on basal third, middle third very weak, without

punctures or setae. Vestiture on disc mostly lost through abraisment, stout interstitial setae confused on interstriae 3–5, uniseriate on 1, each about two-thirds as long as distance between rows; setae almost scalelike on declivity (each about 5 times as long as wide), apparently confused on basal third on 2–6, apparently uniseriate below (most lost through abraisment).

Distribution: Venezuela: Cumana, Deyrolle.

Notes: The above treatment was based on the female holotype.

Cnesinus bispinatus Schedl

Cnesinus bispinatus Schedl, 1976:62. Holotype ♂; "Alte sammlung Brasilien"; NHMW, Wien (References in Wood & Bright c1992:206)

Diagnosis: This species is not in the above key. Because only the male holotype is known, the exact position of this species in classification is not clear. It appears to be most closely allied to *gibbus* (Chapuis) among known species. It is distinguished from all other known members of this genus by the pair of spines that project from the apices of the elytra.

Male: Length 1.7–1.9 mm, 2.7 times as long as wide; color dark reddish brown, pronotum darker. Frons moderately, transversely impressed on lower half; epistomal callus obscure to absent, a row of setae associated with callus not evident; upper half of frons rather strongly convex, reticulate, impunctate and glabrous on median half; vestiture moderately long, coarse, about evenly distributed on lower half and on lateral areas above; both antennae missing from type. Pronotum 1.1 times as long as wide, widest slightly in front of middle; surface shining, longitudinally strigose, punctures rather coarse, deep, mostly confluent, ridges half as wide as punctures; vestiture on basal third short, fine, longer and coarser anteriorly. Elytra 1.7 times as long as wide, 1.8 times as long as pronotum; basal margins armed by a row of low crenulations; striae narrowly, abruptly, moderately impressed, punctures small, rather obscure, mostly confluent; interstriae smooth, shining, almost twice as wide as striae, punctures uniseriate, shallow, rather large. Declivity broadly convex, rather steep; striae slightly deeper than on disc, interstriae narrower than on disc, each armed by a row of 10 or more small, pointed denticles; apex at suture prolonged into a conspicuous, tapered spine longer than its basal width. Vestiture confined to declivity, consisting of rows of minute, fine strial hair, and interstitial rows of erect, distinctly flattened bristles, each bristle equal in length to distance between rows; disc with very short, fine, minute interstitial hair.

Distribution: Brazil: "Alte sammlung Brasilien"; Agudos, Sao Paulo, 14-X-1986, Duraflora, SA, ethanol trap, *Pinus oocarpa* stand, C.A.H. Flechtmann; Code 090, R.A. Beaver (presumably in Mato Grosso).

Notes: The above treatment was based on the holotype, apparently a male, and on 2 other males.

Cnesinus foratus Wood

Cnesinus foratus Wood, 1967:81. Holotype ♀; El Bosque, Caicedonia, Valle del Cauca, Colombia; USNM, Washington (References in Wood & Bright c1992:208)

Diagnosis: Distinguished by the more coarsely strigose pronotum which is almost equal in length and width; by the uniseriate interstitial punctures, with setae extending to base on interstriae 2 and 4.

Male: Similar to female except epistomal callus more poorly formed, setae on upper slope less numerous, yellowish.

Female: Length 2.0–2.1 mm, 2.4 times as long as wide; color dark brown. Frons convex above level of ocular sinuation, obscurely subreticulate, impunctate, strongly, transversely impressed below; epistomal callus smooth, shining, its lower margin marked by a row of very small setiferous punctures almost to median line, upper slope ornamented by a double row of reddish brown setae of moderate length, lateral margins subacute to above level of antennal insertion; eyes separated above by twice width of an eye. Pronotum 1.04 times as long as wide; surface coarsely, shallowly punctured, almost all punctures longitudinally confluent, ridges occupying less than one-third of surface; vestiture restricted to margins (extending to base in some specimens), coarse, rather short, sparse. Elytra 1.6 times as long as wide, 1.7 times as long as pronotum; striae impressed, punctures on 1 and 2 entirely confluent, others subconfluent but distinct; interstriae slightly wider than striae, shining, almost smooth, fine punctures irregular, almost uniseriate. Declivity convex, steep; weakly impressed at striae 2, a few minute granules on interstriae 1–4; vestiture of erect interstitial bristles (a few shorter supplemental interstitial setae on declivity), bristles extend almost to base on 1 and 2, others to middle of disc; bristles rather stout, equal in length to distance between rows, spaced within a row by length of a bristle.

Distribution: Colombia: El Bosque, Caicedonia, Valle del Cauca, 23-VI-1959, matapalos, J. Restrepo.

Hosts: "En matapalos y ramas de cafe."

Biology: In pith tunnels of twigs and small branches.

Notes: The above treatment was based on the type series of 17 specimens and on 4 other specimens. The holotype is a female, not a male as originally stated.

Cnesinus deperditus Wood

Cnesinus deperditus Wood, 1974:4. Holotype ♀; Piedras Blancas, 10 km E Medellin, Antioquia, Colombia; USNM, Washington (References in Wood & Bright c1992:207)

Diagnosis: Distinguished from *foratus* Wood by the larger size; by the very different epistomal callus and brush; and by the more slender body form.

Female: Length 2.5–2.7 mm, 2.65 times as long as wide; color dark reddish brown. Frons similar to *foratus* except upper area uniformly more strongly reticulate, epistomal callus with gap in row of punctures at lower

margin larger, equal to almost one-fifth width of lower frons, epistomal brush on upper slope of callus more extensive (about 4 rows of setae). Pronotum 1.1 times as long as wide; median line subcarinate on posterior two-thirds; surface more finely strigose, ridges narrower, less extensive. Elytra 1.9 times as long as wide, 2.1 times as long as pronotum; striae deeply, abruptly impressed; punctures confluent; interstriae twice as wide as striae, obscurely rugulose, fine punctures uniseriate on 1, moderately confused on 2–4. Declivity convex, steep; resembling *foratus*; vestiture of erect bristles extending to base on all interstriae, moderate supplemental setae on declivity; bristles more slender than in *foratus*, slightly shorter, closer within a row.

Distribution: Colombia: Piedras Blancas 10 km E Medellin, Antioquia, 15-VII-1970, 2500 m, No. 685, *Quercus humboldtii*, SLW.

Biology: Taken from pith tunnels in twigs.

Notes: The above treatment was based on the type series of 2 females.

Cnesinus schoenherri Schedl

Cnesinus schoenherri Schedl, 1976:63. Holotype ♀; Brasilien, Rio Negrinho; NHMW, Wien (References in Wood & Bright c1992:211)

Diagnosis: Distinguished from *sulcatus* Eggers by the smaller size; by the obsolete striae; and by details of sculpture on the elytral declivity.

Female: Length 3.0–3.2 mm, 2.5 times as long as wide; color dark reddish brown. Frons with epistomal callus smooth, shining, rather weakly developed, reddish brown brush on its upper slope broad, of about 3 ranks of setae; frontal impression extending from brush six-sevenths of distance to upper level of eyes, rather strongly concave, its lateral and dorsal margins ornamented by long, rather abundant setae, floor of concavity dull, almost glabrous. Pronotum 0.96 times as long as wide; surface closely, longitudinally strigose, punctures not evident, sulci and crests unusually long; almost glabrous. Elytra 1.8 times as long as wide, 2.0 times as long as pronotum; striae 1 and 2 not impressed, 3–9 weakly impressed, punctures minute, shallow, interstriae smooth shining, punctures minute, not close, confused. Declivity rather steep, moderately sulcate between left and right striae 3; striae 1 and 2 flat, smooth, shining, punctures obsolete, 3 moderately elevated and costate from base to apex, 4 to 9 moderately convex before apex. Vestiture on disc small to minute, longer toward declivity; declivital interstriae 3–9 each with a row of moderately long, slender bristles.

Distribution: Brazil: Rio Negrinho, Santa Catarina, III-1972, B48, J. Schoenherr; Monte Alegre, Para, 18-VII-1997, ethanol trap, C.A.H. Flechtmann; Telemaco (Sao Paulo?), 20-XII-1996, ethanol trap, *Pinus taeda* stand, C.A.H. Flechtmann.

Notes: The above treatment was based on the female holotype and on 1 female paratype.

Cnesinus sulcatus Eggers

Cnesinus sulcatus Eggers, 1931:34. Holotype, sex?; Sao Paulo (Brasil); NMPC, Prague (References in Wood & Bright c1992:212)

Cnesinus novateutonicus Schedl, 1951:77. Lectotype ♀; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien, present designation (References in Wood & Bright c1992:210). *New synonymy*

Diagnosis: Distinguished from *schoenherri* Schedl by the smaller size; by the weakly elevated and punctured declivital interstriae 1; by the more strongly elevated epistomal callus; and by other characters described below.

Male: Similar to female except epistomal brush reduced to about a 2-ranked row of yellowish setae, other frontal setae shorter, half as numerous; elytral setae apparently finer, slightly longer.

Female: Length 2.0–2.3 mm, 2.3 times as long as wide; color dark reddish brown. Frons with epistomal callus smooth, shining on median one-third, brush on its upper slope about 3-ranked, broad, moderate, transverse impression on slightly more than lower half of area below upper level of eyes, smooth, shining, impunctate area extending from upper margin of eyes to deepest part of impression, lateral and upper margins with a sparse fringe of rather short setae. Pronotum 1.03 times as long as wide; surface shining, rather coarsely, longitudinally strigose, grooves moderately long; vestiture short, hair-like, moderately abundant. Elytra 1.7 times as long as wide, 1.8 times as long as pronotum; striae abruptly, slightly impressed, often mostly reticulate-granulate, punctures obscure to obsolete in some specimens; interstriae slightly wider than striae, smooth, shining, punctures moderately coarse, close, confused. Declivity rather steep, shallowly bisulcate; interstriae 1 weakly elevated, with a central row of punctures to apex, striae 1 and 2 and interstriae 2 flat, forming a smooth polished, impressed surface with a few fine punctures (evidently derived from interstriae 2); interstriae 3 rather strongly, narrowly elevated on a continuous costa from base to apex, 3–9 weakly convex, each with a row of punctures. Vestiture on disc of short, sparse, fine hair, longer toward and on declivity, in uniseriate rows on declivital interstriae except absent on 2.

Distribution: Brazil: Parana, Bocaiuva, 25°08' B, 49°04' L, 1000 m; Sao Paulo, Mraz lgt., Mur. Pregenae; Nova Teutonia, Santa Catarina, 20-V-1935, II-1937, 16-V-1949, VIII-1966, VIII-1978, F. Plaumann; Aguidos, Duraflora, S.P., 2-IX-1986, ethanol trap, *Pinus oocarpa* stand, C.A.H. Flechtmann, also 4-IX-1986, *P. c. caribaeae* trap; Telemaco Borba, 21-X-2000, 12-I-2001, 10-XI-2000, 23-II-2001, ethanol trap, *Pinus taeda* stand, C.A.H. Flechtmann.

Hosts: *Canella* sp.

Notes: The above treatment was based on 2 female cotypes of *sulcatus*, on the female labeled by Schedl as the “holotype” of *C. novateutonicus* Schedl, and on 4 other specimens in the Schedl series and 2 males and 1 female from Brazil. Because *C. novateutonicus* Schedl was based on a syntypic series, Schedl’s subsequent

designation of a holotype was invalid. That "holotype" is here designated as the lectotype of *C. novateutonicus* Schedl, a junior synonym of *sulcatus*.

Cnesinus grandis Schedl

Cnesinus grandis Schedl, 1935:273. Holotype ♀; Brazil; NHMW, Wien (References in Wood & Bright c1992:209)

Diagnosis: This species is distinguished from other members of the genus by the large size; by the replacement of punctures by rounded tubercles on the basal median half of the pronotum; and by the rugose-reticulate discal striae that have no punctures.

Female: Length 3.7 mm, 2.5 times as long as wide; color dark reddish brown. Frons broadly convex above, rather strongly, transversely impressed on lower half; epistomal callus broad, short (longitudinally), smooth, brightly shining, its dorsal slope ornamented by a reddish brown brush (about three ranks) of laterally compressed setae of uniform length; from deepest point of impression a one-fourth circle smooth, shining, glabrous convexity extends dorsad to distinctly above upper level of eyes, area below this convex area dull, with a few minute punctures and short, sparse setae; transition above eyes abrupt from shining area to vertex, rugose-reticulate above. Pronotum 1.0 times as long as wide; sides on basal two-thirds straight, diverging slightly cephalad; anterior half and lateral fourths of surface with fine, shallow, mostly confluent punctures, areas within punctures strongly reticulate, between punctures smooth, shining; median half on basal half coarsely reticulate, with rounded, shining granules of irregular shape; vestiture of moderately abundant, long, very fine hair (apparently shorter in lateral areas). Elytra 1.7 times as long as wide, 1.8 times as long as pronotum; striae distinctly impressed, punctures entirely obsolete, surface rugose-reticulate from base to base of declivity; interstriae slightly wider than striae, smooth, shining, with fine, dense, confused punctures. Declivity broadly convex, shallowly sulcate below, rather steep; striae smooth, shining, punctures very small, rather deep, not easily distinguished from those of interstriae. Vestiture of fine hair, moderately long on disc, longer, coarser, and mostly in uniseriate rows on declivity. Visible sternum 5 with a moderately large, deep concavity near its center.

Distribution: Brazil: "Brasilien."

Notes: The above treatment was based on the female holotype.

Cnesinus schulzi Wood, n. sp.

Cnesinus schulzi Wood: Holotype ♂; Jodensavanne Kamp 8, Suriname; USNM, Washington, designated below

Diagnosis: Distinguished by the small size; by the coarse, slightly elongate (not at all strigose) punctures on the basal half of the pronotum, punctures much smaller anteriorly; and by the uniseriate interstitial bristles on the declivity.

Male: Length 1.8 mm, 2.4 times as long as wide; color dark reddish brown, pronotum darker. Frons covered by glue, apparently similar to male *foratus*. Pronotum 1.04 times as long as wide; basal third rather coarsely punctured, punctures moderately deep, separate, mostly less than twice as long as wide, half as large and more elongate before attaining anterior third; surface smooth, shining on basal half, dull anteriorly; a few stout setae on anterior fourth. Elytra 1.5 times as long as wide, 1.5 times as long as pronotum; basal margins subacutely elevated; striae modestly impressed, punctures rather coarse, subconfluent; interstriae about as wide as striae, almost smooth, shining, fine punctures uniseriate. Declivity convex, steep; striae 1 and 2 distinctly impressed, punctures reduced in size, interstriae without granules; vestiture of rows of interstitial bristles, restricted to declivity except on 1 and 3 extending almost to base.

Distribution: Suriname.

Type material: The male holotype was labeled Craigthorp 1961, Jodensavanne, Kamp 8 [Suriname], lectv., Schulz, 58. The holotype is in the USNM, Washington.

Cnesinus bicolor Eggers

Cnesinus bicolor Eggers, 1943:376. Holotype ♀; Cochabamba, Bolivia; USNM, Washington (References in Wood & Bright c1992:206)

Diagnosis: Distinguished by the slender form; by the fine, long, hairlike interstitial setae; by the non-strigose pronotal setae; and by the distinctive female epistomal elevation.

Male: Similar to female except epistomal elevation smaller, poorly defined, its upper slope with one row of setae.

Female: Length 2.5–2.7 mm, 2.7 times as long as wide; color reddish brown. Frons somewhat resembling *foratus* Wood, epistomal elevation rather large, smooth, shining, lower margin not sharply defined, short row of fine punctures on lateral thirds, shining area separate from margin, median third not separated from epistomal lobe, upper margin of callus sharply, obtusely defined, reddish brown band of setae on epistoma 2-ranked, as wide as elevated area. Pronotum 1.1 times as long as wide; surface smooth, shining, small punctures separate, rarely confluent, each about twice as long as wide near base, up to 4 times as long as wide on anterior half; margins with long, slender setae. Elytra 1.8 times as long as wide, 1.9 times as long as pronotum; basal margins with low crenulations; striae 1 moderately, others weakly impressed, punctures distinct, spaced within a row by diameter of a puncture; interstriae twice as wide as striae, surface smooth, shining, small punctures of irregular size, almost uniseriate. Declivity convex, steep, shallowly impressed between left and right interstriae 3; striae 1 impressed, punctures not evident; interstriae without granules; vestiture of interstitial rows of fine, long, hairlike setae, each one and one-half times as long

as distance between rows, spaced within a row by half length of a seta.

Distribution: Bolivia to Peru.

Bolivia: Cochabamba.

Peru: Shishmay, Dep. Huanuco, 15-20-IX-1937, 3600–4100 m, highland, F. Woytkowski.

Notes: The above treatment was based on 1 female that I compared directly to the holotype, and 1 on male.

Cnesinus fulgens Wood

Cnesinus fulgens Wood, 1974:4. Holotype ♂; La Carbonera Experimental Forest, 50 km airline NW Merida, Merida, Venezuela; USNM, Washington (References in Wood & Bright c1992:208)

Diagnosis: Distinguished from *bisulcatus* Schedl by the slightly larger punctures on the slightly reticulate pronotum; by the more deeply impressed discal striae; and by the shorter elytral setae.

Male: Similar to female except epistomal callus and brush smaller, more poorly developed; upper frons finely reticulate.

Female: Length 2.5–2.9 mm, 2.7 times as long as wide; color reddish brown. As in *bisulcatus* except: frontal callus wider; larger; upper frons smooth, shining; pronotum obscurely reticulate on basal third, punctures distinctly larger; all striae more distinctly impressed; declivital interstitial setae distinctly shorter (very slightly longer than distance between rows).

Distribution: Venezuela: La Carbonera Experimental forest 50 km NW Merida, Merida, 14-XI-1969, 2500 m, No. 136, *Rubus*, SLW; La Mucuy Experimental Forest, 20 km NE Merida, Merida, 22-XII-1969, 2500 m, No. 205, *Rubus*, SLW.

Biology: Taken from pith tunnels in small stems.

Notes: The above treatment was based on the type series of 59 specimens.

Cnesinus bituberculatus Schedl

Cnesinus bituberculatus Schedl, 1966:102. Holotype ♀; Brasilien, Nova Teutonia; NHMW, Wien (References in Wood & Bright c1992:206)

Diagnosis: Distinguished from *bisulcatus* Schedl by the smaller size; by the oval, non-strigose punctures on the pronotum; by the narrower epistomal callus, with the lower margin more strongly procurved.

Female: Length 2.1 mm, 2.6 times as long as wide; color dark reddish brown. Frons resembling *bisulcatus* except epistomal brush less extensive, smooth area on callus less dull, narrower, lower margin more strongly procurved. Pronotum with punctures oval, usually not strigose, less numerous. Striae less strongly impressed, punctures slightly larger. Declivital interstitial striae 1 subglabrous, 2 and 3 each with a row of very closely set, course bristles inclined toward suture in both species.

Distribution: Brazil: Rondon, Parana, 2-X-1952, F. Plaumann.

Notes: The above treatment was based on the female holotype of *C. bituberculatus* Schedl. Schedl incorrectly

labeled the holotype as a male. It is a female. Schedl's "allotype" is an incorrectly identified specimen of *C. plaumanni* Schedl.

Cnesinus bisulcatus Schedl

Cnesinus bisulcatus Schedl, 1948:266. Holotype ♀; Colombia; NHMW, Wien (References in Wood & Bright c1992:206)

Diagnosis: Female epistomal callus narrower (transversely), only its lower fourth smooth and shining; interstitial setae very slender, striae setae on declivity small, conspicuous.

Male: Similar to female except epistomal callus poorly formed.

Female: Length 2.4–2.7 mm, 2.7 times as long as wide; color brown. Upper frons with eyes spaced above by 1.5 times width of an eye; lower margin of epistomal callus usually abrupt, median unpunctured space in row of setiferous punctures at its lower margin equal to about one-eighth width of lower frons, brush on upper slope rather small, setae about 4-ranked; upper area strongly reticulate; lateral vestiture sparse. Pronotum 1.1 times as long as wide; punctures small, close, each about twice as long as wide on basal fourth, four times as long as wide on anterior third, few confluent near base, half confluent on anterior third; vestiture of fine, short hair on anterior fourth, a few setae on lateral margins. Elytra 1.8 times as long as wide, 2.0 times as long as pronotum; basal margins with feeble crenulations indicated; interstitial striae 1 moderately, others very weakly impressed, punctures small, distinct, close; interstitial striae 2–3 times as wide as striae, surface almost smooth, shining, fine punctures almost uniseriate except moderately confused on 2 and 3 in some specimens. Declivity convex, steep; striae 1–3 moderately impressed, punctures obscure to obsolete on 1, interstitial striae 1–3 convex, 3 slightly higher; vestiture absent on lower half or more of interstitial striae 1, longest on 2–4, slender, longest setae twice as long as distance between rows and between setae within a row, recumbent striae setae present on declivity very fine, short, up to half length of erect bristles; some erect bristles extend to or beyond middle of disc on some interstitial striae.

Distribution: Colombia to Venezuela.

Colombia: Exact locality not given.

Venezuela: Colonia Tovar, Aragua, 4-IV-1970, 1700 m, No. 505, Bignoniaceae liana, No. 509, cut tree seedlings, SLW.

Biology: Taken from pith tunnels in small twigs.

Notes: The above treatment was based on 16 specimens; 1 female of which I compared directly to the holotype.

Cnesinus meris Wood

Cnesinus meris Wood, 1982:226. Holotype ♀; La Cumbre, Valle de Cauca, Colombia; USNM, Washington (References in Wood & Bright c1992:209)

Diagnosis: Smooth, shining area on epistomal callus large, brush on its upper slope smaller; lateral thirds of

pronotum longitudinally microstrigose (longitudinally etched reticulation); lower half of declivital interstriae 1 without setae.

Male: Similar to female except epistomal callus and brush smaller, more poorly formed.

Female: Length 2.2–2.5 mm, 2.7 times as long as wide; color very dark brown, pronotum darker. Frons with eyes spaced above by 1.1 times width of an eye; frons on upper half smooth, shining, with a few minute punctures; epistomal callus somewhat resembling *bisulcatus* Schedl, its lower margin abrupt, shining area triangular, twice as wide as high, brush on its upper slope small, about three ranks deep. Pronotum 1.1 times as long as wide; punctures small, rather close, on basal fourth each twice as long as wide, 4 times as long as wide on anterior third; surface of lateral thirds and anterior third longitudinally microstrigose; glabrous. Elytra 1.8 times as long as wide, 1.8 times as long as pronotum; basal margins slightly elevated into a continuous costa; striae narrowly, distinctly impressed, punctures small, close, some confluence; interstriae smooth, shining, almost three times as wide as striae. Declivity convex, steep; striae 1–3 impressed, punctures larger than on disc; interstriae 1–3 modestly convex, smooth, shining, each with a row of small punctures, no granules; erect interstitial setae restricted to declivity, each somewhat stout, about as long as distance between rows, spaced within a row by half this distance; striae hair distinct, inconspicuous.

Distribution: Colombia: La Cumbre, Valle del Cauca, 3-VI-1959, en cafe, N. Munoz; El Pino, Valle del Cauca, en cafe, I. Parra.

Hosts: *Coffea arabica*.

Notes: The above treatment was based on the type series of 14 specimens.

Cnesinus fulgidus Wood

Cnesinus fulgidus Wood, 1974:5. Holotype ♂; Piedras Blancas 10 km E Medellin, Antioquia, Colombia; USNM, Washington (References in Wood & Bright c1992:208)

Diagnosis: Distinguished from *triangularis* Wood by the female frontal callus half as wide as lower frons, smooth area wider than long; by the smooth, shining pronotum over the basal three-fourths; and by the host.

Male: Similar to female except epistomal callus and brush smaller, more poorly formed.

Female: Length 2.3–2.5 mm, 2.6 times as long as wide; color brown, pronotum darker. Frons similar to *meris* Wood except shining area on female epistomal callus 3 times as wide (transversely) as long. Pronotum 1.1 times as long as wide, with punctures very small, each slightly longer than wide on basal fourth, twice as long as wide on anterior third, not close; surface smooth, shining, almost glabrous. Elytra 1.8 times as long as wide, 1.7 times as long as pronotum; striae 1 moderately, others weakly impressed, punctures small, close, distinct; interstriae about three times as wide as striae, surface almost

smooth, shining, minute punctures uniseriate. Declivity convex, smooth, moderately impressed between left and right interstriae 3, striae 1 narrowly impressed, punctures mostly obsolete, 2 not impressed, punctures distinct; interstriae 3 narrowly convex with obscure granules on crest, vestiture confined to declivity, fine, sparse mostly rubbed off, absent on interstriae 1 and 2.

Distribution: Colombia: Piedras Blancas 10 km E Medellin, Antioquia, 15-VII-1970, 2500 m, No. 685, *Quercus humboldtii*, SLW.

Biology: Taken from pith tunnels in small twigs.

Notes: The above treatment was based on the type series of 57 specimens.

Cnesinus triangularis Wood

Cnesinus triangularis Wood, 1974:5. Holotype ♀; Piedras Blancas 10 km E Medellin, Antioquia, Colombia; USNM, Washington (References in Wood & Bright c1992:212)

Diagnosis: Female epistomal callus narrow, less than half as wide as lower frons, shining area triangular, as high as wide.

Male: Similar to female except epistomal callus and brush reduced in size, poorly formed.

Female: Length 2.1–2.5 mm, 2.7 times as long as wide; color very dark brown, almost black. Frons similar to *fulgidus* Wood except smooth, shining part of epistomal callus occupying median third, triangular, as high as wide. Pronotum 1.13 times as long as wide; surface smooth, shining; punctures separate on basal fourth, each about twice as long as wide, on anterior half 2 or more often confluent, each about 4 times as long as wide; vestiture of fine, short hair on anterior third. Elytra 2.0 times as long as wide, 2.05 times as long as pronotum; basal margins armed by very small, feeble crenulations; striae 1 moderately, others weakly impressed, punctures on 1 partly confluent, separate on others; interstriae almost smooth, brightly shining, punctures very small, mostly uniseriate (some slightly confused on basal half). Declivity convex, steep, moderately impressed between left and right interstriae 3; striae 1 and 2 impressed, their punctures mostly obsolete; interstriae each with a row of fine punctures; vestiture of rows of slender interstitial bristles mostly on declivity, absent on lower half of 1, extending almost to base on 1, a few on 2–4; longest bristles on 2–4, each slightly longer than distance between rows, spaced within a row by half that distance; minute striae setae present on declivity.

Distribution: Colombia: Piedras Blancas 10 km E Medellin, Antioquia, 15-VII-1970, 2500 m, No. 656, from twigs of “Uvo de Monte” shrub, SLW.

Biology: Taken from pith tunnels in twigs.

Notes: The above treatment was based on the type series of 90 specimens.

Cnesinus squamifer Wood, n. sp.

Cnesinus squamifer Wood: Holotype ♂; San Pedro de Colalao, Tucuman, Argentina; USNM, Washington, designated below

Diagnosis: This species is distinguished from all other members of the genus by the dense covering of large, broad, pale scales on both pronotum and elytra; anterolateral area of pronotum armed by a row of 6 crenulations; sutural apex slightly divaricate; frontal impression weakest in this genus.

Male (?): Length 2.2 mm, 2.7 times as long as wide, color brown, scales pale. Frons with lower half very shallowly impressed (transversely flat), epistomal callus poorly formed, its upper slope marked by only 1 row of reddish brown setae; upper half convex, smooth, impunctate as in most species of this genus. Pronotum 1.06 times as long as wide; anterolateral areas each armed by an almost longitudinal row of 6 crenulations; surface obscured by recumbent setae, apparently rather closely, coarsely, deeply punctured; surface covered by ground cover of oval scales, each slightly longer than wide, and less abundant, short, stout recumbent bristles each about 6–8 times as long as wide. Elytra 1.8 times as long as wide, 2.0 times as long as pronotum; basal margins each armed by a row of about 11 rather coarse crenulations; striae narrowly, distinctly impressed, small punctures distinct, not confluent; interstriae covered by ground cover of rather large, oval, recumbent scales, each slightly longer than wide; each interstriae with a central row of small setiferous tubercles, each bearing a stout, erect bristle (about 8 times as long as wide), equal in length to two-thirds of distance between rows, spaced within a row by 1–3 times length of a bristle. Declivity convex, rather steep; somewhat flattened between left and right interstriae 3, 2 slightly impressed; sutural apex distinctly emarginate, apices of elytra distinctly divaricate (reminiscent of *squamosus*, but apparently unrelated).

Distribution: Argentina.

Type material: The male holotype was taken at San Pedro de Colalao, Tucuman, Argentina, 21-IV to 13-V-1968, malaise trap, L. Stange. The holotype is in the U.S. National Museum, Washington.

Cnesinus hispidus Eggers

Cnesinus hispidus Eggers, 1943:378. Holotype, sex?; Cochabamba, Bolivia; USNM, Washington (References in Wood & Bright c1992:209)

Diagnosis: Distinguished by crenulations on the anterolateral areas of the pronotum, by a median tubercle on the female epistomal callus; and by the distinctive vestiture on pronotum and elytra.

Female: Length 2.8 mm, 2.7 times as long as wide; color dark brown, vestiture pale. Frons convex above, moderately impressed on lower half; epistomal callus rather poorly formed except for a distinct median tubercle, upper slope ornamented by a single rank of reddish brown setae. Pronotum 1.06 times as long as wide; armed on each anterolateral area by a sublongitudinal row of six crenulations; surface irregularly, longitudinally strigose through confluence, punctures obscure, not impressed;

vestiture of suberect, rather abundant, stout setae. Elytra 1.8 times as long as wide, 2.1 times as long as pronotum; basal margins each armed by a row of low crenulations; striae slightly impressed, punctures small, distinctly impressed, not confluent; interstriae about twice as wide as striae, almost smooth, shining, fine punctures numerous, confused. Declivity convex, steep; moderately impressed between left and right interstriae 3; striae 1 impressed, punctures mostly obsolete; granules not evident on interstriae; vestiture of rather abundant interstitial setae of two kinds, ground cover of white, shorter, moderately coarse (but weak) setae that extend to base, and erect rows of longer (one and one-third times), yellowish setae largely confined to declivity, each about as long as distance between rows; some erect setae extend irregularly to base.

Distribution: Bolivia to Argentina.

Argentina: Pasque Aconquija, Tucuman, 10-XII-1950, R. Gollbach.

Bolivia: Cochabamba (presumably from F. Woytkowski).

Notes: The above treatment was based on 1 female that I had compared to the Eggers series of this species at Washington and Wein.

Cnesinus vestitus Eggers

Cnesinus vestitus Eggers, 1933:16. Holotype ♀; Colonia Tovar, Venezuela; MNHN, Paris (References in Wood & Bright c1992:212)

Diagnosis: Distinguished by the presence of crenulations on the anterolateral areas of the pronotum; by the short, fine, hairlike, recumbent, elytral setae; and by the large, brightly colored epistomal setae in the female.

Male: Similar to female except epistomal callus reduced, its upper slope ornamented by a single rank of yellowish brown setae; setae cover almost entire pronotum; erect bristles on elytra greatly reduced in length and number.

Female: Length 3.3–3.7 mm, 2.9 times as long as wide; color dark reddish brown. Frons with eyes separated by 1.6 times width of an eye, upper half convex, smooth, impunctate, a few setae laterally at margin of eyes; lower half moderately impressed, epistomal callus smooth, shining, transversely about two-thirds as wide as lower frons, longitudinally very short, its upper slope ornamented by a very large brush of rather long, brightly colored reddish brown setae; lateral margins acute, ornamented by conspicuous, rather long, coarse setae. Pronotum 1.1 times as long as wide; posterolateral areas finely punctured, punctures lost through confluence on anterior half and on median half of posterior half, these areas finely, longitudinally strigose, ridges smooth, shining; fine, rather short setae of moderate abundance on all margins. Elytra 1.8 times as long as wide, 1.8 times as long as pronotum; basal margins armed by low, weak crenulations, a row of weak submarginal crenulations indicated; striae narrowly, abruptly, moderately impressed, punctures small, very close, some confluent; interstriae about three times as wide as striae, surface smooth,

brightly shining, with fine, dense, confused punctures. Declivity convex, steep, moderately impressed between interstriae 3, striae 1–3 not clearly indicated except by darker color of cuticle, punctures small, confused with those of interstriae; vestiture of ground cover of abundant, recumbent, coarse hair to base and sparse rows of erect, slender bristles mostly on declivity, bristles on disc about as long as distance between rows, almost twice as long on declivity, bristles also present on interstriae 1.

Distribution: Venezuela: Colonia Tovar; Aragua; Merida, Merida, 22-IX-1969, 1700 m, Japanese bamboo, SLW.

Hosts: *Bambusa vulgaris*.

Biology: Boring into nodes of large stems.

Notes: The above treatment was based on 14 specimens. I compared 2 of my females directly to the holotype.

Cnesinus hispidulosus Wood, n. sp.

Cnesinus hispidulosus Wood: Holotype ♀; Itinga do Maranhao, Maranhao, Brazil; MZUSP, Sao Paulo, designated below

Diagnosis: Distinguished from *ampliatus* Schedl by the slightly larger size; by the sharply pointed, conical median tubercle on the female epistoma; and by the blunt, apically flattened erect setae on the declivity.

Female: Length 1.75 mm, 2.5 times as long as wide; color dark reddish brown, vestiture pale. Frons about as in *ampliatus* except median tubercle on epistoma conical, sharply pointed and impressed area shining on upper third, reticulate below. Pronotum 1.0 times as long as wide; anterolateral angles armed by a row of 4 or 5 asperities; surface rugose-punctate, mostly shining, punctures small, obscure, at base of setae; vestiture rather abundant, of semirecumbent, rather short, mostly blunt setae. Elytra 1.6 times as long as wide, 1.6 times as long as pronotum; striae weakly, abruptly impressed, punctures small, distinctly impressed, not confluent; interstriae slightly wider than striae, granular, punctures and tubercles obscurely evident. Declivity steep; weakly submarginate at apex of suture; interstriae 1–3 as wide as striae, tubercles obscurely evident. Vestiture of abundant stout ground scales, each about 6 times as long as wide, and erect rows of moderately stout, blunt, erect bristles, many of them with their apex slightly flattened, slightly shorter on lower third of declivity length.

Distribution: Brazil (Maranhao).

Type material: The female holotype was taken at Itinga do Maranhao, Maranhao, Brazil, VII-2002, ethanol trap in *Schizolobium amazonicum* stand, J.A. Ataide. The holotype is in the Museu de Zoologia, Universidade de Sao Paulo, Sao Paulo.

Cnesinus ampliatus Schedl

Cnesinus ampliatus Schedl, 1938:21. Lectotype ♀; Isla Martin Garcia, Buenos Aires, Argentina; NHMW, Wien, present designation (References in Wood & Bright c1992:205)

Male: Similar to female except epistomal tubercle and reddish brown setae absent.

Female: Length 2.0–2.2 mm, 2.6 times as long as wide; color dark reddish brown, vestiture pale. Frons moderately concave from epistoma to distinctly below upper level of eyes; median half between eyes smooth, shining, epistoma moderately elevated, its median one-fifth armed by a rather strong, blunt tubercle; row of reddish brown setae on upper margin of epistomal process rather dense. Pronotum 1.03 times as long as wide; anterolateral angles each armed by a row of about 6 asperities; disc rather coarsely granulate, finer on anterior fifth; vestiture of rather coarse, recumbent, long hair. Elytra 1.5 times as long as wide, 1.5 times as long as pronotum; striae weakly, abruptly impressed, punctures rather large, at least partly confluent; interstriae slightly wider than striae, granular, punctures and tubercles not clearly evident. Declivity steep, shallowly impressed on interstriae 1 and 2; striae more distinctly impressed, punctures deeper than on disc; interstriae as wide as striae, rather weakly convex, each bearing a row of small, suberect tubercles on 3 and 4 and basal third of 1 and 2. Vestiture on disc of ground cover of abundant, recumbent, moderately coarse, rather long hair, less abundant to almost obsolete on declivity; and central rows of erect bristles mostly on declivity, most bristles equal in length to distance between rows, shorter on 1 and 2 below, their tips mostly pointed; on 1 specimen from Brazil erect setae extend to posterior third of disc.

Distribution: Argentina to Brazil.

Argentina: Isla Martin Garcia, Buenos Aires, I-1938, M.J. Viana.

Brazil: Nova Teutonia, Santa Catarina, 17-V-1949, F. Plaumann; Code 004, R.A. Beaver, presumably Mato Grosso.

Host: *Pouteria salicifolia* (Bright & Skidmore 2002:33).

Notes: The above treatment was based on the female syntype from Argentina that Schedl subsequently labeled as the “holotype,” and on 1 female from Brazil. Because a holotype can be designated only in the original publication of the species, Schedl’s (1979:19) designation of a “holotype” was invalid. I here designate that syntype (Schedl’s holotype) as the lectotype of *Cnesinus ampliatus* Schedl.

Cnesinus setosus Eggers

Cnesinus setosus Eggers, 1943:377. Holotype ♀; Cochabamba, Bolivia; USNM, Washington (References in Wood & Bright c1992:211)

Diagnosis: Distinguished from *advena* Schedl by the large size; by the reticulate upper frons; and by details of elytral sculpture as mentioned in the key above.

Female: Length 2.3 mm, 2.4 times as long as wide; elytra dark brown, pronotum very dark brown. Frons convex above, moderately, subconcealedly impressed on lower half, epistomal callus weakly developed, ornamented by a transverse row (2 ranks) of yellowish setae; surface of impressed and convex areas reticulate, largely

impunctate, a few short setae in lateral areas. Pronotum 0.95 times as long as wide; similar to *hispidus* Eggers except longitudinal rugae coarser and vestiture less abundant. Elytra 1.7 times as long as wide, 2.0 times as long as pronotum; striae distinctly impressed, punctures moderately large, distinct; interstriae slightly wider than striae, shining, each with a row of setiferous granules, numerous, confused small punctures at base of ground setae. Declivity convex, steep, weakly subsulcate on lower half; striae narrowly impressed on basal half, punctures minute to obsolete, some punctures present below on right elytron. Vestiture in ground cover rather coarse, recumbent, moderately abundant, half as long as erect bristles on disc, bristles longer on declivity, longest about equal to distance between rows on declivity.

Distribution: Bolivia: Cochabamba (presumably by F. Woytkowski).

Notes: The above treatment was based on the female holotype. A presumed male from San Antonio de Barra, Bahia, Brazil, is in the DEI Munchenberg Collection.

Cnesinus advena Schedl

Cnesinus advena Schedl, 1973:169. Holotype ♀; Utiariti, Rio Papagaio, Mato Grosso, Brazil, 325 m; MZUSP, Sao Paulo, Brazil (References in Wood & Bright c1992:205)

Diagnosis: Distinguished by the presence of a row of about 6 crenulations on anterolateral area of pronotum; by the distinctly impressed elytral striae; by the coarsely sculptured pronotum; and by other characters.

Male: Similar to female except epistomal callus and brush smaller, less well formed.

Female: Length 1.6–2.0 mm, 2.6 times as long as wide; color very dark brown. Frons about as in *vestitus* Eggers except epistomal callus less strongly elevated, brush of reddish brown setae less than half as large, lateral setae much finer, shorter, less abundant. Pronotum equal in length and width; anterolateral areas armed by a sublongitudinal row of about 6 crenulations; surface rather coarsely, longitudinally strigose, punctures not evident, ridges very narrow, anterior third minutely, longitudinally strigose; vestiture of rather abundant, stout, rather short, suberect setae. Elytra 1.7 times as long as wide, 1.9 times as long as pronotum; basal margins armed by a row of low crenulations; striae 1 moderately, others weakly impressed, punctures very close, distinct, moderately large; interstriae about twice as wide as striae, surface smooth, shining, with numerous, very fine, confused punctures, each interstriae with an obscure central row of small tubercles. Declivity convex, steep; striae 1 and 2 with punctures distinctly impressed, smaller than disc; interstriae 2 weakly impressed; vestiture moderately abundant, shorter, recumbent, rather stout interstitial ground setae and interstitial rows of erect bristles, each bristle rather stout, slightly shorter than distance between rows, within a row somewhat irregular, closer on declivity than on disc.

Distribution: Brazil to Paraguay.

Brazil: Utiariti, Rio Papagaio, Mato Grosso, 325 m.

Paraguay: Dept. San Pedro, Carumbe, I-1971, R. Golbach.

Notes: The above treatment was based on 1 male and 2 females that I compared to a female paratype at NHMW, Wien.

Cnesinus robai Blackman

Cnesinus robai Blackman, 1943:374. Holotype ♀; Santander Department, Colombia; USNM, Washington (References in Wood & Bright c1992:211)

Diagnosis: Distinguished from *lucaris* Wood and *cof-faeae* Schedl by the presence of a broad median tubercle or very short, transverse carina at level of ocular sinuation on female frons; anterolateral areas of pronotum armed by a sublongitudinal row of several crenulations.

Male: Similar to female except frontal carina absent, epistomal callus poorly formed, less strongly elevated, brush yellowish, of only one rank of setae, setiferous interstitial punctures tend to be granulate, granules on declivity larger.

Female: Length 1.9–2.4 mm, 2.7 times as long as wide; color brown, pronotum darker. Frons convex on upper half, central area glabrous to above upper level of eyes, a few short setae in lateral areas at margins of eyes; median line at level of ocular sinuation armed by a short, transverse carina (a tubercle in some specimens) well above epistomal elevation; epistomal callus smooth, shining, its upper margin on median third moderately elevated, reddish brown brush of setae on its upper slope thin, of 1 or 2 ranks, lateral setae on margins sparse. Pronotum 1.05 times as long as wide; surface on lateral thirds of posterior half moderately, rather deeply punctured, these punctures neither elongate nor confluent, median area rather coarsely, longitudinally strigose through confluence but punctures not evident, finer on anterior third; vestiture of 2 kinds of setae, fine short, hairlike and rather coarse, suberect, mostly twice as long as hair. Elytra 1.7 times as long as wide, 1.8 times as long as pronotum; basal margins armed by low crenulations; striae slightly impressed, punctures moderately large, distinct, very close, some confluence toward declivity; interstriae one and one-half to twice as wide as striae, surface shining, minutely irregular, fine punctures obscure, somewhat confused on most interstriae. Declivity convex steep, weakly impressed between interstriae 3; punctures on striae 1 and 2 larger and deeper than on disc; interstriae 3–9 with a few fine granules; vestiture of very few short setae in ground cover, and interstitial rows of erect, stout bristles to base, bristles equal in length to distance between rows, spaced within a row by 1–3 lengths of a bristle.

Distribution: Colombia: El Bosque, Caicedonia, Valle del Cauca, VI-1958, tallo de cafe, J. Restrepo; Sevilla, Caicedonia, Valle del Cauca, VIII-1959, ex cafe, Betrem;

Chinchina, Caldas, 14-VI-1959, #12, ramas de café, M. Benavides; El Jardín, Antioquia, V-1958, en café, E. Giraldo.

Hosts: *Coffea arabica*.

Biology: Taken from pith tunnels in small branches.

Notes: The above treatment was based on 47 specimens, 1 female of which I compared directly to the holotype of *Cnesinus robai* Blackman.

Cnesinus lucaris Wood

Cnesinus lucaris Wood, 1974:5. Holotype ♂; Merida, Merida, Venezuela; USNM, Washington (References in Wood & Bright c1992:209)

Diagnosis: Distinguished from *robai* Blackman by the absence of a female frontal carina; by the more nearly carinate epistomal callus with the brush more extensive; and by the near absence of clear punctures on the posterolateral fourth of the pronotum.

Male: Similar to female except epistomal callus smaller, poorly formed, brush yellowish, with one rank of setae.

Female: Length 2.2–2.5 mm, 2.7 times as long as wide; color dark brown, elytra often reddish brown. Frons about as in *robai* except carina absent, callus transversely impressed, its upper margin sometimes appearing almost as a transverse carina in some specimens, brush of reddish brown setae on upper margin much more extensive (of 4 or more ranks). Pronotum 1.1 times as long as wide; surface similar to *robai* except most punctures on posterior half confluent, strigose area finer, not as deep. Elytra similar to *robai* except discal striae 1–3 confluent, setae in ground cover more numerous on disc and declivity, erect bristles much more slender and distinctly longer.

Distribution: Venezuela: Colonia Tovar, Aragua, 4-V-1970, 1700 m, No. 480, ex liana, SLW; Merida, Merida, 29-XII-1969, 1700 m, No. 210, ex liana, 22-IX-1969, No. 7 ex twig, No. 6 ex *Vismia* twig, 8-XI-1969, No. 119, ex *Rubus*, SLW.

Biology: Taken from pith tunnels in small stems.

Notes: The above treatment was based on the type series of 21 specimens and on 15 other specimens.

Cnesinus coffeae Schedl

Cnesinus coffeae Schedl, 1939:12. Holotype ♀; La Esperanza, Colombia; BMNH, London (References in Wood & Bright c1992:206)

Diagnosis: Distinguished from *lucaris* Wood by the finer, closer, deeper pronotal strigosity; by the more complete confluence of all strial punctures; by the much shorter elytral bristles; and by the longer epistomal brush of more brightly colored female setae.

Male: Similar to female except epistomal callus reduced in size, brush yellowish, less than half as extensive (2-ranked).

Female: Length 2.3–2.5 mm, 2.7 times as long as wide; color dark reddish brown. Frons as in *lucaris* except epistomal callus more strongly elevated, brush much more extensive and more strongly colored reddish

brown; lateral margins more acutely raised. Pronotum as in *lucaris* except more finely, closely, deeply strigose, all setae much more slender. Elytra about as in *lucaris* except striae slightly more strongly impressed, almost all punctures confluent, interstitial setae more slender, erect bristles shorter (about half as long as distance between rows on disc and declivital interstriae 1 and 2), almost as long as distance between rows on lateral areas of declivity.

Distribution: Colombia: La Esperanza; Bogota, 9-VI-1937, *Coffea arabica*, P. Roba.

Notes: The above treatment was based on 1 male and 1 female that I compared to the female holotype of *Cnesinus coffeae* Schedl and to Schedl's paratypes.

Cnesinus costulatus Blandford

Cnesinus costulatus Blandford, 1896:137. Lectotype ♀; Volcan de Chiriqui, Chiriqui, Panama; BMNH, London, designated by Wood 1982:234 (Synonymy and references in Wood & Bright c1992:207) *Cnesinus similis* Blackman, 1943:375. Holotype ♀; Panama; USNM, Washington

Diagnosis: Distinguished from *porcatus* Blandford by the smaller size; by the shining female frons above the transverse carina; and by the less-abundant declivital ground vestiture, with major setae more slender, longer; the bicarinate discal interstriae distinguish these 2 species from all others.

Male: Similar to female except carina absent, upper frons reticulate.

Female: Length 2.0–2.3 mm, 2.24 times as long as wide; color black. Frons transversely divided at level of ocular situation by an acute carina slightly longer than narrowest distance between eyes; upper area semicircular, smooth, shining, with a few minute punctures extending to upper level of eyes. Pronotum 0.93 times as long as wide; surface coarsely, longitudinally strigose, crests shining, grooves rather dull, confluent punctures not evident; vestiture of moderately abundant, fine, rather long hair. Elytra 1.5 times as long as wide, 1.8 times as long as pronotum; basal margins acutely elevated into a continuous costa; striae abruptly, rather deeply impressed, shining, rather large punctures mostly confluent but clearly indicated near base except on 1; interstriae as wide as striae, their margins narrowly elevated, shining, central half of each sulcate, dull, setiferous punctures very fine, obscure. Declivity steep, convex; interstriae narrower than on disc, with a single, central costa on upper third of each, costa broken into a row of subseriate granules below; vestiture of fine, erect hair in interstitial rows of closely set, erect setae, each about as long as distance between rows.

Distribution: Mexico (Oaxaca) to Colombia.

Colombia: 24 km E Barbosa, Antioquia, 18-VII-1970, 1200 m, No. 695, Lauraceae tree twigs, SLW.

Hosts: Lauraceae tree, 1 liana and 2 other unidentified tree species.

Biology: Taken from pith tunnels in small stems.

Notes: The above treatment was based on 24 Central American specimens and on 4 specimens from Colombia. I compared 1 of my females of *Cnesinus costulatus* Blandford directly to the lectotype.

Cnesinus porcatus Blandford

Plate IX

Cnesinus porcatus Blandford, 1896:137. Lectotype ♀; Volcan de Chiriqui, Panama; BMNH, London, designated by Wood 1982:236 (References in Wood & Bright c1992:210)

Diagnosis: Almost identical to *costulatus* Blandford except distinguished by the larger size; by the reticulate female frons above the carina; by the more abundant declivital ground vestiture; and by the stouter, shorter erect interstitial setae.

Male: Similar to female except frontal carina absent.

Female: Length 2.8–3.1 mm, 2.3 times as long as wide; color black. Frons above carina uniformly reticulate, with a few minute punctures; below carina broadly, concavely impressed, lateral margins partly acute. Pronotum and elytra about as in *costulatus*.

Distribution: Guatemala to Venezuela.

Venezuela: A Moritz specimen, presumably taken at or near his home at Colonia Tovar, Aragua.

Hosts: *Oreopanax capitatus*, *Quercus* sp., 2 other unidentified tree species, and 1 unidentified liana species.

Biology: Taken from pith tunnels in small stems.

Notes: The above treatment was based on 37 specimens from Central America. One female was compared by me directly to the lectotype.

Cnesinus squamosus Wood

Cnesinus squamosus Wood, 1968:102. Holotype ♀; Lower Rio Tempisque, Guanacaste, Costa Rica; USNM, Washington (References in Wood & Bright c1992:212)

Diagnosis: Clearly allied to *lucaris* Wood except pronotal row of asperities absent. Distinguished by the large, dense pronotal and elytral scales; by the emarginate and divaricate apex of the elytra; pronotal asperities absent.

Male: Similar to female except frontal carina and tufts of reddish brown setae absent.

Female: Length 1.7–2.1 mm, 2.5 times as long as wide; color brown. Frons with a crescent-shaped, transverse carina midway between level of antennal insertion and upper level of eyes (level of ocular situation), convex above carina, moderately impressed below; tufts of rather long, close, erect, reddish brown setae above epistoma and on lateral areas largely obscure surface; upper frons reticulate-granulate, with a few short, recumbent yellowish setae on marginal areas; eyes separated by 2.5 times width of an eye. Pronotum 1.0 times as long as wide; surface coarsely, closely, deeply punctured, puncture rim opposite from pronotum summit often slightly elevated; vestiture abundant, obscuring surface, of short scales each about 2 or 3 times as long as wide, and equally

short, slender bristles intermixed. Elytra 1.5 times as long as wide, 1.6 times as long as pronotum; apex of suture emarginate, tips of elytra moderately explanate; basal margins armed by a row of crenulations; striae impressed, punctures rather large, obscured by confluence; interstriae almost twice as wide as striae, surface apparently densely punctured (obscured by vestiture), each interstriae with a central row of granules. Declivity rather steep, convex, ending below in explanate extension; interstriae 1, 2, and 5 attaining apex, 1 moderately, 5 strongly elevated, 3, 4, 6, 7, and 8 convex and ending near middle; vestiture of dense, short, interstitial scales each as wide or wider than long, and erect rows of stout bristles, each about three times as long as scales, bristles about two-thirds as long as distance between rows, spaced within a row by similar distances.

Distribution: Costa Rica to Venezuela.

Venezuela: 3 km E Lagunillas, Merida, 12-I-1970, 1000 m, No. 336, liana, SLW.

Biology: Taken from pith tunnels in small stems.

Notes: The above treatment was based on the type series of 12 specimens and on 184 specimens from Venezuela.

Cnesinus denotatus Wood

Cnesinus denotatus Wood, 1968:107. Holotype ♀; Barro Colorado Island, Canal Zone, Panama; USNM, Washington (References in Wood & Bright c1992:207)

Diagnosis: Transverse female frontal carina at level of antennal insertion, female epistomal callus and reddish brown brush of setae absent (both present in male).

Male: Similar to female except frontal carina absent, a poorly formed callus present, with 1 row of setae on its upper slope; pronotal and elytral setae more abundant.

Female: Length 1.8–1.9 mm, 2.4 times as long as wide; color dark reddish brown. Frons strongly impressed at level of ocular situation, convex above, flattened below, a strongly elevated, transverse carina on median fourth at level of antennal insertion, carina almost as wide as high; surface minutely reticulate-granulate; vestiture sparse, short, largely confined to lateral areas. Pronotum 1.07 times as long as wide; surface shining, punctures rather fine, coarse, close, separate in posterolateral areas, 2 or more longitudinally confluent elsewhere; fine, hair-like ground setae and short, stout setae restricted to marginal areas. Elytra 1.4 times as long as wide, 1.5 times as long as pronotum; basal margins armed by row of moderately coarse crenulations; striae weakly impressed, punctures rather large, distinct; interstriae about twice as wide as striae, shining, punctures fine, abundant, confluent. Declivity broadly convex, steep, feebly impressed between interstriae 3; striae 1–3 with punctures distinct; vestiture of moderately abundant, short ground setae, slender to base on disc, stout on declivity (each 2–4 times as long as wide), and rows of erect, stout bristles, each bristle about as long as distance between rows,

spaced within a row by similar distance, slightly shorter and closer on declivity.

Distribution: Costa Rica to Venezuela.

Venezuela: 9 km S Barrancas, Barinas, 5-XI-1969, 150 m, No. 118, *Serjania*, SLW.

Hosts: *Oreopanax capitata*, *Serjania* sp.

Biology: Taken from pith tunnels in small stems.

Notes: The above treatment was based on the holotype and allotype and on 1 female from Venezuela.

Cnesinus adustus Schedl

Cnesinus adustus Schedl, 1948:266. Syntypes ♀; Costa Rica: Turrialba; NHMW, Wien (Synonymy and references in Wood & Bright c1992:205)

Cnesinus atrodeclivis Wood, 1968:108. Holotype ♀; Zamorano, Morazan, Honduras; USNM, Washington

Diagnosis: Frons very modestly impressed, carina very short (on median one-fifth), low, located below middle but distinctly above level of antennal insertion; declivity usually dark (both cuticle and setae).

Male: Similar to female except epistomal callus more poorly formed, setae on its upper slope form a single row.

Female: Length 2.0–2.4 mm, 2.5 times as long as wide; dark reddish brown, both cuticle and setae much darker on declivity. Frons shallowly impressed at level of antennal insertion, somewhat flattened to upper level of eyes, armed at level of ocular sinuation by a small, low, transverse, crescent-shaped carina on median one-sixth; epistomal callus weakly formed, reddish brown brush of setae on its upper slope about 2-ranked; setae on lateral thirds above carina long, fine, conspicuous. Pronotum 1.06 times as long as wide; similar to *denotatus* except all areas with punctures, more coarsely confluent. Elytra 1.5 times as long as wide, 1.6 times as long as pronotum; about as in *denotatus* except striae punctures mostly confluent near declivity, declivital striae more distinctly impressed, ground setae on disc and declivity similar; rather slender, erect bristles inconspicuous, each about half to two-thirds as long as distance between rows.

Distribution: Honduras to Colombia (?).

Colombia: Unconfirmed oral report.

Hosts: *Valeria scandens*.

Biology: Taken from pith tunnels in small stems.

Notes: The above treatment was based on the seven specimens in the type series of the synonym, *atrodeclivis*, and on syntypes of *adustus*. The report from Colombia was probably based on an error in identification.

Cnesinus ocellaris Blandford

Cnesinus ocellaris Blandford, 1896:140. Holotype, sex?; [Colonia Tovar?], Venezuela; BMNH, London (References in Wood & Bright c1992:210)

Diagnosis: Eyes greatly enlarged, coarsely faceted, separated above by less than one-half width of an eye; transverse female carina two-thirds as long as distance between eyes.

Female: Length 2.4 mm, 2.7 times as long as wide; color dark reddish brown. Frons shallowly impressed below, eyes separated above by distance equal to one-half width of an eye; epistomal callus poorly developed, almost obsolete, brush of reddish brown setae on its upper slope large, broad, at least 4-ranked; transverse carina at level of ocular sinuation, moderately large, its transverse length equal to two-thirds distance between eyes; surface above carina minutely, transversely etched, shining, impunctate; a few setae in lateral areas. Pronotum 1.05 times as long as wide; surface shining, resembling *adustus* Schedl but much more coarsely, longitudinally strigose; vestiture confined to marginal areas, of fine, short, hairlike ground setae and, on anterior fourth, longer, stout setae. Elytra 1.8 times as long as wide, 1.9 times as long as pronotum; crenulations on basal margins indicated, weak; striae weakly impressed, punctures distinct; interstriae twice as wide as striae; about as in *denotatus* except declivity distinctly impressed between interstriae 3, and erect bristles distinctly shorter.

Distribution: Honduras to Venezuela.

Venezuela: A Moritz specimen, presumably taken near his home at Colonia Tovar, Aragua.

Hosts: *Serjania* sp.

Biology: Taken from a pith tunnel in a small stem.

Notes: The above treatment was based on 1 female from Honduras. The type was seen but was not compared directly to the Honduras specimen.

Cnesinus adusticus Wood

Cnesinus adusticus Wood, 1967:87. Holotype ♀; Los Almendros, Paraiso, Honduras; USNM, Washington (References in Wood & Bright c1992:205)

Diagnosis: Similar to *ocellaris* Blandford but pronotal sculpture and elytral vestiture very different, as described below.

Male: Similar to female except frontal carina absent, epistomal callus poorly formed, its brush of one rank of setae.

Female: Length 2.7–3.0 mm, 2.4 times as long as wide; color dark reddish brown, elytral vestiture pale with a dark, transverse band at base of declivity (obscure in series from Colombia). Frons similar to *ocellaris* except eyes more finely faceted, separated above by slightly more than width of an eye, vestiture on lateral areas above carina much more abundant, longer, conspicuous. Pronotum 1.05 times as long as wide; posterolateral areas with fine punctures, about half of them longitudinally confluent with at least one other puncture, other areas entirely confluent, much finer than in *ocellaris*. Elytra 1.5 times as long as wide, 1.5 times as long as pronotum; row of crenulations at base poorly formed; striae moderately impressed, punctures near declivity mostly confluent; interstriae twice as wide as striae, shining, fine punctures confused. Declivity steep, convex, modestly impressed between interstriae 3; vestiture with ground cover slender at base of disc, stouter

near declivity, almost scalelike on declivity (each 4–6 times as long as wide), erect bristles geographically variable, short, broad, about twice as long as ground cover in Honduras specimens, ground setae and bristles much more slender and longer in specimens from Colombia and Mexico.

Distribution: Mexico (Veracruz) to Colombia.

Colombia: El Bosque, Caicedonia, Valle del Cauca, 30-VI-1959, ramas de café, J. Restrepo; La Cuchillo, Sevilla, 19-VI-1959, guamo seco, J. Restrepo.

Hosts: *Acacia pennatula*, *Coffea arabica*, *Phoradendron* sp.

Biology: Taken from pith tunnels in small stems.

Notes: The above treatment was based on the type series of 32 specimens from Honduras, 1 specimen from Mexico, and 12 specimens from Colombia.

GENUS *PAGIOCERUS* EICHHOFF

Pagiocerus Eichhoff, 1868:148. Type-species: *Pagiocerus rimosus* Eichhoff = *Bostrichus frontalis* Fabricius, subsequent designation by Hopkins 1914:126 (References in Wood & Bright c1992:213)

Diagnosis: Lateral margins of pronotum rounded; sutures of antennal club procurved; rostrum width at tip equal to distance between eyes.

Description: Length 1.9–3.5 mm, body rather stout; color reddish brown. Frons sexually dimorphic, variously impressed below, shallowly impressed to convex above; eyes rather widely separated above, sinuate on mesal margin; antennal funicle 7-segmented; 2 sutures procurved. Pronotum unarmed, punctured. Elytra with basal margins weakly crenulate; striae distinct, sculpture simple; declivity convex, steep; vestiture hairlike.

Distribution: Five species are known, 4 of them only from southern Brazil. The fifth species (*frontalis* Fabricius) occurs naturally from the southeastern USA to Argentina and has been transported through commerce in corn (=maize) seed to various other parts of the world.

Biology: The known species are monogynous and breed in large seeds of various trees and *frontalis*, in the Andean region, may infest maize seed both in the field and in storage.

Key to the Species of *Pagiocerus*

- 1. Frons at upper level of eyes convex, granular or smooth, shining, with a few very small punctures; pronotum substrigose, at least half of punctures confluent, crests between punctures mostly convex, smooth; declivital interstriae 2 usually constricted, often less than half as wide as a striae puncture, punctures minute to apex; median epistomal tubercle less laterally compressed (elevated crest dorsad from summit obsolete, crest orad from summit absent or conspicuous) a line drawn between summits of highest points on lateral margin passing entirely dorsad of base of median tubercle 2
- Frons at upper level of eyes weakly impressed, closely granulate-punctate; pronotum with surface either smooth or longitudinally etched, punctures smaller, not as deep, few confluent; interstitial punctures on disc fine, more numerous, strongly confused; declivital interstriae 2 as wide as striae 3
- 2(1). Frons much more strongly impressed above, almost to upper level of eyes, area above eyes convex, granular; epistomal tubercle without a ventral crest; pronotum rather finely, closely strigose, punctures small, rather shallow, mostly about twice as long as wide; interstriae smoother, punctures smaller, confused, setae mostly confused on disc and (slightly) declivity, each seta longer, finer, almost as long as distance between rows; Brazil; 2.7 mm *luederwaldti* Eggers
- Frons less strongly impressed above, area above eyes smoother, shining; epistomal tubercle with a slight ventral crest; pronotum less conspicuously strigose, punctures rather coarse, deep, close, most little longer than wide; interstriae more irregular (somewhat wrinkled), punctures and setae mostly uniseriate on disc, definitely uniseriate on declivity, setae shorter and stouter, length equal to less than two-thirds distance between rows; S USA to Argentina; 1.9–2.6 mm *frontalis* (Fabricius)
- 3(1). Surface of pronotum between punctures minutely etched; interstitial punctures on disc with punctures small, numerous, confused; declivital interstriae 1–3 all continue to apex, each as wide as an interstriae and armed by a uniseriate row of fine tubercles, punctures mostly obsolete; acutely elevated lateral margin of frons extending almost to level of ocular emargination, without a subdentate highest point; Brazil; 3.2 mm *cribricollis* Eichhoff
- Surface of pronotum between punctures smooth, shining; interstriae on disc with punctures small to irregular, less numerous, mostly in uniseriate rows; declivital interstriae 1 and 3 all continue

- to apex, each with a uniseriate row of punctures, tubercles absent; median epistomal tubercle more strongly, laterally compressed or not 4
- 4(3). Epistomal tubercle laterally compressed, crest extending dorsad from its summit present, line drawn between highest point on lateral summits touching or crossing this median crest; lateral margins of lower frons moderately, acutely elevated on its middle one-third; interstitial setae (apparently?) longer; Brazil (Goyas); 2.4–2.5 mm *eggersi* Wood
- Epistomal tubercle conical, not compressed, dorsal crest absent; lateral margins of lower frons weakly, uniformly elevated; interstitial setae uniseriate, of minute, slender hair on basal half of disc, stouter on declivity, on declivity each about 6 times as long as wide, one-third as long as distance between rows; Brazil (Mato Grosso); 2.0 mm *punctatus* Eggers

Pagiocerus luederwaldti Eggers

Pagiocerus luederwaldti Eggers, 1928:93. Holotype ♂; Sao Paulo, Parana, Brasil; Museu de Zoologia, Universidade de Sao Paulo (References in Wood & Bright c1992:214)

Pagiocerus major Schedl, 1976:64. Holotype ♀?; Brazil; NHMW, Wien (References in Wood & Bright c1992:214). *New synonymy*

Diagnosis: Distinguished from *frontalis* (Fabricius) by the smaller size; by the much more finely, closely strigose pronotum; by the more deeply impressed upper frons; and by the conical epistomal tubercle.

Male: Similar to female in all visible respects (specimens at hand in very poor condition).

Female: Length 2.6 (male)–2.7 (female) mm, 2.2 times as long as wide; color dark reddish brown. Frons strongly impressed on lower nine-tenths of area below upper level of eyes, deepest on its upper half; epistomal spine high, pointed, conical, without a ventral crest extending toward epistomal margin; concave area smooth, shining on lower half, somewhat granular above; area above concavity convex, rather finely rugose; a few minute, hairlike setae uniformly distributed. Pronotum 1.0 times as long as wide; surface finely, closely strigose, crests smooth, shining, convex; punctures small, moderately convex, about half of them confluent, distinctly larger near base; vestiture of fine, sparse, short hair near anterior and lateral margins. Elytra 1.4 times as long as wide, 1.6 times as long as pronotum; striae 1 moderately, others distinctly impressed, punctures large, distinct, almost confluent (especially on 1); interstriae about twice as wide as striae, smooth, shining, punctures very small, confused. Declivity broadly convex, steep; striae weakly impressed, narrower than on disc; interstriae 2 on left side half as wide as on right (right side as wide as striae 2 or 3); interstitial punctures uniseriate on 1. Vestiture of fine, short hair on disc, longer and somewhat coarser on and near declivity; interstitial setae confused (modestly on declivity), on declivity each seta almost as long as distance between rows.

Distribution: Brazil: “Alte sammlung, Brasilien.”

Notes: The above treatment was based on the male holotype of *luederwaldti* that is crushed, with the right elytron missing and most of the declivity is covered by glue, and the holotype of *major* Schedl (a female?). The

“Linhares” data published by Schedl (type of *major*) also came from a “paratype” of *major* that was actually a misidentified specimen of *cribricollis*.

Pagiocerus frontalis (Fabricius)

Plate X

Pagiocerus frontalis (Fabricius), 1801:389. Syntypes, sex?; Carolina; UZMC, Copenhagen (Synonymy and references in Wood & Bright c1992:213–214)

Pagiocerus rimosus Eichhoff, 1868:148. Syntypes, sex?; Hamburg Museum, lost

Bothrosternus hubbardi Schwarz, 1886:54. Holotype, sex?; St. Lucie, Florida, USA; USNM, Washington

Hylastinus fiorii Eggers, 1908:215. Holotype, sex?; Genua (Italia); Andr. Fiori Collection, Bologna

Pagiocerus chiriouensis Eggers, 1928:92. Holotype sex?; Panama: Volcan Chiriqui; NHMW, Wien

Pagiocerus zae Eggers, 1928:92. Lectotype, sex?; South American corn kernels; USNM, Washington, designated by Anderson & Anderson 1971:36

Pagiocerus nitidus Eggers, 1930:170. Holotype, sex?; Venezuela (Caracas); MNB, Berlin

Pagiocerus carabicus Eggers, 1940:136. Holotype, sex?; Trois Rivieres, Guadeloupe; NHMW, Wien

Diagnosis: Distinguished by the size; by the upper frons between upper level of eyes convex, smooth, with sparse, fine punctures; and by the distinctive sculpture of the declivity.

Male: Similar to female except frontal excavation deeper, extending almost to upper level of eyes.

Female: Length 1.9–2.6 mm, 1.9 times as long as wide; color dark reddish brown. Frons moderately impressed from just above epistoma to ocular situation; lateral margins below acute, a large, pointed median tubercle just above epistoma; almost glabrous except sparse setae on epistomal area; area above eyes rather coarsely punctured. Pronotum 1.0 times as long as wide; surface shining, closely, deeply, rather coarsely punctured, punctures longitudinally elongate, many confluent; glabrous. Elytra 1.4 times as long as wide, 1.7 times as long as pronotum; basal margins not elevated, subcostate; striae feebly impressed, punctures moderately large, most subconfluent; interstriae about one and one-half times as wide as striae, shining, punctures small, indistinct, mostly uniseriate. Declivity convex, steep; sculpture about as

on disc except striae and punctures more distinctly impressed; some minute strial setae sometimes present, interstitial setae in uniseriate rows of short, almost hair-like, erect bristles (no ground setae), each bristle equal in length to about half distance between rows, spaced within a row by less than length of a bristle. Setae often absent, apparently due to abrasion.

Distribution: USA (North Carolina) to Argentina; occasionally intercepted worldwide in maize seed (exported from western South America).

Argentina: Cited in Wood & Bright c1992:213.

Bolivia: Cited in Wood & Bright c1992:213.

Brazil: Rio Salimoes, 1-X-1982, J. Adis.

Chile: Valle Lluta, Arica, Prov. Tarapaca, XI-1966, J. Jimenez.

Colombia: Fresno, Tolima, XII-1939, 1490 m, X-509, C. Carmona B.; Palmira, 23-VII-1958, C. Bravo; Pasto, Narino, 3-VII-1957, maize, A. Uniparro.

Ecuador: Cited in Wood & Bright c1992:213.

Peru: Monson Cave, Tingo Maria, 15-XII-1954, E.I. Schlinger, E.S. Ross.

Venezuela: Caracas; Venicia, Antioquia, 23-XI-1955, C.

Hosts: *Ocotea* spp., *Persea americana*, *P.* spp., *Zea mays*.

Biology: Breed in large seeds of the hosts, including stored maize.

Notes: The above treatment was based on my examination of several hundred specimens, including those at the USNM, Washington, NHMW, Wien, IRSNB, Brussels; the types of all synonyms except *rimosus* Eichhoff were examined. Several specimens determined by Eichhoff were also seen.

Pagiocerus eggersi Wood, n. sp.

Pagiocerus eggersi Wood: Holotype ♀; Jatahy, Goyas, Brazil; DEI, Muncheberg, designated below

Diagnosis: Distinguished by characters of the frons, pronotum, and elytra as summarized in the above key to species.

Male: Length 2.4–2.5 mm, 2.0 times as long as wide; color dark reddish brown.

Frons strongly concave from epistoma to upper level of eyes; area above eyes shining, rather coarsely, closely punctured, upper half of area between eyes obscurely subreticulate, shining, sparsely, minutely punctured, lower area more nearly smooth; lateral margin moderately, acutely elevated on its middle third, highest point at level of antennal insertion subdentate, lateral crest ending midway between epistomal margin and upper level of eye; epistoma armed by a large, laterally compressed, acute spine, with distinct crests extending dorsad and orad from its summit, a line drawn between subdentate summits on lateral margins touches or crosses this dorsal crest; setae small, sparse, hairlike on lower half, several stiff bristles at lateral margin near upper level of eye. Pronotum 0.95 times as long as wide; surface smooth,

shining, punctures oval (rarely more than twice as long as wide), rarely confluent on lateral fourths, largest in lateral areas near base, smaller mesad and cephalad, moderately deep; glabrous except sparse, fine hair on anterior fourth. Elytra 1.2 times as long as wide, 1.4 times as long as pronotum; basal margins about as in *frontalis*; striae distinctly impressed, punctures rather large, mostly confluent, obscure; interstriae slightly wider than striae, smooth, shining, punctures rather small, almost uniseriate, no granules. Declivity broadly convex, steep; interstriae 1 and 2 on left side narrower than striae (wider on right side), punctures uniseriate, no tubercles. Vestiture mostly abraded, apparently slightly shorter than in *frontalis*.

Female: Similar to male except frontal concavity ending distinctly below upper level of eyes, apparently not as deep, bristles on margin near eye finer, shorter.

Distribution: Brazil (Goyas).

Type material: The female holotype and male allotype were taken at Jatahy, Goyas, Brazil, XI-1897. The holotype and allotype are in the DEI, Muncheberg.

Pagiocerus cribricollis Eichhoff

Pagiocerus cribricollis Eichhoff, 1868:148 (Syntypes 2 ♂; Brasilia; IRSNB, Brussels (References in Wood & Bright c1992:213)

Diagnosis: Distinguished from *frontalis* (Fabricius) by the larger size; by the slightly impressed, closely granulate-punctate upper frons at the upper level of the eyes; by the small, strongly confused interstitial punctures on the disc; and by the presence of minute tubercles on declivital interstriae 2.

Male: Length 3.2 mm, 2.0 times as long as wide; color dark reddish brown. Frons essentially as in *frontalis* except lateral elevation on lower half continued higher, close to level of emargination of eye; area above upper level of eyes to vertex distinctly impressed, closely, rather coarsely granulate-punctate. Pronotum 0.96 times as long as wide; surface shining, areas between punctures minutely etched longitudinally, punctures oval, rather shallow, close, few confluent; glabrous. Elytra 1.2 times as long as wide, 1.6 times as long as pronotum; striae rather weakly impressed, punctures impressed, distinct; interstriae smooth, shining, moderately convex, about twice as wide as striae, punctures small, numerous, confused. Declivity rather broadly convex, steep; similar to *frontalis* except interstriae 1–3 all continue to apex, each as wide as a striae and armed by a uniseriate row of very fine tubercles. Vestiture of stout, erect setae, apparently confused on disc (abraded), in uniseriate rows on declivity, each about equal in length to half distance between rows.

Distribution: Brazil: “Bresil”; Linhares, E. Santo, IX-1972, Roppa & Alvarenga.

Notes: The above treatment was based on the male syntypes. A “paratype” of *major* Schedl (= *Pagiocerus luederwaldti* Eggers) at NHMW, Wien, is actually of this species. All 3 specimens are from Brazil.

Pagiocerus punctatus Eggers

Pagiocerus punctatus Eggers, 1928:93. Holotype ♂; Corumba, Mato Grosso, Brazil; NHMW, Wien (References in Wood & Bright c1992:214)

Diagnosis: Distinguished from *cribricollis* Eichhoff by the conical epistomal spine; by the much more weakly elevated lateral margins of the lower frons; and by the shorter interstitial setae, those setae on basal half of disc are of very fine, short hair.

Male: Length 2.0 mm, about 2.1 times as long as wide (elytra spread); color dark reddish brown. Frons rather strongly impressed from epistoma to upper level of eyes; epistomal tubercle rather strong, conical; lateral margins weakly elevated; surfaces shining below, apparently finely punctured above; vestiture largely abraded, sparse; vertex closely, finely punctured. Pronotum 0.93 times as long as wide; surface smooth, shining, punctures oval, distinctly impressed, those near center smaller, spaced by 1–3 diameters of a puncture, somewhat larger laterally, much larger near base (largest with reticulate centers); a few minute, hairlike setae near anterior margin. Elytra about 1.2 times as long as wide, about 1.4 times as long as pronotum; striae distinctly impressed, punctures coarse, close, distinct; interstriae slightly wider than striae, shining, somewhat wrinkled, punctures fine, some marked by short, transverse lines, uniseriate. Declivity broadly convex; steep; interstriae narrower than on disc, half as wide as striae, obscurely convex, with fine, uniseriate punctures. Vestiture uniseriate, of fine, minute interstitial hair on anterior half of disc, coarser on and near declivity (each seta at least 8 times as long as wide), each less than half as long as distance between rows.

Distribution: Brazil: Corumba, Mato Grosso.

Notes: The above treatment was based on the male holotype.

GENUS *EUPAGIOCERUS* BLANDFORD

Eupagiocerus Blandford, 1896:133. Type-species: *Eupagiocerus dentipes* Blandford, monobasic (References in Wood & Bright c1992:214)

Diagnosis: Lateral margins of pronotum subacutely elevated, costate; sutures of antennal club strongly procurved.

Description: Length 2.1–3.8 mm, 1.8–2.3 times as long as wide. Frons convex above, flattened to shallowly concave below; frons sexually dimorphic; eyes widely separated, mesal margins sinuate; antennal funicle 7-segmented, club rather slender, with 2 procurved sutures on basal half. Pronotum with lateral margins costate; unarmed, punctured. Elytra with bases marked either by a continuous costa or by a weak row of feebly elevated crenulations; striae impressed, punctures impressed or obsolete; interstriae variable; declivity steep, convex, only the 1 endemic species is armed by moderately large tubercles.

Distribution: Three species are known from Guatemala to Venezuela and Peru. Only 1 has been reported from South America.

Biology: All 3 of the known species are monogynous and bore pith tunnels in stems 1–8 cm in diameter where the larvae of 2 of them feed directly on host tissue. The South American species, *ater* Eggers excavates similar parental pith tunnels but differs by the cultivation of an ambrosial fungus on the walls of those tunnels on which both larvae and adults feed.

Notes: A key to the species of *Eupagiocerus* is in Wood (1982:249–250).

Eupagiocerus ater Eggers

Eupagiocerus ater Eggers, 1931:14. Holotype ♂; Caracas, Venezuela; MNB, Berlin (Synonymy and references in Wood & Bright c1992:214)

Eupagiocerus nevermanni Schedl, 1952:350. Holotype ♀; Turrialba, Costa Rica; NHMW, Wien

Eupagiocerus serratus Wood, 1961:104. Holotype ♂; Paraiso, Canal Zone, Panama; USNM, Washington

Diagnosis: Declivital interstriae 1, 3–9 armed by pointed spines; mycetophagous.

Male: Similar to female except frontal carina absent and replaced by an impression and declivital sculpture finer.

Female: Length 2.1–2.6 mm, 2.0 times as long as wide; color dark brown to black. Frons above level of antennal bases convex, smooth, brightly polished in central area, reticulate at sides and above; epistomal margin weakly elevated, a flattened, rugose-reticulate, sparsely punctured area immediately above; antennal bases connected by a moderately elevated, procurved carina, subvertical on its lower (orad) side, moderately sloping, punctured, pubescent on its upper slope; vestiture rather abundant, longer and finer below, coarse, short above carina. Pronotum 0.9 times as long as wide; surface subshining, with minute, obscure longitudinal lines, becoming reticulate laterally and basally, punctures elongate, rather coarse, close, shallow; glabrous. Anterior half of propleuron impressed and ornamented by dense, yellow setae. Elytra 1.1 times as long as wide; basal margins acutely elevated on a continuous costa; striae impressed, punctures obsolete; interstriae one and one-half times as wide as striae, flattened basally, strongly convex and shining toward declivity (almost as high as wide), interstriae reticulate toward declivity (less regular on basal third), punctures small, confused, sparse on posterior half. Declivity steep, flattened, reticulate-granulate over both punctures and serrations; interstriae 1 vertically, strongly elevated, declining in height to lower third, armed by almost 10 serrations, 2 with small serrations at base, weakly elevated below, 3–9 each bearing two to four coarse serrations; vestiture confined to declivity, sparse.

Distribution: Costa Rica to Venezuela and Peru.

Colombia: 24 km E Barbosa, Antioquia, 18-VII-1970, 1200 m, No. 698, Lauraceae sp., SLW.

Peru: Exact locality not given on labels.

Venezuela: Caracas, by Moritz.

Hosts: *Serjania* spp., and other woody lianas.

Biology: Specimens were removed from biramous pith tunnels in stems 0.5–2.0 cm in diameter. Walls of the parental tunnels were covered by the fluffy, white mycelium of an ambrosial fungus on which adults and larvae fed. This mycelium apparently did not turn black with age as in other mycetophagous species.

Notes: The above treatment was based on 52 Central American specimens, on 1 from Peru, on 1 from Colombia, and on the holotype from Venezuela. The holotype, from Caracas, in all probability came from Colonia Tovar, Aragua, Venezuela, near the Moritz home. I compared 1 male directly to the holotype of *Eupagiocerus ater* Eggers.

GENUS *BOTHROSTERNUS* EICHHOFF

Bothrosternus Eichhoff, 1868:150. Type-species: *Bothrosternus truncatus* Eichhoff, monobasic (References in Wood & Bright c1992: 215)

Diagnosis: Sutures of antennal club straight; lateral margins of pronotum subacutely costate; prothoracic intercoxal piece transversely costate; female propleural

area excavated and conspicuously pubescent; some species at least partly mycetophagous; partly with males dwarfed and rare to xylomycetophagous.

Description: Length 1.9–3.1 mm, 1.9–2.2 times as long as wide; color dark brown to black. Frons convex above, flattened below, some species carinate; eyes widely separated, sinuate on anterior margins; antennal funicle 7-segmented; club slender, with 2 straight sutures. Pronotum unarmed, surface substrigose. Elytra with basal margins weakly subcrenulate; striae impressed, punctures obscure; interstriae simple, unarmed, partly subcarinate in some species; declivity convex, steep; vestiture hairlike.

Distribution: Wood & Bright (c1992:215) report 12 species from Mexico (Veracruz) to Argentina.

Biology: The species are monogynous. Parental axial pith tunnels are bored into small stems 0.5–5.0 cm in diameter. At least half of the species cultivate an ambrosial fungus on the walls of their tunnels on which larvae and adults feed. The mycelium is white and fluffy and does not darken with age as in other ambrosia beetles. At least some of the species appeared to feed directly on host tissue; in others there appeared to be a transitional habit of feeding initially on host tissue then later on the fungus mycelium.

Key to the Species of *Bothrosternus*

- 1. Elytral surface on discal interstriae smooth, shining, without any reticulation; Brazil; female 2.3–2.4 mm, male 2.3 mm *lucidus* Wood
- Discal interstriae minutely reticulate 2
- 2(1). Smaller species; elytral disc without interstitial setae, declivity steeper; more broadly convex, with ground cover confused, at least some setae scalelike 3
- Larger species; elytral declivity less steep, more strongly convex; all setae on elytra hairlike 4
- 3(2). Punctures near base of pronotum larger, very shallow, obscure; all interstitial setae on declivital interstriae 1–4 scalelike, most almost as wide as long; lower declivity more broadly convex; Venezuela; *Serjania*; 1.8–2.0 mm *affinis* Eggers
- Punctures near base of pronotum smaller, more distinct; most interstitial setae on declivital interstriae 1–4 stout, elongate (each more than eight times as long as wide), sparse, very short ground setae almost scalelike, pointed, some about three times as long as wide; lower declivity more narrowly convex; Brazil (Santa Catarina); 1.7–1.9 mm *artestrigosus* Schedl
- 4(2). Vestiture absent on elytral disc; declivital setae distinctly shorter than distance between rows; strial punctures very small to obsolete 5
- Interstitial setae on disc mostly uniseriate, about as long as distance between rows; striae on disc narrowly, abruptly, rather shallowly impressed, punctures obscure to obsolete 6
- 5(4). Interstitial setae on declivity slender, equal in length to half to two-thirds distance between rows; punctures on pronotum disc rather coarse, deep, several of them confluent, median line subacute; strial punctures on disc obsolete, on declivity minute, obscure; striae on disc abruptly, deeply impressed, as wide as striae on disc, less than half as wide on declivity; Brazil; 2.3 mm *rudis* Wood

- Interstitial setae on declivity very minute, about twice as long as diameter of an interstitial puncture; striae feebly impressed, punctures very small, distinctly impressed; interstriae on disc at least five times as wide as striae, punctures very small, distinctly impressed, confused *subopacus* Schedl
- 6(4). Interstitial setae on disc and declivity rather abundant to base, consisting of more abundant, short, fine, confused ground setae and indefinite rows of longer hair; pronotum also closely pubescent; female frons with a subacute, transverse carina at level of antennal insertion, a row of setae on its upper slope; Venezuela; *Serjania*, *Tabebuia*; female 2.3–2.4 mm, male 2.3–2.4 mm *hirsutus* Wood
- Interstitial setae much less numerous, almost all in rows with, little or no ground cover; female epistoma with a callus or male with a weak transverse carina 7
- 7(6). Female frons with a transverse carina at level of antennal insertion (as in *hirsutus*); erect interstitial setae on disc slender, pointed; punctures on pronotum averaging larger, closer; color very dark reddish brown; Colombia to Brazil; Lauraceae sp.; female 2.4–2.6 mm, male 2.5 mm *brevis* Eggers
- Female frons without a carina; erect interstitial setae on disc blunt, those near suture distinctly flattened; punctures on pronotum averaging smaller, more isolated; color medium reddish brown; Venezuela; *Serjania* sp.; female 2.1–2.3 mm, male 1.8–1.9 mm *truncatus* Eichhoff

Bothrosternus lucidus Wood

Bostrichus lucidus Wood, 1974:6. Holotype ♂; 260 km N Xavantina, Mato Grosso, Brazil, 12°49'S, 50°46'W (References in Wood & Bright c1992:215)

Diagnosis: Surfaces of most of pronotum and elytra smooth, shining (almost no reticulation).

Male: Similar to female except slightly smaller; frontal vestiture less abundant; interstitial tubercles on declivity smaller, poorly formed.

Female: Length 2.3–2.4 mm (male 2.3 mm), 2.2 times as long as wide; color reddish brown. Frons modestly, transversely impressed from epistomal margin to level of antennal insertion, broadly convex above; convex area reticulate; punctures small, obscure, on lower and lateral areas; vestiture of fine, erect, moderately long hair on impressed and lateral areas to upper level of eyes. Pronotum 0.97 times as long as wide; surface mostly smooth, shining, obscure areas of reticulation on some specimens, punctures small, shallow, oval, separated by 1–4 diameters of a puncture; glabrous. Elytra 1.4 times as long as wide, 1.6 times as long as pronotum; basal margins conspicuously elevated and continuously costate, crenulations not indicated; striae rather weakly impressed, punctures moderately large, at least slightly confluent; interstriae about twice as wide as striae, surface almost smooth, shining, punctures minute, mostly uniseriate. Declivity convex, rather steep; striae punctures more deeply impressed, interstriae as wide as striae, 1–9 each armed by a row of small, rounded tubercles; vestiture confined to declivity, consisting of uniseriate rows of rather slender, blunt, erect bristles (no ground setae) each almost as long as distance between rows,

spaced within a row by half to full length of a bristle; disc glabrous.

Distribution: Brazil: 260 km N Xavantina, Mato Grosso.

Biology: Presumably removed from small branches; 5 of 15 specimens were male.

Notes: The above treatment was based on the type series of 15 specimens.

Bothrosternus affinis Eggers

Bothrosternus affinis Eggers, 1933:14. Holotype ♂; San Esteban, Venezuela; MNHN, Paris (References in Wood & Bright c1992:215)

Diagnosis: This is the only known species in this genus with the declivital interstriae clothed by numerous, short, broad scales.

Male: Length 1.8–2.0 mm, 2.2 times as long as wide; color very dark brown, scales pale. Frons similar to male *lucidus* Wood except impression extending to level of ocular sinuation; surface reticulate; vestiture rather sparse, largely confined to lateral margins. Pronotum 1.0 times as long as wide; surface minutely (longitudinally) reticulate, rather dull; punctures coarse, very shallow on basal fourth, most separated by one-fourth diameter of a puncture, on middle third punctures smaller, half as large as those at base, each twice as long as wide, several confluent, smaller toward anterior margin; glabrous. Elytra 1.4 times as long as wide, 1.5 times as long as pronotum; basal margins weakly elevated, with an obscure row of very small crenulations; striae weakly, abruptly impressed, punctures rather small, confluent; interstriae almost three times as wide as striae, surface obscurely reticulate (80X), punctures very small, confused, glabrous on disc. Declivity very steep, very broadly convex; striae

more deeply impressed, interstriae half as wide as on disc, clothed with numerous, confused interstitial scales, each about one to two times as long as wide, base with a few much longer erect, rather slender scales, these decrease in length on upper third to length of ground scales.

Distribution: Venezuela: San Esteban, Carabobo; Rancho Grande, Aragua, 9-IV-1970, 1100 m, No. 429, *Serjania*, SLW; El Laurel, 12 km SW Caracas, Miranda, 1-V-1970, 1300 m, No. 462, *Serjania*, SLW.

Biology: Taken from axial pith tunnels in stems smaller than 1 cm in diameter.

Notes: The above treatment was based on 3 males, all of which I compared to the holotype.

Bothrosternus artestrigosus Schedl

Bothrosternus artestrigosus Schedl, 1939:722. Holotype ♂; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:215)

Diagnosis: Distinguished from *affinis* Eggers by the smaller, more distinct punctures at the base of the pronotum; by the more narrowly convex lower declivity; and by the more slender declivital vestiture with very sparse ground scales.

Male: Length 1.7–1.9 mm, 2.4 times as long as wide; color very dark brown, pronotum almost black. Frons as in *affinis* except lower third more distinctly impressed. Pronotum as in *affinis* except surface more dull, punctures slightly smaller. Elytra as in *affinis* except declivity more distinctly convex; declivital striae less distinctly impressed, interstitial setae of erect, almost uniseriate rows, each at least eight times as long as wide, almost as long as distance between rows, and sparse ground cover of short, almost scalelike, pointed setae, each almost four times as long as wide.

Distribution: Brazil: Nova Teutonia [Santa Catarina], 20-V-1935, F. Plaumann.

Notes: The above treatment was based on the male holotype and on 1 male paratype; both are from Brazil and are at NHMW, Wien. Bright & Skidmore (1997:44) report this species from Bolivia; I have not seen their specimens.

Bothrosternus rudis Wood, n. sp.

Bothrosternus rudis Wood: Holotype ♂; Brazil; USNM, Washington

Diagnosis: Distinguished from *subopacus* Schedl by the smaller size; by the abruptly, strongly impressed striae, with punctures obsolete on disc, impressed between obsolete punctures on declivity; by the interstriae being slightly narrower than striae on disc, half as wide on the declivity; punctures on the pronotum disc much larger, deeper, some confluent; and by other characters described below.

Male: Length 2.3 mm, 2.1 times as long as wide; color black. Frons moderately concave on median five-eighths from epistoma, two-thirds distance toward upper level

of eyes; surface of concave area reticulate, with many rather close punctures to above upper level of eyes; vestiture in concave area coarse, moderately long, rather abundant, on convex area above sparse, very short; antennal scape club-shaped, slightly shorter than club, with a small tuft of long hairlike setae; club 1.48 times as long as wide, weakly obovate, sutures 1 and 2 weakly procurved. Pronotum 0.94 times as long as wide; widest near middle of pronotum length, sides moderately arcuate on basal half, broadly rounded in front; median line on posterior two-thirds forming a subacute costa; punctures on basal half coarse, close, moderately deep, several on median half confluent; punctures with their interior obscurely reticulate; spaces between punctures less than half as wide as puncture; narrow median area on anterior fourth of pronotum length smooth, shining, with obscure punctures sparse; basal margin obscurely angulate; scutellum circular in outline, dorsal surface convex, displaced somewhat caudad into scutellar notch; glabrous. Elytra 1.3 times as long as wide, 1.4 times as long as pronotum; striae abruptly, moderately impressed on disc, weakly on declivity; striae with punctures obsolete, obscure remnants near declivity bear minute strial setae; interstriae on disc slightly narrower than striae, half as wide at base of disc, surfaces of striae and interstriae obscurely reticulate, interstriae each with a uniseriate row of small punctures. Declivity steep, very broadly convex; striae less deeply impressed, on lower half coarse, deeply impressed punctures evident, becoming obsolete on basal half; interstriae less than half as wide as striae, punctures replaced by rather small, pointed tubercles; costal margin near apex flared slightly upward. Vestiture consisting of rows of minute strial setae near and on declivity, and rows of interstitial, rather stout setae on declivity, each seta on basal area about equal in length to two-thirds distance between rows, these setae shorter on lower half.

Distribution: Brazil.

Type material: The male holotype was taken in Brazil (probably Manaus or Mato Grosso?) by R.A. Beaver, Code TL 17. The holotype is in the U.S. National Museum, Washington.

Bothrosternus subopacus Schedl

Bothrosternus subopacus Schedl, 1963:217. Holotype ♀; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:215)

Diagnosis: Distinguished from *hirsutus* Wood, *brevis* Eggers, and *truncatus* Eichhoff by the feebly impressed striae on the disc; by the distinctly impressed strial punctures; and by the absence of setae on the discal interstriae and the very minute interstitial setae on the declivity.

Female: Length 2.5–2.8 mm, 2.1 times as long as wide; color dark reddish brown, pronotum almost black. Frons broadly convex on upper third of area below upper level of eyes, shallowly, very broadly concave below; epistoma

with a low, transverse carina on median half; surface strongly reticulate, punctures very small, sparse, mostly on upper and lateral margins; sparse vestiture restricted to epistomal area below carina. Pronotum 0.81 times as long as wide; surface strongly reticulate, punctures obscure, rather small, shallow on anterior two-thirds at least twice as large on basal one-fourth; vestiture abraded. Elytra 1.5 times as long as wide, 1.7 times as long as pronotum; striae feebly impressed, punctures very small, distinctly, rather closely impressed; interstriae at least five times as wide as striae, surface strongly reticulate, punctures small (half as large as those of striae), moderately numerous, strongly confused, vestiture obsolete (or shorter than diameter of an interstitial puncture). Declivity rather broadly convex, steep; striae distinctly impressed, punctures twice as large as on disc; interstriae narrower than on disc, two and one-half times as wide as striae, punctures less numerous, mostly uniseriate. Vestiture restricted to declivity (or near), setae minute, inconspicuous, mostly shorter than twice diameter of an interstitial puncture.

Distribution: Brazil: Nova Teutonia [Santa Catarina], 27° 11' B, 52° 23' L, VII-1954, 300–500 m, F. Plaumann; Rio Grande do Sul, K.E. Hudepohl, Torres I-1959.

Notes: The above treatment was based on the female holotype and on 1 other female; both are from Brazil and are in NHMW, Wien.

Bothrosternus hirsutus Wood

Bothrosternus hirsutus Wood, 1985:271. Holotype ♂; Rancho Grande, Aragua, Venezuela; USNM, Washington (References in Wood & Bright c1992:215)

Diagnosis: Distinguished by the fine, moderately abundant, hairlike setae on pronotum and (confused) elytra.

Male: Similar to female except frons almost flat on lower half; declivital granules on interstriae smaller.

Female: Length 2.3–2.4 mm, 2.1 times as long as wide; color dull black. Frons almost flat on less than lower half, a moderately strong transverse carina at level of antennal insertion, its upper slope coarsely punctured, broadly convex above; smooth on median area of lower half, with a few small punctures at margins, rather coarsely reticulate-granulate above; sparse, long, inconspicuous fine hair on lower half. Pronotum 0.90 times as long as wide; sides rather strongly arcuate from base; surface rather finely, very shallowly, longitudinally strigose, crests weakly convex, comprising less than one-fourth of surface, dull; vestiture of very fine, long moderately abundant hair over entire surface. Elytra 1.3 times as long as wide, 1.6 times as long as pronotum; basal margins almost costate, crenulations very weak; striae abruptly, distinctly impressed, punctures confluent, scarcely visible; interstriae almost three times as wide as striae, feebly convex at base, moderately convex at base of declivity; surface dull, minutely reticulate, punctures very small, obscure, mostly in two rows on each

interstriae at margins (confused in some specimens); vestiture of very fine, short and long hair intermixed to base. Declivity convex, steep; striae more deeply impressed; interstriae half as wide as on disc, moderately convex on basal half, each with a row of fine granules at least on upper half.

Distribution: Venezuela: Rancho Grande, Aragua, 9-IV-1970, 1100 m, No. 429, *Serjania*, No. 420, *Tabebuia* twigs, SLW.

Biology: Taken from axial pith tunnels in stems 0.5–2.0 cm in diameter.

Notes: The above treatment was based on the type series of 23 specimens.

Bothrosternus brevis Eggers

Bothrosternus brevis Eggers, 1933:15. Holotype ♀; Sao Paulo, Brazil; USNM, Washington (References in Wood & Bright c1992:215)

Diagnosis: Distinguished from *hirsutus* Wood by the more deeply, less closely impressed pronotal strigae, with much less abundant hair on pronotum and elytra; declivital setae coarser, less abundant.

Male: Similar to female except frontal carina absent.

Female: Length 2.4–2.6 mm (male 2.5 mm), 2.2 times as long as wide; color dark brown. Frons as in *hirsutus*. Pronotum as in *hirsutus* except sides less strongly arcuate, strigosities shorter, deeper, not as close; vestiture much less abundant. Elytra as in *hirsutus* except interstriae near base of declivity less strongly convex; vestiture on disc less abundant, shorter, on declivity erect bristles stouter, in uniseriate rows, with very few supplemental setae.

Distribution: Colombia to Brazil.

Brazil: Manaus, Amazonas, INPA Campus, 3-XII-1986, No. 011 F10; Porto Flor., Sao Paulo, 4-V-1959, 13001, J. Halik; Petropolis, III-1938, Shannon.

Colombia: 24 km E Barbosa, Antioquia, 18-VII-1970, 1200 m, No. 698, Lauraceae sp., SLW.

Biology: One male was taken from a pith tunnel in a twig.

Notes: The above treatment was based on 3 males and 3 females. I compared 1 female directly to the holotype. Bright & Skidmore (1997:44) report this species from Bolivia, Venezuela, and Dominicana; these specimens were not seen by me; they probably include more than 1 species.

Bothrosternus truncatus Eichhoff

Plate X

Bothrosternus truncatus Eichhoff, 1868:150. Holotype ♂; Venezuela; NHMW, Wien (References in Wood & Bright c1992:215)

Bothrosternus striatus Eggers, 1933:16. Holotype ♂; Venezuela; USNM, Washington (References in Wood & Bright c1992:215). *New synonymy*

Diagnosis: Distinguished from *brevis* Eggers by the reddish brown, mature color, by the presence of an epistomal callus (not a carina), and by slight differences in sculpture of the pronotum and elytra.

Male: Similar to female except smaller, rare (about 5–10 percent of long series), epistomal callus absent, pronotal punctures more distinct, less elongate, pronotum almost glabrous.

Female: Length 2.1–2.3 mm (1.8–1.9 mm in male), 2.1 times as long as wide; color reddish brown. Frons from flattened below level of ocular sinuation, a rather weak epistomal callus just above epistomal margin; convex and transversely etched above; sparse, fine hair on flattened area and laterally to upper level of eyes. Pronotum 0.90 times as long as wide; sides moderately arcuate; surface similar to *brevis*, fine, semirecumbent, rather sparse, hairlike setae to base. Elytra 1.4 times as long as wide, 1.6 times as long as pronotum; similar to *brevis* except declivity much more broadly convex, interstriae at base of declivity more strongly convex, declivital striae 1–3 narrower, interstriae distinctly wider, erect bristles stouter, often flattened, especially on disc.

Distribution: Venezuela: “Venezuela”; 9 km S Barrancas, Barinas, 5-XI-1969, 150 m, No. 118, *Serjania*, SLW; 40 km SE Socopo, Barinas, 7-II-1970, 150 m, No. 286, *Serjania*, SLW.

Biology: Taken from axial pith tunnels in stems 0.5–2.0 cm in diameter.

Notes: The above treatment was based on 256 specimens. The identity of this species was in doubt for more than a century because the holotype is a male. This holotype was examined and compared directly to males and females in my collections. My male homo-

type was compared directly to the holotype of *striatus* and was found to be identical.

GENUS *STERNOBOTHRUS* EGGERS

Sternobothrus Eggers, 1943:372. Type-species: *Bothrosternus cancellatus* Chapuis, original designation (References in Wood & Bright c1992:216)

Diagnosis: Sutures of antennal club straight; lateral margins of pronotum subacutely costate; prothoracic intercoxal piece normal (not transversely costate); propleural area not excavated or conspicuously pubescent; interstriae partly or entirely costate; myleophagus.

Description: Length 2.2–3.6 mm, 2.1–2.2 times as long as wide; color dark brown to black. Frons convex above, variously impressed and ornamented below (sexually dimorphic); eyes widely separated above, mesal margins sinuate in most species; antennal funicle 7-segmented, club elongate, with 2 straight sutures. Pronotum unarmed, surface punctured. Elytra with basal margins either forming a continuous costa or with a row of weakly formed crenulations, declivity convex, steep; vestiture minute, sparse.

Distribution: Wood & Bright (c1992:216) report 10 species from Mexico (Oaxaca) to Argentina.

Biology: The 3 species I have observed were axial pith borers in small stems. All 3 fed directly on host tissue.

Notes: The species *Sternobothrus lobatus* Schedl was transferred to the genus *Cortisinus* (tribe Phloeosinini).

Key to the Species of *Sternobothrus*

- 1. Striae more weakly, gradually impressed, without any rugose-reticulation, punctures fine, impressed, distinct; interstriae 1–4 each with a sparse row of rounded tubercles (except *rufonitidus*) 2
- Striae abruptly, distinctly impressed, and conspicuously rugose-reticulate; interstriae weakly convex to costate, smooth to reticulate, never with tubercles 4
- 2(1). Lateral margin of pronotum rather abruptly angulate (not truly costate); eye entire, no hint of sinuation or emargination on anterior margin; basal margins of elytra elevated, forming an almost continuous costa; declivital interstriae narrowly convex (almost subcostate), lower 1–3 each with row of fine, obscure tubercles; Brazil (Santa Catarina) to Paraguay; 2.8–3.0 mm *rufonitidus* Schedl
- Lateral margins of pronotum clearly costate; interstriae each with a row of tubercles from base to at least base of declivity, declivital interstriae more broadly convex 3
- 3(2). Declivital interstriae 1–8 each with a closely set row of moderately large, rounded tubercles from base to apex; vestiture on pronotum of fine, very long hair, some setae equal in length to combined width of three interstriae, strongly confused on disc, mostly in uniseriate rows on declivity; Bolivia (Cochabamba); 3.2 mm *pilosus* (Schedl)
- Declivital interstriae 1 and 2 without tubercles on lower two-thirds, a few small, scattered tubercles at bases of 1 and 2 and more extensively on 3–8; setae on pronotum and elytra shorter, less abundant, largely confined to declivity, very few longer than distance between indefinite rows; Brazil (Santa Catarina); 2.9 mm [*marginicollis* (Eggers) also fits here but frons concave to upper level of eyes] *vexator* (Schedl)

BOTHROSTERNINI

- 4(1). Discal interstriae usually uniseriately punctured (punctures sometimes obscure or weakly confused), appearing bicostate in one species, interstriae subreticulate (or micropunctate) in some species 5
- Basal one-third or more of disc with interstriae broadly, evenly convex, brightly shining, with punctures strongly confused 10
- 5(4). Elytral disc mostly shining, interstriae each with a row of coarse, close punctures, reticulation or micropunctures not clearly evident; interstriae I costae distinct at base of declivity, breaking into a subserrate series of rounded denticles to apex on 1–3, more poorly formed in lateral areas; pronotum strigose 6
- Elytral disc reticulate to densely micropunctate, interstitial costae longer, declivital tubercles smaller 7
- 6(5). Punctures on pronotum rather coarsely strigose; strial punctures distinctly impressed; declivital costae broken into rather coarse serrations; small interstitial setae evident on disc and declivity, slightly longer, strial setae evident on declivity; Paraguay; 2.1 mm *paraguayensis* (Schedl)
- Pronotal punctures finely strigose; strial punctures confluent, obscure, almost obsolete; declivital costae broken into weak serrations; interstitial setae not evident on disc, minute on declivity (their length equal to less than one-fourth width of an interstriae, strial setae not evident; Brazil (Santa Catarina); 1.9–2.0 mm *ater* (Schedl)
- 7(5). Discal interstriae bicarinate from base to mid-disc, mesal element then declining and absent by base of declivity, lateral carina gradually increasing in importance caudad then subdividing on lower declivity into rows of small tubercles; body, slender, 2.4 times as long as wide; Venezuela; *Nectandra*; 2.8–3.1 mm *bicostatus* (Schedl)
- Discal interstriae neither sulcate nor costate on more than basal half, modestly to conspicuously costate 8
- 8(7). All interstriae conspicuously, uniformly costate from near middle of disc to junction at or near 9 at apex, with no tubercles or granules on the costae; Brazil (Pernambuco to Sao Paulo); 2.3–2.6 mm *suturalis* (Eggers)
- Costae on declivity extend from its base to middle of declivity, 1 and 2 on lower half either with punctures or granules 9
- 9(8). Discal interstriae twice as wide as striae, punctures numerous, confused; declivital interstriae 1 and 2 with fine granules; Brazil (Sao Paulo); 1.8 m *pumilus* (Eggers)
- Discal interstriae only slightly wider than striae, punctures uniseriate except slightly confused on 3; declivital interstriae 1 and 2 punctured, granules absent; Brazil (Guanabara); 2.4 mm *transitus* (Schedl)
- 10(4). Sutural apex rather shallowly emarginate, apices of elytra distinctly explanate, their costal margins rather coarsely serrate; Panama and Venezuela to Peru and Brazil; *Nectandra*; 2.1–2.5 mm *bicaudatus* (Blandford)
- Elytra rather broadly to narrowly rounded behind, entire, costal margins near apex smooth; larger species 11
- 11(10). Slightly smaller, more slender species (2.2 times as long as wide); epistomal callus poorly developed; discal interstriae reticulate on at least margins of basal half; all declivital interstriae narrowly, about equally costate, punctures obsolete; Brazil; 2.4–2.7 mm *costatus* (Chapuis)
- Larger, stouter species (< 2.0 times as long as wide); epistomal callus (at least in male) more strongly developed; discal interstriae smooth, shining; either with no declivital interstriae carinate or carinae conspicuously unequal in height 12

- 12(11). Lower declivity convex, carina on interstriae 2 extending at least to middle of declivity, crest or carina on 3 ending slightly below middle; epistomal callus unarmed, reddish brown brush extending more than half distance to upper level of eyes, eye entire; Bolivia to Peru; 3.1 mm *carinatus* Eggers
- Lower declivity rather strongly impressed between interstriae 3; declivital interstriae 2 not carinate below base 13
- 13(12). Declivital interstriae tuberculate or subserrate, none with a smooth costa, 1–3 extend to apex; striae 1–10 rather coarsely rugose-reticulate on both disc and declivity; pronotum rather coarsely granulate except at lateral margins (male) and near base; male epistomal callus distinct, unarmed; Brazil (Santa Catarina); 3.6–3.8 mm *opaculus* Schedl
- Interstitial costae 1–9 forming uniform crests on posterior disc to at least upper half of declivity; striae not rugose-reticulate near base on disc or on lower half of declivity; pronotum smooth, with abundant small punctures 14
- 14(13). Male frons strongly concave on more than lower half, impression attaining upper level of eyes, lateral margins subacutely elevated from epistoma to slightly above level of antennal insertion, epistomal callus broad, its dorsal crest forming a subacute carina; discal interstriae smooth, shining, with numerous, confused punctures to lower declivity, not carinate; Brazil (Nova Fribourg); 4.0 mm *cancellatus* (Chapuis)
- Male frons moderately, subconcavely impressed on lower half, lateral margins weakly elevated, epistomal callus poorly formed, armed by a strong median tubercle and with a conspicuous reddish brown brush of setae above callus; all discal interstriae reticulate, punctured on only basal two-thirds of disc, carinate near and on declivity to near apex; Mexico (Oaxaca) to Argentina; *Nectandra*; 2.5–3.8 mm *sculpturatus* (Blandford)

Sternobothrus rufonitidus Schedl

Sternobothrus rufonitidus Schedl, 1952:351. Holotype ♀; Paraguay, Villarica; NHMW, Wien (References in Wood & Bright c1929:216)

Diagnosis: This species lacks an essential generic character, the lateral margins of the pronotum are subangulate to narrowly rounded, not fully costate; declivital interstriae weakly costate; anterior margin of eye entire, with no hint of sinuation; basal margins of elytra distinctly elevated, forming a continuous costa.

Male: Similar to female except upper frons strongly convex, impunctate area slightly larger, epistomal brush above stronger callus larger, of bright reddish brown color (yellowish in female).

Female: Length 2.8–3.0 mm, 2.0 times as long as wide; color very dark reddish brown. Frons subconcavely impressed on lower two-thirds of area below upper level of eyes, deepest point one-half distance from epistoma to upper level of eyes; upper half and continuing to vertex smooth, shining, impunctate; lower area shining and finely, deeply punctured and pubescent from epistomal callus to deepest point of concavity and continuing laterally to margin of eye; pubescence of coarse, rather abundant, moderately long hair; epistomal callus distinctly, weakly elevated on median half, smooth, shining. Pronotum 0.95 times as long as wide; surface smooth, shining, punctures very small, distinctly impressed, round to oval, spaced by 1–4 diameters of a puncture; glabrous.

Elytra 1.3 times as long as wide, 1.6 times as long as pronotum; basal margins moderately elevated to continuous costa, slope with one row (weakly formed) as a submarginal undulating costa; striae narrowly, rather abruptly impressed, punctures small, distinctly impressed, interstriae twice as wide as striae, broadly convex to near declivity, smooth, shining, with numerous fine, confused punctures. Declivity broadly convex steep; striae more strongly impressed, punctures mostly obsolete; interstriae narrowly convex, almost subcostate from 1–9, 1–4 continue to apex, 5 and 7 join and also continue to apex; on lower half of 1–3 an obscure row of fine granules present. Glabrous.

Distribution: Brazil to Paraguay and Argentina.

Argentina: Cited in Wood & Bright c1992:216).

Brazil: Nova Teutonia [Santa Catarina], 17-II-1950, 4-V-1950, VII-1954, 300–500 m, F. Plaumann.

Paraguay: Villarica, IX-1932, Koller; Hohenan, X-1935, No. 3010, Jacob (DEI Muncheberg).

Notes: The above treatment was based on the female holotype, on the male allotype, on 1 other male and 1 female at NHMW, Wien, and on 3 females (at Muncheberg) that may have been taken with the holotype.

Sternobothrus pilosus (Eggers), n. comb.

Sternobothrus pilosus (Eggers), 1943:378 (*Cnesinus*). Holotype ♂; Bolivia (Cochabamba); NHMW, Wien (References in Wood & Bright c1992:210)

Diagnosis: Distinguished by the large size; by the stout body form; and by the very long, fine interstitial setae.

Male (?): Length 3.2 mm, 2.1 times as long as wide; color reddish brown. Frons with epistomal callus very poorly formed, its upper slope marked by 1 row of yellowish hair; lower half transversely impressed; broadly smooth, shining from epistoma to above upper level of eyes; hairlike vestiture of moderate length, mostly limited to lateral areas. Pronotum 0.90 times as long as wide; surface smooth, shining, punctures longitudinally strigose, most confluent, grooves narrow, moderately long, ridges mostly flat (not convex). Vestiture of moderately abundant, very fine, very long hair (almost as long as those on elytra). Scutellum twice as wide as long. Elytra 1.4 times as long as wide, 1.8 times as long as pronotum; basal margins armed by a continuous costa, crenulations not indicated; striae distinctly impressed, punctures small, distinctly impressed; interstriae slightly convex, about three times as wide as striae, surface smooth, shining, each with a central, almost uniseriate row of subacutely pointed tubercles, and small, confused, moderately abundant punctures. Declivity broadly convex, steep (weakly impressed between left and right interstriae 3, particularly on 2); tubercles closer and slightly larger on declivity from 1 to about 9 (of reduced size in lateral areas). Vestiture of very fine, very long hair, many of greater length than combined width of three interstriae, on disc arising from both tubercles and punctures, on declivity almost entirely from tubercles; strial hair present but much shorter.

Distribution: Bolivia: Cochabamba, [F. Woytkowski].

Notes: The above treatment was based on the male holotype.

Sternobothrus vexator (Schedl), n. comb.

Sternobothrus vexator (Schedl), 1963:220 (*Cnesinus*). Holotype ♂; Brasilien: Santa Catarina, Nova Teutonia; NHMW, Wien (References in Wood & Bright c1992:212)

Diagnosis: Distinguished from *pilosus* (Eggers) by the shorter, less abundant setae on pronotum and elytra; and by the absence of tubercles on the lower half of declivital interstriae 1 and 2.

Male: Similar to female except epistomal brush less than half as extensive, frontal impression extending almost to upper level of eyes; smooth and shining only on lower half, upper area transversely etched to upper level of eyes, lateral areas with small tubercles replacing punctures.

Female: Length 2.9 mm, 2.3 times as long as wide; color reddish brown. Frons with epistomal callus occupying more than central half, very short (longitudinally), reddish brown brush occupying lower one-third of area below upper level of eyes; smooth, shining, impunctate area on lower half as wide as distance between eyes above, extending from brush to vertex (constricted above

eyes); lateral areas rugose-reticulate and finely punctured, a few fine, moderately long setae present. Pronotum 0.90 times as long as wide; shining; longitudinal striations short, about half confluent, most punctures on basal fourth moderately elongate, few strigose; almost glabrous. Elytra 1.6 times as long as wide, 1.9 times as long as pronotum; striae very narrow, distinctly, weakly impressed, punctures very small, some indistinct; interstriae about six times as wide as striae, weakly convex, almost smooth, with sparse, confused, minute punctures and on interstriae 1–4 sparse, uniseriate, rounded tubercles of moderate size. Declivity broadly convex, rather steep; strial punctures larger and much deeper than on disc; interstriae 2 weakly impressed, 1 punctured and devoid of tubercles on lower two-thirds, 2 on lower half, 3 and 4 with tubercles to lower one-fourth. Vestiture very sparse on disc, of moderately abundant, erect, stout setae, confused on declivity, longest slightly longer than width of an interstriae.

Distribution: Brazil: Santa Catarina, 27°11'N, 52°23'W, II-1960, 300–500 m, F. Plaumann.

Notes: The above treatment was based on the male holotype and female allotype.

Sternobothrus marginicollis (Eggers), n. comb.

Sternobothrus marginicollis (Eggers), 1931:15 (*Cnesinus*). Holotype ♂; Tropisches America (Antillen oder Colombien); MNB, Berlin (References in Wood & Bright c1992:209)

Diagnosis: Distinguished by absence of interstitial costae; interstriae five times as wide as striae, their surface reticulate-micropunctate rows of tubercles present on disc and declivity.

Male: Length 3.5 mm, 2.1 times as long as wide; color dark brown. Frons shallowly, broadly concave from epistoma to above upper level of eyes; surface smooth, shining, with moderately abundant, minute punctures uniformly distributed; vestiture of fine, short, inconspicuous hair; epistomal callus moderately distinct, its upper slope ornamented by one row of yellowish brown setae. Pronotum 0.93 times as long as wide; surface smooth, shining, rather closely, coarsely, longitudinally strigose from base almost to anterior margin, punctures not clearly evident; almost glabrous except near margins. Elytra 1.4 times as long as wide, 1.9 times as long as pronotum; striae abruptly, narrowly, moderately impressed, punctures small, shallow, obscure; interstriae about five times as wide as striae, surface a combination of micropunctures and reticulation, 1 with a uniseriate row of small, rounded tubercles, remaining interstriae with tubercles usually wider, often subcrenulate. Declivity broadly convex, steep, area between left and right interstriae 3 weakly impressed; surface more strongly reticulate, each interstriae with a uniseriate row of rounded tubercles of moderate size from base to apex. Vestiture mostly on declivity, abraded, of stout, hairlike setae, rather sparse.

Distribution: "Antillien?, Columbien, 48412."

Notes: The above treatment was based on the male holotype.

Sternobothrus paraguayensis (Schedl), n. comb.

Sternobothrus paraguayensis (Schedl), 1936:107 (*Cnesinus*). Holotype ♀; Paraguay; NHMW, Wien (References in Wood & Bright c1992:210)

Diagnosis: Allied to *transitus* (Schedl) but distinguished by the smaller size; by the smoother elytral disc; and by the larger interstitial punctures.

Female: Length 2.1 mm, 2.6 times as long as wide; color very dark brown. Frons with epistomal callus rather broad but very short, brush with its upper slope large, about 6 ranks deep; transverse impression rather strong, short; central, shining, impunctate area extending to upper level of eyes (partly concealed above by pronotum), setae on lateral margins coarse, rather long. Pronotum 1.03 times as long as wide; pronotum shining, coarsely, deeply strigose; sparse, rather short setae restricted to anterior one-fourth. Elytra 1.6 times as long as wide, 1.8 times as long as pronotum; striae abruptly, rather narrowly, distinctly impressed, punctures almost completely confluent; interstriae about twice as wide as striae, shining, punctures rather coarse (almost as large as striae punctures), uniseriate. Declivity broadly convex, rather steep; striae impressed, punctures not discernible; interstriae as wide as striae, 1–6 each with a row of rather coarse (somewhat rounded) serrations (about 6–10 on each) from base to junction with 9. Vestiture of mostly uniseriate interstitial setae, each on basal half of disc about half as long as distance between rows, two-thirds as long near and on declivity; striae setae present, of very fine hair, each about half as long as interstitial setae.

Distribution: Paraguay: "Paraguay."

Notes: The above treatment was based on the female holotype.

Sternobothrus ater (Schedl), n. comb.

Sternobothrus ater (Schedl), 1952:352 (*Cnesinus*). Holotype ♀; Brasilien, Santa Catarina; NHMW, Wien (References in Wood & Bright c1992:205)

Diagnosis: Distinguished from *paraguayensis* Schedl by the finer strigose punctures of the pronotum; by the weaker, subserrate, interstitial costae on the lower declivity; by the striae punctures; by the smaller interstitial punctures on the disc; and by the shorter to obsolete striae and interstitial setae.

Female: Length 1.9–2.0 mm, 2.4 times as long as wide; color very dark brown. Frons about as in *paraguayensis*, impunctate median area above about one-fourth as wide as distance between eyes, vestiture above epistomal brush apparently more abundant and larger. Pronotum resembling *paraguayensis*, shining, finely, longitudinally strigose, most punctures confluent. Elytra resembling *paraguayensis*; striae rugose-reticulate from base to apex,

punctures almost obsolete on disc and declivity; interstriae mostly smooth, shining (some reticulation present), low, subacute costae from near base of declivity to near apex, becoming finely subserrate on lower half of declivity. Strial setae obsolete; interstitial setae near and on disc very short, less than one-fourth as long as width of an interstriae.

Distribution: Brazil: Santa Catarina, Kollar Coll. (type); Nova Teutonia, Santa Catarina, 27° 11. B, 52°23L, VII-1954, 300–500 m, F. Plaumann.

Notes: The above treatment was based on the female holotype and on 1 other female that had been labeled by Schedl as a male.

Sternobothrus bicostatus (Schedl), n. comb.

Sternobothrus bicostatus (Schedl), 1936:106 (*Cnesinus*). Holotype ♂; Costa Rica: Turrialba; NHMW, Wien (References in Wood & Bright c1992:206)

Diagnosis: Interstriae bicostate at least on basal half of disc, lateral element continuing to lower declivity.

Male: Similar to female except concave area on frons smaller, not as deep, its setae less numerous, shorter; declivital bristles apparently shorter, weaker.

Female: Length 2.8–3.1 mm, 2.4 times as long as wide; color almost black. Frons broadly, moderately concave from epistoma to very slightly below upper level of eyes; surface of concave area shining, coarsely, closely punctured and with rather long, moderately abundant, erect, subplumose setae on lower two-thirds, median area above almost smooth, shining, glabrous; area above concavity transversely flattened, its surface reticulate-granulate, with small punctures at upper and lateral margins. Pronotum 1.0 times as long as wide; shining; posterolateral areas with fine elongate punctures, becoming finely, continuously strigose mesad and cephalad to anterior one-tenth, punctures not discernible on middle half; glabrous. Elytra 1.5 times as long as wide, 1.7 times as long as pronotum; basal margins weakly crenulate; striae moderately impressed, punctures confluent, not discernible; interstriae about twice as wide as striae, bicostate at base, mesal element obsolete before declivity, area between costae continuing to declivity, dull, reticulate, obscurely, minutely punctured, with numerous microsetae on both sides of major costae from base to declivity. Declivity broadly convex, steep; striae more deeply impressed, interstriae much narrower than on disc, costae end before middle, continued to apex as rows of moderately large, rounded tubercles; each interstriae with a row of small slender bristles of moderate length, each about two-thirds as long as distance between rows, spaced within a row by less than length of a bristle; minute striae setae present.

Distribution: Costa Rica to Venezuela.

Venezuela: Colonia Tovar, Aragua, 4-V-1970, 1700 m, No. 485, *Nectandra*, SLW; Carbonera Experimental Forest, 50 km airline NW Merida, Merida, 14-X-1969, 2500 m, No. 53, *Nectandra*, SLW.

Biology: Taken from axial pith tunnels in small branches.

Notes: The above treatment was based on 1 male and 6 females from Venezuela; 1 female was compared to the holotype by me.

Sternobothrus suturalis (Eggers), n. comb.

Sternobothrus suturalis (Eggers), 1931:32 (*Bothrosternus*). Holotype ♂; Sao Paulo, Brasil; NMPC Prague (References in Wood & Bright c1992:215)

Diagnosis: Distinguished from other members of this genus by having all nine interstitial costae extending from the middle of the disc to their normal apex on the lower half of the declivity.

Male: Length 2.3–2.6 mm, 2.4 times as long as wide; mature color dark reddish brown to almost black. Frons rather strongly, transversely convex on lower half of area from epistoma to upper level of eyes, upper half broadly convex; epistomal callus with flattened, median tubercle; surface reticulate on more than dorsal half, shining below, lower half and marginal areas above with moderately abundant, fine punctures; vestiture of moderately abundant, rather long hair on lower half and lateral areas above. Pronotum 1.1 times as long as wide; widest at middle, dorsal profile evenly arched; surface smooth, shining, anterior and lateral areas with some reticulation, punctures rather small, moderately abundant, shallow, oval in shape, each about three times as long as wide; glabrous. Elytra 1.6 times as long as wide, 1.9 times as long as pronotum; costa on basal margins acutely, uniformly elevated; striae moderately, abruptly impressed, punctures obscure, confluent, surface rugose-reticulate; interstriae less than twice as wide as striae, broadly convex on slightly more than basal half, subacutely, evenly costate on almost posterior half of disc and on declivity to apex, basal area partly to mostly reticulate, costae smooth, shining. Declivity convex, moderately steep, feebly impressed between left and right interstriae 3; interstitial costae continue to apex (where costa meets 9) except 4 and 6 end short, without any tubercles or serrations. Strial setae obsolete; interstitial setae obsolete on disc, on declivity each costa with a row of minute, hairlike setae on each side of costa.

Distribution: Brazil: Saude [Bahia], 16-VII-1914, J. Melzer; Pery Pery, Pernambuco, 6-V-1892, Gounelle; Caruaru, Pernambuco, IV-1972, M. Alvarenga; Este Sao Paulo, Sao Paulo.

Hosts: *Araucaria angustifolia* (Bright & Skidmore 2002:34).

Notes: The above treatment was based on 4 males, 1 of which was compared by Eggers directly to the holotype.

Sternobothrus pumilus (Eggers), n. comb.

Sternobothrus pumilus (Eggers), 1931:34 (*Cnesinus*). Holotype ♂; Sao Paulo, Brazil; USNM, Washington (References in Wood & Bright c1992:211)

Diagnosis: Distinguished by the finely, densely, longitudinally strigose pronotum; by the interstitial carinae restricted to the basal half of the declivity; and by the subacute lateral margins of the pronotum.

Male: Length 1.8 mm, 2.4 times as long as wide; color black. Frons transversely, subconcavely impressed on lower half, deepest at level of antennal insertion; epistomal elevation on median one-third appearing as an obscure, transverse carina; surface obscurely punctate-granulate from epistoma almost to upper level of eyes except median one-fourth on upper half smooth, shining, impunctate; vestiture fine, rather sparse, inconspicuous, mostly on lower half and lateral areas above. Pronotum 1.0 times as long as wide; surface subshining, finely, densely, longitudinally strigose (grooves and ridges of equal width); almost glabrous. Elytra 1.6 times as long as wide, 1.7 times as long as pronotum; row of crenulations on basal margins weak, about a dozen, submarginal crenulations; striae abruptly, rather weakly impressed from base to apex, surface minutely rugose-reticulate from base to mid-declivity, fine punctures obscure to obsolete; interstriae twice as wide as striae, subshining, partly, weakly subreticulate, punctures numerous, not always clearly impressed, confused; interstriae at or near base of declivity subcarinate to weakly carinate. Declivity convex, steep; interstriae 1 not elevated, with a few fine, obscure granules, 2 feebly elevated at base, with about 12 small tubercles extending to apex, 3 subacutely costate except obsolete on lower one-fourth, 4–9 subacutely costate almost to their apices; costal margin near apex slightly elevated. Vestiture obsolete except of minute hair on declivity.

Distribution: Brazil: Sao Paulo.

Notes: The above treatment was based on the male holotype.

Sternobothrus transitus (Schedl), n. comb.

Sternobothrus transitus (Schedl), 1976:63 (*Cnesinus*). Holotype ♀; Corcovado, Guanabara, Brazil; NHMW, Wien (References in Wood & Bright c1992:212)

Distinguished from *pumilus* (Eggers) by the larger size; by the narrower discal interstriae; and by the absence of granules on declivital interstriae 1 and 2.

Female: Length 2.4 mm, 2.5 times as long as wide; color very dark reddish brown. Frons with epistomal callus on median one-fifth, almost as long as wide, reddish brown brush broad, occupying lower one-third of area below upper level of eyes; central half of upper half smooth, shining, impunctate, lateral areas dull, subreticulate, closely, rather coarsely punctured, with several stout, moderately long setae. Pronotum 1.2 times as long as wide; surface shining, finely, closely, longitudinally strigose on anterior half, more coarsely near base; several large, shallow punctures at base, their interiors rugose-reticulate. Elytra 1.9 times as long as wide, 1.8 times as long as pronotum; striae distinctly impressed, rugose-reticulate, punctures large, confluent, obscure;

interstriae reticulate-micropunctate, slightly wider than striae, small, obscure punctures uniseriate except mostly confused on 3. Declivity broadly convex; interstriae rather weakly carinate at base, ending higher on 1 and 2, at middle on 3 and 4, 1 with punctures to apex (no granules), 2–4 with a few granules. Glabrous on disc; sparse, uniseriate rows of hair on declivity.

Distribution: Brazil: Guanabara, Corcovado, XI-1970, Alvarenga & Seabra.

Notes: The above treatment was based on the female holotype.

Sternobothrus bicaudatus (Blandford)

Sternobothrus bicaudatus (Blandford), 1896:133 (*Bothrosternus*). Syn-types 2, sex?; Volcan de Chiriqui, Chiriqui, Panama; BMNH, London (References in Wood & Bright c1992:216)

Sternobothrus tuberculatus Eggers, 1951:152. Holotype ♀; Blumenau, Brazil; NHMW, Wien (References in Wood & Bright c1992:216).
New synonymy

Diagnosis: Interstriae flat on basal half of disc, costate on posterior disc and declivity; sutural apex emarginate, elytral apices explanate, their costal margins serrate.

Male: Similar to female except epistomal callus greatly reduced, reddish brown brush absent.

Female: Length 2.1–2.5 mm, 2.4 times as long as wide; color almost black, elytra usually dark reddish brown. Frons broadly convex on upper two-thirds, smooth, shining, impunctate, a few setae in lateral areas; rather strongly, transversely impressed from epistoma to slightly above level of antennal insertion; shining epistomal callus broadly (transversely), narrowly elevated, its upper slope ornamented by a large brush of laterally flattened reddish brown setae filling at least half of impressed area, a few yellowish setae above brush and laterally. Pronotum 1.06 times as long as wide; sides straight and parallel on more than basal half; surface smooth, shining behind, reticulate on anterior third, punctures fine, oval, separate, not strigose. Elytra 1.4 times as long as wide, 1.5 times as long as pronotum; basal margins forming an acute, continuous costa; striae moderately impressed, punctures confluent, not discernible; interstriae almost flat and twice as wide as striae on basal half of disc, becoming convex and as wide as striae by base of declivity, surface smooth, shining, punctures small, confused. Declivity convex, steep, sutural apex emarginate, elytral apices explanate, their costal margins serrate (visible from dorsal aspect); interstriae subacutely costate at base, becoming serrate on upper third, continued to apex as rows of narrow, subacute tubercles; vestiture confined to declivity, of minute, fine hair (not in rows).

Distribution: Panama to Brazil.

Brazil: Blumenau [Santa Catarina]; 260 km N Xavantina, Mato Grosso (12°31'S, 51°0'W), RA. Beaver.

Peru: Almirante, Dep. San Martin, 12-XII-1936, 1900 m, F. Woytkowski.

Venezuela: 7 km W Socopo, Barinas, 13-II-1970, 200 m, No. 322, *Nectandra*, SLW.

Hosts: *Guatteria*, *Hirtella*, *Ocotea*, *Protium*, *Siparuna guianensis* were reported by Bright & Skidmore (1997:45); these specimens were not seen by me.

Biology: Taken from axial pith tunnels in small branches of a cut seedling.

Notes: The above treatment was based on the 2 syntypes of *Bothrosternus bicaudatus* Blandford, on 1 female from Brazil, 1 female from Peru, 18 specimens of both sexes from Venezuela in my collection, and on the female holotype of *Sternobothrus tuberculatus* Eggers.

Sternobothrus costatus (Chapuis)

Sternobothrus costatus (Chapuis), 1869:25 (*Bothrosternus*). Lectotype ♀?; Bresil; IRSNB, Brussels, present designation (References in Wood & Bright c1992:216)

Bothrosternus lacordairei Chapuis, 1869:25. Holotype ♂; Bresil, Nova Fribourg; IRSNB, Brussels (References in Wood & Bright c1992:216). *New synonymy*

Diagnosis: Distinguished by the more slender body form; by the reticulate discal interstriae; and by the equally costate declivital interstriae.

Male: Length 2.3–2.7 mm, 2.2 times as long as wide; color almost black. Frons rugose-reticulate above, smooth, shining on lower fourth of area below upper level of eyes, punctures small, obscure, close; small median area slightly above level of antennal insertion, shallowly concave; subglabrous; epistomal callus very weak. Pronotum 1.03 times as long as wide; surface smooth, shining, except reticulate on anterior fourth, punctures small, moderately close, oval to about twice as long as wide; glabrous, except sparse, short hair near anterior margin. Elytra 1.5 times as long as wide, 1.8 times as long as pronotum; basal margins a continuous costa; striae distinctly, moderately impressed, rugose-reticulate, punctures obsolete; interstriae broadly, rather weakly convex, reticulate, rows of close, minute punctures on each margin. Declivity broadly convex, moderately steep; interstriae equally, subacutely costate from just before base to near apex, 1–3, 5, and 9 attain apex, others end short; glabrous. Abdominal sternum 5 concave.

Female: Similar to male except frons with impression not as strong, convex area above weaker, vestiture on lower half and lateral areas longer, more abundant, reddish brown in color.

Distribution: Brazil: Nova Fribourg, Deyrolle; Sierra de Communitay [Recife or Pernambuco], 3-XII-1893; Talemaco Borba, Para, 1984, *Araucaria angustifolia*, C. Moreira, also 4-IV-1996, ethanol trap, *Pinus taeda* stand; Monte Alegre, Para, 25-VIII-1995, ethanol trap, C.A.H. Flechtman; Sao Paulo, S.P.

Hosts: *Araucaria angustifolia*.

Notes: The above treatment was based on the male holotype of *lacordairei* and the 2 Chapuis female (?) syntypes of *costatus*. The first of these syntypes is here designated as the lectotype of *Bothrosternus costatus* Chapuis. Specimens in the DEI, Munchenberg were identified by Schedl as *suturalis*. There were 21 other specimens examined from Brazil (Para).

Sternobothrus carinatus Eggers

Sternobothrus carinatus Eggers, 1943:273. Holotype ♀; Cochabamba, Bolivia; USNM, Washington (References in Wood & Bright c1992:216)

Diagnosis: Lower declivity convex, costae on interstriae 2 and 3 extending to or below middle of declivity; epistomal callus unarmed.

Female: Length 3.1 mm, 1.9 times as long as wide; color black, elytra dark brown. Frons shallowly concave from level just below ocular situation to epistomal callus, concavity filled by a dense brush of reddish brown hair of uniform length; epistomal callus poorly formed; area above abrupt margin of concavity to upper level of eyes smooth, densely covered by micropunctures, glabrous. Pronotum 1.05 times as long as wide; arcuate sides converging cephalad from base; basal area smooth, shining, reticulate on anterior third, punctures small, close, round to oval in shape, not strigose. Elytra 1.3 times as long as wide, 1.3 times as long as pronotum; basal margins forming a continuous costa, a few submarginal crenulations on interstriae 2, 3; striae rather strongly impressed, punctures confluent, reticulate at base of declivity; interstriae twice as wide as striae on basal half of disc, weakly convex at base of disc, rather strongly convex by base of declivity, surface smooth, shining, punctures small, confused. Declivity broadly convex, steep; striae more deeply impressed, interstriae narrower than on disc, each subacutely costate to below middle of declivity or below, represented by weak punctures or obscure granules near apex; glabrous.

Distribution: Bolivia to Peru.

Bolivia: Cochabamba [F. Woytkowski].

Peru: Rioja, Dept. San Martin, 9-IX-1936, 900 m, F. Woytkowski.

Notes: The above treatment was based on the holotype, and on 1 female from Peru.

Sternobothrus opaculus Schedl

Sternobothrus opaculus Schedl, 1963:218. Holotype ♂; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:216)

Diagnosis: Distinguished from *cancellatus* (Chapuis) and *sculpturatus* (Blandford) by the subserrate declivital interstriae 1–9; by the uniformly rugose-reticulate striae from base to apex.

Male: Similar to female except frons with smooth area replaced by minute, transversely etched rugulation, setae less abundant, shorter, epistomal callus weaker but present; basal one-fourth of pronotum smoother, with dense, shallow, small and minute punctures intermixed; crenulations at base of elytra slightly coarser.

Female: Length 3.6–3.8 mm, 2.1 times as long as wide; color very dark reddish brown. Frons with a strong, transverse impression one-third length from epistoma to upper level of eyes; upper area broadly convex, central three-fifths impunctate and brightly shining to well

above upper level of eyes; lateral margins and transverse impression with rather dense, long reddish brown hair to epistomal callus; transverse callus conspicuous, smooth, shining, modestly elevated on median three-fourths of epistoma. Pronotum 0.90 times as long as wide; shining, punctures not clearly evident, entire surface rather finely, closely, uniformly rugose (not strigose) from anterior margin to base (no smooth areas); vestiture absent. Elytra 1.4 times as long as wide, 1.6 times as long as pronotum; basal margins weakly subcrenulate, bases of interstriae 2–4 with weak submarginal crenulations; striae dull, rather broadly, moderately impressed and strongly, uniformly rugose-reticulate from base to apex, minute, obscure punctures indicated in some areas; interstriae distinctly wider than striae, surface smooth, shining (often with margins rugose-reticulate), punctures rather fine, close, confused. Declivity broadly convex, rather steep, shallowly sulcate between interstriae 3; striae narrower than on disc; interstriae 1–9 narrower than on disc, punctures mostly eliminated, convex, 3, 5, 7, and 9 distinctly higher, their crests subserrate, not clearly dentate, apex of 1 joins costal margin, 3 joins 9, 2 almost attaining costal margin. Vestiture absent, except minute, uniseriate interstitial hair on lower declivity, none as long as twice diameter of discal puncture.

Distribution: Brazil: Nova Teutonia [Santa Catarina], 27°11'N, 52°23'W, II-1964, 300–500 m, F. Plaumann.

Notes: The above treatment was based on the male holotype and female allotype of *opaculus*, both from Brazil. Schedl had the sexes reversed in the original description.

Sternobothrus cancellatus (Chapuis)

Sternobothrus cancellatus (Chapuis), 1869:25 (*Bothrosternus*). Holotype ♂; Nova Fribourg, Brazil; IRSNB, Brussels (References in Wood & Bright c1992:216)

Diagnosis: Distinguished by the large size; by the smooth, shining discal interstriae; and by the absence of costae on all declivital interstriae.

Female: Length 4.0 mm, about 2.0 times as long as wide; color black. Frons rather deeply concave from epistoma to well above upper level of eyes; surface smooth, shining, with sparse, minute punctures on more than upper half, finely subgranulate on lower fourth; lateral margins acutely elevated on lower half to epistoma; epistomal callus moderately elevated on median half, its upper margin subcarinate on median third; a tuft of hair on mesal surface of lateral elevation at junction with epistoma, a fringe of rather short hair on lateral margin of upper half of impressed area; concavity glabrous. Pronotum about 1.1 times as long as wide; surface smooth, brightly shining, punctures minute in central area, slightly larger toward lateral and anterior margins; glabrous. Elytra about 1.7 times as long as wide, 1.6 times as long as pronotum; basal margins with a partial, weak costa near scutellum; scutellar notch deep, broadly U-shaped; striae narrowly, moderately impressed,

punctures small, clearly impressed on about basal half, confluent and obsolete toward declivity; interstriae smooth, shining, moderately convex (not costate), punctures numerous, fine, confused. Declivity broadly convex, obscurely sulcate between left and right interstriae 3; rather steep; interstriae 1 and 3–9 convex, not costate, with numerous, close, confused punctures (except uniseriate on 1), none costate; 2 moderately flat with uniseriate punctures; 3 and lateral areas weakly elevated; glabrous. Abdominal sternum 5 concave.

Distribution: Brazil: Nova Fribourg, Deyr.

Notes: The above treatment was based on the male holotype.

Sternobothrus sculpturatus (Blandford)

Sternobothrus sculpturatus (Blandford), 1896:132 (*Bothrosternus*).
Lectotype ♀; Bugaba, Chiriqui, Panama; BMNH, London, designated by Wood 1982:254 (References in Wood & Bright c1992:216)

Diagnosis: Lower declivity rather strongly impressed, costa on interstriae 2 obsolete, 3 more strongly elevated, this costa continued from base to apex of 3; female epistomal callus armed by a conspicuous median tubercle.

Male: Length 2.5–3.8 mm, 2.0 times as long as wide; color black. Frons convex from just above level of antennal insertion to upper level of eyes, this area almost smooth, shining in central area, finely punctured and pubescent laterally; lower area rather strongly, transversely impressed from epistoma to base of convexity; epistomal callus distinct on median third, armed on median line by a large tubercle, in some specimens a weak carina extending dorsad from summit of tubercle to base of upper convexity; most of impressed area filled by a dense brush of reddish brown setae of moderately

long, uniform length. Pronotum 0.87 times as long as wide; surface minutely reticulate; punctures very small, moderately abundant, each almost round. Elytra 1.3 times as long as wide, 1.6 times as long as pronotum; basal margins forming a continuous costa on median area, weakly crenulate laterally, with submarginal crenulations on interstriae 2–5; striae strongly impressed, punctures mostly confluent; interstriae less than twice as wide as striae, moderately convex at base, strongly convex near declivity; smooth, shining, small punctures confused. Declivity rather steep, shallowly sulcate between left and right interstriae 3; interstriae 3–9 subacutely costate to their apices, 1 and 2 convex (not costate), conspicuously impressed below level of 3; disc glabrous, very minute interstriae hair on declivity.

Female: Similar to male except epistomal brush very small, callus smaller; discal interstriae reticulate.

Distribution: Mexico (Oaxaca) to Argentina.

Argentina: Cited in Wood & Bright (c1992:216).

Brazil: Nova Teutonia, Santa Catarina, I-1931, F. Plaumann.

Colombia: 24 km E Barbosa, Antioquia, 18-VII-1970, 1200 m, No. 694, *Xelopia*, SLW.

Venezuela: Rancho Grande, Aragua, 9-IV-1970, 1100 m, No. 431, *Nectandra*, SLW; 8 km SW Bumbum, Barinas, 11-II-1970, 150 m, No. 328, *Nectandra*, SLW; III-1970, 40 km SE Socopo, Barinas, 25-I-1970, 150 m, No. 272, *Nectandra* (Laurel Roja), SLW.

Biology: Specimens were taken from axial pith tunnels in stems 2–5 cm in diameter.

Notes: The above treatment was based on 2 specimens from Brazil, 1 from Colombia, 49 from Venezuela, and 58 from Central America.

TRIBE PHLOEOTRIBINI

Description: Frons sexually dimorphic, male variously impressed, female flat to convex; eye entire; funicle 5-segmented, club simple and very slender to strongly asymmetrical, deeply divided into 3 movable, usually sublamellate segments; procoxae contiguous; pronotum with or without asperities, its lateral margins rounded; metatergum fused to its postnotum (Wood 1986).

Biology: All species are monogynous and phloeophagous. Parental galleries are biramous and often engrave the wood rather deeply. Eggs are placed in niches and packed in frass. Larval mines radiate from the parental gallery and usually do not cross one another. In thin-barked hosts maturing larvae may engrave the wood rather deeply. Among those species that infest lianas, the larvae may bore deeply and destroy most host tissue. One species, *ingae* Wood, breeds in the fruiting pods of its host.

Taxonomy: Of the 2 genera that comprise this tribe, only 1 occurs in South America. It is readily apparent that this tribe arose in South America and spread to Australia prior to the Tertiary, when it was possible to do so; and to North America after the Tertiary; and from there to Asia and Europe during more recent interglacial periods.

GENUS *PHLOEOTRIBUS* LATREILLE

- Phloeotribus* Latreille, 1796:50. Type-species: *Hylesinus oleae* Fabricius = *Scolytus scarabaeoides* Bernard (objective synonyms), monobasic (Synonymy and references in Wood & Bright c1992:217–235)
- Phloeophthorus* Wollaston, 1854:299. Type-species: *Phloeophthorus perfoliatus* Wollaston
- Dryotomus* Chapuis, 1869:46. Type-species: *Dryotomus puberulus* Chapuis, monobasic, preoccupied by Swainson 1831:301

- Phthorophloeus* Rey, 1885:128. Type-species: *Phthorophloeus* Rey, 1885:128, monobasic
- Elzearius* Guillebeau, 1893:64. Type-species: *Elzearius crenatus* Guillebeau, monobasic
- Eulytocerus* Blandford, 1897:161. Type-species: *Eulytocerus champi- oni* Blandford, monobasic
- Comesiella* DelGuercio, 1925:218. Type-species: *Comesiella sicula* DelGuercio = *Phloeophthorus pubifrons* Guillebeau, monobasic
- Neophloeotribus* Eggers, 1943:349. Type-species: *Phloeotribus nubilus* Blandford, subsequent designation by Wood 1983:648
- Dryotomicus* Wood, 1962:76. Type-species: *Dryotomus puberulus* Chapuis, automatic, replacement name for *Dryotomus* Chapuis

Diagnosis: The very distinctive sublamellate, movable segments of the antennal club distinguish this genus from all other Scolytidae.

Description: Lateral margins of protibia armed by several socketed denticles; lateral margins of pronotum rounded; ventral or lateral margin of each segment in antennal club weakly to profoundly extended into a sublamellate process. Female frons of all species bearing a small median fovea just above upper level of eyes (not mentioned in the following descriptions).

Biology: All species are monogynous and breed in phloem tissue. The parental tunnels are biramous and mostly transverse. The larvae make individual mines in the phloem.

Notes: It is apparent that this tribe originated in South America based upon the large number of species and the diversity of forms that occur there. Of the 109 species listed by Wood & Bright (c1992:217–235), 53 occur in South America and an additional 17 in Central America. A few species occur in Asia, Europe, and North America, including Mexico.

Key to the Species of *Phloeotribus*

- 1. Male epistoma not subacutely elevated, without a transverse carina; pronotum variable, with or without asperities; interstriae variable, one to three times as wide as striae, setae either confused or uniseriate 2
- Male epistoma bearing and acutely elevated transverse carina; male scape usually bearing a conspicuous tuft of hair; some pronotal asperities always present; interstriae as wide as striae, each interstriae with a central, uniseriate row of setae 40
- 2(1). Body more slender, more than 1.8 times as long as wide; basal margin of pronotum transversely straight, median area not noticeably extended into scutellar notch; variable 3
- Body very stout, less than 1.6 (1.8 in *opacicollis*) times as long as wide; basal margin of pronotum with median area conspicuously extended caudad into scutellar notch; male antennal insertions usually displaced slightly mesad; striae abruptly, narrowly impressed, interstriae at least twice as wide as striae; male scape usually bearing a conspicuous tuft of hair 30

SCOLYTIDAE OF SOUTH AMERICA

3(2).	Lateral margin of male frons armed at level of antennal insertion by a moderately large, acutely pointed denticle; setae on discal interstriae fine, long, confused	4
—	Lateral margins of male frons without a pair of sharply pointed denticles at level of antennal insertion, rounded elevations sometimes present; interstitial setae on disc uniseriate except confused in <i>collaris</i> , <i>nanus</i>	6
4(3).	Declivital interstriae 1 and 2 unarmed, 2 constricted, 3 and posterior part of 9 conspicuously elevated and serrate; crenulations on lateral areas of pronotum weak to absent; Peru; 3.0–3.1 mm	<i>hylurgulus</i> Schedl
—	Declivital interstriae 1 and 2 each armed by a row of fine tubercles, 3 and 9 not elevated, their tubercles equal in size to those of adjacent interstriae; anterior and lateral areas of pronotum finely to moderately crenulate; smaller species	5
5(4).	Male frons less extensively excavated, concavity ending slightly above upper level of eyes, several conspicuous granules on upper fourth of concavity; disc on posterior half of pronotum more finely punctured, few circular, most transversely rugose; longest interstitial setae equal in length to combined width of two striae plus two interstriae; Peru; 2.2–2.5 mm	<i>pilifer</i> Wood
—	Male frons more broadly, more deeply excavated to well above upper level of eyes, a few very minute granules near upper margin within concavity; disc on posterior half of pronotum closely, deeply punctured, punctures almost circular, rugose only at posterior margin; longest interstitial setae equal in length to combined width of one striae and one interstriae; Venezuela; unidentified liana; 2.1–2.5 mm	<i>hirticulus</i> Wood
6(3).	Discal striae narrow, rather strongly impressed, punctures small; interstriae about two or more times as wide as striae, interstitial setae rather abundant, confused	7
—	Discal striae weakly to moderately impressed, about equal in width to interstriae; interstitial setae much less numerous, all in interstitial rows (except <i>truncatus</i>)	16
7(6).	Ground setae on pronotum and elytra very short, stout, almost scalelike; very small; Brazil; 1.5–1.7 mm	<i>nanus</i> Wood
—	Setae on pronotum and elytra longer, hairlike; body larger than 2.0 mm	8
8(7).	Slender species, at least 2.2 times as long as wide; interstitial setae (at least on disc) of very fine, slender hair, not separable into ground cover and erect bristles; pronotum with numerous subasperate tubercles in anterolateral areas	9
—	Stouter than 2.0 times as long as wide; interstitial setae with uniseriate, erect setae evident at least on part of declivity; pronotum variable	10
9(8).	Pronotum surface smooth, shining between punctures; basal margins of elytra armed by a strong, single row of crenulations, with no submarginal granules (sparse granules present); interstitial vestiture of fine hair on disc, of stout, obscurely subplumose setae on declivity; Venezuela; 2.2 mm	<i>hirtellus</i> Schedl
—	Pronotum obscurely reticulate, granulate-subreticulate near base; row of crenulations on basal margins of elytra rather low, with many submarginal crenulations; interstitial setae of fine, semi-recumbent hair of variable length on disc and declivity; Brazil (Santa Catarina); 1.9 mm	<i>schedli</i> Wood
10(9).	Pronotum smooth, shining, punctures minute, abundant, irregular in distribution, ground setae hairlike; striae weakly impressed, punctures small; interstriae at least three times as wide as striae . . .	11
—	Pronotum surface varied, most setae in pronotal ground cover (when present) at least half as long as erect setae	12

- 11(10). Pronotum with median line clearly, broadly elevated, areas lateral to line shallowly impressed, densely, minutely punctured; striae punctures on basal half of disc weakly impressed, punctures very small, obscure; elytral declivity with moderately abundant, short ground setae; French Guyana; 3.8–4.0 mm *puberulus* (Chapuis)
- Pronotum normally convex on basal half, median line not marked, surface reticulate on basal fourth and other scattered areas, punctures rather coarse, moderately deep; striae rather weakly impressed, punctures on basal half of disc rather coarse, moderately impressed, on posterior half of disc and declivity very small; declivity without ground cover of short setae, all setae erect; Bolivia; 2.3 mm *ovatus* (Eggers)
- 12(10). Ground setae on declivity short, rather stout, less than one-third as long as erect setae; pronotum shining 13
- Ground setae on declivity slender, at least half as long as erect setae; median line on pronotum never impunctate; interstitial tubercles on disc smaller, closer, rather poorly formed, sometimes confused 15
- 13(12). Median line impunctate on basal half of pronotum, punctures small, close, distinct; interstitial punctures on disc not indicated, each with a row of tubercles; Bolivia; about 3.4 mm *tuberculatus* (Eggers)
- Median line on basal half of pronotum punctured, not evident, punctures small or coarse, deep; interstitial punctures on disc very small on margins, central row replaced by tubercles, tubercles slightly confused or uniseriate 14
- 14(13). Interstitial punctures on disc slightly confused; interstriae on disc slightly wider than striae; erect interstitial setae identifiable only on declivity; declivital tubercles of about equal size on all interstriae; Brazil (Santa Catarina); 1.9–2.0 mm *brasiliensis* (Schedl)
- Striae distinctly wider than interstriae, interstitial tubercles entirely uniseriate; erect interstitial setae identifiable almost to base of disc; declivital tubercles on 3, 5, 7, and 9 distinctly larger; Venezuela; 1.8 mm *hispidulus* Eggers
- 15(12). Pronotum reticulate on anterior third, punctures very close, rather coarse, their interiors smooth, shining; submarginal crenulations at bases of interstriae 2–4 smaller, narrower, each not more than half width of other interstriae; elytral declivity more narrowly convex on lower half; Peru; 2.1–2.2 mm *woytkowskii* Wood
- Pronotum reticulate to base in specimens from Colombia and minutely, sparsely punctured (Venezuelan specimens with reticulation and punctures variable on anterior three-fourths), interiors of punctures reticulate to base; submarginal crenulations at bases of interstriae 2–4 higher, wider, most more than half as wide as an interstriae; elytral declivity steeper, more broadly convex; Colombia to Venezuela; *Clusia*; 2.0–3.0 mm *collaris* Chapuis
- 16(6). Setae on pronotum and elytra stout, scalelike, each about 2–6 times as long as wide 17
- Setae on pronotum and elytra slender, hairlike 19
- 17(16). Scales on pronotum and interstriae more slender, each about 5–8 times as long as wide, those on interstriae usually pointed; declivital interstriae 1, 3, 5, 7, and 9 armed by pointed tubercles; Venezuela; *Eschweilera*; 1.5–1.7 mm *venezuelensis* (Schedl)
- Scales on pronotum and interstriae each about two to four times as long as wide; declivital tubercles present on interstriae 3–9 18
- 18(17). Declivital interstriae 1–9 each armed by a uniseriate row of minute to obsolete tubercles to their apices; striae punctures on disc unusually large; scales on pronotum and elytra blunt, each slightly longer than wide; Venezuela; *Inga*; 1.5–1.7 mm *squamiger* Wood

- Declivital interstriae 1, 3–9 and base of 2 armed by moderately large, rounded tubercles; striae punctures on disc large, normal; scales on pronotum and elytra blunt, each almost four times as long as wide; Brazil; 1.5–1.6 mm *hebes* Schedl
- 19(16). Pronotum without asperities; declivital interstriae 9 not elevated, tubercles very small 20
- Pronotum armed by several rather coarse asperities; declivital interstriae 9 elevated and rather coarsely serrate (except *argentinensis*) 21
- 20(19). Male frons shallowly concave from epistoma to upper level of eyes, lateral margins less strongly elevated, face of concavity with many rather widely spaced, moderately coarse punctures; interstitial tubercles very slightly larger; female frons punctured above level of antennal insertion; Colombia; *Inga*; 1.5–1.7 mm *ingae* Wood
- Male frons deeply concave from epistoma to upper level of eyes, lateral margins on lower half strongly, acutely elevated, face of concavity with almost no punctures except near upper margin; interstitial tubercles very slightly larger; female frons without punctures on lower two-thirds; Colombia; ex “Guamo”; 1.8–1.9 mm *simplicidens* Wood
- 21(19). Mostly larger species; striae narrower than interstriae; erect interstitial setae either confused or uniseriate, shorter than distance between rows; declivital interstriae 9 modestly to strongly elevated, moderately serrate 22
- Smaller species; striae wider than interstriae; erect interstitial setae often longer than distance between rows; declivital interstriae 9 strongly to very strongly elevated, very coarsely serrate 24
- 22(21). Male frons more strongly impressed from epistoma to upper level of eyes, lateral margins immediately above antennal insertions subacutely elevated (crest rounded, not pointed); subcircular median third from epistoma almost to level of antennal insertions coarsely rugose-reticulate; interstriae 9 feebly elevated on declivity, tubercles very small; striae setae conspicuous, half as long as those of interstriae, very fine, semirecumbent, interstitial bristles stout, closely set, slightly shorter than distance between rows; Argentina; 1.6–1.7 mm *argentinensis* (Schedl)
- Male frons much less strongly impressed on lower half, lateral margins not or weakly elevated, lower area smooth, with fine punctures; declivital interstriae rather weakly elevated, tubercles or serrations rather small; much larger species 23
- 23(22). Elytral declivity subobliquely truncate in both sexes, its base armed by a circumdeclivital ring of tubercles, interstriae 1–8 each with a large blunt spine; discal interstriae usually with vestiture abraded, short, confused when present; male frons convex, unarmed on lower half, weakly concave above; male scape with a small tuft of hair; Colombia; *Ceroxylon quindiuense*; 2.7–3.3 mm *truncatus* Wood
- Elytral declivity convex, its base rounded, not armed by a ring of spines; discal interstriae with uniseriate setae rather short; male frons subconcave from epistoma to upper level of eyes, lateral margins distinctly elevated on lower half; male scape with a small tuft of hair; Venezuela; tree bole; 3.2–3.9 mm *amplus* Wood
- 24(21). Pronotum less coarsely punctured; body stouter, 2.0 times as long as wide; interstitial tubercles on disc and declivity more closely spaced, of more uniform size; interstitial setae shorter than distance between rows; color dark brown 25
- Pronotum more coarsely punctured; body more slender, 2.1–2.2 times as long as wide; interstitial tubercles on declivity of irregular size and more widely spaced than on disc; color black 28
- 25(24). Pronotum reticulate; interstitial tubercles on declivity uniseriate, those on 1–3 very small, almost obsolete; interstitial setae shorter than distance between rows 26
- Pronotum shining; interstitial tubercles on 1–3 of declivity about equal to those on disc; interstitial setae fine, slender, each about as long as distance between rows 27

- 26(25). Male frons shallowly concave on less than lower half, upper area with a large, impunctate, brilliantly shining area on median two-thirds extending to well above eyes; pronotum shining, weakly reticulate; discal striae slightly wider than interstriae, punctures deep; erect interstitial setae rather coarse, of uniform width; Brazil (Santa Catarina); 1.2 mm *novateutonicus* (Schedl)
- Male frons broadly, rather deeply concave to slightly below upper level of eyes, surface rugose-reticulate above; pronotum dull, strongly rugose-reticulate; striae almost twice as wide as interstriae, very large punctures shallow; erect interstitial setae moderately coarse, each distinctly wider at its apex; Venezuela; *Ochroma*, *Sterculia pruriens*; 1.3–1.4 mm *vesculus* Wood
- 27a(25). Smaller species; male frons more broadly, more deeply concave to slightly above upper level of eyes; strial punctures smaller, discal interstriae less strongly convex; interstitial setae stouter, each about eight to ten times as long as wide; declivital interstriae 9 rather weakly elevated, tubercles much smaller, about as on other interstriae; Brazil (Santa Catarina); 1.4 mm *profanus* Schedl
- Larger species; male frons shallowly concave, concave area not attaining upper level of eyes; strial punctures on disc larger, discal interstriae much more strongly convex; interstitial setae slender, hairlike; declivital interstriae 9 rather strongly elevated, denticles moderately large 27b
- 27b(27a). Declivital interstriae 9 moderately elevated, much less strongly serrate; discal striae impressed, punctures much smaller, closer; declivital interstriae 1–3 small, of about equal size; Colombia; *Clusia guianensis*; 1.5–2.0 mm *nitidicolis* (Eggers)
- Discal interstriae 9 very strongly elevated, coarsely serrate; discal striae weakly impressed, punctures large, deep, as wide as interstriae; declivital interstriae 1 armed by about five rather coarse tubercles, those on 2 and 3 smaller, those near apex of 5 and 7 as large as those on 3; Brazil (Santa Catarina); 1.8 mm *erinaceus* Schedl
- 28(24). Male frons more strongly concave to above upper level of eyes; declivital interstriae 1 unarmed by fine tubercles; interstitial setae slightly longer, closer; Argentina; 2.1–2.2 mm (see also *jujuya* Blackman) *harringtoni* Blackman
- Male frontal concavity not as deep, less extensive, ending well before upper level of eyes; declivital interstriae 1 armed by several small tubercles; interstitial setae slightly shorter, less numerous 29
- 29(28). Declivital interstriae 2 and 4 armed by tubercles (usually smaller), 1, 3, and 5 often with one tubercle distinctly larger than others; interstitial setae on disc and declivity very long, about three times as long as distance between rows, equally long on pronotum; Colombia; ex “arbol de sangregao”; 1.9–2.0 mm *hirtus* Wood
- Declivital interstriae 2 and 4 unarmed by tubercles, tubercles on 3, 5, 7, and 9 larger; interstitial setae on disc and declivity up to one and one-half times as long as distance between rows; Venezuela; *Ficus*; 1.6–1.7 mm *fici* Wood
- 30(2). Surfaces of pronotum and elytra (between punctures) smooth, shining; discal crenulations on interstriae higher, more strongly acute, either broad and uniseriate or narrow and confused 31
- Surfaces of pronotum (usually) and elytra minutely reticulate or reticulate-granulate; interstriae with crenulations low, poorly formed, mostly on central one-third of each interstriae 33
- 31(30). Discal interstriae less than twice as wide as striae, interstitial setae short, erect, uniseriate from base to apex, each seta within a moderately large pit, anterior margin of this pit usually crenulate in all females and most males, these crenulations each about half as wide as interstriae, forming a uniseriate row; Colombia and Venezuela to Brazil (Sao Paulo, Santa Catarina); *Brosimum*, *Pseudoolmedia*; 2.1–2.8 mm *rudis* Eichhoff
- Discal interstriae two or three times as wide as striae, fine, short interstitial hair and small, narrow, acute interstitial crenulations strongly confused on disc 32

SCOLYTIDAE OF SOUTH AMERICA

- 32(31). Female frons without a long median sulcus, a small median fovea present slightly above level of antennal insertion, upper frons and vertex rugose-reticulate; interstriae twice as wide as striae at base, only slightly wider than striae at base of declivity, small punctures on disc not bearing a small seta, all setae on disc arising from a puncture at base of crenulations; Brazil (Santa Catarina); 2.5–2.8 mm *erosus* Schedl
- Female frons with a strong, rather broad median sulcus extending from vertex to a point slightly above level of antennal insertion; Colombia; 3.2 mm *sulcifrons* Chapuis
- 33(30). Smaller, more slender (body 1.8 times as long as wide); discal interstriae 2 and 3 with setae uniseriate to base 34
- Larger, stouter (body 1.6 times as long as wide); discal interstriae 2 and 3 with setae confused (sometimes also confused on other interstriae) at least on basal half 35
- 34(33). Elytral interstriae smooth (obscure reticulation in female), shining; pronotum reticulate, dull; discal interstriae each with a uniseriate row of transverse crenulations (each at least two-thirds as wide as an interstriae), posterior slope with a small puncture, each bristle equal in length to half distance between rows; Brazil (Santa Catarina); 2.3–2.6 mm *cylindricus* Schedl
- Both pronotum and elytral interstriae reticulate, dull; interstitial crenulations slightly narrower and higher, punctures on posterior slope larger, each bristle equal in length to slightly less than half distance between rows; Bolivia; 2.2 mm *opacicollis* Eggers
- 35(33). Interstriae with tubercles and setae confused on basal one-half of disc, uniseriate on posterior half of disc and declivity, setae fine, short, recumbent; pronotum reticulate; color black; Peru; 2.9–3.0 mm *incanus* Wood
- Interstriae with tubercles and setae confused from base to base of declivity 36
- 36(35). Discal interstriae 1–9 with erect setae confused; tubercles on upper half of declivital interstriae I confused 37
- Discal interstriae 3–9 with erect setae uniseriate; tubercles on upper half of declivital interstriae I uniseriate 39
- 37(36). Pronotum spaces between punctures on disc smooth, shining; discal striae abruptly, rather deeply impressed, punctures obscure to obsolete; interstitial setae 2–9 on disc confused, on declivity 1–4 uniseriate on at least lower two-thirds, setae shorter than distance equal to width of an interstriae, 2–7 each with a row of tubercles; Brazil (Goyas to Parana); 2.4–2.9 mm *rugulosus* Eggers
- Pronotum spaces between punctures reticulate; discal striae less strongly impressed 38
- 38(37). Declivital interstriae 2–4 with tubercles confused on more than upper half; erect interstitial setae on disc and declivity mostly pointed, longer, more slender, length of each at least equal to two-thirds width of an interstriae; Bolivia; 2.6 mm *vestitus* Eggers
- Declivital interstriae 1–4 more narrowly convex, tubercles uniseriate on at least lower three-fourths, setae shorter, slightly stouter, length of each equal to one-fourth to one-third width of an interstriae; Bolivia; 2.7 mm *suturalis* Eggers
- 39(36). Frons in both sexes smooth, densely, sharply, finely punctured from epistoma to level of antennal insertion; propleuron near posterior margin with normal sculpture; Bolivia, Peru to Mato Grosso in Brazil; 2.5–3.0 mm *uniseriatus* Eggers
- Frons in both sexes minutely rugose from epistoma to level of antennal insertion, few if any punctures indicated; propleuron near posterior margin transversely strigose; Mexico (Chapias) to Brazil; *Brosimum*; 2.4–3.4 mm *pilula* (Erichson)

- 40(1). Discal interstriae 2 and 3 (occasionally all) with setae more numerous, confused; pronotum usually with asperate crenulations small, less numerous, most in lateral areas on anterior third; striae punctures very large, interstriae half as wide as striae; ground cover on interstriae short, stout but sharply pointed, a few longer erect setae on odd-numbered interstriae; sparse erect setae about as long as distance between rows, twice as long as ground setae; declivital interstriae 1, 3, 5, 7, and 9 each armed by a sparse row of pointed tubercles; Venezuela; *Eschweilera*; 1.8–2.1 mm **tetricus Wood**
- Striae and interstriae of equal width; all discal interstriae with setae of fine, long hair, in uniseriate rows, one row on each interstriae; all interstriae armed by tubercles; asperities on pronotum usually larger, more widely distributed 41
- 41(40). Male epistomal carina transversely short, its length equal to or conspicuously shorter than width of an eye; male frons concavely impressed to upper level of eyes or above; declivital tubercles small, of about equal size on interstriae 1–5 (except absent on 2 and 4 in *minor*); elevated crest of interstriae 9 ending before joining costal margin (except in *biguttatus*) 42
- Male epistomal carina transversely rather long, its length conspicuously greater (1.5–2.0 times) than greatest width of an eye; declivital tubercles on interstriae 2 and 4 usually absent or greatly reduced in number in male, usually present in female but reduced in size and number; costa of interstriae 9 usually strongly elevated, joining costal margin (without interruption) and continuing to apex (rather weak in some *picipennis*) 45
- 42(41). Pronotum reticulate, asperities of more regular size and wider distribution; male epistomal carina much more strongly elevated; male frontal impression on upper half rather narrow, ending at upper level of eyes; Guatemala to Argentina; tree bole; 2.0–2.4 mm **subovatus Blandford**
- Basal half of pronotum mostly smooth, shining, anterior one-fourth armed by several asperities; interstitial crenulations on disc much smaller, with few impressed points; submarginal crenulations at base of elytra less numerous 43
- 43(42). Body more slender, 1.9 times as long as wide; male frons moderately, concavely impressed to slightly above upper level of eyes, surface of concavity with dense, rather obscure micropunctures; discal striae more broadly, less strongly impressed, interstriae as wide as striae on basal half of disc; asperities on anterior fourth of pronotum rather small, broad (superficially resembling *setulosus* but entirely unrelated); Colombia (Bogota); 2.2 mm **schoenbachi Kirsch**
- Body stouter, 1.7 times as long as wide; male frons more broadly, more deeply, concavely impressed to well above upper level of eyes, surface of concavity partly reticulate, especially on upper half; discal striae narrowly, more abruptly impressed, interstriae two or more times as wide as striae on basal half of disc; anterior fourth of pronotum armed by several large asperities 44
- 44(43). Discal interstriae near base three or more times as wide as striae, interstitial tubercles much smaller, each about half or less as wide as this interstriae; pronotum with disc mostly smooth (some reticulation), punctures rather small, shallow; serrations on anterior margin much larger, less numerous; interstitial setae longer, stouter; body color brown; Panama to Colombia and Venezuela; *Brosimum*; 1.8–2.7 mm **biguttatus Blandford**
- Discal interstriae near base about twice as wide as striae, interstitial tubercles much larger, each about as wide as this interstriae, much higher; pronotum disc strongly reticulate, punctures much deeper; pronotum serrations on anterior margin slightly smaller, more numerous; interstitial setae slightly shorter, more slender; body color black; Mexico (Morelos); 2.7–3.2 mm . . . **ebeneus Wood**
- 45(41). Body size small, 1.3–2.0 mm; declivital interstriae 9 less strongly elevated; punctures on disc of pronotum rather coarse, moderately deep 46
- Body size larger, 2.0–3.0 mm; declivital interstriae 9 more strongly elevated; punctures on disc of pronotum small to obsolete (some exceptions in *setulosus*) 49

SCOLYTIDAE OF SOUTH AMERICA

- 46(45). Declivital tubercles and setae usually present on interstriae 2 and 4 (although often reduced in size and number); punctures on disc of pronotum coarse, deep; body form more slender, 2.1 times as long as wide 47
- Declivital tubercles and setae absent on lower two-thirds of interstriae 2 and 4; punctures on disc of pronotum less numerous, not as deep; body form stout, about 1.8 times as long as wide 48
- 47(46). Punctures on pronotum disc moderately large, deep; striae slightly narrower than interstriae, interstitial crenulations very coarse; male frontal concavity appearing slightly narrower, ending above rather abruptly well below upper level of eyes; Bolivia (Cochabamba); 1.7 mm *asperulus* Eggers
- Punctures on pronotum disc very coarse, deep; striae distinctly wider than interstriae, interstitial crenulations moderately large; male frontal concavity apparently wider, declining more gradually above, attaining upper level of eyes; Chile to Peru; *Ficus carica*; 1.8–2.0 mm *willei* Schedl
- 48(46). Pronotum disc at least partly reticulate; discal interstriae less strongly convex; setae on elytral interstriae shorter, slightly stouter; Brazil (Amazonas); 1.3 mm *contortus* Schedl
- Pronotum without any reticulation on disc; discal interstriae more strongly convex; setae on elytral interstriae more slender, slightly longer; Colombia; *Pseudoolmedia*; 1.3–1.4 mm *minor* Wood
- 49(45). Declivital interstriae 9 rather weakly elevated (half or less as high as wide, 2, 4, 6, and 8 in both sexes armed by fine tubercles to their apices; S Brazil to Bolivia; 1.8–2.5 mm *picipennis* Eggers
- Declivital interstriae 9 very strongly, narrowly elevated, its summit rather strongly serrate; sexually dimorphic, all or most of interstriae 2, 4, 6, and 8 often devoid of tubercles in male, tubercles usually present in female 50
- 50(49). Color all or mostly black; pronotum strongly, uniformly reticulate, asperities shining; Colombia; *Quercus humboldtii*; 2.4–3.0 mm *remorsus* Wood
- Color brown (except black in *serratus*), pronotum usually darker; pronotum shining, rarely with weak reticulation in isolated areas 51
- 51(50). Male declivity with tubercles on interstriae 2 and 4 more widely spaced but continued to apex, discal striae moderately impressed to base, much more strongly impressed at base of declivity, moderately, narrowly impressed on declivity; tuft of setae on male scape sparse, consisting of about a dozen long hairs (female not seen); Bolivia; 2.2 mm *serratus* Eggers
- Male declivity with tubercles on interstriae 2 and 4 absent; striae on disc and declivity weakly to moderately impressed; male scape ornamented by a large tuft of several dozen long setae 52
- 52(51). Discal interstriae less strongly convex (somewhat flattened), their crenulations wider, not as high; punctures on disc of pronotum mostly smaller, not as deep; scutellum about twice as wide as long, less strongly convex; Colombia to Venezuela; ex unidentified trees; 2.1–2.7 mm *transversus* Chapuis
- Discal interstriae more strongly convex, their crenulations narrower, higher; punctures on disc of pronotum mostly larger, deeper; scutellum only slightly wider than long, much more strongly convex; Mexico (Jalisco) to Brazil; *Brosimum*, *Cedrela mexicana*, *Celtus*, *Croton*, *Ficus*, 1.9–2.4 mm *setulosus* Eichhoff

Phloeotribus hylurgulus Schedl

Phloeotribus hylurgulus Schedl, 1959:405. Holotype, sex?; Huaraz, Peru; deposited in Frey Museum, now in NHMBS, Basel (References in Wood & Bright c1992:222)

Diagnosis: Distinguished from *pilifer* Wood and *hirticulus* Wood by the larger size; by the coarsely, deeply punctured pronotum with no asperities; by the absence of tubercles on declivital interstriae 1 and 2; and by the moderate elevation and strong serration of 3 and 9; and by other characters described below.

Male: Length 3.0–3.1 mm, 2.3 times as long as wide; color dark brown. Frons broadly, rather deeply concave from epistoma to very slightly above upper level of eyes; a weak, irregular, transverse elevation at middle of concavity; lateral margins armed by a moderate, sharply pointed denticle at level of antennal insertions; surface shining, mostly smooth and not clearly punctured on lower half of concavity, lateral and upper margins rather coarsely, closely punctured above; vestiture of fine, long, moderately abundant hair; antennal scape ornamented by fewer than a dozen setae. Pronotum 0.80 times as long as wide; widest at base; surface rather coarsely, deeply, irregularly punctured, middle third of median line shining, impunctate, weakly elevated; vestiture of fine, moderately long, rather abundant hair. Elytra 1.6 times as long as wide, 2.1 times as long as pronotum; crenulations on basal margins rather coarse, about 4 submarginal crenulations on each elytron; striae 1 weakly, others feebly impressed, punctures rather coarse, deep; interstriae almost twice as wide as striae, shining, punctures small, uniseriate (a few of them weakly crenulate on anterior margin). Declivity moderately impressed between left and right interstriae 3; interstriae 1 and 2 smooth, shining, impunctate, 3 rather strongly elevated on upper two-thirds, crest rather finely serrate, 5 and 7 more weakly elevated, each armed by two or more small denticles, 9 more strongly, narrowly elevated and more coarsely dentate. Strial and interstitial setae hairlike, fine, long on disc and sides, subglabrous on declivity.

Female: Similar to male except frons convex, sculpture simple (lateral denticles absent); elytral declivity similar except elevations and impressions much weaker, interstriae 1 with a row of fine, rounded tubercles.

Distribution: Peru: Huaraz [Huaraz Prov.], VII-1954, H. Loeffler.

Notes: The above treatment was based on 1 male paratype and 1 female paratype in the NHMW, Wien.

Phloeotribus pilifer Wood, n. sp.

Phloeotribus pilifer Wood: Holotype ♂; Andes Highland Lakes, Shishma, Hunuco, Peru, 3600–4000 m; USNM, Washington, designated below

Diagnosis: Lateral margins of male frons at level of antennal insertion armed by a pair of sharply pointed tubercles; distinguished from *hirticulus* Wood by the less deeply, less extensively concave male frons.

Male: Similar to female except frons rather strongly, broadly concave from epistoma to upper level of eyes, lateral margins acutely elevated from epistoma to just below upper level of eyes, crest armed at lower level of antennal insertion by a moderately large, acutely pointed tubercle; concave area reticulate, upper one-fourth armed by several granules, vestiture of sparse, rather short hair; pronotal asperities averaging smaller.

Female: Length 2.2–2.5 mm, 2.1 times as long as wide; color brown. Frons convex above level of antennal insertion, moderately, transversely impressed below; surface reticulate, rather coarsely, shallowly, obscurely punctured; vestiture of sparse, fine hair; middle segment of antennal club about 6 times as wide as long. Pronotum 0.80 times as long as wide; anterolateral areas armed by about 2 coarse and several small asperities; widest at base, sides arcuately converging cephalad; surface smooth, shining, irregular, punctures small, moderately abundant, distinctly impressed; vestiture of fine, long to very long hair. Elytra 1.4 times as long as wide, 2.1 times as long as pronotum; bases of interstriae 2–5 with a total of about five submarginal crenulations; striae rather weakly impressed, stronger toward declivity, punctures coarse, deep; interstriae as wide as striae, smooth, shining, crenulations somewhat irregularly crenulate, narrow, rather coarse, close. Declivity convex, steep; striae and interstriae narrower than on disc; each interstriae armed by a row of small, pointed tubercles, except rather coarse on 9; costal margin near apex sometimes with a few serrations; vestiture of fine, long interstitial hair, longest setae equal to combined width of two interstriae plus two striae.

Distribution: Peru (Huanuco).

Type material: The male holotype, female allotype, and 5 paratypes were taken at Shishmay, Dep. Huanuco, Peru, Andes Highland Lakes, 3600–4100 m, 15-20-IX-1937, No. 3787, F. Woytkowski. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Phloeotribus hirticulus Wood, n. sp.

Plate XIII

Phloeotribus hirticulus Wood: Holotype ♂; La Carbonera Experimental Forest 50 km NW Merida, Merida, Venezuela; USNM, Washington, designated below

Diagnosis: Lateral margins of male frons armed at level of antennal insertion by a pair of sharply pointed tubercles; distinguished from *pilifer* Wood by the much more deeply concave male frons; and by the slightly shorter interstitial setae.

Male: Similar to female *pilifer* except frons much more deeply, extensively concave to well above upper level of eyes, granules on upper fourth of concavity minute to obsolete, very sparse; other characters as in female.

Female: Length 2.1–2.5 mm, 2.1 times as long as wide; color brown. As in *pilifer* except pronotal crenulations smaller; interstitial crenulations smaller, narrower,

interstitial setae shorter; longest equal to combined width of one interstriae plus one striae.

Distribution: Venezuela (Merida).

Type material: The male holotype, female allotype, and 70 paratypes were taken at La Carbonera Experimental Forest 50 km airline NW Merida, Merida, 14-X-1969, 2500 m, No. 52, ex unidentified liana, SLW. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Phloeotribus nanus Wood

Phloeotribus nanus Wood, 1974:8. Holotype ♂; 260 km N Xavantina, Mato Grosso, Brazil; BMNH, London (References in Wood & Bright c1992:225)

Diagnosis: Interstriae twice as wide as striae, setae numerous, confused, stout, almost scalelike.

Male: Similar to female except frons broadly, moderately concave from epistoma to upper level of eyes, concavity covered by short, moderately stout setae.

Female: Length 1.5–1.7 mm, 1.8 times as long as wide; color yellowish brown, vestiture pale. Frons convex, reticulate, with fine granules on upper two-thirds; vestiture of fine, short, inconspicuous hair. Pronotum 0.84 times as long as wide; widest at base, sides arcuately convergent cephalad; anterolateral areas armed by several asperities; surface smooth, shining, punctures rather small, very close; vestiture of abundant, short, stout, almost scalelike setae, each about 6 times as long as wide; Elytra 1.3 times as long as wide, 1.7 times as long as pronotum; bases of interstriae 2–5 armed by a total of about seven submarginal crenulations; striae distinctly impressed, punctures moderately large, partly confluent, not clearly evident; interstriae almost twice as wide as striae, convex, surface smooth, shining, punctures small, numerous, confused; each interstriae with a central row of small granules. Declivity convex, steep, about as on disc; vestiture of abundant, confused, short, stout, pointed setae, each about six times as long as wide, each interstriae with a central row of erect setae (each about one and one-half times as long as ground setae), each about one-third as long as distance between rows.

Distribution: Brazil: 260 km N Xavantina, Mato Grosso, 12°49'S, 51°46'W, 1-XI-1-XII-1968, R.A. Beaver.

Notes: The above treatment was based on the type series of 10 specimens.

Phloeotribus hirtellus Schedl

Phloeotribus hirtellus Schedl, 1966:99. Holotype ♀; Venezuela; NHMW, Wien (References in Wood & Bright c1992:222)

Diagnosis: Distinguished by the near absence of tubercles on the pronotum; by the thoroughly confused interstitial setae on disc and declivity; and by the fine, hairlike setae on pronotum and elytral disc, slightly subplumose on declivity.

Female: Length 2.2 mm, 2.24 times as long as wide; color almost black. Frons irregularly convex from epis-

toma to vertex, weak transverse impressions just above epistoma and slightly above level of antennal insertion; surface rugose-reticulate, punctures moderately close and rather coarse on upper half, obscure below; vestiture of moderately abundant, fine, rather long hair. Pronotum 0.92 times as long as wide; unarmed, except lateral areas with several rounded granules (no true asperities); surface smooth, shining, punctures rather small, close, mostly spaced by less than half diameter of a puncture; vestiture of very fine, erect, rather long hair of moderate abundance. Elytra 1.5 times as long as wide, 1.9 times as long as pronotum; bases armed by a row of rather coarse crenulations, submarginal crenulations almost absent; striae moderately impressed, punctures rather coarse, deep; interstriae slightly wider than striae, almost smooth, shining, with rather numerous fine, confused punctures, a central row of small tubercles extending almost to base. Declivity broadly convex, steep; striae narrower and deeper than on disc, interstriae narrower, tubercles obsolete. Vestiture on disc of fine, confused, rather abundant, moderately long hair of about equal length, on declivity similar but stouter, obscurely, weakly plumose, distinctly shorter.

Distribution: Venezuela: "Venezuela."

Notes: The above treatment was based on the female holotype.

Phloeotribus schedli Wood, n. sp.

Phloeotribus schedli Wood: Holotype ♀; Nova Teutonia, Santa Catarina, Brazil, 27°11'B, 52°32'L, 300–500 m; NHMW, Wien, designated below

Diagnosis: Distinguished from *hirtellus* Schedl by the smaller size; by the reticulate pronotum with larger crenulations in lateral areas; by the confused tubercles on the discal interstriae; and by the fine declivital hair.

Female: Length 1.9 mm, 2.2 times as long as wide; color black. Frons similar to female *hirtellus* except surface finely rugose-reticulate, a few small, obscure punctures above. Pronotum 0.86 times as long as wide; surface rugose-reticulate, obscure punctures on median third, lateral areas on posterior two-thirds granulate (subreticulate), distinct crenulations at or near lateral margins; vestiture of fine, moderately abundant, short hair. Elytra 1.6 times as long as wide, 2.3 times as long as pronotum; crenulations at basal margins small, submarginal crenulations on interstriae 1–5 numerous, moderately coarse; striae 1 and 4–9 weakly impressed, 2 and 3 not impressed, 1–3 obscure near base, punctures small, distinct; interstriae about twice as wide as striae, surface shining, punctures not clearly evident, moderately coarse tubercles close, confused on basal half of disc, becoming uniseriate before base of declivity. Declivity occupying posterior third; rather narrowly convex, moderately steep; striae more strongly impressed, interstriae mostly smooth, shining, each interstriae with a uniseriate row of small, rounded tubercles, those in

lateral areas pointed. Vestiture confused, of fine, moderately long, hairlike setae, some of those arising from tubercles distinctly longer.

Distribution: Brazil (Santa Catarina).

Type material: The female holotype was taken at Nova Teutonia, Santa Catarina, Brazil, 27°11'B, 52°32'L, XI-1968, 300–500 m, F. Plaumann. The holotype is in the NHMW, Wien.

Notes: The female holotype (antennae missing) was removed from the Schedl series of paratypes of *Phloeotribus profanus* Schedl, an unrelated species.

Phloeotribus puberulus (Chapuis)

Phloeotribus puberulus (Chapuis), 1869:46 (*Dryotomus*). Holotype ♀; Cayenne [French Guyane]; IRSNB, Brussels (References in Wood & Bright c1992:227)

Diagnosis: Distinguished from other members of the genus by the large size; by the absence of asperities on the pronotum; by the rather abundant hairlike ground vestiture on the elytra; and by the sparse, uniseriate, hairlike interstitial setae.

Female: Length 3.8–4.0 mm, about 1.9 times as long as wide; color black. Frons convex from level of antennal insertion to vertex, a moderate transverse impression above epistoma; a median fovea at center of frons; surface reticulate below fovea, rugose-reticulate above; vestiture of sparse, short, inconspicuous, hairlike setae; antennal scape long, slender, club sublamellate, segments each about 6 times as wide as long. Pronotum 0.88 times as long as wide; devoid of asperities, surface shining, with dense, minute punctures on median half, punctures numerous but of irregular distribution in lateral areas; median line on most of basal half distinctly (not sharply) elevated, lateral areas slightly impressed near median elevation. Elytra about 1.3 times as long as wide, 1.7 times as long as pronotum; basal margins of elytra weakly elevated, serrations poorly formed, almost a continuous costa; striae feebly impressed, punctures small, shallow; interstriae at least twice as wide as striae, smooth, brightly shining, feebly convex, punctures for ground vestiture very small, confused, moderately abundant on 1 and 2, sparse laterally, punctures giving rise to erect setae larger, sparse, uniseriate. Declivity rather steep, broadly convex; striae more deeply impressed, interstriae more strongly convex except 2 weakly impressed; interstitial punctures abundant, confused, on all interstriae, minute granules sometimes present at bases of erect setae. Vestiture of ground cover of very short setae, these more nearly hairlike on disc, more nearly scalelike on declivity (all scales 3 or more times longer than wide). Protibia with 5 socketed teeth on lateral margin.

Distribution: French Guyane: "Cayenne, Dejean."

Notes: The above treatment was based on the female holotype. This specimen is slightly crushed, with 1 elytron ajar; for this reason most measurements used above are approximations. Bright & Skidmore (1997:490) report

this species from Brazil; these specimens were not seen by me.

Phloeotribus ovatus (Eggers)

Phloeotribus ovatus (Eggers), 1943:347 (*Dryotomus*). Holotype ♂; Bolivia (Cochabamba); USNM, Washington (References in Wood & Bright c1992:225)

Diagnosis: Distinguished from *puberulus* (Chapuis) by the normally convex posterior half of pronotum, with median line not marked; by the discal striae being weakly impressed, punctures moderately coarse on basal half, very fine behind and on declivity; and by the absence of ground setae on the declivity.

Male: Length 2.3 mm, 1.8 times as long as wide; color black. Frons moderately concave to upper level of eyes; lateral margins obtusely elevated from level of antennal insertion half distance to upper level of eyes, subacutely elevated below, without a denticle; surface of concave area half obscured by glue, obscurely reticulate, punctures sparse, small, shallow, hairlike setae sparse, inconspicuous; antennal club with segments each about 4 times as wide as long. Pronotum 0.81 times as long as wide; anterior third armed by small asperities, especially on median one-third; surface of basal one-third reticulate, smooth with obscure areas of reticulation elsewhere, rather coarsely, moderately punctured; vestiture sparse, hairlike. Elytra 1.2 times as long as wide, 1.7 times as long as pronotum; striae rather weakly impressed, punctures much coarser, deeper on basal half of disc, less than one-third as large at base of declivity; interstriae smooth, shining, several submarginal crenulations at base, each with small, moderately confused tubercles, punctures not evident. Declivity broadly convex, steep; striae narrowly, more deeply impressed, each interstriae with a row of fine tubercles, those on 3 slightly confused, no interstitial punctures. Vestiture of rather sparse, erect, slender bristles, each apparently equal in length to two-thirds width of an interstriae.

Distribution: Bolivia: Cochabamba [F. Woytkowski].

Notes: The above treatment was based on the male holotype.

Phloeotribus tuberculatus (Eggers)

Phloeotribus tuberculatus (Eggers), 1943:348 (*Dryotomus*). Holotype ♂?; Cochabamba; Bolivia; USNM, Washington (References in Wood & Bright c1992:235)

Diagnosis: Distinguished from *collaris* Chapuis by the much shorter declivital ground vestiture; by the shining, impunctate median line on basal half of the pronotum, the pronotal punctures smaller, deeper.

Male (?): Length about 3.4 mm (crushed), about 1.8 times as long as wide; color almost black. Head lost from type. Pronotum 0.85 times as long as wide; anterior half with many granules or very small asperities, surfaces smooth, shining, punctures on posterior half small,

deep, close; median line on middle half smooth, impunctate; vestiture of short, fine, recumbent hair; several rather long, coarse hairs on lateral and anterior margins. Elytra about 1.6 times as long as pronotum (crushed); basal margins modestly elevated into a continuous costa, individual crenulations obscure; striae moderately, not abruptly impressed, punctures moderately coarse, impressed; interstriae about twice as wide as striae, surface smooth, shining, punctures not indicated, each with a uniseriate row of moderately coarse tubercles (rounded toward base, pointed near declivity). Declivity broadly convex, steep; striae more narrowly, more deeply impressed; interstriae 1–3 more strongly convex, all interstriae with numerous, fine punctures, tubercles (except at base) virtually absent, minute tubercles irregularly, sparsely scattered, especially on 3; interstriae 9 somewhat costate, weakly serrate to its apex; costal margin distinctly elevated, costal margin and 9 close but not fused. Vestiture of moderately abundant, stout, short, pointed setae each equal to less than one-third length of erect setae, and uniseriate rows of erect, slender bristles, longest equal to distance between rows.

Distribution: Bolivia: Cochabamba [F. Woytkowski].

Notes: The above treatment was based on the crushed holotype, with head missing, which is thought to be a male.

Phloeotribus brasiliensis (Schedl)

Phloeotribus brasiliensis (Schedl), 1951:85 (*Phthorophloeus*). Holotype ♀; Cachoeirinha-Una, Bahia, Brazil; NHMW, Wien (References in Wood & Bright c1992:219)

Diagnosis: Distinguished from *hispidulus* Eggers by the slightly confused punctures on the discal interstriae; by the discal interstriae being only slightly wider than the striae; and by the erect interstitial setae being in identifiable rows only on the declivity.

Female: Length 1.9–2.0 mm, 1.9 times as long as wide; color very dark brown. Frons broadly convex from epistoma to upper level of eyes, surface weakly reticulate, punctures small, obscure; a conspicuous central fovea present; vestiture of fine, rather sparse hair of moderate length, uniformly distributed. Pronotum 0.80 times as long as wide; surface shining, punctures rather small, moderately deep, close; anterolateral areas with a few small crenulations; vestiture almost hairlike, moderately abundant, rather short. Elytra about 1.4 times as long as wide, 1.9 times as long as pronotum; basal row of crenulations moderately coarse, submarginal crenulations obscure to absent; striae distinctly impressed, punctures rather coarse, deep; interstriae very slightly wider than striae, surface smooth, shining, each with a row of rather closely set, small tubercles, a row of very small punctures along each margin (several of them very slightly tuberculate). Declivity broadly convex, rather steep; striae and interstriae narrower than on disc, sculpture similar. Vestiture of stout setae, ground setae half to two-thirds as long as erect setae; erect rows

clearly evident on declivity and posterior disc, not evident anteriorly; erect setae two-thirds as long as distance between rows on declivity, much shorter on disc.

Distribution: Brazil: Cachoeirinha-Una, Bahia; Nova Teutonia, Santa Catarina, V-1947, F. Plaumann.

Notes: The above treatment was based on the female holotype and on 1 other female, both from Brazil.

Phloeotribus hispidulus Eggers

Phloeotribus hispidulus Eggers, 1934:78. Holotype, sex[?]; Venezuela; Hamburg Museum, lost. Neotype ♂; Venezuela, designated by Schedl (1979:118) from 1 of 2 Eggers cotypes in NHMW, Wien (References in Wood & Bright c1992:222)

Diagnosis: Distinguished from *brasiliensis* (Schedl) by the uniseriate interstitial punctures on the disc; by the discal striae being wider than the interstriae; and by rows of erect interstitial setae being identifiable almost to the base.

Female: Length 1.8 mm, 1.8 times as long as wide; color dark reddish brown. Frons essentially flat on lower half, broadly convex above, a conspicuous fovea at center; surface reticulate from epistoma to vertex, punctures small obscure, of moderate abundance above; vestiture sparse, short, apparently mostly abraded. Pronotum 0.91 times as long as wide; surface shining, punctures on disc coarse, close, smaller toward anterior and lateral margins, several small asperities at lateral margin. Elytra 1.2 times as long as wide, 1.7 times as long as pronotum; crenulations on basal margins close, interstriae 2 with two submarginal crenulations; striae weakly impressed, punctures very coarse, deep, interstriae half to two-thirds as wide as a striae, smooth, shining, a few minute punctures at or near margins (sometimes weakly tuberculate) and uniseriate rows of interstitial tubercles, tubercles on 3, 5, 7, and 9 moderately coarse on declivity, obsolete on even-numbered declivital interstriae. Declivity broadly convex, steep. Vestiture of ground setae sparse on disc, rather abundant on declivity, each moderately stout, mostly, sharply pointed at their apex, about half as long as erect setae; erect setae slender, in rows on odd-numbered interstriae on posterior two-thirds of disc and on declivity.

Distribution: Venezuela: "Eing 1925, No. 10"; Dr. Moritz 1858 [presumably Colonia Tovar at or near his home].

Notes: The above treatment was based on 1 female cotype and on the Moritz female that Eggers had compared to the type prior to its destruction.

Phloeotribus woytkowskii Wood, n. sp.

Phloeotribus woytkowskii Wood: Holotype ♀; Cuachapayas, Dep. Amazonas, Peru, Andes, 2000 m; USNM, Washington, designated below

Diagnosis: Frons simple; interstitial setae more numerous, confused; pronotum reticulate on anterior third only.

Female: Length 2.1–2.2 mm, 2.3 times as long as wide; color very dark brown, pronotum black. Frons convex,

reticulate and rather coarsely punctured above level of antennal insertion, almost smooth and more finely punctured below; vestiture fine, short, hairlike, inconspicuous; middle segment of antennal club 4 times as wide as long. Pronotum 0.92 times as long as wide; basal margin almost straight; sides arcuately converging from base; surface without crenulations, some fine rugosity near lateral margins; reticulate on anterior third, smooth behind; posterior two-thirds coarsely punctured, centers of punctures smooth, shining, interspaces narrow, equal in width to less than one-third of a puncture, punctures smaller on anterior third; vestiture of fine, moderately long, recumbent hair. Elytra 1.6 times as long as wide, 1.9 times as long as pronotum; about twelve to eighteen submarginal crenulations at bases of interstriae 2–5; striae narrowly, rather deeply impressed, punctures small, deep, distinct; interstriae twice as wide as striae, closely set, with small, confused crenulations; vestiture of erect, confused bristles of about equal length, each about equal in length to width of an interstriae. Declivity convex, steep, somewhat narrowly rounded behind; all interstriae moderately convex and armed by uniseriate rows of irregular, pointed tubercles; vestiture confused as on disc, slightly shorter.

Distribution: Peru (Amazonas).

Type material: The female holotype and 1 female paratype were taken at Chachapoyas, Dep. Amazonas, Andes, Peru, 2000 m, 10-IX-1936, No. 3675, F. Woytkowski. The holotype and paratype are in the U.S. National Museum, Washington.

Phloeotribus collaris Chapuis

Plate XII

Phloeotribus collaris Chapuis, 1869:46. Holotype ♀; Nouvelle Grenada; IRSNB, Brussels (References in Wood & Bright c1992:219)

Phloeotribus despectus Schedl, 1966:98. Holotype ♀; Venezuela; NHMW, Wien (References in Wood & Bright c1992:221). *New synonymy*

Diagnosis: Distinguished from *woytkowskii* Wood by the simple frons; by the interstitial setae being more numerous, confused; and by the pronotum being reticulate to its base.

Male: Similar to female except frons moderately concave on upper one-third, impression not as strong below, continued as a broad, slightly concave sulcus to epistoma; surface reticulate, a few minute punctures; lateral margins (above) near eye with several coarse bristles; erect interstitial bristles continue to base on all interstriae.

Female: Length 2.0–3.0 mm, 2.0 times as long as wide; color black. Frons convex and rugose-reticulate on upper third, a few obscure punctures in marginal areas; area below level of antennal insertion almost flat, almost smooth, closely, finely, rather deeply punctured; inconspicuous vestiture of sparse, fine, hairlike setae of moderate length; middle antennal club segment 4 times as wide as long. Pronotum 0.89 times as long as wide; widest at base, sides rather weakly arcuate, converging slightly cephalad; unarmed by asperities; surface reticulate,

basal one-sixth rather coarsely, closely punctured on mesal half, anterior one-third rather finely, less closely punctured, remaining area obscurely, finely punctured, usually finely subgranular, dull; vestiture of fine hair, rather short on mesal area, longer laterally, a few rather coarse bristles in anterolateral area. Elytra 1.4 times as long as wide, 1.7 times as long as pronotum; several coarse, submarginal crenulations at bases of interstriae 2–4; striae distinctly, rather narrowly impressed, punctures distinct, partly confluent; interstriae about twice as wide as striae, shining, a few minute punctures present, crenulations almost uniseriate, of irregular size and position, some two-thirds as wide as an interstriae on basal half of disc, one-fourth as wide near declivity. Declivity convex, steep; interstriae narrower than on disc, tubercles uniseriate, pointed, becoming almost obsolete on 2, 4, and 6; vestiture of fine, rather short, confused hair on disc, stout on declivity, odd-numbered interstriae with a few erect bristles on posterior half.

Distribution: Colombia to Venezuela.

Colombia: Nouvelle Grenada; Piedras Blancas 10 km E Medellin, Antioquia, 15-VII-1970, 2500 m, No. 681, *Clusia*, SLW.

Venezuela: “Venezuela” (type of *despectus*); Rancho Grande, Aragua, 9-IV-1970, 1100 m, No. 416, Guttiferae, SLW; Merida, Merida, 22-IX-1969, 1700 m, No. 9, *Clusia*, SLW; La Carbonera Experimental Forest, 50 km airline NW Merida, Merida, 14-X-1969, 2500 m, No. 50, 51 (also No. 92 on 27-X-1969), *Clusia*, SLW.

Biology: Taken from phloem in broken limbs 4–20 cm in diameter.

Notes: The above treatment was based on the female holotype of *collaris* Chapuis, on the female holotype of *despectus* Schedl, and on 41 other specimens from Colombia and 94 from Venezuela. I compared 3 of these females directly to the holotype of *collaris*.

Phloeotribus venezuelensis (Schedl)

Plate XVII

Phloeotribus venezuelensis (Schedl), 1936:105 (*Phloeophthorus*). Holotype ♀; Venezuela; NHMW, Wien (References in Wood & Bright c1992:235)

Diagnosis: Distinguished from *squamiger* by the more slender striae and interstitial scales; and by the absence of tubercles on declivital interstriae 1, 2, 4, 6, and 8.

Female: Length 1.5–1.7 mm, 2.0 times as long as wide; color dark brown, setae pale. Frons convex from epistoma to vertex; surface reticulate, punctures coarse, close, rather deep; vestiture of sparse, inconspicuous hair; antennal club with middle segment about 2–3 times as wide as long. Pronotum 0.83 times as long as wide; asperities absent; outline as in *nanus*; surface reticulate, punctures coarse, close, interspaces between punctures equal to less than one-fourth diameter of a puncture; vestiture moderately abundant, of stout setae of moderate length, each about 6–8 times as long as wide. Elytra 1.3 times as long as wide, 1.9 times as long as pronotum;

bases of interstriae 2–4 without submarginal crenulations; striae not impressed, punctures very large, deep; interstriae about half as wide as striae, shining, each with a uniseriate row of small, pointed tubercles. Declivity convex, steep; striae narrower than on disc; interstriae 2, 4, 5, and 8 unarmed, 1, 3, 5, 7, and 9 each armed by a row of small, pointed tubercles; vestiture in uniseriate rows on disc, in double rows on most declivital interstriae, each seta stout, its apex pointed, about six times as long as wide; without any erect bristles.

Distribution: Venezuela: Merida, Merida, 22-IX-1969, No. 15, unidentified tree, SLW; La Carbonera Experimental Forest 50 km NW Merida, Merida, 14-X-1969 (and 12-I-1970, No. 234), 2500 m, *Eschweilera*, SLW.

Biology: Taken from the bole of standing, injured trees.

Notes: The above treatment was based on 40 females, 3 of which I compared directly to the female holotype.

Phloeotribus squamiger Wood

Plate XV

Phloeotribus squamiger Wood, 1977:392. Holotype ♂; Colonia Tovar, Aragua, Venezuela; USNM, Washington (References in Wood & Bright c1992:234)

Diagnosis: Distinguished from *venezuelensis* (Schedl) by the stouter interstitial scales; and by the presence of tubercles on declivital interstriae 1–9.

Male: Similar to female except frons broadly concave from epistoma to upper level of eyes, its surface rugose-reticulate, setae short, stout, moderately abundant.

Female: Length 1.5–1.7 mm, 2.0 times as long as wide; color black, setae pale. Frons convex; surface rugose-reticulate, punctures minute, obscure, vestiture sparse, short, stout; middle segment of antennal club about 6 times as wide as long. Pronotum 0.89 times as long as wide; outline as in *nanus* Wood; surface shining, punctures very close, rather small, shallow; vestiture rather abundant, of short scales, each about 3–4 times as long as wide. Elytra 1.3 times as long as wide, 1.7 times as long as pronotum; as in *venezuelensis* except interstitial tubercles minute to obsolete on all interstriae; interstitial scales uniseriate on disc and declivity, each broad, about one and one-half times as long as wide.

Distribution: Venezuela: Colonia Tovar, Aragua, 4-V-1970, 1700 m, No. 495a, *Inga*, SLW; La Carbonera Experimental Forest, 50 km airline NW Merida, Merida, 27-X-1969, 2500 m, No. 89, tree seedling, SLW.

Biology: Taken from phloem tissues of broken limbs.

Notes: The above treatment was based on the type series of 36 specimens.

Phloeotribus hebes Schedl

Plate XII

Phloeotribus hebes Schedl, 1978:294. Holotype ♀; Encruzilhada, Brazil; NHMW, Wien (References in Wood & Bright c1992:222)

Diagnosis: Distinguished from *squamiger* Wood by the absence of tubercles on the lower two-thirds of declivital interstriae 2; and by the smaller strial punctures.

Male: Similar to female except frons rather deeply concave from epistoma to just below upper level of eyes, slightly narrower than in allied species; lower two-thirds of declivital interstriae 2 unarmed by tubercles.

Female: Length 1.5–1.6 mm, 2.1 times as long as wide; color very dark brown, setae pale. Frons transversely impressed from epistoma to level of antennal insertion, broadly convex above; surface reticulate, punctures small, not deep, somewhat obscure; vestiture short, rather stout, of moderate abundance; middle segment of antennal club about 6 times as wide as long. Pronotum 0.86 times as long as wide; outline as in *nanus* Wood; surface shining, punctures moderately large, close, spaces between punctures with moderately numerous impressed points; vestiture of short, stout, almost scalelike setae, each about 4 times as long as wide, and on discal area intermixed with equally long, slender bristles. Elytra 1.4 times as long as wide, 1.7 times as long as pronotum; bases of interstriae 2–4 armed by a total of about six submarginal crenulations; striae not impressed, punctures coarse (not as large as in *squamiger*), deep; interstriae slightly narrower than striae, shining, each with a uniseriate row of setiferous granules, each granule about two-thirds as wide as an interstriae. Declivity convex, steep; striae and interstriae narrower than on disc; each interstriae armed by tubercles to apex similar to those on disc; vestiture of uniseriate rows of erect scales, each scale about four times as long as wide, almost half as long as distance between rows.

Distribution: Brazil: Cepec, Ilheus, Bahia, II-III-1981, blacklight, Kaston; Encruzilhada, Bahia, XI-1972, 980 m, M. Alvarenga.

Notes: The above treatment was based on the female holotype, on 1 female paratype, and on 19 other specimens from Brazil. Schedl had the sexes reversed in this species.

Phloeotribus ingae Wood

Phloeotribus ingae Wood, 1977:389. Holotype ♂; Buga, Colombia; USNM, Washington (References in Wood & Bright c1992:223)

Diagnosis: Distinguished from *nitidicollis* (Eggers) by the smooth, shining pronotum (between punctures); by the stouter body; and by the weakly impressed striae.

Male: Similar to female except frons broadly, rather shallowly concave from epistoma to upper level of eyes; interstitial bristles distinctly coarser.

Female: Length 1.5–1.7 mm, 2.0 times as long as wide; color dark brown. Frons transversely impressed from epistoma to level of antennal insertion, convex above; upper area smooth, slightly shagreened, punctures moderately large, shallow, not close; vestiture of sparse, short, fine, inconspicuous hair; middle segment of antennal club about 4 times as wide as long. Pronotum 0.80 times as long as wide; anterolateral areas rugose (subasperate), without asperities; surface smooth, slightly shagreened, punctures moderately coarse, rather deep, not close, spaced by distances equal to 1–3 diameters of

a puncture; vestiture of moderately abundant, fine hair of moderate length. Elytra 1.3 times as long as wide, 1.6 times as long as pronotum; no submarginal crenulations at bases of interstriae 2–5; striae not impressed, punctures coarse, rather deep; interstriae slightly wider than striae, surface smooth, slightly shagreened, each with a central, uniseriate row of small, setiferous tubercles. Declivity convex, steep; striae and interstriae slightly narrower than on disc, sculpture as on disc; interstriae 9 not elevated, its tubercles very slightly larger than others; fine strial setae conspicuous, interstitial setae erect, as long as distance between rows, spaced within a row by similar distances.

Distribution: Colombia: Buga, Valle del Cauca, 16-V-1973, 1700 m, *Inga* pods, G. Ekis.

Biology: Breeds in fruiting pods of the host.

Notes: The above treatment was based on the type series of 104 specimens.

Phloeotribus simplicidens Wood

Phloeotribus simplicidens Wood, 1977:389. Holotype ♂; Finca La Hermosa, Salento, Caldas, Colombia; USNM, Washington (References in Wood & Bright c1992:233)

Diagnosis: Pronotum without asperities; elytral surfaces slightly shagreened; male frons strongly concave, its lateral margins on lower half acutely elevated.

Female: Length 1.8–1.9 mm, 2.1 times as long as wide; color brown.

Frons about as in *ingae* Wood except punctures on upper areas feebly granulate; middle segment of antennal club about 4 times as wide as long. Pronotum 0.91 times as long as wide; as in *ingae*. Elytra 1.4 times as long as wide, 1.7 times as long as pronotum; about as in *ingae* except strial punctures slightly larger, vestiture slightly finer and shorter.

Male: Similar to female except frons very deeply concave from epistoma to well above upper level of eyes (much deeper and more extensive than in *ingae*, its lateral margins higher, more acutely elevated).

Distribution: Colombia: La Hermosa, Salento, Caldas, 1-VI-1959, ex guamo, J.A. Garzon.

Notes: The above treatment was based on the type series of 10 specimens.

Phloeotribus argentinensis (Schedl)

Phloeotribus argentinensis Schedl, 1952:447 (*Phthorophloeus*). Lectotype ♂; Santa Maria, Concepcion, Misiones, Argentina; NHMW, Wien, present designation (References in Wood & Bright c1992:218)

Diagnosis: Remotely allied to *amplus* Wood but easily distinguished by the smaller size; by the much longer, conspicuous strial hair and coarser, much more closely set interstitial setae; by the very different male frons; and by other characters described below.

Male: Length 1.6–1.7 mm, 1.9 times as long as wide; color very dark brown. Frons moderately, broadly im-

pressed on lower third to level of antennal insertions, continued on middle third to median line, feebly impressed above to upper level of eyes; median third from epistomal margin almost to level of antennal insertions rather coarsely rugose-reticulate (or minutely granulate), brightly shining and sparsely punctured to slightly above upper level of eyes; vestiture sparse, mostly on margins. Pronotum 0.82 times as long as wide, widest at base; median half armed from near anterior margin to near base by numerous small, confused asperities replacing punctures; surface mostly shining, with areas of weak reticulation mostly on basal third; vestiture of moderately abundant, rather short, fine hair. Elytra 1.27 times as long as wide, 1.8 times as long as pronotum; basal margins each with a single row of crenulations, with no submarginal crenulations; interstriae 1 moderately, others feebly, impressed; interstriae about as wide as striae, smooth, shining, each with a central row of moderately coarse setiferous tubercles. Declivity broadly convex, steep; sculpture about as on disc except striae and interstriae slightly narrower, tubercles smaller (almost obsolete on lower interstriae 1 and 2), 9 not elevated.

Female: Similar to male except frons convex almost to epistoma, sculpture simple; pronotum rather strongly reticulate, crenulations almost entirely replaced by small, shallow punctures.

Distribution: Argentina: Santa Maria, Concepcion, Misiones, M.J. Viana.

Hosts: *Araucaria angustifolis* (Bright & Skidmore 2002:34).

Notes: The above treatment was based on the 2 syntypes that Schedl subsequently labeled as the “holotype” and “allotype” of this species; both are from the same locality. This action was invalid under the International Code on Zoological Nomenclature. Because the females in this genus are often distinguished only with great difficulty, and the males have the truly diagnostic characters, I here designate the male syntype as the lectotype (Schedl’s “allotype”) of *Phthorophloeus argentinensis* Schedl. The female syntype is designated as the lectoallotype (Schedl’s “holotype”).

Phloeotribus truncatus Wood, n. sp.

Plate XVII

Phloeotribus truncatus Wood: Holotype ♂; Quindio, Colombia, on mountain slopes; BMNH, London, designated below

Diagnosis: This is the only known member of this genus in which the elytral declivity is subobliquely truncate; its base is armed by a circumdeclivital ring of conspicuous, blunt spines in both sexes.

Male: Length 2.7–3.3 mm, 1.8 times as long as wide; mature color black. Frons with a shining median callus on slightly more than median half from epistoma to slightly above level of antennal insertions, its surface finely, somewhat irregularly, rather closely punctured; median area above callus concavely impressed on median half almost to upper level of eyes; except for callus, lateral

margins and upper areas finely reticulate, dull, sparse, minute punctures evident; glabrous except epistomal margin; scape with a small tuft of long dark hair near its apex. Pronotum 0.75 times as long as wide; surface dull, very minutely irregular; lateral thirds asperate, median third with a few, small, widely spaced asperities (asperities mostly shining); vestiture mostly abraded, short, sparse. Elytra 1.3 times as long as wide, 1.8 times as long as pronotum; scutellar notch moderately deep; striae moderately, rather gradually impressed, punctures rather deep, most transversely elongate; interstriae convex, almost twice as wide as striae, each ending abruptly behind in an irregular, blunt, circumdeclivital spine, interstitial crenulations mostly narrow, mostly uniseriate, confused near base on 2 and 3. Declivity obliquely truncate, very steep, with a circumdeclivital ring of tubercles from suture above to suture at apex; face irregularly, very broadly convex; striae moderately impressed, punctures distinct, about as large as on disc; interstriae moderately convex, dull, each with about three to five small, irregularly distributed tubercles. Vestiture abraded on most specimens, at least on disc, a few rather short setae sometimes present; on declivity a moderately abundant ground cover of short hair present, longer, somewhat uniseriate hair irregularly present.

Female: Similar to male except frons convex, reticulate, callus not evident, a few isolated granules on upper half; tubercles on discal interstriae and in circumdeclivital ring present, distinctly smaller; declivital interstriae with interstitial tubercles distinctly larger, more numerous (in uniseriate rows).

Distribution: Colombia (Caldas).

Type material: The male holotype, female allotype, and 8 paratypes were taken above Quindio, I-III-1995, Sample A, on mountain slopes, IIE 23265 *Ceroxylon quindiuense*, G. Carillo; 3 paratypes were taken at Caldas, 1994, on *Ceroxylon quindiuense*, P. Baker, IIE 23145; 3 paratypes are from Cajamarca.Tol., V-1992, 2300 m, *Ceroxylon quindiuense*, G. Carillo. The holotype, allotype, and 9 paratypes are in the BMNH, London; 5 paratypes are in the U.S. National Museum, Washington.

Hosts: *Ceroxylon quindiuense* (Palmae).

Phloeotribus amplus Wood

Plate XI

Phloeotribus amplus Wood, 1977:390. Holotype ♂; La Carbonera Experimental Forest 50 km NW Merida, Merida, Venezuela; USNM, Washington (References in Wood & Bright c1992:218)

Diagnosis: Pronotal asperities present; declivital interstriae 9 modestly elevated, weakly serrate; size moderately large.

Male: Similar to female except frons broadly, moderately concave from epistoma to upper level of eyes, deepest on upper half; antennal scape with a small tuft of hair; interstitial crenulations and tubercles distinctly larger, rather coarse.

Female: Length 3.2–3.9 mm, 2.0 times as long as wide; color dark brown to black. Frons convex; surface mostly reticulate, punctures small, rather obscure above; middle segment of antennal club 5 times as wide as long. Pronotum 0.84 times as long as wide; lateral areas asperate from near anterior margin to near posterior margin; surface shining; punctures rather coarse, close; vestiture hairlike, moderately abundant, rather short; middle segment of antennal club 6 times as wide as long. Elytra 1.5 times as long as wide, 2.0 times as long as pronotum; bases of interstriae 2–4 armed by a total of about fifteen to twenty submarginal crenulations; striae rather weakly impressed, punctures large, close, deep; interstriae about as wide as striae, surface smooth, shining, crenulations low, sharp, uniseriate, largest about two-thirds as wide as an interstriae, narrower toward declivity. Declivity convex, steep; striae and interstriae narrower than on disc; all interstriae weakly convex, none elevated, tubercles rather sharply pointed, slightly larger than on disc; vestiture hairlike, in uniseriate interstitial rows, seta length equal to slightly more than half distance between rows, within a row equal to length of a seta.

Distribution: Venezuela: La Carbonera Experimental Forest 50 km NW Merida, Merida, 14-X-1969, 2500 m, No. 59, bole of large felled tree, SLW; Merida, Merida, 29-XII-1969, 1700 m, No. 218, in flight, SLW.

Biology: Taken from biramous, transverse parental tunnels and from larval mines in the phloem tissues of a felled tree 60–80 cm in diameter.

Notes: The above treatment was based on the type series of 13 specimens.

Phloeotribus novateutonicus (Schedl)

Phloeotribus novateutonicus (Schedl), 1951:84 (*Phthorophloeus*). Lectotype ♂; Nova Teuonia, Santa Catarina, Brazil; NHMW, Wien, present designation (References in Wood & Bright c1992:225)

Diagnosis: Distinguished from *vesculus* Wood by the shallowly concave male frons, the upper area convex, smooth, brightly shining, impunctate; by the weakly reticulate pronotum; and by the discal striae being wider than the interstriae.

Male: Length 1.2 mm, 2.1 times as long as wide; color pale brown to brown. Frons broadly, shallowly concave from epistoma to level of antennal insertions, apparently smooth, punctures not clearly evident, area above level of antennal insertions to vertex convex, smooth, brightly shining, impunctate on median four-fifths, lateral and dorsal margins finely, deeply punctured; vestiture on lateral and dorsal margins of rather sparse, short, fine hair. Pronotum 0.86 times as long as wide; surface weakly reticulate; anterior three-fourths of median half with several small crenulations, punctures minute, not clearly evident; vestiture sparse, of rather stout, moderately long setae. Elytra 1.4 times as long as wide, 1.7 times as long as pronotum; basal margins with a strong row of crenulations, submarginal crenulations not evident; striae weakly impressed, punctures coarse, deep; interstriae

slightly narrower than striae, smooth, shining, each with a uniseriate row of rather fine, rounded tubercles. Declivity broadly convex, steep; striae and interstriae narrower than on disc, interstitial tubercles slightly smaller. Vestiture of rows of fine, short strial hair, and uniseriate rows of interstitial erect bristles, length of a bristle about equal to two-thirds distance between rows, spaced within a row by length of a bristle.

Female: Similar to male except frons convex, smooth, shining, uniformly, sparsely punctured throughout; crenulations on pronotum obscure to absent.

Distribution: Brazil: Nova Teutonia, Santa Catarina, VIII-1941, F. Plaumann.

Notes: The above treatment was based on 1 male and 4 female syntypes. The male syntype is here designated as the lectotype of *Phthorophloeus novateutonicus* Schedl. Schedl erroneously designated a female as the "holotype" and a male as the "allotype," an option not available to him from a syntypic series.

Phloeotribus vesculus Wood

Phloeotribus vesculus Wood, 1977:392. Holotype ♀; 5 km W El Pino, Zulia, Venezuela; USNM, Washington (References in Wood & Bright c1992:235)

Diagnosis: Pronotal asperities present; surface reticulate; body stout; color dark brown; male frons with a pair of small tubercles mesad from lateral margin slightly above level of antennal insertion.

Male: Similar to female except frons broadly, moderately concave from epistoma to distinctly below upper level of eyes, a few minute granules on margins at bases of setae, a pair of small tubercles mesad from lateral margins immediately above level of antennal insertions (same position as calluses on female); elytral setae slightly longer and more slender (at least 8 times as long as wide).

Female: Length 1.3–1.4 mm, 2.0 times as long as wide; color dark brown, almost black. Frons with short, transverse impression at epistoma, convex from epistoma to vertex; surface reticulate except for a pair of shining calluses immediately above level of antennal insertion and mesad from lateral margins; vestiture of sparse, stout, short hair; middle segment of antennal club about 5 times as wide as long. Pronotum 0.84 times as long as wide; crenulations on anterolateral areas small, sparse; surface strongly reticulate throughout, setiferous punctures feebly granulate, sparse, very small; vestiture rather sparse, almost scalelike, each about 6 times as long as wide. Elytra 1.3 times as long as wide, 1.4 times as long as pronotum; bases of interstriae 2–3 with a total of about four submarginal crenulations; striae feebly if at all impressed, punctures large, deep; interstriae as wide as striae, surface smooth, with numerous impressed points (micropunctures), tubercles uniseriate, rather small, somewhat pointed (each about half as wide as an interstriae), moderately close. Declivity convex, very steep; striae and interstriae narrower than on disc, tubercles much smaller,

almost obsolete; vestiture restricted to uniseriate rows of interstitial scales arising from posterior margin of tubercles, each scale about six times as long as wide, slightly longer than half distance between rows, spaced within a row by length of a scale.

Distribution: Venezuela: Campamento Rio Grande 30 km E Palmar, Bolivar, 12-VI-1970, 200 m, No. 575, *Sterculia pruriens*, SLW; 5 km W El Pino, Zulia, 20-X-1969, 10 m, No. 140, *Ochroma*, SLW.

Hosts: *Ochroma*, *Sterculia pruriens* (det. Balbino Rodriguez).

Biology: Taken from phloem of cut seedlings.

Notes: The above treatment was based on the female holotype and on 1 male.

Phloeotribus profanus Schedl

Phloeotribus profanus Schedl, 1963:212. Holotype ♀; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:227)

Diagnosis: Distinguished from *nitidicollis* (Eggers) by the smaller size; by the more broadly, more deeply concave male frons; by the smaller strial punctures; and by other characters mentioned below.

Male: Length 1.4 mm, 1.8 times as long as wide; color very dark brown, almost black. Frons broadly, deeply concave from epistoma to very slightly above upper level of eyes; surface apparently reticulate, punctures not evident, upper area with sparse, very fine granules; vestiture of sparse, rather short hair. Pronotum 0.74 times as long as wide; anterior half with small crenulations, surface shining, punctures coarse, shallow, moderately impressed; vestiture of moderate abundance, rather coarse, somewhat short. Elytra 1.3 times as long as wide, 1.7 times as long as pronotum; basal margins armed by a strong row of coarse crenulations, true submarginal crenulations not present; striae moderately impressed, punctures rather coarse, distinctly impressed; interstriae very slightly wider than striae, shining, somewhat irregular, convex, each with a uniseriate row of rather coarse, acutely rounded tubercles, these spaced by about diameter of a strial puncture. Declivity broadly convex, steep; striae slightly more deeply impressed than on disc; tubercles about as on disc on interstriae 1–9, of about equal size. Vestiture of uniseriate interstitial rows of erect, short bristles, each arising from posterior base of a tubercle and perhaps ten times as long as wide, about half as long as distance between rows, spaced within a row by slightly more than length of a bristle.

Female: Similar to male except frons broadly convex.

Distribution: Brazil: [Nova Teutonia] Linha Facao, Santa Catarina, VII-1957, F. Plaumann.

Notes: The above treatment was based on the female holotype and the male allotype. The female specimen labeled by Schedl as a paratype of this species (sent on loan by NHMW, Wien) is entirely unrelated and was treated above as *Phloeotribus schedli* Wood.

Phloeotribus nitidicollis (Eggers)

Phloeotribus nitidicollis (Eggers), 1943:347 (*Phthorophloeus*). Holotype ♀; Cochabamba, Bolivia; USNM, Washington (References in Wood & Bright c1992:225)

Phloeotribus neglectus Schedl, 1964:303. Holotype, sex?; Cochabamba, Bolivia; USNM, Washington, automatic, replacement name for *eggersi* Schedl, 1963:60 (Synonymy and references in Wood & Bright c1992:225). *New synonymy*

Phloeotribus striatus Eggers, 1943:351. Holotype, sex?; Cochabamba, Bolivia; USNM, Washington, preoccupied by Eggers 1943:346

Phloeotribus eggersi Schedl, 1963:60. Holotype, sex?; Cochabamba, Bolivia; USNM, Washington, replacement name for *striatus* Eggers 1943, preoccupied by Schedl (1962:487)

Phloeotribus nebulosus Wood, 1977:390. Holotype ♂; Piedras Blancas 11 km W Medellin, Antioquia, Colombia; USNM, Washington (References in Wood & Bright c1992:225). *New synonymy*

Phloeotribus levis Wood, 1977:392. Holotype ♂; Piedras Blancas 10 km E Medellin, Antioquia, Colombia; USNM, Washington (References in Wood & Bright c1992:223). *New synonymy*

Diagnosis: Distinguished from *vesculus* Wood by the more slender body form; by the black color; by the shining pronotum; and by the more slender interstitial setae.

Male: Similar to female except frons shallowly, broadly concave from epistoma almost to upper level of eyes, surface rugose-reticulate, lateral margins subacute near level of antennal insertion; antennal scape with a small tuft of hair; interstitial setae slightly stouter, especially on declivity.

Female: Length 1.3–1.8 mm, 2.2 times as long as wide; color black. Frons convex; transversely impressed from epistoma to level of antennal insertion, surface rugose-reticulate, sparse punctures of moderate size above, minute below, obscure; vestiture of sparse, fine, short hair; middle segment of antennal club about 6 times as wide as long. Pronotum 0.90 times as long as wide; anterolateral areas moderately asperate; surface mostly shining, obscure, irregular reticulation in most areas (not uniform); punctures coarse, close, deep, somewhat irregular in size, spaced by 2 diameters of a puncture; vestiture of rather sparse, fine, short hair, longer near lateral margins. Elytra 1.5 times as long as wide, 1.8 times as long as pronotum; bases of interstriae 2–4 with a total of about four submarginal crenulations; striae moderately impressed, punctures coarse, deep, close; interstriae as wide as striae, surface smooth, shining, crenulations subacute, moderately close, uniseriate, each about as wide as an interstriae, narrower and tuberculate near declivity. Declivity convex, steep; striae and interstriae narrower than on disc, interstitial tubercles on all interstriae, tubercles rather small and acutely pointed on 1–3, distinctly larger but sparse on 4–8; interstriae 9 strongly, acutely elevated, tubercles rather large, subacute from base to level of interstriae 3, smaller from there to suture; vestiture of interstitial rows of erect, rather fine hair; length of each seta equal to about two-thirds distance between rows, spaced within row by length of a seta.

Distribution: Bolivia to Colombia and Venezuela. Bolivia: Cochabamba [Woytkowski].

Colombia: Piedras Blancas 11 km W Medellin, 15-VII-1970, 2500 m, Nos. 658, 681, 684, *Clusia*, and 17-VII-1970, 2000 m, No. 693, *Croton guianensis*, SLW.

Venezuela: Colonia Tovar, Aragua, 4-V-1970, 1700 m, No. 507, unidentified log, SLW; La Carbonera Experimental Forest 50 km NW Merida, Merida, 14-X-1969, 2500 m, No. 51, *Clusia*, SLW; Merida, Merida, 22-IX-1969, 1700 m, No. 9, *Clusia*, SLW.

Hosts: *Clusia*, *Croton guianensis*.

Biology: Taken from the phloem of felled small trees.

Notes: The above treatment was based on the holotypes of *Phthorophloeus nitidicollis* Eggers, *Phthorophloeus neglectus* Schedl, *Phloeotribus striatus* Eggers (1943:351), on the type series of 124 specimens of *Phloeotribus nebulosus* Wood, and on the type series of 3 specimens of *Phloeotribus levis* Wood. There is considerable variation in this species that may cause problems in identification.

Phloeotribus erinaceus Schedl

Phloeotribus erinaceus Schedl, 1967:7. Holotype ♂; Itu, Fazenda Pau d'Alho, Santa Catarina, Brazil; MZUSP Sao Paulo (References in Wood & Bright c1992:221)

Diagnosis: Distinguished from *nitidicollis* (Eggers) by the much more coarsely punctured pronotum disc and striae; by the strongly elevated declivital interstriae 9; and by the much larger tubercles on declivital interstriae 3, 5, and 7; and by many other characters described below. These 2 species are not closely related.

Male: Length 1.8 mm, 1.9 times as long as wide; color dark reddish brown. Frons moderately, rather narrowly concave from epistoma to upper level of eyes, lateral margins moderately subacute on middle third, without a denticle; concave area mostly smooth, shining, punctures mostly obscure, sparse, small; vertex rugose-reticulate; setae sparse, hairlike, rather short except longer and more numerous on epistoma. Pronotum 0.76 times as long as wide; widest at base; sides moderately, arcuately converging to rather broadly rounded anterior margin; summit indefinite, on basal third of pronotum length; anterior slope on median three-fourths of anterior half, armed by many narrow, rather coarse asperities; disc smooth, shining, punctures rather coarse, deep, mostly spaced by distance less than diameter of a puncture; setae on asperate area rather stout (about 10 times longer than wide), of moderate abundance, longer and more slender on disc. Elytra 1.35 times as long as wide, 1.8 times as long as pronotum; disc occupying basal 60 percent of elytra length; basal margin mostly straight, scutellar notch rather narrow, moderately deep, each with about 10 crenulations; striae slightly impressed near declivity, not impressed on basal half, slightly wider than interstriae, punctures large, deep, close; interstriae smooth, shining, crenulations uniseriate on basal half, moderately coarse toward declivity, almost all punctures replaced by crenulations. Declivity very broadly convex, very steep; striae similar to those on disc, punctures

distinctly smaller; interstriae 1 and 2 narrower than on disc, crenulations small to obsolete, 3 feebly elevated and armed by one rather large and about four moderate, pointed tubercles; apex of 5 and 7 each with one or two equally large tubercles; ventrolateral margin strongly, acutely elevated and serrate from striae 1 to interstriae 9 near declivity (six or seven serrations). Vestiture consisting of uniseriate interstitial rows of almost hairlike setae, each on disc slightly shorter than distance between rows, slightly longer and equal to this distance on declivity.

Distribution: Brazil: Faz. Pau d'Alho itu, Sao Paulo, II-1959, U. Martins.

Notes: The above treatment was based on the male holotype.

Phloeotribus harringtoni Blackman

Phloeotribus harringtoni Blackman, 1943:388. Holotype ♀; Aguaray, Argentina; USNM, Washington (References in Wood & Bright c1992:222)

Diagnosis: Distinguished from *fici* Wood by the larger size; by the absence of small tubercles on declivital interstriae 1; and by the less numerous, slightly longer interstitial setae.

Male: Length 2.1 mm (female 2.2 mm, 2.2 times as long as wide); color very dark brown. Frons resembling *hirtus* Wood except concave area deeper, more extensive, extending to upper level of eyes; brush on antennal scape small, consisting of about 8 setae. Pronotum 0.80 times as long as wide; surface smooth, shining between punctures, punctures rather coarse, close, of variable size; vestiture of slender, long bristles, unusually long on disc. Left elytron missing from holotype; base of interstriae 2 with two submarginal crenulations, 3 with one; striae weakly impressed, punctures very large, deep, punctures transversely wider than long; interstriae slightly narrower than striae, each (2–9) with a uniseriate row of fine tubercles, except tubercles absent on 1. Declivity convex, steep; striae 1 and 2 more strongly, more narrowly impressed, punctures deep, half as large as on disc; interstriae 1 slightly wider and more broadly convex than 2 or 3 (rather narrowly convex); 1 with more numerous, confused punctures (no tubercles), 2 with one small, pointed spine at base, uniseriately punctured, 3 with three rather coarse, pointed spines widely spaced on upper half, 5, 7, and 9 each with two rather coarse spines near their apices, 9 moderately elevated near its apex. Vestiture of erect, coarse setae in uniseriate rows, those on anterior disc and lower declivity each about equal in length to distance between rows, those near base of declivity slightly longer.

Female: Similar to male except frons convex, reticulate, rather closely punctured, with sparse, rather coarse, moderately long, coarse hair; bases of interstriae 2–5 each with two or three submarginal crenulations; all tubercles on elytral declivity smaller; setae on pronotum and elytra about two-thirds as long.

Distribution: Argentina: Aguaray & Tartegal [Salta Prov.], 19-21-X-1920, G.L. Harrington.

Notes: The above treatment was based on the female holotype and on the male allotype (left elytron missing).

Phloeotribus jujuya Blackman

Phloeotribus jujuya Blackman, 1943:389. Holotype ♀; Santa Clara, Jujuy, Argentina; USNM, Washington

Diagnosis: This species is not in the above key. It was based on the female holotype and appears to key out to *harringtoni* Blackman, but it is larger, the frons is not reticulate, and other details indicate it is of a different species.

Female: Length 2.4 mm, 2.14 times as long as wide; color medium reddish brown. Frons convex, mostly smooth, shining, punctures small to minute, close; middle half of median line from epistoma to upper level of eyes with a weak, double carina, line between summits very narrow, rather deep; setae fine, hairlike, rather short, moderately abundant; vertex rugose-reticulate; antennal club segments 1 and 2 each about twice as wide as long. Pronotum 0.80 times as long as wide; widest at base, sides moderately arcuate and converging toward rather broadly rounded, unarmed anterior margin; summit indefinite, at middle of pronotum length; lateral fourths with moderate crenulations from near base to anterior margin, median half anterior to summit feebly to weakly crenulate and intermixed with a few obscure punctures, basal half with an impunctate median line then rather close, coarse, deep punctures; vestiture hairlike, rather numerous, of moderate length. Elytra 1.7 times as long as wide, 2.1 times as long as pronotum; disc occupying basal 67 percent of elytra length; basal margins each armed by 9 crenulations; scutellar notch subacute, rather deep; striae moderately impressed, punctures coarse, deep, close; interstriae as wide as striae, smooth, shining, punctures not evident, transverse crenulations on basal third of disc rather coarse, confused on 2, uniseriate elsewhere, transcending to uniseriate conical tubercles on declivity; interstriae 1–3 equal in height, 4–8 end before attaining apical margin. Vestiture on interstriae in rows, short on disc and sides, minute to obsolete on declivity.

Distribution: Argentina: Santa Clara, Jujuy, 23-IX-1921, G.L. Harrington.

Notes: The above treatment is based on the female holotype.

Phloeotribus hirtus Wood

Phloeotribus hirtus Wood, 1977:393. Holotype ♂; Caparrapi, Cunadin, Colombia; USNM, Washington (References in Wood & Bright c1992:222)

Diagnosis: Color black; declivital interstriae 9 very strongly elevated and coarsely serrate; interstitial tubercles on declivity of irregular size and spacing; interstitial setae very long.

Male: Similar to female except frons broadly, rather deeply concave from epistoma to upper level of eyes; scape with a small tuft of long hair; major denticles on odd-numbered declivital interstriae distinctly larger.

Female: Length 1.9–2.0 mm, 1.9 times as long as wide; color very dark brown. Frons transversely impressed from epistoma to level of antennal insertion, convex above; surface mostly reticulate, punctures rather coarse, close, somewhat obscure; vestiture of inconspicuous, fine, short, sparse hair; middle segment of antennal club 6 or more times as wide as long. Pronotum 0.81 times as long as wide; asperities present on anterolateral areas; surface shining, punctures coarse, close, deep, interspaces equal to less than width of a puncture; vestiture of sparse very long hair. Elytra 1.3 times as long as wide, 1.9 times as long as pronotum; bases of interstriae 2–5 armed by a total of about five submarginal crenulations; striae weakly impressed at base, more strongly by base of declivity, punctures very coarse, close, deep; interstriae narrower than striae, smooth, shining, with a few impressed points, tubercles uniseriate, rather narrow, subacutely pointed, more widely spaced within a row than normal. Declivity convex, steep; striae and interstriae narrower than on disc; striae punctures confluent; interstriae rather narrowly convex, tubercles on 1–8 rather small except 1, 3, 5, and 7 usually each with one tubercle larger than others, 2 and 4 sometimes unarmed; interstriae 9 strongly, narrowly, acutely elevated to suture, its crest coarsely serrate; vestiture of interstitial rows of fine, long, erect hair, longest setae equal in length to combined width of two striae plus two interstriae.

Distribution: Colombia: Caparrapi, Cunadin, 28-V-1959, arbol de sangregao, A. Diaz.

Notes: The above treatment was based on the type series of 10 specimens.

Phloeotribus fici Wood

Phloeotribus fici Wood, 1977:393. Holotype ♂; Universidad de los Andes Campus, Merida, Merida, Venezuela; USNM, Washington (References in Wood & Bright c1992:221)

Diagnosis: Distinguished from *hirtus* Wood by the absence of tubercles on declivital interstriae 2 and 4; and by the slightly shorter interstitial setae.

Male: Length 1.6–1.7 mm, 2.1 times as long as wide; color black. Frons almost flat from epistoma to upper level of eyes (not distinctly concave); surface strongly reticulate, punctures obscure, a few small, scattered granules on upper half; middle segment of antennal club about 5 times as wide as long. Pronotum 0.82 times as long as wide; asperities on anterior third present, very small; punctures coarse, deep, close, of irregular size and shape; vestiture of sparse, moderately long, coarse hair. Elytra 1.3 times as long as wide, 1.8 times as long as pronotum; bases of interstriae 2–4 with a total of four submarginal crenulations; striae weakly impressed at base, rather strongly toward base of declivity, punctures coarse, deep, close; interstriae slightly wider than striae,

surface smooth, shining, crenulations on 3 uniseriate, each almost as wide as an interstriae, reduced (but present) on 2 and 4. Declivity convex, steep; striae and interstriae narrower than on disc; interstriae 2, 4, and lower 6 and 8 unarmed, 1 slightly elevated and armed by small tubercles, 3, 5, and 7 slightly elevated and each armed by about three coarse, pointed tubercles, 9 strongly, narrowly elevated to suture and armed by a row of coarse, pointed denticles; vestiture of interstitial rows of coarse setae, each about as long on disc as distance between rows, longer on declivity.

Distribution: Venezuela: Universidad de los Andes Campus, Merida, Merida, 7-X-1969, 1700 m, Nos. 5, 42, *Ficus* (strangler fig), SLW.

Biology: Taken from phloem of the bole of a large, felled tree.

Notes: The above treatment was based on the type series of 2 males.

Phloeotribus rudis Eichhoff, n. status

Phloeotribus rudis Eichhoff, 1868:149. Syntypes (?) ♂; Brazil; 1 in Hamburg Museum, lost, 2 in IRSNB, Brussels (Synonymy and references in Wood & Bright c1992:232)

Phloeotribus puncticollis Chapuis, 1869:45. Holotype ♀; Sao Paulo, Brazil; IRSNB, Brussels

Phloeotribus contractus Chapuis, 1869:46. Lectotype ♂; Colombia; IRSNB, Brussels, present designation by Wood (References in Wood & Bright c1992:220). *New synonymy*

Phloeotribus peruensis Schedl, 1942:67. Holotype ♂; Rio Toro, Peru; NHMW, Wien (References in Wood & Bright c1992:226). *New synonymy*

Phthorophloeus striatus Eggers, 1943:346. Holotype ♂?; Cochabamba, Bolivia; NHMW, Wien (References in Wood & Bright c1992:234). *New synonymy*

Phloeotribus lineatus Eggers, 1951:148. Holotype ♀; Blumenau, Brazil; NHMW, Wien (References in Wood & Bright c1992:224). *New synonymy*

Diagnosis: Mesal portion of posterior margin of prothorax conspicuously extended caudad into scutellar notch; surfaces of pronotum and elytra smooth, shining; size smaller than in allied species.

Male: Similar to female except antennal bases displaced slightly mesad, lower frons very slightly impressed; scape bearing a small tuft of long hair.

Female: Length 2.1–2.9 mm, 1.7 times as long as wide; color very dark brown. Frons flattened from epistoma to level of antennal insertion, convex above; surface reticulate, punctures rather coarse, moderately deep, larger above, fine below level of antennal insertion; vestiture sparse, short; middle segment of antennal club about 10 times as wide as long. Pronotum 0.86 times as long as wide; basal margin strongly, subacutely extending caudad into scutellar notch; asperities present in anterolateral areas; surface shining, punctures moderately coarse, deep, close, of irregular size, interspaces with impressed points, each averaging less than half as wide as diameter of a puncture; setae sparse, stout, rather short; middle segment of antennal club about 10 times as wide as long. Elytra 1.1 times as long as wide, 1.3

times as long as pronotum; bases of interstriae 2–4 with a total of more than 12 submarginal crenulations; striae narrowly, deeply impressed, punctures small, somewhat confluent; interstriae twice as wide as striae, shining, with fine punctures, crenulations close, uniseriate, at base each about two-thirds as wide as an interstriae, half as wide at base of declivity. Declivity convex, steep; striae and interstriae narrower than on disc; interstriae 1–4 convex, each armed by a row of small tubercles, 5–8 with slightly larger tubercles, 9 modestly elevated to suture, rather finely serrate; vestiture of short, stout setae, on 2–8 each about one-fourth as long as distance between rows, distinctly longer on 1 and 9.

Distribution: Colombia and Venezuela to Bolivia and Brazil.

Bolivia: Cochabamba [F. Woytkowski].

Brazil: Bahia, Cepec, Ilheus, I-III-1981, blacklight, Kaston; Blumenau; Santa Catarina, Deyr.; Sao Paulo, Dejean.

Colombia: Colombia, Dejean; 27 km NE Montoya, Santander, 2-VII-1970, 150 m, No. 601, *Pseudoolmedia*, SLW.

Peru: Leonpampa, Dep. Huanuco, 11-30-III-1937, 800 m, jungle, No. 3811, F. Woytkowski; Rio Toro.

Venezuela: 9 km S Barancas, Barinas, 1-X-1969, *Inga*, SLW; 8 km SW Bumbum, Barinas, 11-II-1970, 150 m, No. 326, tree limb, SLW; 40 km E Canton, Barinas, 8-III-1970, No. 353, *Brosimum*, SLW; 10 km SE Miri, Barinas, 8-II-1970, 150 m, No. 297, *Brosimum*, SLW.

Biology: Taken from transverse, biramous parental tunnels in the phloem of branches 4–10 cm in diameter.

Notes: The above treatment was based on 224 specimens. This name is based on 2 specimens in the Chapuis Collection at the Brussels Museum that were examined and labeled by Eichhoff as *rudis*. They are presumed to be syntypes. The Eichhoff syntypes that were in the Hamburg Museum were destroyed during World War II. I also compared specimens directly to the holotypes or syntypes of *puncticollis* Chapuis (holotype examined), *peruensis* Schedl, *lineatus* Eggers, *striatus* Eggers (holotypes examined), and *contractus* Chapuis (lectotype examined), all are of the same species. The first syntype of *P. contractus* Chapuis, a male, is here designated as the lectotype of that species. The Chapuis specimen of the nomen nudum *villosulus* Lacordaire, from Cayenne, was also examined and is also of this species. The name *rudis* Eichhoff is restored to full species status; it is not a synonym of *setulosus* Eichhoff.

Phloeotribus erosus Schedl

Phloeotribus erosus Schedl, 1951:83. Lectotype ♂; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien, present designation (References in Wood & Bright c1992:221)

Diagnosis: Distinguished from *sulcifrons* Chapuis by the absence of a strong, median sulcus of the upper female frons; by the narrower discal interstriae; and by the small, discal punctures lacking interstitial setae.

Male: Length 2.5–2.8 mm, 1.7 times as long as wide; color dark reddish brown. Frons broadly, rather strongly concave from epistoma to well above upper level of eyes, deepest near center, surface almost smooth, obscurely reticulate on upper third, minute, obscure punctures on lower half larger, very shallow punctures above eyes; vestiture restricted to lower two-thirds of fine, short, rather sparse hair; lateral margins subacute below level of antennal insertion (simple). Pronotum 0.83 times as long as wide; crenulations on less than anterior half small, not close, extending laterally to basal fourth, and submargin (laterally) armed by 10–12 serrations; surface shining, smooth between punctures, punctures close, moderately coarse, deep; vestiture of rather short, moderately fine hair, apparently sparse. Elytra 1.2 times as long as wide, 1.6 times as long as pronotum; striae moderately, rather abruptly impressed, punctures small, rather distinct; interstriae twice as wide as striae at base, as wide as striae at base of declivity, crenulations close, acute, moderately high, most one-third as wide as an interstriae, a few half as wide, confused, punctures between crenulations small, close, confused, without a seta (except at suture). Declivity occupying posterior half, broadly convex, steep; striae narrower than on disc; interstriae distinctly wider than striae, crenulations reduced to a uniseriate row of moderately small tubercles on each. Vestiture consisting of erect setae arising from crenulations and tubercles, each of moderate length and about equal in length to half distance between declivital rows.

Female: Similar to male except frons convex, surface mostly reticulate; elytral setae slightly shorter.

Distribution: Argentina to Brazil.

Argentina: Cited in Wood & Bright c1992:221.

Brazil: Nova Teutonia [Santa Catarina], IV-1944, F. Plaumann.

Notes: The above treatment was based on the male lectotype, and on 1 other male and 2 females in the NHMW, Wien. Schedl (1979:91) had, subsequent to publication of the original description, incorrectly labeled a male syntype as the allotype of this species, and 1 of the females as the (invalid) holotype. The first male syntype in the Schedl series is here designated as the lectotype of *Phloeotribus erosus* Schedl.

Phloeotribus sulcifrons Chapuis

Phloeotribus sulcifrons Chapuis, 1869:45. Holotype ♀; Nouvelle Grenada [presumably Colombia]; IRSNB, Brussels (References in Wood & Bright c1992:234)

Diagnosis: Distinguished from *pilula* (Erichson) by the absence of reticulation on both pronotum and elytra; and by the strong, rather broad median sulcus on the female frons.

Female: Length 3.2 mm, 1.6 times as long as wide; color almost black. Frons with a moderately strong median sulcus from vertex to slightly above level of antennal insertion, a feeble continuation of this impression to

each antennal insertion; surface coarsely punctate-granulate to upper level of eyes in lateral areas, more nearly smooth and with sparse punctures in sulcus; area below level of antennal insertion more finely punctured, without any granules; vertex at least partly rugose-reticulate; vestiture of fine, short, inconspicuous hair. Antennal club with segments each about 8 times wider than long. Pronotum 0.90 times as long as wide; asperities confined to lateral fourths and near anterior margin; rather coarsely, deeply, very closely punctured, spaces between punctures smooth, shining, about equal in width to one-fourth diameter of a puncture; vestiture very sparse, hairlike. Elytra about 1.1 times as long as wide (1 elytron displaced, measurement uncertain), 1.3 times as long as pronotum; striae moderately, abruptly impressed, punctures small, rather deep; interstriae almost three times as wide as striae, surface between crenulations smooth, shining, crenulations close, acute, rather high, transversely narrow (most equal to less than one-third width of an interstriae), minute punctures apparently numerous, confused, most obscure; a minute, hairlike seta arising from posterior base of each crenulation, confused (no erect bristles). Declivity broadly convex, steep; striae wider, interstriae narrower than on disc; interstitial crenulations reduced at base to one central row of tubercles on each interstriae, these almost obsolete by apex; vestiture apparently similar to that of disc.

Distribution: Colombia: "Nouvelle Grenada, Dejean."

Notes: The above treatment was based on the female holotype.

Phloeotribus cylindricus Schedl

Phloeotribus cylindricus Schedl, 1951:82. Lectotype ♂; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien, present designation (References in Wood & Bright c1992:220)

Diagnosis: Distinguished from *opacicollis* Eggers by the smooth, shining elytral interstriae (reticulation obscure to absent); by the much broader crenulations on the discal interstriae, a much smaller puncture on their posterior slope; and by the slightly smaller size.

Male: Length 2.3–2.6 mm, 1.8 times as long as wide; color very dark brown. Frons broadly, moderately impressed (shallowly concave) from epistoma to upper level of eyes; lateral margins on lower half subacutely elevated, stronger at level of antennal insertions (no denticle); surface reticulate, sparse small granules on upper half, a few small, obscure punctures below; vestiture of rather long, moderately abundant, coarse hair. Pronotum 0.90 times as long as wide; basal margin sinuately extending into scutellar notch; surface reticulate, irregularly, closely, rather deeply punctured, interiors of punctures smooth, shining; anterior margin armed by about 8 coarse serrations, about 2 moderately coarse submarginal asperities on each side; vestiture coarse, rather short. Elytra 1.2 times as long as wide, 1.4 times as long as pronotum; scutellar notch moderately deep; about 10 submarginal crenulations; striae rather deeply, abruptly impressed,

punctures rather small, deep, partly confluent; interstriae slightly wider than striae, surface mostly shining, weakly reticulate in some areas, discal crenulations rather broad (about half to two-thirds as wide as an interstriae, their posterior slope with a comparatively small setiferous puncture. Declivity convex, steep; sculpture much as on disc except striae and interstriae narrower, subequal in width, interstitial crenulations reduced to a rather small tubercle. Vestiture of uniseriate rows of suberect interstitial bristles, each bristle equal in length to about half distance between rows.

Female: Similar to male except frons convex, lateral margins not elevated; interstitial setae very slightly longer.

Distribution: Brazil: Nova Teutonia, Santa Catarina, XI-1940, F. Plaumann.

Notes: The above treatment was based on 1 male syntype and 1 female syntype. Schedl (1979:74) subsequently labeled this female syntype as the "holotype" of this species, an act not permitted under the International Code on Zoological Nomenclature. Because diagnostic characters are more precise in the male, I here designate this male syntype as the lectotype of *Phloeotribus cylindricus* Schedl, as indicated above.

Phloeotribus opacicollis Eggers

Phloeotribus opacicollis Eggers, 1943:353. Holotype ♂; Cochabamba, Bolivia; USNM, Washington (References in Wood & Bright c1992:225)

Diagnosis: Distinguished from allied species (see key above) by the smaller, more slender body; by the dull prothorax with deep, circular punctures with their interiors and margins brightly shining; and by the uniseriate setae on discal interstriae 2 and 3.

Male: Length 2.2 mm, 1.9 times as long as wide; color dull black. Frons narrow, shallowly concave from epistoma almost to upper level of eyes, surface rugose-reticulate on upper one-third, almost smooth, shining near epistoma; lateral margins below level of antennal insertions subacutely, rather weakly elevated; vestiture of sparse, stout, evenly distributed setae. Pronotum 0.82 times as long as wide; asperities confined to less than anterior half, narrow, moderately high, 8 arm anterior margin; surface dull, almost rugose-reticulate, punctures on posterior half almost circular, most rather coarse, their interiors brightly shining; setae sparse, coarse, mostly on margins. Elytra 1.2 times as long as wide, 1.5 times as long as pronotum; striae deeply, abruptly impressed, punctures almost confluent but distinct, shining; interstriae almost twice as wide as striae, strongly rugose-reticulate, each with a row of rather broad, moderately high crenulations, a setiferous puncture on their posterior slope. Declivity broadly convex, steep; interstriae as narrow as striae, each with a uniseriate row of small, pointed tubercles to apex. Vestiture of uniseriate interstitial rows of stout bristles, each bristle about half as long as distance between rows.

Distribution: Bolivia: Cochabamba [F. Woytkowski].

Notes: The above treatment was based on the male holotype.

Phloeotribus incanus Wood, n. sp.

Plate XIII

Phloeotribus incanus Wood: Holotype ♂; Chanchamyo in Junin, Peru; DEI, Muncheberg, designated below

Diagnosis: Allied to *suturalis* Eggers except distinguished by the discal interstriae being confused only on the basal one-half and uniseriate from there to apex of declivity; and by numerous other differences described below.

Male: Length 2.9–3.0 mm, 1.5 times as long as wide; color black. Frons shallowly, broadly, somewhat subconvexly impressed from epistoma to slightly below upper level of eyes; epistomal margin shining, not higher in median area; surface reticulate, rather finely punctured on lower half, more coarsely above, with no granules; lateral margins at level of antennal insertions rather modestly elevated, vestiture of short, sparse, fine hair; antennal scape with a small brush of dark hair; segments of antennal club each about 6 times as wide as long. Pronotum 0.90 times as long as wide; surface finely rugose-reticulate; asperities small except at anterolateral margins, punctures coarse and deep on basal third; vestiture abraded, apparently of short, stout, sparse hair. Elytra 1.0 times as long as wide, 1.3 times as long as pronotum; striae rather abruptly, somewhat deeply impressed, punctures moderately large, distinctly impressed; interstriae slightly more than twice as wide as striae, surface rugose-reticulate, crenulations on about basal one-third to one-half, broad, confused, rather poorly formed, varying in width from one-third to two-thirds width of an interstriae, narrowed and uniseriate on posterior disc and declivity; tubercles mostly obsolete on lower half of declivity, striae and interstriae narrower than on disc. Declivity broadly convex, steep. Vestiture of short, slender hair, each seta equal in length to about one-third width of an interstriae, confused on basal half of disc, uniseriate behind and on declivity.

Female: Similar to male except frons more nearly flattened, lateral margins more weakly elevated; scape without a tuft of hair; pronotal asperities larger; interstitial crenulations on disc narrower, higher, confused on slightly more than basal half.

Distribution: Peru (Junin).

Type material: The male holotype, female allotype were taken at Chanchamyo in Junin, Strohmeier Collection; 2 male paratypes are from Cumbase, Strohmeier Collection. The holotype, allotype, and 1 paratype are in DEI, Muncheberg; 1 paratype is in the USNM, Washington.

Phloeotribus rugulosus Eggers

Phloeotribus rugulosus Eggers, 1951:147. Lectotype ♂; Corumba, Mato Grosso, Brazil; NHMW, Wien, present designation (References in Wood & Bright c1992:230)

Diagnosis: Distinguished from *suturalis* Eggers by the smooth, shining surface between punctures on disc of pronotum; by the more abruptly, more deeply impressed discal striae; and by other characters described below.

Male: Length 2.4–2.9 mm, 1.6 times as long as wide; color dark brown. Frons moderately, broadly, subconvexly impressed from epistoma to upper level of eyes; epistoma smooth, shining, weakly elevated on median third; lower half of impressed area smooth, shining, closely punctured, upper half reticulate, more deeply impressed at central fovea, somewhat rugose on upper third; sparse, short vestiture hairlike; scape ornamented by a tuft of long hair; segments of antennal club each at least 6 times as wide as long. Pronotum 0.90 times as long as wide; asperities fine, mostly on anterior half; surface smooth between punctures on posterior half, punctures of somewhat irregular small size; vestiture of short, rather stout, inconspicuous hair. Elytra 1.5 times as long as wide, 1.3 times as long as pronotum; striae narrowly, abruptly, rather deeply impressed, punctures small, obscure to obsolete; interstriae about three times as wide as striae, surface mostly rugose-reticulate, crenulations mostly less than one-third as wide as an interstriae, moderately high, subacute, confused from base to margin of declivity (except uniseriate on 1). Declivity broadly convex, steep; interstriae narrower than on disc, about one and one-half times as wide as striae, crenulations reduced to a uniseriate row of tubercles on each interstriae, those on 1 and 2 smaller than in lateral areas. Vestiture of short, stout, pointed hair, each seta equal in length to half width of a discal interstriae, not longer on declivity.

Female: Similar to male except frons convex, a transverse impression just above epistoma, another at level of fovea, lateral margins weakly elevated below; asperities on pronotum larger.

Distribution: Brazil: Jatahy in Goyaz, Strohmeier Collection; Rondon in Parana, VIII-1952, 25-X-1952, VII-1962, F. Plaumann.

Notes: The above treatment was based on the male lectotype from Corumba, present designation, on Schedl's female syntype, and on 21 other specimens, 2 of which were identified by Eggers and compared by him to the syntypes. Bright & Skidmore (1997:50) report this species from Paraguay. This record should be confirmed before it is accepted.

Phloeotribus vestitus Eggers

Phloeotribus vestitus Eggers 1943:349. Holotype ♀; Cochabamba, Bolivia; USNM, Washington (References in Wood & Bright c1992:235)

Diagnosis: Distinguished by the confused setae on discal interstriae 1–9; by the confused declivital interstitial tubercles on 1–4; and by the longer erect interstitial setae.

Female: Length 2.6 mm, 1.6 times as long as wide; color dark reddish brown. Frons convex as in females of related species; surface reticulate, granulate-punctate; vestiture short, rather abundant; segments of antennal club each about 4–6 times as wide as long. Pronotum 0.81 times as long as wide; surface rather weakly reticulate, small, rather numerous asperities on lateral thirds, somewhat granular on anterior third, disc very closely, rather deeply punctured, punctures varying in size, small to moderately coarse, spaces between punctures equal to less than one-fourth diameter of a puncture; vestiture of sparse, rather short, stout setae. Elytra 1.1 times as long as wide, 1.5 times as long as pronotum; striae abruptly, rather weakly impressed, punctures rather small, subconfluent, distinctly impressed; interstriae about three times as wide as striae, surface densely micro-punctate (almost microgranular), and with confused, close tubercles, each tubercle narrow (about one-fifth as wide as an interstriae), pointed, moderately high, extending from base to base of declivity. Declivity broadly convex, steep; striae slightly more strongly impressed than on disc; interstriae 1–9 rather flat, at least twice as wide as striae, 1–4 with tubercles confused on at least basal half. Vestiture of slender erect, pointed setae, confused on disc, mostly uniseriate on lower declivity, each about equal in length to two-thirds width of an interstriae.

Distribution: Bolivia: Cochabamba [F. Woytkowski].

Notes: The above treatment was based on the female holotype.

Phloeotribus suturalis Eggers

Phloeotribus suturalis Eggers, 1943:349. Holotype ♀; Cochabamba, Bolivia; USNM, Washington (References in Wood & Bright c1992:234–235)

Diagnosis: Distinguished from *vestitus* Eggers by the more distinctly convex declivital interstriae 1–4, with tubercles in uniseriate rows; and by the shorter elytral setae.

Female: Length 2.7 mm, 1.7 times as long as wide; color dark reddish brown. Frons similar to *vestitus* except less strongly convex, transverse impression stronger from epistomal margin to level of antennal insertions; segments of antennal club each less than 4 times as wide as long. Pronotum 0.80 times as long as wide; as in *vestitus* except asperities smaller. Elytra 1.2 times as long as wide, 1.5 times as long as pronotum; striae as in *vestitus* except much more numerous, closer, more strongly confused on 1–9. Declivity resembling *vestitus* except interstriae 1–4 more distinctly convex, tubercles mostly uniseriate on lower two-thirds, slight confusion on 2 and 3. Vestiture of erect setae only, short, stouter than in *vestitus*, longest setae each equal in length to one-fourth to one-third width of an interstriae.

Distribution: Bolivia: Cochabamba [F. Woytkowski].

Notes: The above treatment was based on the female holotype.

Phloeotribus uniseriatus Eggers

Phloeotribus uniseriatus Eggers, 1943:350. Lectotype ♀; Cochabamba, Bolivia; USNM, Washington, designated by Anderson & Anderson 1971:35 (References in Wood & Bright c1992:235)

Diagnosis: Distinguished from *rudis* Eichhoff by the larger size; by the reticulate surfaces of pronotum and elytra; and by characters of the frons.

Male: Similar to female except antennal insertions distinctly displaced mesad, surface below level of antennal insertions impressed, smooth, shining, finely, densely punctured; interstitial tubercles almost obsolete, bristles stouter and slightly longer.

Female: Length 2.5–3.0 mm, 1.7 times as long as wide; color very dark brown. Frons convex; surface strongly rugose-reticulate above level of antennal insertion, reticulate below, punctures rather coarse, shallow, close, obscured by rugosity; vestiture of sparse, short, stout, inconspicuous hair; middle segment of antennal club about 10 times as wide as long. Pronotum 0.82 times as long as wide; asperities present in lateral areas; more broadly convex than in *rudis*, surface strongly reticulate, dull, punctures smaller; vestiture about as in *rudis*. Elytra 1.04 times as long as wide, 1.4 times as long as pronotum; bases of interstriae with a total of about fifteen poorly formed submarginal crenulations; striae abruptly, narrowly, strongly impressed, punctures mostly confluent, obscure; interstriae three times as wide as striae at base, narrower at base of declivity, surface rugose-reticulate, dull, crenulations weak, almost obsolete, tubercles clearly indicated near base of declivity. Declivity convex, steep; striae and interstriae narrower than on disc, each interstriae with a row of low, poorly formed tubercles; vestiture of interstitial rows of short bristles, each seta stout, length of those on 2–8 about equal to one-third distance between rows, slightly longer on 1 and 9.

Distribution: Peru and Bolivia to Mato Grosso in Brazil.

Bolivia: Cochabamba.

Brazil: 21°31'S, 51°46'W, Mato Grosso, 5-XI-68, R.A. Beaver.

Peru: Leonpampa, Dep. Huanuco, 15-30-XII-1937, 800 m, jungle, No. 3811, F. Woytkowski; San Beni, Dep. Junin, 18-IX-1935, 840 m, F. Woytkowski.

Notes: The above treatment was based on 3 males and 1 female. One male was compared by me directly to the lectotype of *Phloeotribus uniseriatus* Eggers.

Phloeotribus pilula (Erichson)

Plate XIV

Phloeotribus pilula (Erichson), 1847:138 (*Hylesinus*). Lectotype ♂; Peru; MNB, Berlin, designated by Wood (1973:181); Synonymy and references in Wood & Bright c1992:227)

Phloeotribus obliquus Chapuis, 1869:45. Syntypes, sex?; Mexique, Nouvelle Grenada; IRSNB, Brussels

Phloeotribus obesus Kirsch, 1873:283. Holotype, sex?; Peru; SMTI, Dresden

Phloeotribus manni Blackman, 1943:385. Holotype ♀; Rio Madeira, Brazil; USNM, Washington

Phloeotribus australis Schedl, 1953:80. Holotype ♂; intercepted at Queensland, Australia; NHMW, Wien

Diagnosis: Distinguished from *uniseriatus* Eggers by the more strongly, more extensively impressed male frons; by the different surface sculpture of the frons and pronotum; and by the more conspicuous interstitial crenulations.

Male: Similar to female except frons shallowly concave from epistoma to upper level of eyes, antennal insertions displaced slightly mesad; interstitial crenulations distinctly higher.

Female: Length 2.4–3.4 mm, 1.6 times as long as wide; color very dark brown, almost black. Frons somewhat flattened below level of antennal insertion, convex above; surface reticulate and rather coarsely punctured above, shining and finely punctured below; vestiture of fine, short, rather sparse hair; middle segment of antennal club about 10 times as wide as long. Pronotum 0.83 times as long as wide; about as in *rudis* Eichhoff except surface slightly reticulate (more strongly convex than in *uniseriatus*), punctures coarse, rather deep. Elytra 1.0 times as long as wide, 1.3 times as long as pronotum; submarginal crenulations at bases of interstriae 2–4 poorly formed, rather abundant; striae abruptly, narrowly, deeply impressed, punctures confluent, interstriae almost three times as wide as striae, surface minutely rugose-reticulate, crenulations low, poorly formed, more distinct than in *uniseriatus*. Declivity about as in *uniseriatus*; vestiture fine, very short, setae about one-fifth as long as distance between rows.

Distribution: Mexico (Chiapas) to Brazil.

Bolivia: Bright & Skidmore (1997:49).

Brazil: Rondon (24°38'S, 54°7'W), F. Plaumann; Mato Grosso (12°31'S, 51°46'W), XII-1968, RA. Beaver.

Peru: Tingo Maria, Monson Valley, 18-IX-1954, E.I. Schlinger & E.S. Ross; Pozuzo [Huanuco Prov.].

Venezuela: 9 km S Barancas, Barinas, 1-X-1969, 150 m, No. 30, *Brosimum*, SLW; 40 km E Canton, Barinas, 8-III-1970, 70 m, No. 390, *Brosimum*, SLW; 10 km S Miri, Barinas, 8-II-1970, 150 m, No. 297, *Brosimum*, SLW.

Biology: Taken from phloem in large limbs in transverse, biramous parental tunnels.

Notes: The above treatment was based on 90 specimens, 3 males of which I compared directly to the lectotype of *Hylesinus pilula* Erichson. The syntypes of *obliquus* Chapuis, and the holotypes of *obesus* Kirsch, *manni* Blackman, and *australis* Schedl were examined.

Phloeotribus tetricus Wood

Phloeotribus tetricus Wood, 1977:389. Holotype ♂; La Carbonera Experimental Forest 50 km NW Merida, Merida, Venezuela; USNM, Washington (References in Wood & Bright c1992:235)

Diagnosis: Setae on interstriae short, stout, those on 2 and 3 numerous, confused; striae punctures very large, interstriae half as wide as striae; alternate interstriae armed by sharply pointed tubercles.

Male: Similar to female except epistoma with a subacutely elevated transverse carina on at least median half; rather shallowly, broadly impressed from carina to slightly above level of antennal insertions; scape with a small tuft of hair.

Female: Length 1.8–2.1 mm, 1.9 times as long as wide; color reddish brown. Frons reticulate; flattened from epistoma to level of antennal insertions, convex above; punctures coarse, close, shallow on upper half, fine below; subglabrous, a few fine, hairlike setae below, middle segment of antennal club about 3–4 times as wide as long. Pronotum 0.83 times as long as wide; anterolateral areas rugose, asperities very poorly developed, often obscure; surface smooth, shining, punctures coarse, close, rather deep, irregular in size, interspaces between punctures equal in width to less than one-half diameter of a puncture; vestiture of moderately abundant, stout, rather short hair. Elytra 1.2 times as long as wide, 1.7 times as long as pronotum; bases of interstriae 2–5 armed by a total of about six small submarginal crenulations; striae not impressed, punctures very large, close, deep; interstriae half as wide as striae, smooth, shining, some minute punctures present, tubercles uniseriate, small, sharply pointed on odd-numbered interstriae, very small to absent on even-numbered interstriae of most specimens. Declivity convex, steep; striae and interstriae narrower than on disc; tubercles on interstriae 3, 5, and 7 larger, rather widely spaced; vestiture of ground cover of stout, pointed setae, each about equal in length to width of an interstriae, confused on 2 and 3 to base, sometimes confused on 3 and 4 near base of declivity.

Distribution: Venezuela: La Carbonera Experimental Forest 50 km NW Merida, Merida, 27-X-1969, No. 93, 2500 m, *Eschweilera*, and 12-I-1970, No. 235, ex liana, SLW.

Biology: Taken from the phloem of a standing, injured tree about 40 cm in diameter.

Notes: The above treatment was based on the type series of 29 specimens.

Phloeotribus subovatus Blandford

Plate XVI

Phloeotribus subovatus Blandford, 1897:167. Lectotype ♂; El Reposo, Guatemala; BMNH, London, designated by Wood (1982:277; References in Wood & Bright c1992:234)

Phloeotribus argentinae Blackman, 1943:386. Holotype ♀; El Que-mado, Argentina; USNM, Washington (References in Wood & Bright c1992:218). *New synonymy*

Diagnosis: Transverse epistomal carina of male short, strongly elevated; pronotum reticulate, asperities normal.

Male: Similar to female except median one-fifth of epistoma armed by a very strongly elevated transverse carina, moderately, broadly concave from carina to upper level of eyes; antennal scape with a large tuft of hair; interstitial setae stouter.

Female: Length 2.0–2.4 mm, 1.8 times as long as wide; color very dark brown to black. Frons narrowly impressed

immediately above epistomal margin, convex from below level of antennal insertion to vertex; surface reticulate, punctures small, obscure; vestiture of fine, sparse, short hair; middle segment of antennal club at least 6 times as wide as long. Pronotum 0.80 times as long as wide; asperities on anterior half, rather numerous, of moderate size; surface reticulate, punctures of irregular size, moderately close, rather deep; vestiture sparse, slender. Elytra 1.1 times as long as wide, 1.5 times as long as pronotum; bases of interstriae 2–5 with a total of about twelve coarse, submarginal crenulations; striae sharply impressed, punctures small, distinct; interstriae twice as wide as striae, shining, with many impressed points, crenulations uniseriate, subacute, rather high, each at least two-thirds as wide as an interstriae, smaller to obsolete by base of declivity. Declivity convex, steep; striae narrower than on disc; interstriae with more impressed points, tubercles reduced in size, very small, distinct; vestiture of uniseriate interstitial rows, each moderately coarse, length equal to half distance between rows, spaced within a row by length of a seta.

Distribution: Guatemala to Argentina.

Argentina: El Quemado [Jujuy].

Venezuela: 20 km SW El Vigia, Merida, 21-XI-1969, 50 m, No. 147, unidentified tree bole, SLW.

Biology: Taken from transverse, biramous parental tunnels in a small, standing, injured tree.

Notes: The above treatment was based on 121 specimens, 3 of which I compared to the lectotype of *Phloeotribus subovatus* Blandford.

Phloeotribus schoenbachii Kirsch

Phloeotribus schoenbachii Kirsch, 1866:214. Holotype ♂; Bogota, Colombia; MNB, Berlin (References in Wood & Bright c1992:232)

Diagnosis: This species is most closely related to *biguttatus* Blandford from which it is easily distinguished by characters summarized in the above key; however, it is more easily confused with the unrelated *picipennis* Eggers and *setulosus* Eichhoff. From *picipennis* and *setulosus* it is distinguished by the much narrower, higher epistomal carina; by the much broader, more extensive male frontal concavity that extends distinctly above the upper level of the eyes; its surface is obscurely, densely micropunctate. It differs from *picipennis* by the pronotum lacking reticulation; by the discal striae that are much more coarsely punctured; and by the longer interstitial setae. It differs from *setulosus* by the much less strongly elevated declivital interstriae 9 ending separately in 3 without first fusing with the costal margin.

Male: Length 2.2 mm, 1.9 times as long as wide; color brown, pronotum darker. Frons with transverse epistomal carina rather strongly elevated on median fourth, its transverse length equal to half width of an eye; broadly (eye to eye), moderately concave from epistoma to distinctly above upper level of eyes; surface of concave area subshining, obscurely, densely micropunctate

(appearing weakly, obscurely subreticulate at less than 80X); elevation on lateral margin at level of antennal insertion with 1 obscure tubercle on its summit; vestiture of sparse, short, inconspicuous hair; scape ornamented by a tuft of long hair. Pronotum about 0.72 times as long as wide (anterior margin broken, part missing); anterior fourth armed by rather small asperities; surface shining, punctures on disc large, irregular; rather deep, becoming somewhat smaller laterally and toward anterior margin; vestiture rather sparse, moderately short, inconspicuous. Elytra 1.2 times as long as wide; 2 submarginal crenulations; about 1.8 times as long as pronotum (estimated); striae moderately, broadly impressed, punctures very coarse, rather deep; interstriae on disc as wide as striae, weakly convex, surface smooth, shining (no impressed points), crenulations uniseriate, subacute, spaced by distance equal to width of an interstriae, about two-thirds as wide as an interstriae at base, half as wide at base of declivity. Declivity broadly convex, steep; striae and interstriae narrower than on disc, crenulations reduced to uniseriate tubercles of rather small size; interstriae 9 moderately elevated, rather finely serrate (much lower and more weakly serrate than in *setulosus*), ending at interstriae 3 without fusing with costal margin. Vestiture of uniseriate rows of erect interstitial setae, setae very slender at base, slightly stouter on declivity, varying from half (base, lower declivity) to two-thirds (base of declivity) as long as distance between rows, spaced within a row from 1.0–1.5 times length of a seta.

Distribution: Colombia: Bogota, Kirsch.

Notes: The above treatment was based on the male holotype from Colombia. This species has been variously misidentified by all authors, except Kirsch, who have reported it from other countries. It is easily confused with *picipennis* (as was done in Wood & Bright c1992:232), *willei* Schedl, and *setulosus*, from which it is easily distinguished by the more broadly, extensively impressed upper male frons.

Phloeotribus biguttatus Blandford

Plate XI

Phloeotribus biguttatus Blandford, 1897:169. Holotype ♂; Bugaba, Chiriqui, Panama; BMNH, London (References in Wood & Bright c1992:219)

Diagnosis: Distinguished from *subovatus* Blandford by the much larger anterior asperities on the pronotum; by the smooth, shining pronotum (between punctures); and by the smaller interstitial crenulations.

Male: Similar to female except frons with an acutely elevated carina on median one-fifth, broadly, deeply concave from carina to well above upper level of eyes, surface finely reticulate, punctures minute, obscure, almost glabrous; antennal scape with a tuft of long hair; pronotal asperities larger, mostly on anterior one-third; interstitial crenulations smaller, bristles stouter, slightly longer.

Female: Length 1.8–2.7 mm, 1.7 times as long as wide; color brown to reddish brown. Frons transversely impressed from epistoma to level of antennal insertion, convex above; surface reticulate, with sparse, shallow punctures of moderate size; middle segment of antennal club about 10 times as wide as long. Pronotum 0.82 times as long as wide; asperities on anterior one-third narrow, large; basal half smooth, shining, some areas of reticulation on anterior half, punctures of moderate size, shallow, most spaced by distances greater than diameter of a puncture; subglabrous except near lateral margins. Elytra 1.05 times as long as wide, 1.4 times as long as pronotum; bases of interstriae 2–5 armed by about six submarginal crenulations; striae moderately, narrowly impressed, punctures small, close, distinct; interstriae three times as wide as striae, smooth, shining, impressed points numerous, obscure, crenulations uniseriate, low, subacute, widest almost half as wide as an interstriae. Declivity convex, steep; striae and interstriae narrower than on disc; interstriae 1–7 each armed by a uniseriate row of small tubercles, 8 with tubercles only at base; 9 acutely, rather strongly elevated and continued to suture, its crest finely serrate.

Distribution: Panama to Colombia and Venezuela.

Colombia: Campo Capote 27 km NE Montoya, Santander, 2-VII-1970, 150 m, No. 591, *Brosimum*, SLW.

Venezuela: Barancas, Barinas, 1-X-1969, 150 m, No. 32, *Brosimum*, SLW; 8 km SW Bumbum, Barinas, 11-II-1970, 150 m, No. 318, *Brosimum*, SLW.

Biology: Taken from phloem in biramous parental galleries in limbs 4–15 cm in diameter.

Notes: The above treatment was based on 28 specimens from Colombia and on 49 from Venezuela. I compared 3 of the Colombia specimens directly to the holotype of *biguttatus* Blandford.

Phloeotribus ebeneus Wood, n. sp.

Phloeotribus ebeneus Wood: Holotype ♂; Canyon de Lobos, Yauhtepec, Morelos, Mexico; USNM, Washington, designated below

Diagnosis: Distinguished from *biguttatus* Blandford by the slightly larger size and black body color; by the strongly reticulate pronotum disc, with deeper punctures; by the much larger, wider transverse crenulations on the base of the discal interstriae; and by other characters described below.

Male: Length 2.7–3.2 mm, 1.7 times as long as wide; color black. Frons broadly, rather strongly concave from epistoma to slightly above eyes; epistomal margin weakly elevated, with median fifth very strongly elevated, apical margin straight, its lateral angles armed by a pair of small tubercles; concave area more strongly impressed below level of antennal insertions, entire concave area reticulate, punctures above small, with sparse setae on epistoma; antennal scape with a moderate tuft of long setae on apical two-thirds, each segment of club 6 or more times as wide as long. Pronotum 0.85 times as long as wide; sides widest at base, rather strongly, arcu-

ately converging to moderately rounded anterior margin; anterior submargin armed by 10 or more very coarse serrations; summit anterior to middle of pronotum length, anterior slope armed by many serrations; small discal area strongly reticulate, punctures rather coarse, deep; sparse setae on anterior slope. Elytra 1.2 times as long as wide, 1.7 times as long as pronotum; disc occupying about 60 percent of elytra length; discal interstriae about one and one-half times as wide as striae (wider on 2 at extreme base); surface smooth, shining, with sparse, minute punctures, and rather coarse crenulations, each about as wide as its interstriae, uniseriate except confused at base of 2. Declivity very steep, convex; interstriae about twice as wide as striae, crenulations replaced on each by a uniseriate row of small tubercles. Vestiture of uniseriate rows of setae, setae slightly shorter and more slender than in *biguttatus*.

Female: Similar to male except frons convex, median epistomal elevation absent.

Mexico (Morelos).

Type material: The male holotype, female allotype, and 10 paratypes were taken at Canyon de Lobos, Yauhtepec, Morelos, Mexico, 22-VII-1983, Martinez & Saucedo. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Phloeotribus asperulus Eggers

Phloeotribus asperulus Eggers, 1943:353. Lectotype ♂; Cochabamba, Bolivia; NHMW, Wien, present designation (References in Wood & Bright c1992:219)

Diagnosis: Distinguished from *willei* Schedl by the smaller punctures on the basal half of the pronotum; by the smaller striae punctures; and by the larger interstitial crenulations on the disc.

Male: Length 1.7 mm, 2.1 times as long as wide; color very dark brown. Frons about as in *willei* except appearing slightly narrower, more strongly impressed above level of antennal insertion, ending above rather abruptly, distinctly below upper level of eyes; scape ornamented by a rather large tuft of very long hair. Pronotum 0.91 times as long as wide; crenulations on anterior half rather coarse (moderately small on anterior margin); basal half smooth, shining, punctures rather coarse, moderately deep; vestiture rather long, moderately abundant. Elytra 1.4 times as long as wide, 1.5 times as long as pronotum; striae distinctly impressed, punctures rather coarse, deep; interstriae distinctly wider than striae, smooth, shining, crenulations very coarse (as wide as an interstriae) on basal half of disc, smaller and narrower by base of declivity. Declivity broadly convex, steep; striae and interstriae narrower than on disc; crenulations reduced to rows of moderately coarse tubercles, slightly smaller and more widely spaced on 2, 4, and 6. Vestiture consisting of uniseriate interstitial rows of rather fine setae, each slightly shorter than distance between rows, about equally spaced within a row.

Distribution: Bolivia: Cochabamba [F. Woytkowski].

Notes: The above treatment was based on the male syntype that subsequently was incorrectly labeled by Schedl as the "holotype." The other syntype, also a male, was incorrectly labeled by Schedl as the allotype of *asperulus* Eggers. The first of these syntypes is here designated as the lectotype of *Phloeotribus asperulus* Eggers.

Phloeotribus willei Schedl

Phloeotribus willei Schedl, 1937:66. Syntypes, sex?; Lima, Peru; NHMW, Wien, and DEI, Muncheberg (Synonymy and references in Wood & Bright c1992:235)

Phloeotribus chiliensis Eggers, 1942:16. Holotype, sex?; Quillota bei Valparaiso, Chile; Hamburg Museum, lost, Eggers cotype in NHMW, Wien

Diagnosis: Acutely elevated transverse male epistomal carina at least half as wide as epistoma; crest of declivital interstriae 9 ends before joining costal margin, tubercles on all declivital interstriae; body rather slender.

Male: Similar to female except epistomal margin with an acutely elevated transverse carina on slightly less than median half, moderately, broadly concave from carina to upper level of eyes, upper half reticulate and coarsely punctured, lower area smooth and with small obscure punctures, lateral margin at level of antennal insertion armed by 2 small, rounded tubercles (lower one sometimes acutely pointed).

Female: Length 1.8–2.0 mm, 2.2 times as long as wide; color dark brown. Frons transversely impressed from epistoma to level of antennal insertion, convex above; surface reticulate, punctures obscure, fine below, moderately coarse above; vestiture of fine, sparse, moderately long hair; middle segment of antennal club about 6 times as wide as long. Pronotum 0.84 times as long as wide; asperities on anterior half rather coarse; surface smooth, shining, punctures coarse, deep, very close, interspaces equal in width to less than half diameter of a puncture; vestiture of fine, short, sparse hair. Elytra 1.4 times as long as wide, 1.8 times as long as pronotum; bases of interstriae 2–5 with a total of about four submarginal crenulations; striae at base feebly impressed, moderately impressed by base of declivity, punctures coarse, deep, spaced within a row almost by diameter of a puncture; interstriae almost as wide as striae, surface smooth, shining, no impressed points, crenulations uniseriate, subacute, almost as wide as an interstriae. Declivity convex, steep; striae narrower than on disc; tubercles on interstriae 1–3 small, sharply pointed to apex, on 5–8 slightly larger, 9 weakly elevated, more coarsely tuberculate, crest of 9 joining apex of 3, not costal margin (costal margin with about two serrations near suture); vestiture of slender, uniseriate rows of interstitial setae, each as long as distance between rows, spaced within a row by length of a bristle.

Distribution: Chile to Peru.

Chile: Quillota, 9-97; Arapa, Tarapaca, Tarcala 29, 17-IV-68, tronco higuera, R. Charlin C.; Rva P. Tamaruga, I

Region, 1-XI-1993, T. Curkovic; Valle de Azapa, I Region, 3-XI-1993, T. Curkovic.

Peru: Lima, 15-IX-1935, 305-135, Wille.

Host: *Ficus carica*.

Notes: The above treatment was based on 12 males and on 1 female from Chile that are in the Museo Nacional de Historia Natural, Santiago, Chile. The female specimen in the Berlin Museum, compared by Eggers to the type of *schoenbachi* Kirsch, appears to be a specimen of *willei* Schedl.

Phloeotribus contortus Schedl

Phloeotribus contortus Schedl, 1973:167. Holotype ♀; Maturaca on alto Rio Canaburi, Amazonas, Brazil; MZUSP, Sao Paulo (References in Wood & Bright c1992:219)

Diagnosis: Distinguished from *minor* Wood by the reticulation on the pronotum disc; by the less strongly convex discal interstriae; and by the slightly shorter, stouter interstitial setae.

Female: Length 1.3–1.5 mm, 1.8 times as long as wide; color very dark brown, almost black. Frons as in *minor* except more strongly reticulate. Pronotum 0.81 times as long as wide, almost as in *minor* except surface reticulate or reticulate-granulate, punctures on disc much smaller, setae apparently longer. Elytra 1.4 times as long as wide, 1.8 times as long as pronotum; about as in *minor* except discal interstriae less strongly convex, tubercles slightly smaller, setae slightly stouter and shorter.

Distribution: Brazil: Maturaca on alto Rio Cauaburi, Amazonas, 12-17-XII-1962, J. Rechyne.

Notes: The above treatment was based on the female holotype and on 1 female paratype (NHMW, Wien) that is in rather poor condition.

Phloeotribus minor Wood

Phloeotribus minor Wood, 1977:391. Holotype ♂; 27 km NE Montoya, Santander, Colombia; USNM, Washington (References in Wood & Bright c1992:225)

Diagnosis: Body very small; transverse male epistomal carina about half as wide (transversely) as epistoma; declivital interstriae 2 and 4 unarmed by tubercles.

Male: Similar to female except epistoma armed by an acute transverse carina on slightly more than median half, broadly concave from carina to upper level of eyes, surface smooth, shining, impressed points present, punctures not evident; scape bearing a tuft of long hair.

Female: Length 1.3–1.4 mm, 1.8 times as long as wide; color dark brown. Frons convex from epistoma to vertex, surface reticulate, punctures small, of moderate spacing; vestiture of sparse, fine, short hair; middle segment of antennal club about 6 times as wide as long. Pronotum 0.86 times as long as wide; asperities small, rather abundant on more than anterior half; surface shining, punctures rather coarse, deep, spaced by about diameter of a puncture; vestiture of short, moderately abundant, stout setae. Elytra 1.3 times as long as wide, 1.6

times as long as pronotum; bases of interstriae 2–5 armed by a total of about four submarginal crenulations; striae weakly impressed at base, distinctly by base of declivity, punctures coarse, not sharply impressed; interstriae as wide as striae, smooth, shining, a few minute impressed points present, crenulations small, about as wide as interstriae, their posterior face steep, formed by a setiferous puncture. Declivity convex, steep; striae and interstriae narrower than on disc; interstriae 2 and 4 usually unarmed, an occasional minute tubercle present in females only, 5–9 with pointed tubercles, slightly larger on 8 and 9; interstriae 9 not joining costal margin; apical portion of costal margin feebly serrate; vestiture of uniseriate interstitial rows of erect, moderately stout setae, each seta almost as long as distance between rows, spaced within a row by slightly greater distances; setae on interstriae 1 slightly longer.

Distribution: Colombia: 27 km NE Montoya, Santander, 2-VII-1970, 150 m, No. 601, *Pseudoolmedia*, SLW.

Notes: The above treatment was based on the type series of 38 specimens.

Phloeotribus picipennis Eggers

Phloeotribus picipennis Eggers, 1943:352. Holotype ♂; Cochabamba, Bolivia; USNM, Washington, printed 30 April 1943 (References in Wood & Bright c1992:226)

Phloeotribus boliviae Blackman, 1943:387. Holotype ♀; Mapiri, Bolivia; USNM, Washington, printed 12 October 1943 (References in Wood & Bright c1992:232). *New synonymy*

Diagnosis: Transverse male epistomal carina rather long; crest of elevated interstriae 9 ending at interstriae 3.

Male: Similar to female except epistoma with a subacutely elevated carina on at least median one-half, shallowly concave from carina to midway between level of antennal insertions and upper level of eyes; scape with a tuft of long hair; asperities on pronotum less numerous; often surface of pronotum entirely reticulate.

Female: Length 1.8–2.5 mm, 2.0 times as long as wide; color dark brown, elytra brown. Frons transversely impressed from epistomal margin almost to upper level of antennal insertion, convex from there to vertex; surface reticulate, punctures very small, obscure; vestiture of sparse, fine, short hair; middle segment of antennal club about 10 times as wide as long. Pronotum 0.81 times as long as wide; surface reticulate on anterior half, partly shining and partly reticulate on posterior areas, asperities in lateral areas numerous, rather extensive, punctures moderately large, shallow, spaced by about diameter of a puncture; vestiture of sparse, rather slender, moderately long setae. Elytra 1.3 times as long as wide, 1.7 times as long as pronotum; bases of interstriae 2–5 with a total of about nine submarginal crenulations; interstriae moderately impressed, punctures rather small, close, distinct; interstriae twice as wide as striae, surface smooth, shining, crenulations rather small, subacute, almost as wide as an interstriae near base, half as wide near base of declivity. Declivity convex, steep; striae

and interstriae narrower than on disc, striae more strongly impressed, interstriae moderately convex, each bearing a uniseriate row of small, pointed tubercles; interstriae 9 rather weakly elevated, moderately serrate, elevation joining interstriae 3 (not costal margin); vestiture of interstitial rows of erect, slender bristles, each half as long as distance between rows, spaced within a row by twice length of a seta.

Distribution: Colombia to Bolivia and Brazil.

Bolivia: Cochabamba; Mapiri.

Brazil: Rondon; Nova Teutonia, Santa Catarina, X-1956, F. Plaumann.

Colombia: Bogota.

Notes: The above treatment was based on 2 males and 2 females from Brazil. The males were identified as *picipennis* Eggers by Schedl; the females were compared by me to a paratype of *boliviae* Blackman, which had been placed in synonymy with *schoenbachi* Kirsch by Schedl. This species superficially resembles *schoenbachi* but is quite unrelated (see above key).

Phloeotribus remorsus Wood

Plate XIV

Phloeotribus remorsus Wood, 1977:391. Holotype ♂; Piedras Blancas, 10 km E Medellin, Antioquia, Colombia; USNM, Washington (References in Wood & Bright c1992:228)

Diagnosis: Distinguished from *transversus* Chapuis by the black color; by the strongly reticulate pronotum; and by the strongly, narrowly elevated declivital interstriae 9.

Male: Similar to female except epistoma with an acutely elevated carina on median half, shallowly concave from carina to well below upper level of eyes; scape with a large tuft of long hair; asperities on pronotum less numerous and narrower; interstitial setae slightly stouter.

Female: Length 2.4–3.0 mm, 1.8 times as long as wide; mature color black. Frons transversely impressed from epistoma almost to upper level of eyes; surface rugose-reticulate (or minutely granular), punctures very small, rather sparse; vestiture of fine, rather short, inconspicuous hair; middle segment of antennal club about 10 times as wide as long. Pronotum 0.80 times as long as wide; surface rugose-reticulate (or minutely granular), asperities in lateral areas extending almost to base, punctures on disc small, obscure; vestiture mostly limited to lateral margins. Elytra 1.2 times as long as wide, 1.7 times as long as pronotum; bases of interstriae 2–5 with a total of five submarginal crenulations; striae moderately impressed at base, rather strongly by base of declivity; interstriae twice as wide as striae, moderately convex, surface shining, with many impressed points, crenulations uniseriate, moderately acute, each two-thirds as wide as an interstriae at base, one-third as wide at base of declivity. Declivity convex, rather steep; striae rather deeply impressed, striae and interstriae narrower than on disc, each interstriae with a uniseriate row of

moderately large, pointed tubercles except usually obsolete on lower half of 1 and 2; interstriae 9 strongly, narrowly elevated to suture, basal half rather strongly serrate, weakly serrate near suture; vestiture of erect, rather slender setae, each seta half as long as distance between rows, spaced within a row by about twice length of a seta.

Distribution: Colombia: Piedras Blancas 10 km E Medellin, Antioquia, 15-VII-1970, 2500 m, No. 654, *Quercus humboldtii*, SLW.

Biology: Taken from phloem of a limb 15 cm in diameter, in transverse, biramous parental galleries.

Notes: The above treatment was based on the type series of 81 specimens.

Phloeotribus serratus Eggers

Phloeotribus serratus Eggers, 1943:354. Holotype ♂; Bolivia: Cochabamba; NHMW, Wien (References in Wood & Bright c1992:232)

Diagnosis: Distinguished from male *setulosus* Eichhoff by the presence of tubercles on declivital interstriae 2 and 4; by the very much deeper interstriae; and by the greatly reduced tuft of hair on the male scape.

Male: Length 2.2 mm, 1.9 times as long as wide; color black. Frons as in male *setulosus* (including calluses between antennal insertions); scape with a very small tuft of about a dozen hairs. Pronotum 0.83 times as long as wide; anterior half armed by about 20 narrow, moderately high asperities (about 6 on anterior margin); posterior half smooth, brightly shining, punctures coarse, deep, close; a few long, hairlike setae on anterior and lateral margins. Elytra 1.2 times as long as wide, 1.6 times as long as pronotum; striae strongly impressed except very strongly impressed near and on base of declivity; interstriae about as wide as striae, moderately convex at base, strongly convex on and near base of declivity, moderately convex on declivity. Declivity broadly convex, steep; striae and interstriae narrower than on disc. Vestiture restricted to uniseriate interstitial rows, much longer on posterior two-thirds, longest setae slightly longer than distance between rows, more closely spaced (irregular) within a row.

Distribution: Bolivia: Cochabamba [F. Woytkowski].

Notes: The above treatment was based on the male holotype.

Phloeotribus transversus Chapuis

Plate XVI

Phloeotribus transversus Chapuis, 1869:44. Lectotype ♂; Colombia; IRSNB, Brussels, present designation (References in Wood & Bright c1992:235)

Phloeotribus marginatus Eggers, 1933:4. Holotype ♂; Colonia Tovar, Venezuela; NHMW, Wien (References in Wood & Bright c1992:224). *New synonymy*

Diagnosis: Distinguished from *setulosus* Eichhoff by the larger average size; by the more nearly flattened discal interstriae; by the broader scutellum; and by the somewhat stronger male frontal impression.

Male: Similar to female except epistoma with an acutely elevated transverse carina on more than median half, broadly, concavely impressed from carina to well below upper level of eyes; antennal scape with a large tuft of long hair; pronotum mostly smooth, little reticulation; declivital interstriae 2, 4, 6, and 8 largely to entirely devoid of tubercles; interstitial setae shorter.

Female: Length 2.1–2.7 mm, 1.8 times as long as wide; color brown. Frons transversely impressed above epistomal margin to level of antennal insertion, convex above to vertex; surface strongly reticulate, punctures small, shallow, obscure; vestiture of rather sparse, short hair; middle segment of antennal club about 10 times as wide as long. Pronotum 0.80 times as long as wide; asperities in lateral areas extend almost to base; surface reticulate on anterior half, mostly smooth, shining on basal half, punctures mostly on discal area of basal half, of variable size, shape and spacing, sparse and obscure anteriorly; vestiture of rather sparse, fine, moderately long hair. Elytra 1.3 times as long as wide, 1.7 times as long as pronotum; bases of interstriae 2–5 with a total of about 10 submarginal crenulations; striae moderately impressed at base, more strongly at base of declivity, punctures coarse, close, confluent on posterior half; interstriae twice as wide as striae, surface smooth, shining, a few obscure points posteriorly, crenulations subacute, almost as wide as an interstriae on basal half, less than one-third as wide at base of declivity. Declivity convex, steep; striae and interstriae narrower than on disc; each interstriae with a uniseriate row of small, pointed tubercles; interstriae 9 strongly, narrowly elevated to suture, its crest coarsely tuberculate except finer near suture; vestiture of uniseriate rows of erect, slender interstitial setae, each seta about two-thirds as long as distance between rows, spaced by similar distances within a row.

Female: Similar to male except frons convex.

Distribution: Colombia to Venezuela.

Colombia: "Colombie."

Venezuela: Colonia Tovar, Aragua, 4-V-1970, 1700 m, No. 504, ex unidentified tree, SLW.

Biology: Taken from transverse parental galleries in phloem of an unidentified tree.

Notes: The above treatment was based on the 3 male and 1 female syntypes of *P. transversus* Chapuis in the Chapuis Collection, on 1 Dejean male (Dresden Museum), and on 86 specimens from Venezuela, 2 males of which I compared to the male syntypes of this species and to the holotype of *P. marginatus* Eggers. The first syntype in the Chapuis series, a male, is here designated as the lectotype of *P. transversus* Chapuis as indicated above.

Phloeotribus setulosus Eichhoff

Plate XV

Phloeotribus setulosus Eichhoff, 1868:149. Lectotype ♂; type labeled "Colombia," published as "Carolina"; IRSNB, Brussels, designated by Wood (1973:182; Synonymy and references in Wood & Bright c1992:232)

- Phloeotribius dubius* Eichhoff, 1868:150. Holotype ♂; Colombia; MNB, Berlin
- Phloeotribius asperatus* Blandford, 1897:166. Holotype ♂; Panajachel, Guatemala; BMNH, London
- Phloeotribius armatus* Blandford, 1897:166. Holotype ♂; Volcan de Chiriqui, Panama; BMNH, London (References and synonymy in Wood & Bright c1992:218). *New synonymy*
- Phloeotribius sodalis* Blandford, 1897:168. Lectotype ♂; Cerro Zunil, Guatemala; BMNH, London, designated by Wood 1974:286
- Phloeotribius spinipennis* Eggers, 1930:168. Holotype ♂; Colombia, probably Colonia Tovar (apparently taken by Moritz near his home); MNB, Berlin
- Phloeotribius bolivianus* Eggers, 1933:5. Holotype ♂; Cochabamba, Bolivia; USNM, Washington
- Phloeotribius atlanticus* Schedl, 1951:81. Holotype ♂; Cuba; NHMW, Wien
- Phloeotribius mixtecus* Bright, 1972:1494. Holotype ♀; 26 miles S Juchatengo, Oaxaca, Mexico; CNCI, Ottawa (Synonymy and references in Wood & Bright c1992:219)

Diagnosis: Distinguished from *transversus* Chapuis by the smaller average size and darker color; by the absence of reticulation on the pronotum; and by the less extensively impressed male frons.

Male: Similar to female except frons slightly more narrowly, less extensively concave, vertex with a few rounded granules; scape with a large tuft of long hair; pronotum without reticulation; declivital interstriae 2, 4, 6, and 8 without tubercles; interstitial bristles slightly longer, stouter.

Female: Length 1.9–2.4 mm, 1.9 times as long as wide; color dark brown, elytra often reddish brown. Frons as in *transversus* except reticulation finer, punctures above coarser, deeper, usually with a few rounded granules; antenna as in *transversus*. Pronotum 0.84 times as long as wide; surface with very limited reticulation on median area of anterior third, punctures coarser, deeper, more regular than in *transversus*. Elytra 1.3 times as long as wide, 1.7 times as long as pronotum; as in *transversus* except discal interstriae with numerous impressed points, interstriae 2 and 4 unarmed by tubercles except at base, 6 and 8 with most tubercles absent, interstitial bristles distinctly stouter.

- Distribution: Mexico (Jalisco) to Brazil.
Bolivia: Cochabamba [Woytkowski].
Brazil: Amazon; Bahia, Cepec, Ilheus, II-III-1981, blacklight, Kaston.
Colombia: Campo Capoe 27 km NE Montoya, 2-VII-1970, 150 m, No. 597, ex log, SLW; 8 km S Colonia (near Buenaventura), Valle del Cauca, 9-VII-1970, 30 m, No. 623, *Guarea trichilioides*, SLW; Pisqua, Tona, Santander S., 26-VI-1969, gumo blanco, R. Parra.
Peru: Cited in Wood & Bright c1992:232.
Venezuela: Barrancas, Barinas, 1-X-1969, 150 m, No. 32, *Brosimum*, SLW; 40 km E Canton, Barinas, 3-III-1970, 70 m, No. 396, *Brosimum*, SLW.

Hosts: *Brosimum* spp., *Cedrela mexicana*, *Celtis iguanaea*, *Croton gossypifolius*, *Ficus*, *Guarea trichilioides*.

Biology: Taken from limbs and branches larger than 2 cm in diameter from phloem in transverse, biramous parental galleries. Larval mines followed the grain of the wood.

Notes: The above treatment was based on 1 specimen from Bolivia, 4 from Brazil, 81 from Colombia, and 86 from Venezuela. The lectotype was examined and compared to my series. I examined the holotypes or syntypes of *P. dubius* Eichhoff (by Eggers), *P. asperatus* Blandford, *P. sodalis* Blandford, *P. spinipennis* Eggers, *P. bolivianus* Eggers, and *P. armatus* Blandford and I compared these to my series.

Species Not Seen

Phloeotribius longipilus Eggers

- Phloeotribius longipilus* Eggers, 1943:355. Holotype, sex?; Cochabamba, Bolivia; MNHN, Paris (References in Wood & Bright c1992:224)

Phloeotribius porteri Bruch

- Phloeotribius porteri* Bruch, 1914:25. Syntypes, sex?; Chile (cerca de Concepcion y Santiago); Porter Collection and Bruch Collection (References in Wood & Bright c1992:227)

TRIBE PHLOEOSININI

Description: Frons usually dimorphic, male variously impressed, female flat to convex; eye entire to shallowly emarginate in South American genera; funicle 5- to 7-segmented, club flattened, weakly to very strongly asymmetrical, with or without sutures; pronotum unarmed by asperities in South American genera (except weakly in *Dendrosinus*); tarsal segment 3 laterally compressed to bilobed; scutellum visible or not; metanotum fused to postnotum.

Biology: All known South American species of this tribe are monogynous. Bigyny occurs in 1 Mexican *Chramesus* and polygyny in some *Hyledius* from the Indo-Australian area. All are phloeophagous except for

the xylophagous *Dendrosinus* and at least 3 species of *Chramesus*. Parental tunnels are mostly monoramous and include a conspicuous turning niche or nuptial chamber; a few are unequally (rather primitively) biramous. Eggs are placed in individual niches and are packed in frass. Larval mines tend to follow a definite course that radiates from the parental gallery without crossing one another.

Notes: The South American species that represent this tribe constitute a diverse assemblage of American genera that are rather remotely related to those from the Eastern Hemisphere and, to a lesser extent, to North America.

Key to the Genera of Phloeosinini

- 1. Antennal club symmetrical to weakly asymmetrical; eye emarginate; funicle 6- or 7-segmented; procoxae either separated or contiguous 2
- Antennal club very strongly asymmetrical, sutures strongly procurved when present; eye entire; funicle 5-segmented; procoxae rather widely separated 4
- 2(1). Funicle 7-segmented; bases of elytra each strongly procurved and produced anteriorly resulting in a deep scutellar notch and oblique grooves in posterolateral areas of pronotum for their reception; pronotum armed by asperities (usually minute to rather small); scutellum visible; procoxae very widely separated; body stout, mature color usually black; xylophagous ***Dendrosinus***
- Funicle 6-segmented, club variable; eye emarginate; bases of elytra normal, not abnormally produced or procurved; procoxae moderately separated 3
- 3(2). Antennal club subglobular, sutures obsolete or indicated by sparse setae; pronotum unarmed by asperities; procoxae contiguous; scutellum reduced or not visible; color usually reddish brown; phloeophagous ***Cladoctonus***
- Antennal club flattened, slightly asymmetrical, sutures 1 and 2 clearly marked; pronotum with small clusters of asperities at anterolateral angles; procoxae narrowly separated; scutellum visible; color black; habits unknown ***Cortisinus***
- 4(1). Antennal club with sutures strongly procurved, clearly marked by rows of setae and grooves; phloeophagous ***Pseudochramesus***
- Antennal club without sutures or definite rows of setae; mostly phloeophagous ***Chramesus***

GENUS *DENDROSINUS* CHAPUIS

Dendrosinus Chapuis, 1869:28. Type-species: *Hylesinus globosus* Eichhoff, monobasic

Diagnosis: Antennal funicle 7-segmented, club symmetrical, with 2 sutures on basal half; procoxae very widely separated; pronotum with minute to rather small asperities in anterolateral areas.

Description: Body stout, 1.5–1.7 times as long as wide; mature color black. Frons simple, sexual dimorphism present, obscure; eye elongate, emarginate; antennal funicle 7-segmented, club almost symmetrical, 2 weakly procurved sutures on basal half; pronotum armed by a few asperities in lateral areas, basal margins obliquely grooved and impressed for reception of anteriorly produced basal margins of elytra; elytra with small marginal

and submarginal crenulations, striae narrowly, abruptly impressed, punctures almost obsolete, interstriae wide, almost flat, with short, confused setae, interstriae 1 on right side at least twice as wide as 1 on left side; declivity moderately steep, simple, abdomen rising about half distance to meet apex of elytra; procoxae very widely separated; tarsal segment 3 bilobed.

Distribution: Tropical America. Wood & Bright (c1992: 236–237) list 8 species from Florida (USA) to Argentina.

Biology: The 4 species known to me attack cut or broken tree or liana stems 3–15 cm in diameter where

adult parents make (unequal) somewhat biramous parental galleries in the xylem. Eggs are packed in frass in individual niches. Larvae make long, xylophagous mines that follow the grain of the wood. It is suspected that only 1 generation is produced each year in a wet, tropical environment. In 1 species, *bourreriae* Schwarz, when the infested limb was disturbed, the 100 or more adults burrowing within the limb stridulated rapidly, loudly, and continuously for several minutes, thereby giving the impression that the limb was infested by a swarm of angry bees.

Key to the Species of *Dendrosinus*

- 1. Anterolateral margin of pronotum armed by a paired cluster of 3, narrow, coarse asperities, a second paired cluster of rather coarse asperities in anterolateral area about one-fourth pronotum length from anterior margin; pronotum disc more coarsely, deeply punctured; frons more strongly convex, especially on lower half, median line not marked by a definite crest; Brazil to Paraguay; 3.3–3.5 mm **ater** Eggers
- Anterior margin in lateral areas not armed by asperities, a cluster of small asperities present in anterolateral areas about one-third pronotum length from anterior margin; pronotum disc with punctures rather fine, very shallow; frons more nearly flattened, its median line marked by a definite crest 2
- 2(1). Frons moderately, broadly convex, reticulate median crest (female) or impunctate shining area (male) extending from epistoma to just below upper level of eyes; Argentina and Bolivia to Ecuador and Venezuela; *Brosimum*; 3.6–4.4 mm **globosus** (Eichhoff)
- Frons more nearly flattened in male and with median crest reticulately etched throughout its length, extending from epistoma to well above eyes (one-third of crest above upper level of eyes); Brazil; 3.8–4.6 mm **vittifrons** Blandford

Dendrosinus ater Eggers

Plate XVIII

Dendrosinus ater Eggers, 1930:167. Holotype ♂; published as OstBolivia [Cochabamba, on label of holotype]; USNM, Washington (Synonymy and references in Wood & Bright c1992:236)

Dendrosinus paraguayensis Eggers, 1930:168. Holotype ♀?; Paraguay; USNM, Washington (References in Wood & Bright c1992:237).

New synonymy

Dendrosinus hirsutus Schedl, 1958:38. Lectotype ♀; Santa Fe, Dep. Garay, Argentina; NHMW, Wien, present designation

Diagnosis: Distinguished by the paired clusters of 3 high, slender asperities on the anterolateral margin of the pronotum; by the more strongly convex frons that lacks a median crest.

Female: Length 3.3–3.5 mm, 1.7 times as long as wide; color black. Frons convex from epistoma to vertex, more narrowly protuberant on median one-third about level of ocular emargination; surface subshining, finely, uniformly granulate-punctate, median line not identified by a change in sculpture or vestiture; antennal club 1.4 times as long as wide, sutures moderately procurved. Pronotum 0.81 times as long as wide; surface reticulate, punctures small, very close, moderately deep; vestiture of small, rather

abundant, recumbent hair. Elytra 1.2 times as long as wide, 1.7 times as long as pronotum; bases armed by a row of crenulations and numerous small, submarginal crenulations; striae narrowly, abruptly, shallowly impressed, punctures obsolete, reticulate; interstriae three or more times as wide as striae, surface reticulate, with numerous, very small, confused, setiferous crenulations. Declivity convex, moderately steep; sculpture as on disc; vestiture of abundant, short, recumbent, almost hairlike setae, each about equal in length to width of a striae (one-third width of an interstriae), setae golden in specimens examined (mature color?).

Distribution: Argentina and Bolivia to Brazil and Paraguay.

Argentina: Santa Fe, Dep. Garay.

Bolivia: Cochabamba [Woytkowski].

Brazil: Nova Teutonia, Santa Catarina 27°11'S, 52°23'W, 1-X-1963, 300–500 m, F. Plaumann.

Paraguay: "Paraguay."

Notes: The above treatment was based on the female holotype of *ater* Eggers, on 3 females identified by Schedl as *paraguayensis* Eggers, 1 of which I compared directly to the holotype of *ater*, and on the syntype of *hirsutus* that was cited subsequent to the original description

by Schedl (1979:117) as the "holotype." This specimen is here designated as the lectotype of *Dendrosinus hirsutus* Schedl as required under the International Code on Zoological Nomenclature.

Dendrosinus globosus (Eichhoff)

Plate XVIII

Dendrosinus globosus (Eichhoff), 1868:149 (*Hylesinus*). Holotype, sex?; America borealis; Hamburg Museum, lost. Only known surviving syntype (now Holotype ♂, Colombia, taken by Dejean), IRSNB, Brussels (References in Wood & Bright c1992:237)

Diagnosis: Pronotal asperities small, none on anterior margin; median line on frons (smooth, shining in male, elevated and reticulate in female) extending from epistoma to upper level of eyes.

Male: Similar to female except median line on frons smooth, shining, impunctate from epistoma to upper level of eyes.

Female: Length 3.6–4.4 mm, 1.6 times as long as wide; color black. Frons very broadly convex, a weak median crest indicated from epistoma to upper level of eyes; surface reticulate, punctures (including median line) minute, rather dense, sharply impressed, most becoming granulate at level above eyes; vestiture of fine hair, moderately long in lower, lateral areas, shorter toward vertex; 2 sutures on antennal club weakly procurved. Pronotum 0.81 times as long as wide; surface reticulate, strongly reticulate within very shallow, abundant, close, obscure punctures, weakly reticulate on interspaces and median line; asperities in lateral areas minute, none near anterior margin; vestiture of short, recumbent hair. Elytra 1.2 times as long as wide, 1.8 times as long as pronotum; basal margins armed by a row of crenulations, submarginal crenulations small, numerous, gradually transending into interstitial tubercles; striae abruptly, shallowly impressed, reticulate punctures almost obsolete; interstriae reticulate, flat, about three times as wide as striae, setiferous tubercles small, obscurely three-ranked, less numerous than in *ater* Eggers. Declivity convex, moderately steep; sculpture as on disc except striae deeper, interstriae narrower; vestiture of short, dark, stout, moderately abundant setae.

Male: Similar to female except median line on frons smooth, shining, impunctate from epistoma to upper level of eyes.

Distribution: Argentina to Colombia and Venezuela.

Argentina: Cited in Wood & Bright (c1992:236).

Bolivia: Cited in Wood & Bright (c1992:236).

Colombia: "Colombie."

Ecuador: Rio Napo, Aguarito, 20-X-1942, 250 m, Karusterborgh.

Venezuela: 9 km S Barrancas, Barinas, 1-X-1969, 150 m, No. 36, *Brosimum* (and No. 97, *Torrubia*), SLW.

Notes: The above treatment was based on the male holotype of *Hylesinus globosus* Eichhoff and on 1 specimen from Ecuador and 37 from Venezuela. I compared 1 Venezuelan male directly to the Eichhoff syntype at

Brussels. This appears to be the only surviving syntype and, therefore, is here recognized by me as the holotype of *globosus* (Eichhoff).

Dendrosinus vittifrons Blandford

Dendrosinus vittifrons Blandford, 1897:156. Lectotype ♂; Brazil; BMNH, London, present designation (References in Wood & Bright c1992:237)

Diagnosis: Distinguished from *globosus* (Eichhoff) by the weakly elevated median line of the frons (extending from epistoma to vertex, well above eyes) that is reticulately etched throughout its length.

Male: Similar to female except frons more strongly, broadly, irregularly flattened, median crest as in female.

Female: Length 3.8–4.6 mm, 1.6 times as long as wide; color black. Frons very similar to *globosus* except median line more conspicuously elevated from epistoma to vertex (one-third of length of crest above upper level of eyes), crest transversely etched or reticulate throughout its length. Pronotum as in *globosus* except asperities distinctly larger, at least twice as numerous, none of them near anterior margin. Elytra as in *globosus*.

Distribution: Brazil: Guanabara, Rio de Janeiro, X-1963, M. Alvarenga, also #3695 and 1905 #100 by Fry; Rio Santo, Fry; Ilha Santo Amara near Santos, 24-III-1912, G.E. Bryant; Gktt., Brazil, S. America, F.W. Sampson Coll. 1926-482, "C" (male lectotype).

Notes: The above treatment was based on 2 males and 13 females. I compared 1 female to the Blandford syntype at the BMNH, London. Of the 12 specimens under this name at the BMNH, London, on 3 September 1998, specimen #11 is of *D. globosus* (Eichhoff) from Venezuela, #12 is of *D. ater* Eggers (taken by A. Maller). Of the 10 specimens of *D. vittifrons* in the series, most were collected from 1905 to 1912, well after this name was validated. Specimen #7 in this series is a large male (4.6 mm) labeled "S. America, Brazil," mounted on a pin on a microcard; the microcard bears Blandford's handwritten identification "*Dendrosinus vittifrons* Bldf." On the microcard is written "C" (=cotype?), and it bears the Sampson Collection label. It is the only specimen that attains 4.6 mm, the maximum size given by Sampson for the species. This male specimen was obviously a syntype of Blandford and is here designated as the lectotype of *Dendrosinus vittifrons* Blandford.

Species Not Seen

Dendrosinus puncticollis Blandford

Dendrosinus puncticollis Blandford, 1897:156. Holotype, sex?; Colombia; BMNH, London (References in Wood & Bright c1992:237)

Blandford (1897:156–157) described *D. puncticollis* as "Minor fronte subglabra, rudi, supra os modo rugose punctata, et linea media abbreviata notata; oculis antice submarginata; antennis testaceis, clava oblonga, suturis sinuatis; prothorax fortiter conferte punctato, interstitiis nudis, linea media haud distincta; elytris nigro-setosis."

Distribution: Colombia: "Wagner, in Coll. Schaufuss."

Notes: The type was lost with the Hamburg Museum. Eggers (1930:167) in treating *D. ater* states [Halsschild] "Oberseite doppelt so dicht und finer aber deutlich punctiert wie *D. puncticollis* Bldf." Apparently allied to *ater*, but distinct. Its true identity must await the rediscovery of this species.

GENUS *CORTISINUS* WOOD, n. gen.

Cortisinus Wood: Type-species: *Sternobothrus lobatus* Eggers, monobasic

Diagnosis: This genus keys to *Phloeosinopsoides* in Wood (1986:50–51), but is distinguished by the 6-segmented antennal funicle; by the restriction of pronotal asperities to the anterolateral angles; by the different body form; and by numerous other characters described below.

Description: Male frons impressed. Eye oval, one-fourth divided by an emargination. Antennal scape comparatively short; funicle 6-segmented, distinctly longer than scape; club elongate-oval, flattened, with 2 weakly oblique sutures (1 on basal fourth, 2 at middle), apex moderately rounded. Precoxal prosternum rounded, with no indication of a carina. Pronotum with anterolateral angles armed by small clusters of rather small asperities; posterior margin projecting slightly into moderate scutellar notch. Scutellum convex, circular in outline. Setae on pronotum and elytra sparse, hairlike. Tibiae not visible on type specimen of type-species.

Distribution: Only 1 species is known. There are no known closely related genera of Phloeosinini in South America.

Cortisinus lobatus (Eggers), n. comb.

Cortisinus lobatus (Eggers), 1943:374 (*Sternobothrus*). Holotype ♂; Cochabamba, Bolivia; NHMW, Wien (References in Wood & Bright c1992:216)

Diagnosis: This species is unique in the Phloeosinini. It is distinguished by the antenna; by the small patches of crenulations on the anterolateral angles of the pronotum; by the acutely costate median carina on the basal half of the pronotum; and by other characters described below.

Male: Length 2.4 mm, 1.9 times as long as wide; color black. Frons with a rather strong, subacute transverse carina on median half about one-fourth distance below upper level of eyes toward epistoma; area below carina broadly, shallowly concave, surface apparently smooth, shining, with fine, sparse punctures, several rather coarse, moderately long setae just below carina; area from carina to vertex rugose-reticulate, sparse, minute punctures obscure. Eye elongate-oval, clearly emarginate to depth of one-fourth width of eye. Antennal scape rather short, stout (capable of attaining level of posterior margin of eye), with a small tuft of about 6–8 long, yellow, hairlike

setae; funicle slightly longer than scape, 6-segmented; club elongate-oval, about 2.0 times as long as wide, its apex somewhat broadly rounded, sutures 1 and 2 septate, weakly oblique, 2 at middle, 1 on basal one-fourth. Precoxal prosternum rounded (no indication of a carina). Protibia not visible due to glue, etc. Pronotum 0.90 times as long as wide; very broadly rounded in front, projecting behind modestly into scutellar notch; anterolateral angles not projecting, armed on each side by about 5 small crenulations; median line on posterior half subacutely, narrowly costate; surface dull, on posterior half closely covered by enormous, shallow punctures (a few on disc confluent), their centers reticulate, very narrow crests between punctures smooth, shining, anterior one-third somewhat similarly sculptured except width greatly reduced to less than half, a pair of rather widely spaced, weakly subvulcanate pores (mycetangia?) about one-sixth of pronotum length from anterior margin. Scutellum convex, circular in outline, subrugosely punctured; scutellar notch rather deep. Elytra 1.2 times as long as wide, 1.4 times as long as pronotum; basal margins slightly elevated, armed by an obscure row of connected crenulations, submarginal crenulations obscure on interstriae 2; striae abruptly, rather deeply impressed, punctures obsolete, surface minutely granulate; interstriae as wide as striae, moderately convex, punctures uniseriate, rather small, anterior margin of each elevated, finely subcrenulate, surface apparently, minutely granulate (or possibly reticulate, not clean on type). Declivity broadly convex, rather steep; striae punctures very small, obscure, interstriae each with a row of small tubercles (serrate), 3–9 distinctly, not strongly elevated; costal margin near apex slightly flanged outward, margin subseriate. Vestiture confined to declivity (due to abrasion?); minute striae hair present on all striae to middle of disc, interstriae with erect, slender bristles, each two-thirds as long as distance between rows spaced within a row by about length of a bristle.

Distribution: Bolivia: Cochabamba [F. Woytkowski].

Biology: Probably attracted to light.

Notes: The above treatment was based on the male holotype.

GENUS *CLADOCTONUS* STROHMEYER

Cladoctonus Strohmeyer, 1911:17. Type-species: *Cladoctonus affinis* Strohmeyer, monobasic (Synonymy and references in Wood & Bright c1992:237–239)

Hoplites Eggers, 1923:140. Type-species: *Hoplites banosus* Eggers, monobasic, preoccupied by Dejean 1833:150

Hoplitontus Wood, 1961:2. Type-species: *Hoplites banosus* Eggers, automatic, replacement name for *Hoplites* Eggers

Hoplitophthorus Wood, 1961:2. Type-species: *Hoplitophthorus sentosus* Wood = *Hoplites interruptus* Eggers, original designation

Diagnosis: Antennal funicle 6-segmented in South American species, club symmetrical, subglobular, sutures partly to entirely obsolete; procoxae contiguous; scutellum visible or not.

Description: Body elongate-oval, color yellowish to reddish brown; frons weakly, sexually dimorphic, male weakly impressed, female convex; antennal funicle 6-segmented, club subglobular, sutures obsolete except obscurely indicated by sparse setae; procoxae contiguous, pronotum unarmed by asperities; scutellum minute to not visible; crenulations on basal margins of elytra much wider than normal; stria punctures impressed, interstriae brightly shining; declivity rather

abrupt, very steep, subvertical on lower half; sparse vestiture always hairlike; tarsal segment 3 slender.

Distribution: Wood & Bright (c1992:237–239) report 6 species from Africa, 1 from the Philippine Islands, 1 from New Guinea, and 7 from tropical America, 4 of which occur in South America.

Biology: They are phloeophagous in a variety of host trees.

Key to the Species of *Cladoctonus*

- 1. Serrated crest of declivital interstriae 9 ending without curving toward or joining costal margin; declivital interstriae 2 armed by pointed tubercles at least on basal portion; upper half of female frons smooth, shining, impunctate 2
- Serrated crest of declivital interstriae 9 curving toward and joining crest of costal margin at level of apex of interstriae 3; declivital interstriae 2 unarmed by tubercles at base or on face of declivity; upper half of female frons punctured 3
- 2(1). Strial punctures on disc small, interstriae wider than striae; body more slender, 2.5 times as long as wide; female frons on lower half transversely impressed, conspicuously protuberant on upper half; Colombia to Bolivia and Brazil; *Pseudoolmedia*; 1.8–2.0 mm *corumbensis* (Eggers)
- Punctures on posterior half of striae 1–3 on disc very large, with almost no interstriae; body stouter, 2.2 times as long as wide; female frons conspicuously, transversely impressed below or protuberant above; Brazil (Mato Grosso); 1.5–1.8 mm *atrocis* Wood
- 3(1). Strial punctures very coarse on disc, interstriae about half as wide as striae; declivital interstriae 1 armed by about nine tubercles throughout its length, 2 armed at base by one or two small tubercles; Colombia; *Citrus aurantium*; 2.1–2.3 mm *interruptus* (Eggers)
- Strial punctures moderately large, very close, regularly spaced, interstriae as wide as striae; declivital interstriae 1 mostly unarmed, about two small tubercles on lower half, 2 entirely unarmed 4
- 4(3). Strial and interstitial punctures in regular rows from base to base of declivity; tubercles on declivital interstriae 9 comparatively small; Mexico (Campeche); *Brosimum*; 1.5–1.8 mm *americanus* Wood
- Strial and interstitial punctures normal on basal half of disc, on posterior half of disc stria punctures lost between large, acutely rounded, shining nodules, three to four nodules present on striae 7, 8 unarmed, 9 with a row of about nine rather large, pointed denticles to its apex near suture; nodules end at base of declivity and normal stria punctures reappear, interstriae 1 and 3 each with a row of about four small, widely spaced denticles; Bolivia; at light; 2.2 mm *tuberculatus* Schedl

Cladoctonus corumbensis (Eggers)

Plate XIX

Cladoctonus corumbensis (Eggers), 1951:149 (*Hoplites*). Holotype, sex?; Corumba, Mato Grosso, Brazil; NHMW, Wien (Synonymy and references in Wood & Bright c1992:238)

Hoplitophthorus boliviae Wood, 1961:106. Holotype ♀; route between Boyuibe to Charagua via Cueva, Ingri, etc., Bolivia; USNM, Washington

Diagnosis: Elevated crest of declivital interstriae 9 not joined to costal margin near suture; stria punctures on disc rather small, interstriae as wide as striae.

Male: Similar to female except frons evenly convex and uniformly rather coarsely punctured, setae short, sparse, except longer at epistomal margin.

Female: Length 1.8–2.0 mm, 2.5 times as long as wide; color yellowish brown to reddish brown. Frons broadly,

moderately, transversely impressed on lower half, surface finely, rather closely punctured, upper half rather strongly convex (protuberant) to above eyes, median half impunctate, brightly shining, marginal areas with a few small punctures; glabrous above, lower area with moderately abundant, fine, long hair. Pronotum 1.0 times as long as wide; surface smooth, brightly shining, punctures rather coarse, close, deep, interspaces averaging half as wide as diameter of a puncture; glabrous. Elytra 1.9 times as long as wide, 2.1 times as long as pronotum; row of crenulations on basal margins of elytra low, poorly formed, bases of interstriae 5 and 6 with combined total of two to three submarginal crenulations; striae feebly impressed, punctures rather small, close; interstriae as wide as striae, smooth, shining, glabrous, punctures small, uniseriate. Declivity short, very steep, lower half vertical or even undercutting toward apex; interstriae 1–7 and 9 armed by pointed tubercles, almost obsolete on lower half of 1, 9 ends at level of 5 without continuation; vestiture of sparse, uniseriate, slender, rather short bristles on declivity, glabrous on disc.

Distribution: Colombia to Bolivia and Brazil.

Bolivia: Route Boyuibe to Chagua via Cueva, Ingri, etc., 15-VII-1-IX-1920, G.L. Harrington.

Brazil: Corumba, Mato Grosso.

Colombia: Campo Capote 27 km NE Montoya, Santander, 2-VII-1970, 150 m, No. 601, *Pseudoolmedia*, SLW.

Notes: The above treatment was based on 2 paratypes of *boliviae* Wood and on 51 specimens from Colombia. The holotype of *Hoplites corumbensis* Eggers was compared to my series from Bolivia and Colombia.

Cladoctonus atrocis Wood

Cladoctonus atrocis Wood, 1974:12. Holotype ♂; 260 km N Xantavia, Mato Grosso, Brazil; BMNH, London (References in Wood & Bright c1992:238)

Diagnosis: Elevated crest of interstriae not joined to costal margin near suture; strial punctures on disc very large, interstriae half as wide as striae.

Male: Similar to female except lower third of frons moderately, transversely impressed, upper area coarsely, uniformly punctured (without an impunctate area).

Female: Length 1.5–1.8 mm, 2.2 times as long as wide; color reddish brown. Frons convex from immediately above epistoma to well above eyes, less than lower one-fourth with fine punctures, median three-fourths of upper area brightly shining, impunctate, a few punctures on marginal areas; vestiture on lower fourth and on lateral areas near eyes of rather short, coarse setae. Pronotum 0.90 times as long as wide; surface smooth, shining, punctures coarse, deep, rather close, some interspaces equal in width to diameter of a puncture; almost glabrous. Elytra 1.5 times as long as wide, 1.7 times as long as pronotum; a row of submarginal crenulations behind marginal row; striae not impressed, punctures at base moderately large, becoming very large from middle of disc to base

of declivity; interstriae smooth, shining, on posterior half of disc less than half as wide as striae. Declivity convex, very steep, vertical on lower half; strial punctures moderately small, interstitial punctures of about equal size; interstriae 1 and 3–9 each armed by a row of pointed tubercles, 2 with two or three tubercles at base of declivity and unarmed below; vestiture restricted to declivity, of sparse, uniseriate rows of fine, moderately long hair.

Distribution: Brazil: 260 km N Xantavia, Mato Grosso, 18-25-X-1968, R.A. Beaver.

Notes: The above treatment was based on 8 paratypes.

Cladoctonus interruptus (Eggers)

Plate XIX

Cladoctonus interruptus (Eggers), 1940:126 (*Hoplites*). Holotype, sex?; Guadeloupe; Fleuteaux Collection, cotype in NHMW, Wien (Synonymy and references in Wood & Bright c1992:239)
Hoplithophorus sentus Wood, 1961:3. Holotype ♂; La Cuchilla, Sevilla, Colombia; USNM, Washington

Diagnosis: Elevated crest of interstriae 9 joining costal margin before sutural apex; declivital interstriae 2 unarmed by tubercles except at base; strial punctures very large on posterior half of disc.

Male: Sexual differences not evident in specimens at hand.

Female: Length 2.1–2.3 mm, 2.2 times as long as wide; color reddish brown. Frons from epistoma to upper level of eyes moderately, transversely impressed, convex above; surface uniformly punctured by rather small, moderately close punctures; vestiture very short, sparse. Pronotum 0.90 times as long as wide; surface brightly shining, punctures coarse, deep, rather close, width of interspaces equal to slightly less than diameter of a puncture; almost glabrous. Elytra 1.8 times as long as wide, 2.0 times as long as pronotum; basal area of elytra with about 6 submarginal crenulations behind marginal row; striae not impressed, punctures very coarse, moderately close; interstriae half as wide as striae, smooth, shining, each with a uniseriate row of small punctures. Declivity convex, very steep; apex undercutting mid-declivity; strial punctures rather small; interstriae 2 and 8 narrow, almost obsolete below, 1, 2, 5, 7, and 9 each armed by a row of fine, pointed tubercles, 2 with one or two tubercles at base; vestiture confined to declivity, of sparse, uniseriate rows of short hair, absent on 2, 6, and 8.

Distribution: Guadeloupe Island and Colombia.

Colombia: La Cuchilla, 19-VI-1959, naranjo seco, J.H. Lasso.

Hosts: *Citrus aurantium*.

Notes: The above treatment was based on the type series of 6 specimens.

Cladoctonus tuberculatus Schedl

Cladoctonus tuberculatus Schedl, 1973:369. Holotype, sex?; Guayamerin, Beni, Bolivia; NHMB, Budapest (References in Wood & Bright c1992:239)

Diagnosis: Distinguished by the very different sculpture as described below.

Male (?): Length 2.2 mm, 2.1 times as long as wide; color reddish brown. Frons convex, a weak, transverse impression below level of antennal insertion; surface smooth, shining, except reticulate at vertex, punctures moderately coarse, rather close, shallow; vestiture of sparse, short, inconspicuous hair. Pronotum 0.91 times as long as wide; surface smooth, shining, punctures rather deep, moderately close, coarse on basal one-third, distinctly smaller on anterior one-third; almost glabrous. Elytra 1.5 times as long as wide, 1.8 times as long as pronotum; striae not impressed, punctures coarse, deep on almost basal half of disc; interstriae distinctly narrower than striae on basal half of disc, smooth, shining, minute punctures almost uniseriate; striae 1-7 on posterior half of disc to base of declivity armed on each by about four large, narrowly rounded nodules, punctures between nodules virtually obliterated. Declivity steep, convex, striae punctures almost normal, slightly smaller than on anterior disc, interstriae slightly narrower than striae, 2, 4-8 each with a row of fine punctures, 1 and 3 each with a sparse row of fine tubercles, 9 with a row of about nine coarse denticles extending from apex to level of metacoxae; 9 joining apical margin about level of interstriae 3. Glabrous except for sparse rows of short, stout setae on odd-numbered declivital interstriae.

Distribution: Bolivia: Guayaranerin, Beni, from River Balogh, Mahunka, ZICSI, 18-XI-1966, at light, Soil Zoological Exp.

Notes: The above treatment was based on the holotype, presumably a male.

GENUS *PSEUDOCHRAMESUS* BLACKMAN

Pseudochramesus Blackman, 1939:87. Type-species: *Chramesus acuteclavatus* Hagedorn, original designation

Diagnosis: This genus is distinguished from the closely allied *Chramesus* by the strongly procurved, clearly marked sutures on the antennal club.

Description: Body very stout. Frons sexually dimorphic, female convex to shallowly concave on median half, male broadly, rather strongly concave or with antennal insertions either normal or displaced mesad and dorsad; eye entire; antennal insertions normal or displaced in male, scape elongate, funicle 5-segmented, club strongly asymmetrical, with 2 strongly procurved sutures clearly marked. Pronotum either unarmed or armed only by small granules; procoxae widely separated; scutellum visible; elytral sculpture simple.

Biology: Apparently all species are phloeophagous and monogynous.

Notes: This genus is confined to neotropical areas. Wood & Bright (c1992:261-262) list 11 species, 10 of which occur in South America and 1 in Mexico (Jalisco).

Key to the Species of *Pseudochramesus*

- 1. Interstriae each with a central row of erect scales on disc, each scale in row short, except in *acuteclavatus*, less than twice as long as ground scales, ground scales pale to variegated; male frons broadly concave, its margins on upper half ornamented by a row of very long setae; male antennal insertion normal, near base of mandible 2
- Central row of erect interstitial setae with each seta more slender, often much longer, ground scales broad, recumbent, almost black; male frons modified, narrower above, not broadly impressed, antennal insertions slightly to strongly displaced mesad and dorsad, upper margins without a dense fringe of long setae, area between inner margin of eye and lateral margin of frons with a conspicuous groove 5
- 2(1). Strial punctures on basal half of disc very coarse, deep, striae as wide as interstriae near base; male interstriae 7 on declivity distinctly elevated from near base to junction with 3, apex of 3 briefly elevated at junction with 7 (in male, female normal); Argentina to Bolivia; 1.5-1.6 mm *costulatus* Blackman
- Strial punctures not larger on basal half of disc, interstriae conspicuously wider than striae; male interstriae 7 not conspicuously elevated 3
- 3(2). Interstitial and pronotal setae forming a pattern of dark and pale setae; strial punctures larger, not as close, interstriae slightly less than twice as wide as striae; interstriae on disc without distinct tubercles; Argentina and Brazil to Bolivia; *Peptadinia*; 1.3-1.6 mm ... *acutecravatus*
(H a g e d o r n)
- Interstitial setae essentially unicolorous; strial punctures smaller, deeper, closer; interstriae at least twice as wide as striae; erect setiferous punctures on discal interstriae with a small tubercle at their base 4
- 4(3). Erect setae at base of elytra not longer and almost as stout as those on declivity; declivital interstriae

- Erect setae on basal half of elytral disc longer, very slender; declivital interstriae 2 devoid of tubercles; Brazil (Santa Catarina); 1.5–1.6 mm *duplosquamosus* Schedl
- 5(1). Strial punctures on disc coarse, deep; interstriae as wide as striae; Argentina; 1.7 mm *vianai* Schedl
- Strial punctures small, close, rather shallow; interstriae more than twice as wide as striae 6
- 6(5). Pronotum dull, surface strongly rugose-reticulate, anterolateral areas of male subasperate; interstitial scales apparently obsolete, surface closely granulate, granules moderately coarse, isolated from one another, confused from base to apex, central row of erect setae present, each seta two to four times as long as wide, pale; Brazil; 1.6 mm *brasiliensis* Schedl
- Pronotum weakly to moderately reticulate; interstitial scales present, granules absent except for central row on each interstriae 7
- 7(6). Pronotum mostly shining, sparsely reticulate in anterior areas; each interstriae with a uniseriate row of tubercles; ground setae on disc present 8
- Pronotum clearly reticulate from base to anterior margin, punctures very fine, abundant; discal interstriae punctured, without a central row of tubercles on each; interstitial ground scales apparently obsolete 9
- 8(7). Median line at base of pronotum not impressed, punctures on disc smaller, more numerous; Paraguay; 1.7 mm *golbachi* Wood
- Median line on basal one-fifth of pronotum narrowly impressed, shining, punctures on disc larger, less numerous; Brazil (Santa Catarina); 1.3–1.5 mm *setifer* Schedl
- 9(7). Erect interstitial setae on disc longer, more slender, at least eight times as long as wide, equal in length to two-thirds distance between rows; pronotal punctures smaller, stoutest setae more slender, longer; male not seen; Bolivia; 1.9–2.1 mm *manni* Blackman
- Erect interstitial setae on disc shorter, stouter, each seta four to six times as long as wide, equal in length to less than half distance between rows; pronotal punctures distinctly larger, stoutest setae shorter; male frons with antennal insertions strongly displaced mesad, upper frons very narrow, almost half normal width; Brazil (Mato Grosso); 1.7 mm *opacus* Schedl

Pseudochramesus costulatus Blackman

Pseudochramesus costulatus Blackman, 1939:91. Holotype ♂; Boyuibe to Charagua, Bolivia; USNM, Washington (References in Wood & Bright c1992:262)

Diagnosis: Interstitial ground scales pale; male frons broadly concave; strial punctures at base of disc very coarse, deep; male declivital interstriae 7 moderately elevated.

Male: Similar to female except frons broadly, rather deeply concave from epistoma to vertex, surface subreticulate, upper margins ornamented by long, yellow hair, tips of setae extending below epistoma.

Female: Length 1.5–1.6 mm, 1.4 times as long as wide; color very dark brown, posterior three-fourths of elytra brown to pale brown, vestiture pale. Frons distinctly elevated at level of antennal insertion, rather broadly, shallowly concave from elevation to upper level of eyes; surface subreticulate, margin with setiferous granules;

vestiture at margins, coarse, moderately abundant, rather short. Pronotum about 0.71 times as long as wide; surface reticulate, setiferous punctures small, rather close; vestiture of coarse, rather short, mostly recumbent hair, longer in lateral areas. Elytra 1.04 times as long as wide; striae slightly impressed, punctures rather large, impressed; interstriae twice as wide as striae, surface apparently smooth, punctures small, largely concealed by scales, minute granules at base of erect bristles. Declivity somewhat gradual, beginning anterior to middle, convex, moderately steep; interstriae 2 weakly impressed on lower half; a row of fine tubercles on interstriae 3, 5, 7, and 9 extending to lower half. Ground vestiture of small pale scales, each slightly longer than wide and about one-fifth as wide as an interstriae; erect bristles in central interstitial rows, very short, each about twice as long as wide, about one-fourth as long as distance between rows, spaced within a row by about twice length of a bristle.

Distribution: Argentina to Bolivia.

Argentina: Santa Clara to Jujuy, 23-IX-1921; Palmar to Jujuy, 25-VIII-1921.

Bolivia: Boyuibe to Charagua via Cueva, 15-VII-1-IX-1920; Camatindi, 20-III-1922; Monteaguido, Rio Azero, 1920; Tacuari, 19-VIII-1923, G.L. Harrington.

Notes: The above treatment was based on 1 male paratype and 1 female paratype.

Pseudochramesus harringtoni Blackman

Pseudochramesus harringtoni Blackman, 1939:93. Holotype ♂; Aguio, Bolivia; USNM, Washington (Synonymy and references in Wood & Bright c1992:262)

Pseudochramesus multiseriatus Schedl, 1978:296. Holotype ♀; Tablillas Salta, Argentina; NHMW, Wien

Diagnosis: Interstitial scales pale, unicolorous; striae punctures rather small.

Male: Similar to female except frons about as in male *costulatus* Blackman.

Female: Length 1.4–1.6 mm, 1.6 times as long as wide; color dark brown, interstitial ground setae brown, erect bristles mostly pale. Frons broadly convex from epistoma to vertex; surface obscurely reticulate, obscure punctures fine, moderately close in marginal areas; vestiture of short, rather coarse, moderately abundant setae. Pronotum 0.70 times as long as wide; rather finely subasperate in anterolateral areas; surface strongly reticulate, setiferous punctures rather shallow, moderately close; vestiture of coarse, short, recumbent setae, slightly longer in lateral areas. Elytra 1.06 times as long as wide; striae not impressed, punctures moderately coarse, rather strongly impressed; interstriae almost twice as wide as striae, smooth, shining, punctures small, bristle-bearing punctures finely granulate. Declivity beginning before middle of elytra length, convex, moderately steep; about as on disc except interstriae 2 constricted on lower half (with only one row of scales). Vestiture of ground cover of short scales, each as long as wide, pale along suture, brown elsewhere, pale erect bristles each about four times as long as wide, equal in length to almost half distance between rows, spaced within a row by about 1.5 times length of a bristle.

Distribution: Bolivia: Aguio, 4-X-1920; Boyuibe, 10-X-1920, G.L. Harrington; Guarío, X-1923; San Esteban, 9 km N Santa Cruz, 7-XII-1950, 1120 feet, R. Cumming; Yagacua.

Notes: The above treatment was based on 2 males and 1 female from San Esteban. I compared 1 male directly to the holotype.

Pseudochramesus duplosquamosus Schedl

Pseudochramesus duplosquamosus Schedl, 1963:215. Holotype ♀; Rio Caraguata, Mato Grosso, Brazil; NHMW, Wien (References in Wood & Bright c1992:262)

Diagnosis: Female distinguished from *harringtoni* Blackman by the much more slender, erect interstitial

setae; and by the absence of tubercles on declivital interstriae 2.

Female: Length 1.5–1.6 mm, 1.5 times as long as wide; color almost black. Frons and pronotum as in female *harringtoni*. Elytra as in female *harringtoni* except erect setae on basal half of elytral disc (interstriae 1–5) distinctly longer and much more slender; declivital interstriae 2 without any tubercles (minute tubercles *harringtoni*).

Distribution: Brazil: Rio Caraguata, Mato Grosso, III-1953, F. Plaumann.

Notes: The above treatment was based on the female holotype and on 1 female paratype of *duplosquamosus* Schedl, both from Brazil.

Pseudochramesus acuteclavatus (Hagedorn)

Plate XX

Pseudochramesus acuteclavatus (Hagedorn), 1909:742 (*Chramesus*). Holotype, sex?; La Plata, Argentina; Hamburg Museum, lost (References in Wood & Bright c1992:262)

Chramesus semibrunneus Eggers, 1951:145. Holotype ♀; Brazil; USNM, Washington (References in Wood & Bright c1992:262). *New synonymy*

Diagnosis: Scales on pronotum and interstriae forming a pattern of dark and pale setae; without distinct interstitial tubercles.

Male: Similar to female except male frons as in *harringtoni* Blackman.

Female: Length 1.3–1.6 mm, 1.4 times as long as wide; color very dark brown, vestiture of abundant pale and dark scales and bristles, usually forming a pattern (occasionally entirely pale). Frons broadly convex, a weak elevation at level of antennal insertion, a feeble median impression on upper area; surface coarsely reticulate above, apparently becoming obscurely punctured below (concealed by vestiture); vestiture of rather coarse, short, moderately abundant setae from epistoma to vertex. Pronotum 0.71 times as long as wide; as in *harringtoni* Blackman. Elytra 1.03 times as long as wide; striae distinctly impressed, punctures small, distinct; interstriae two to three times as wide as striae, surface smooth, shining, punctures very small, confused, bristle-bearing punctures uniseriate, tuberculate. Declivity beginning before middle, convex, moderately steep; about as on disc, interstriae 2 constricted, 3 joins 9 (not elevated), 1, 3, 5, and 7 each with a uniseriate row of minute tubercles. Vestiture of ground cover of scales, each scale as wide as long, about one-fourth as wide as an interstriae, erect bristles each two to four times as long as wide, about one and one-half times as long as ground scales; scales usually forming a pattern of dark and pale areas.

Male: Similar to female except frons as in *harringtoni*.

Distribution: Argentina and Bolivia to Paraguay.

Argentina: Aguaray; La Plata; Salta-Oran, Abra Grande, I-III-1967, R. Golbach; Tartagal.

Bolivia: Buena Vista: Camatindi; Tacuari; Tarija, Inge Bermejo, R. Golbach; Tigulpa; Villa Montes; Yagacua, IV-1924, G.L. Harrington.

Brazil: Brasilien im rinde von *Peptadina*.

Paraguay: Carumbe, Dep. San Pedro, I-1971, R. Golbach.

Notes: The above treatment was based on the female holotype of *semibrunneus* (Eggers), on 6 specimens from Argentina identified by Blackman prior to the loss of the holotype of *acuteclavatus*, on 9 from Bolivia, and on 17 from Paraguay.

Pseudochramesus vianai Schedl

Pseudochramesus vianai Schedl, 1958:39. Syntypes ♂ ♀; Tigre, Buenos Aires, Argentina; NHMW, Wien and Viana Collection (References in Wood & Bright c1992:262)

Diagnosis: Interstitial ground scales black; punctures on pronotum rather coarse, deep, close; striae punctures on disc coarse, deep, interstriae as wide as striae.

Female: Length 1.7 mm, 1.6 times as long as wide; color black, ground scales dark brown to black, erect bristles pale. Frons not visible in specimen at hand. Pronotum 0.70 times as long as wide; surface shining, punctures rather coarse, moderately deep, very close, interspaces mostly equal in width to less than half diameter of a puncture, (smooth?). Elytra 1.08 times as long as wide; striae not impressed on disc, moderately on declivity, punctures coarse, deep, close; interstriae as wide as striae, minute punctures obscure, erect bristles arise from posterior margin of weakly subcrenulate tubercle. Declivity beginning at middle of declivity length, convex, moderately steep; interstriae twice as wide as striae, 2 constricted toward apex. Vestiture of ground cover of short, stout scales each as wide as long; interstitial scales apparently replaced by tubercles on lower declivity.

Distribution: Argentina: Tigre, Buenos Aires, I-1951, M.J. Viana.

Hosts: *Acacia cavenia* (Bright & Skidmore 2002:38).

Notes: The above treatment was based on 1 female paratype.

Pseudochramesus brasiliensis Schedl

Pseudochramesus brasiliensis Schedl, 1948:265. Syntypes ♀ [probably a ♂]; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien and Plaumann Collection (References in Wood & Bright c1992:262)

Diagnosis: Pronotum dull, surface rugose-reticulate, interstitial ground scales apparently obsolete, apparently replaced by abundant, confused, rather coarse granules.

Male: Length 1.4–1.6 mm, about 1.6 times as long as wide; color black. Frons moderately, rather broadly concave from epistoma to upper level of eyes, concave area rugose-reticulate, vestiture abraded; insertion of antenna displaced only slightly dorsad and mesad. Pronotum (damaged) about 0.70 times as long as wide; several small asperities in lateral and anterior areas, surface dull, rugose-reticulate, punctures obscure; vestiture coarse, short, rather sparse, longer in lateral areas. Elytra about 1.1 (spread) times as long as wide; striae impressed,

punctures small, obscure; interstriae three to four times as wide as striae, dull, densely covered by moderately large, closely set, confused granules. Declivity beginning near middle of elytra length, convex, steep; sculpture as on disc, interstriae 2 constricted only slightly on lower half. Vestiture of ground cover of black scales (when light in one position, appearing as tubercles when light in a different position); erect bristles in rows, each seta stout (each 2–4 times as long as wide, short, length equal to less than one-third distance between rows).

Female: Similar to male except frons weakly convex.

Distribution: Brazil: Rondon, Nova Teutonia, 25-XI-1952, 500 m, F. Plaumann; Santa Fe do Sul, Sao Paulo, 17-IX-2003, Recando das Aguas Claras, degraded riparian forest fragment, ex bark of dying *Platypodium elegans*, C.A.H. Flechtmann.

Notes: The above treatment was based on 2 males, 1 of which I had compared to the Schedl syntype, and on 1 male and 8 additional female specimens.

Pseudochramesus golbachi Wood, n. sp.

Pseudochramesus golbachi Wood: Holotype ♀; Carumbe, Dep. San Pedro, Paraguay; USNM, Washington, designated below

Diagnosis: Interstitial scales black; erect interstitial bristles short; pronotum weakly reticulate and punctures deep, numerous.

Female: Length 1.7 mm, 1.6 times as long as wide; color almost black. Frons shallowly concave on median half from epistoma to upper level of eyes; surface reticulate, with rather sparse granules on margins of upper half; vestiture coarse, moderately long, rather abundant. Pronotum 0.74 times as long as wide; weakly, rather obscurely reticulate, shining, punctures small, moderately deep, rather close; vestiture somewhat coarse, rather short, moderately abundant. Elytra 1.2 times as long as wide; about as in *manni* Blackman except tubercles in interstitial rows distinctly larger, erect interstitial bristles short, about as in *opacus* Schedl.

Distribution: Paraguay: Dept. San Pedro, Carumbe, I-1971, R. Golbach.

Notes: The above treatment was based on the female holotype.

Pseudochramesus setifer Schedl

Pseudochramesus setifer Schedl, 1951:93. Holotype ♀; Cachoeirinha-Una, Bahia, Brazil; NHMW, Wien (References in Wood & Bright c1992:262)

Pseudochramesus abbreviatus Schedl, 1951:94. Lectotype ♂; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien, designated below (References in Wood & Bright c1992:261). *New synonymy*

Diagnosis: This species is distinguished by the small size; by the shining discal area of the pronotum; and by the presence of rows of interstitial tubercles.

Male: Length 1.3–1.5 mm, 1.5 times as long as wide; color black, ground setae dark, erect setae pale. Frons broadly, moderately concave from epistoma to upper

level of eyes; surface shining, subreticulate (more strongly above); vestiture of rather long, coarse setae, sparse in central area, more numerous on lateral margins. Pronotum 0.71 times as long as wide; surface shining, irregularly subreticulate and shallowly, rather densely punctured on posterior half, anterior half with small setiferous tubercles; median line on basal one-fifth narrowly, weakly impressed; vestiture coarse, rather short, of moderate abundance. Elytra 1.0 times as long as wide, 1.6 times as long as pronotum; striae weakly impressed, punctures small, deep, close; interstriae twice as wide as striae, surface smooth, shining, a row of very small punctures on both right and left margins, and a central row of small tubercles, tubercles spaced by distances less than width of an interstriae. Declivity on slightly less than posterior half, convex, steep; sculpture about as on disc except striae punctures more widely spaced; vestiture of ground cover of dark scales, each very slightly longer than wide and erect setae arising from tubercles, of pale color, each about four to six times as long as wide, length equal to half distance between rows, spaced within a row by slightly less than length of a scale.

Female: Similar to male except frons broadly convex, surface finely subrugose.

Distribution: Brazil: Chachoeirinha-Una, Bahia (holotype of *setifer* Schedl); Nova Teutonia, VIII-1941 (lectotype of *abbreviatus* Schedl), X-1941, F. Plaumann.

Notes: The above treatment was based on the female holotype of *setifer*, on the male holotype, female allotype, and 2 paratypes (1 male, 1 female) of *abbreviatus* Schedl, and on 3 other specimens from Schedl's series of *setifer*. The third specimen in Schedl's series of *setifer* is a glue-covered male of what appears to be *costulatus* Blackman. Because Schedl's subsequent designation of a holotype is invalid, I here designate his "holotype" as the lectotype of *P. abbreviatus* Schedl.

Pseudochramesus manni Blackman

Pseudochramesus manni Blackman, 1939:88. Holotype ♀; Beni River below Riberalta, Bolivia; USNM, Washington (References in Wood & Bright c1992:262)

Diagnosis: Interstitial ground scales black; erect pale bristles two-thirds as long as distance between rows.

Female: Length 1.9–2.1 mm, 1.6 times as long as wide; color black, scales along elytral suture pale. Frons essentially convex, a slight median impression from just above level of antennal insertion to just below upper level of eyes; surface finely rugose-reticulate above, more nearly reticulate below; vestiture mostly on margins, coarse, moderately abundant, rather long. Pronotum 0.80 times as long as wide; surface reticulate, punctures fine, deep, rather close; vestiture mostly fine, recumbent, rather short, longer in lateral areas; asperities sparse, minute to absent. Elytra 1.2 times as long as wide; striae moderately impressed, punctures rather small, shallow, distinct; interstriae distinctly convex, shining, punctures dense, rather fine, bristle-bearing punctures feebly tuber-

culate on declivity. Declivity beginning at middle of elytra length; convex, rather steep; interstriae narrower than on disc, punctures strongly confused. Vestiture of ground cover of short, obscure scales and erect, slender bristles, each bristle half (laterally) to three-fourths (mesally) as long as distance between rows.

Distribution: Bolivia: Cachueta Esperanza, Beni [Beni River below Riberalta].

Notes: The above treatment was based on 1 female paratype.

Pseudochramesus opacus Schedl

Pseudochramesus opacus Schedl, 1963:216. Syntypes ♂; Rio Caraguata, Mato Grosso, Brazil; NHMW, Wien and Plaumann Collections (References in Wood & Bright c1992:262)

Diagnosis: Interstitial ground scales black; erect bristles in central interstitial rows short; pronotum rather strongly reticulate.

Male: Length 1.7 mm, 1.5 times as long as wide; color black. Frons shallowly impressed on lower half, more strongly above; surface reticulate, vestiture sparse; antennal insertions displaced dorsad (almost to upper level of eyes) and mesad, separated above by half width at epistoma; a rather strong, glabrous groove between margin of frons and margin of eye (wide above, narrow below). Pronotum 0.75 times as long as wide; surface strongly reticulate, punctures small, shallow, most setiferous punctures associated with a fine granule, moderately close; vestiture rather coarse, short, moderately abundant. Elytra 1.2 times as long as wide; about as in *manni* Blackman except interstitial punctures distinctly smaller, erect interstitial bristles all short, each less than half as long as distance between rows.

Distribution: Brazil: Mato Grosso, Rio Caraguata, 2-III-1953, F. Plaumann.

Notes: The above treatment was based on 1 male paratype of *opacus* Blackman. Bright & Skidmore (1997:59) record the host as *Apuleia molaris*, these specimens were not seen by me.

GENUS *CHRAMESUS* LeCONTE

Chramesus LeConte, 1868:168. Type-species: *Chramesus hickoriae* LeConte, monobasic (Synonymy and references in Wood & Bright c1992:262–270)

Rhopalopleurus Chapuis, 1869:146. Type-species: *Rhopalopleurus tuberculatus* Chapuis, subsequent designation by Hopkins 1914:128

Thaumasinus Reitter, 1913:39. Type-species: *Dendrosinus bonnairei* Reitter = *Rhopalopleurus rotundatus* Chapuis, monobasic

Prochramesus Wood, 1956:254. Type-species: *Prochramesus annectans* Wood, original designation

Diagnosis: Antennal club strongly asymmetrical and unmarked by sutures; antennal funicle 5-segmented; eye entire; procoxae widely separated.

Description: Male frons weakly to strongly concave, female convex; antennal funicle 5-segmented, club strongly flattened, strongly asymmetrical, unmarked by sutures or rows of setae; eye elongate, entire. Procoxae

widely separated; pronotum smooth to reticulate, with fine to moderately coarse punctures, anterior areas unarmed to finely to moderately asperate, more finely asperate in male. Scutellum present, minute. Crenulations on basal margins of elytra usually conspicuous; striae clearly indicated, impressed in some species, punctures coarse to fine or rarely obsolete; interstriae weakly convex, vestiture usually of confused ground cover of scales or hair, and rows of erect bristles; variegated pattern of pale and dark scales in some species.

Distribution: Wood & Bright (c1992:262–270) report 89 species from North and South America, 41 of which were from South America.

Biology: Except for 1 bigynous species in Mexico (*incomptus* Wood), the species are monogynous and

mostly phloeophagous. One myelophagous (*quadridens* Wood) and 3 xylophagous species occur in Mexico. The female forms the entrance tunnel and turning niche. The 1 (rarely 2) egg gallery formed by the female may be longitudinal, oblique, or transverse. It is usually in the cambium area. Eggs are deposited in individual niches packed in frass. Larval mines radiate from the parent tunnel without crossing one another. Initially they are mostly in the phloem but engrave the wood rather deeply as they mature. Most species breed in stems less than 5 cm in diameter, although one was taken from a tree bole 20–30 cm in diameter. Several species breed in lianas where, occasionally, the entire stem beneath the bark may be consumed.

Key to the Species of *Chramesus*

- 1. Male frons broadly, rather deeply concave, its lateral margins variously acute to well above level of antennal insertion, often with multiple subtuberculate elevations at or above level of antennal insertions; most species with scales, never with spines 2
- Male frons broadly, shallowly to rather deeply concave, its lateral margins armed at or below (one exception has declivital spines) level of antennal insertion by only 1, pointed denticle (displaced slightly mesad in 1 species; poorly formed in one species); either interstitial setae hairlike or declivity armed by spines in most species 30
- 2(1). Lateral margin of male frons variously sculptured, from a simple crest to a low, subquadrate elevation or (3 species) a double tubercle on lower third (to slightly above level of antennal insertion) 3
- Lateral margins of male frons acutely elevated above level of antennal insertion to one-third to two-thirds of distance to upper level of eyes, its crest (usually) beaded by 5 or more indentations (obscure in some *phloeotriboides*) 19
- 3(2). Lateral margin of male frons a simple crest with no denticles or distinctly quadrate elevations at level of antennal insertion 4
- Lateral margin of male frons armed at level of antennal insertion by either 2 pair of small denticles or a (usually) low, subquadrate elevation 10
- 4(3). Epistomal margin on male marked by an obtuse crest; body slender, 2.1 times as long as wide, color dark brown to black; strial punctures obscure, almost obsolete; interstitial ground setae and erect setae slender, hairlike; Venezuela; native bamboo; 2.0–2.5 mm *simplicis* Wood
- Smaller species; body stouter, 1.8 times as long as wide, color pale brown; strial punctures rather strongly impressed, normal; interstitial ground setae and erect bristles short, strongly flattened 5
- 5(4). Male frons with a small denticle on lateral margin at level of antennal insertions; interstitial ground setae on declivity little longer than wide, erect setae three times as long as ground setae, each six times as long as wide, their length equal to half distance between rows; Costa Rica to Venezuela; *Acacia*; 1.5–1.8 mm *acacicolens* Wood
- Lateral margin of male frons unarmed; erect interstitial setae much shorter, each less than four times as long as wide 6
- 6(5). Male frons with epistomal margin subacutely to acutely elevated on median third; interstitial setae in ground cover slender, each seta at least twice as long as wide 7

- Male frons with epistomal margin rounded, not elevated; interstitial setae in ground cover stout, each about as long as wide 9
- 7(6). Male frons shallowly concave; discal striae not impressed, interstitial tubercles minute to obsolete; eyes greatly enlarged, narrowly separated above by less than width of an eye; body 2.1 times as long as wide; Brazil (Santa Catarina); 1.4–1.5 mm **neglectus** Schedl
- Male frons rather deeply, broadly concave; discal striae distinctly, abruptly impressed, interstitial tubercles acute, distinct, in regular rows; eyes normal for this genus, separated above by at least twice width of an eye; body 1.8 times as long as wide 8
- 8(7). Male frons less deeply, less extensively excavated, not attaining margin of eyes, epistoma subacute, not elevated; pronotum reticulate; ground vestiture on pronotum and elytra slender, less abundant, each seta at least four times as long as wide; Costa Rica to Venezuela; *Bauhinia* liana; 1.3–1.4 mm **denticulatus** Wood
- Male frons more deeply, more extensively excavated, impression reaching inner margin of eye, epistomal margin strongly, acutely elevated; pronotum surface smooth, shining; ground vestiture on pronotum and elytra scalelike, each seta about as wide as long; Brazil (Mato Grosso); 1.3 mm **minor** Eggers
- 9(6). Interstitial ground setae distinctly larger, about half as long as erect setae; setae on anterior margin of pronotum much longer and more slender than on disc; Brazil; 1.4–1.6 mm **asperulus** Schedl
- Interstitial ground setae smaller, shorter, erect setae much more slender but only slightly longer than ground setae; setae on anterior margin of pronotum short, as on disc; Mexico (Oaxaca) to Honduras; Leguminosae sp.; 1.2–1.3 mm **minulus** Wood
- 10(3). Elevation on lateral margin of male frons restricted to one area on lower half 11
- Elevation on lateral margin of male frons divided into a blunt, subquadrate tubercle below level of antennal insertion and a conspicuous, acute longitudinal carina on upper third to just below upper level of eye (see also *striatus* Eggers) 18
- 11(10). Predominant area of elevation on lateral margin of male frons at and below level of antennal insertion 12
- Predominant area of elevation on lateral margin of male frons at and above level of antennal insertion 16
- 12(11). Lateral margins of male frons armed by 2 pair of tubercles at level of antennal insertion; pronotum dull, reticulate only on anterior third; interstitial ground cover of minute scales, each scale as wide as long, less than one-fourth as long as an erect seta; Mexico (Jalisco) to Panama; *Canavalia*, *Phaseolus*; 1.4–2.0 mm **pumilus** (Chapuis)
- Lateral margin of male frons armed by an obscure, subquadrate denticle at and below level of antennal insertion; interstitial ground setae larger, at least one-third as long as erect setae 13
- 13(12). Male frons very shallowly impressed on median half, ending well below upper level of eyes; interstitial ground setae more slender (but rather coarse), mostly six or more times as long as wide, erect setae shorter than in *aspericollis*, each seta equal in length to less than half distance between rows; pronotum mostly smooth, shining, anterior area with limited reticulation; Brazil; 1.4–1.7 mm **aberrans** Schedl
- Male frons rather strongly, broadly concave; interstitial ground setae stout, only slightly longer than wide, erect setae longer, each about two-thirds as long as distance between rows; pronotum strongly reticulate throughout, rather dull 14

- 14(13). Strial punctures on disc extremely minute to obsolete; interstriae five times as wide as striae; impression on male frons extending slightly above upper level of eyes; Argentina; 1.8 mm *ovalis* Schedl
- Strial punctures on disc rather small, impressed to obsolete, interstriae about two to five times as wide as striae; impression on male frons ending slightly below upper level of eyes 15
- 15(14). Disc of pronotum rugose-reticulate; discal striae distinctly impressed, most strial punctures impressed (few obsolete); interstriae three to five times as wide as striae, distinctly convex; ground setae on disc more numerous, each about two to four times as long as wide; Argentina to Brazil (Santa Catarina); 1.5–1.8 mm *aspericollis* Schedl
- Disc of pronotum weakly reticulate; discal striae not impressed, strial punctures mostly near base, minute to obsolete behind, interstriae about five times as wide as striae; discal setae on interstriae more slender, ground setae mostly four to six times as long as wide; Brazil (Santa Catarina); 1.9 mm *setiger* Schedl
- 16(10). Elevation on lateral margin of male frons with its summit rounded, male epistomal margin armed by an acutely elevated carina on median two-thirds; interstitial ground setae absent; Venezuela; *Phoradendron*; 2.2–2.4 mm *priscus* Wood
- Elevation on lateral margin of male frons acute; male epistomal margin not armed by a transverse carina; interstitial ground scales present 17
- 17(16). Strial punctures clearly, regularly, closely impressed; setae on upper half of male frons much finer; asperities on lateral areas of pronotum smaller, less numerous; Venezuela; “Bejuco trinitaria”; 1.6–1.9 mm *orinocensis* Wood
- Strial punctures minute to obsolete, widely spaced; setae on upper half of male frons rather coarse; asperities on lateral areas of pronotum distinctly larger, more numerous; Venezuela; unidentified liana; 1.9–2.1 mm *vinealis* Wood
- 18(10). Lateral margin of male frons with elevation below level of antennal insertion and with crest slightly elevated, narrowly rounded; interstitial setae without low ground cover; Venezuela; *Brownia*; 1.8–2.1 mm *impolitus* Wood
- Lateral margin of male frons with elevation below level of antennal insertion more acutely rounded, more nearly resembling a tubercle; scalelike interstitial ground setae present; Venezuela; “pelito del cruz” and tree seedling; 1.8–2.3 mm (see also *striatus* Eggers, no male for comparison) *imporcatus* Wood
- 19(2). Male antennal club more slender, 2.2 times (2.0 in *granulipennis*) as long as wide, scape ornamented by fewer than a dozen setae, mostly shorter, about half as long as scape; pronotum shining to weakly reticulate; larger species 20
- Male antennal club stouter, 2.0 times as long as wide, scape ornamented by a tuft of yellow hair of more than a dozen setae, most longer than scape; pronotum more strongly reticulate; smaller species 28a
- 20(19). Male frons deeply concave, its lateral margins above level of antennal insertions acutely elevated and marked on crest by about 16 beads from upper level of eyes two-thirds distance toward level of antennal insertion, an elevated, blunt tubercle on margin below level of antennal insertion; pronotum reticulate, dull; discal interstriae 1–5 armed by rows of large, rounded tubercles (each as high as wide), uniseriate on 1 and 3–5, biseriate on 2 anterior to declivity then uniseriate on declivity; Brazil (Parana); 2.1 mm *granulipennis* Schedl
- Male frons deeply concave, lateral margins with beaded crest at level of antennal insertions, extending dorsad part of distance toward upper level of eyes; interstriae with tubercles or crenulations smaller or transversely crenulate 21

SCOLYTIDAE OF SOUTH AMERICA

- 21(20). Crest of lateral margin of male frons feebly, irregularly subserrate; discal interstriae with ground setae absent (present and scalelike on declivity) or very slender, erect setae very slender, almost hairlike 22
- Crest of lateral margin of male frons closely, regularly beaded; discal interstriae with ground setae scalelike (very slender near base on 1 species) 25
- 22(21). Interstitial ground setae on disc and declivity of numerous rather broad scales (each about four times as long as wide at base, as long as wide on declivity); crest on lateral margin of male frons obscurely serrate, subdentately terminating abruptly at its dorsal end; Peru; 3.2 mm *peruanus* Schedl
- Interstitial ground vestiture either absent or very slender; lateral crest on male frons terminating gradually above 23
- 23(22). Interstitial ground setae on disc forming a single row on each side of an interstriae, each seta as slender as those in central row, slightly shorter on declivity, each about four times as long as wide; surface of pronotum rather strongly reticulate, asperities not evident; Argentina; 1.7–1.8 mm *advena* Schedl
- Interstitial ground setae on disc essentially absent; declivity with short, scalelike ground setae, each about twice as long as wide 24
- 24(23). Pronotum weakly reticulate, mostly shining, punctures on disc clearly impressed, without any indication of tubercles, anterior and lateral areas with sparse, minute tubercles; discal striae weakly impressed, interstitial tubercles small, confused, erect interstitial setae on margins near base of declivity longer, much coarser; Argentina; 2.3 mm *phloeotriboides* Schedl
- Pronotum strongly reticulate, dull, all punctures associated with or replaced by small, rounded tubercles; discal striae more strongly impressed; interstitial crenulations larger, mostly uniseriate; erect setae on sides near declivity much finer, shorter; Bolivia (Cochabamba); 2.8 mm *granulatus* (Eggers)
- 25(21). Male discal interstriae armed by conspicuous tubercles at base of each erect seta (in central row); surface of pronotum disc reticulate, punctures smaller, not close 26
- Male discal interstriae without a tubercle at base of each erect seta; disc of pronotum shining 27
- 26(25). Male declivital interstriae with ground scales on 4 confused, erect setae present on lower half; Colombia; 1.7 mm *luteus* Wood
- Male declivital interstriae with ground scales on 4 uniseriate, erect setae absent on at least lower half; Venezuela (Merida); tree seedlings; 1.9–2.3 mm *strigilis* Wood
- 27(25). Interstitial ground setae pale, rather sparse and slender on disc, each six or more times as long as wide, scalelike on declivity; discal punctures on pronotum very small, shallow, moderately close; Argentina; 2.0 mm *argentinae* Wood
- Interstitial ground setae forming a variegated pattern of about 50 percent pale and 50 percent dark scales, each scale only slightly longer than wide; punctures on pronotum disc larger, deeper, closer; Argentina to Uruguay; unidentified wood; 2.0–2.2 mm *globosus* Hagedorn
- 28a(19). Male frons shallowly, broadly impressed, feebly if at all concave, impression ending well below upper level of eyes, crest of lateral margin ornamented by about 7 “beads”; male striae much more deeply impressed, punctures almost obsolete; erect interstitial bristles present on declivital interstriae 2 28b
- Male frons deeply concave to upper level of eyes, lateral margin more strongly, acutely elevated, beaded design obscure, more irregularly, finely subserrate 29

PHLOEOSININI

- 28b(28a). Male frons less strongly impressed, lateral margins more weakly elevated; tuft of setae on male scape greatly reduced; setae on pronotum and elytra longer, apparently more abundant; erect interstitial setae on disc two-thirds as long as distance between rows, slender ground setae two-thirds as long as slender erect setae; Bolivia; at light; 2.1 mm *bolivianus* Schedl
- Male frons moderately impressed, lateral margins more strongly, acutely elevated; tuft of setae on male scape prominent; setae on pronotum and elytra shorter; erect interstitial setae not more than half as long as distance between rows, stout (almost scalelike) ground setae about one-third as long as stouter erect setae; strial punctures very close, almost obsolete in some places; Venezuela; liana; 1.4–1.6 mm *solicitatus* Wood
- 29(28a). Pronotum reticulate, without crenulations on anterior slope, punctures uniformly very small; erect interstitial setae about half as long as distance between rows; Brazil (Mato Grosso); 1.6 mm *brasiliensis* Nunberg
- Pronotum reticulate, anterior two-thirds of pronotum armed by numerous subcrenulate tubercles, shallow punctures on disc larger; erect interstitial setae more widely spaced within a row, each about as long as distance between rows, except absent on declivital interstriae 2; Venezuela; liana; 1.3–1.4 mm *peniculus* Wood
- 30(1). Male elytral declivity either unarmed by spines or largest spines on interstriae 3, smaller spines sometimes on 4 (and 5 in one species) 31
- Interstriae 2 on male elytral declivity armed by several coarse spines, smaller spines in female (and sometimes on interstriae 3, etc.) 39
- 31(30). Elytral setae almost scalelike, short interstitial ground cover abundant, subplumose, erect setae stout; tubercle on lateral area of male frons near antennal insertion displaced slightly mesad from lateral margin at level slightly above level of antennal insertions; Brazil; 1.2–1.3 mm *badius* Schedl
- Elytral setae slender, of fine or coarse hair (ground setae sometimes scalelike); tubercle in lateral area of male frons on crest of elevation at level of antennal insertion (very weak in *tuberculatus*) 32
- 32(31). Elytral setae all in uniseriate rows, each an erect, blunt bristle about two-thirds as long as distance between rows; male frontal concavity moderately deep, ending below upper level of eyes, tubercle on lateral margin at antennal insertion rather small; Venezuela; *Tabebuia*; 1.3–1.4 mm *parcus* Wood
- Elytral setae of fine, often semirecumbent hair; male frons concave to above upper level of eyes, a tubercle at or below level of antennal insertion 33
- 33(32). Male frons rather shallowly concave to upper level of eyes, lateral margins rather broadly rounded above level of antennal insertions, slightly elevated below level of antennal insertions into a blunt, obscure tubercle; most declivital setae in uniseriate rows; eyes normal, not enlarged; Argentina; 1.7 mm *cylindricus* Schedl
- Male frons deeply concave to upper level of eyes or above, with a conspicuous spine at level of antennal insertions; most declivital setae confused; larger species 34
- 34(33). Lateral margin of male frons at or below level of antennal insertion with a very large denticle; frons deeply, broadly concave from epistoma to well above eyes; elytral declivity never armed by spines 35
- Tubercle at lateral margin of male frons either below level of antennal insertion or small almost absent; elytral declivity with spines or tubercles in both sexes 36
- 35(34). Striae and strial punctures clearly impressed on disc and declivity; declivity with setae fine, short, much more abundant; Venezuela; native bamboo; 2.2–2.5 mm *macrocornis* Wood

- Striae and stria punctures very weakly impressed on disc and declivity; eyes moderately enlarged; declivital setae much less abundant, slightly coarser; Brazil (Santa Catarina); native bamboo (?); 2.6–2.7 mm (male not seen) *hylurgoides* Schedl
- 36(34). Male frons rather narrowly, rather deeply concave from epistoma to well above upper level of eyes, spine at level of antennal insertion apparently almost absent; declivital interstriae 3 armed by one very large, curved spine near middle of declivity; interstitial ground setae scalelike; Colombia; *Passiflora mollissima*; 1.9–2.1 mm *bispinus* Wood
- Male frons shallowly, broadly impressed from epistoma to not more than slightly above upper level of eyes, tubercle at lateral margin small, below level of antennal insertion; declivital interstriae 3 armed by three or more small to moderately large spines in male, by small tubercles in female; all elytral setae hairlike 37
- 37(36). Male frons with lateral margins above level of antennal insertions rounded, concavity rather shallow on its upper half; male elytral declivity steeper, slightly narrower, interstriae 3 armed by three to five small to moderately large spines, by small tubercles in female; ground setae on elytra of fine hair; Ecuador; flower stalk of Bromeliaceae; 1.9–2.0 mm *dentellus* Wood
- Male frons more strongly impressed above to upper level of eyes, lateral margins subacute from level of antennal insertion about two-thirds distance to upper level of eyes; male declivity moderately steep, more strongly, more broadly sulcate, interstriae 3 armed by six to nine denticles (smaller denticles in lateral areas), female not seen 38
- 38(37). Male declivity with denticles on interstriae 3 rather small, subacutely pointed, not higher than basal width of spine, those on 4 and 5 slightly smaller, absent on 6 to 9; discal interstriae about three times as wide as striae; frons mostly shining, punctures distinct, more numerous; Colombia; 3.5 mm *subtuberculatus* Eggers
- Male declivity with denticles on interstriae conspicuously larger (especially below), smaller denticles on 4 to 9; discal interstriae about one and one-half times as wide as striae; frons more strongly reticulate, punctures sparse, obscure; Colombia; 2.3–2.6 mm *tuberculatus* (Chapuis)
- 39(30). Declivital interstriae 1 unarmed in by spines in male, 2 armed by a row of very large, pointed spines, 3 and 4 similarly armed but spines half as large as those on 2, these spines also present in female but half as large; lateral margin of male frons armed by a large spine slightly above level of antennal insertions; Brazil (Santa Catarina); 2.4–2.5 mm *erinaceus* Schedl
- Declivital interstriae 1 unarmed in male by spines, 2 armed by a row of very large, pointed spines, 3 unarmed by tubercles, 4 armed by a row of spines each half as large as those on 2; lateral margin of male frons armed by a small tubercle at level of antennal insertion 40
- 40(39). Male declivital interstriae 2 armed by a row of eight or nine very large, basally separate, sharply pointed spines, each spine about equal in length to width of an interstriae, 4 and 6 armed by rows of smaller spines; Argentina to Brazil (Santa Catarina); 1.8–2.2 mm *spinosus* Brethes
- Declivital interstriae 2 armed by a row of fourteen to fifteen very large, basally contiguous, obtusely pointed spines; 3 and 5–7 unarmed, 4 with about five pointed denticles at its apex; Brazil (Santa Catarina); 2.3–2.5 mm *phloeosinites* Schedl

Chramesus variegatus Eggers

Chramesus variegatus Eggers, 1943:345. Holotype ♀; Cochabamba, Bolivia; NHMW, Wien (References in Wood & Bright c1992:270)

Diagnosis: This species is not in the above key. It was named from a unique female. It is distinguished by the dark and pale variegated color pattern of setae on the

elytra. The very slender ground setae and erect setae of the elytra and the conspicuous constriction just behind the anterior margin of the pronotum suggest that it is very primitive. It cannot be correctly placed until the male is found.

Female: Length 3.0 mm, 1.9 times as long as wide; color very dark reddish brown; vestiture of a variegated

dark and pale pattern described below. Frons broadly convex, upper two-thirds rugose and rather roughly punctured and weakly tuberculate. Epistoma transversely impressed to level of antennal insertions; vestiture hairlike, short, sparse, except longer and more numerous on epistomal margin; antennal club largely concealed but clearly of *Chramesus* type. Pronotum 0.79 times as long as wide; widest at base, sides on basal half moderately arcuate and converging toward a conspicuous constriction just behind anterior margin; surface broadly convex, small asperities only in lateral areas, most of surface obscurely punctate-granulate; vestiture short, a mixture of slender hair and stouter, semirecumbent bristles of moderate abundance; color pattern not evident on type. Elytra 1.35 times as long as wide, 2.1 times as long as pronotum; disc occupying basal two-thirds; about 24 small, submarginal crenulations behind basal row; striae weakly impressed, punctures very strongly impressed; interstriae almost twice as wide as striae, rather finely, irregularly (confused) crenulate, and with numerous small punctures. Declivity broadly convex, very steep; striae and interstriae narrower than on declivity; striae punctures smaller, not as deep; interstitial crenulations obsolete on lower two-thirds. Vestiture of abundant ground setae, very slender on disc and half as long as erect setae, on declivity of short scales each as long as wide and a third as long as erect setae, erect setae mostly obscure on basal half, in indistinct rows behind, rather stout; a dark brown transverse band of setae on basal fourth of declivity, lower central declivity pale, basal half of disc dark brown, a pale transverse band anterior to base of declivity.

Distribution: Bolivia: Cochabamba [F. Woytkowski].

Notes: The above treatment was based on the female holotype from Bolivia.

Chramesus argentinensis Schedl

Chramesus argentinensis Schedl, 1952:456. Lectotype ♀; Isla Martin, Buenos Aires, Argentina; NHMW, Wien, present designation (References in Wood & Bright c1992:263)

Diagnosis: This species is not in the above key. Distinguishing features include the small size; the rugose-reticulate frons and pronotum; and the stout elytral ground setae with slender erect interstitial setae. A male is required for correct placement.

Female: Length 1.25 mm (holotype 1.25 mm, 1.4–1.5 mm in 2 doubtful females), 1.6 times as long as wide; color almost black, vestiture pale. Frons convex, a weak transverse impression at middle; upper half finely rugose-reticulate, apparently smoother and almost shining on lower half; punctures minute; upper half finely rugose-reticulate, apparently smoother and almost shining on lower half; punctures minute, obscure; vestiture sparse, hairlike. Pronotum 0.71 times as long as wide; surface rugose-reticulate; asperities on median third rather small, in lateral (subdorsal) areas asperities coarser, at least part of them forming transversely elongate rugae;

a few small punctures near base at median line; vestiture half of fine, slender, rather short hair; half of stout bristles (each about 10 times as long as wide); crenulations at anterolateral angles rather near margin. Elytra 0.95 times as long as wide, 1.4 times as long as pronotum; disc occupying less than basal half; base with about 7 submarginal crenulations behind basal row; striae weakly impressed, punctures rather large, deep; interstriae less than twice as wide as striae, surface smooth, shining, punctures minute, rather numerous, each with a central row of minute tubercles. Declivity broadly convex, steep; striae narrower than on disc, punctures smaller, poorly formed; interstriae about as wide as striae, tubercles apparently obsolete. Vestiture of ground cover of small, abundant scales, each scale slightly longer than wide, and rows of erect, slender bristles, each about three times as long as ground setae.

Distribution: Argentina: Isla Martin Garcia, Buenos Aires, IV-1938, M.J. Viana (type); Misiones, Dep. Concep., Sta Maria, V-1960, M.J. Viana.

Hosts: *Celtis spinosa* (Bright & Skidmore 2002:39).

Notes: The above treatment was prepared from the female "holotype" of Schedl, actually a syntype; other females (Misiones) in very poor condition were placed here, probably correctly, by Schedl. Because this species was clearly based on a syntypic series, I here designate Schedl's female syntype (his "holotype") as the lectotype of *Chramesus argentinensis* Schedl.

Chramesus corumbensis Eggers

Chramesus corumbensis Eggers, 1951:145. Holotype ♀; Corumba, Mato Grosso, Brazil; NHMW, Wien (References in Wood & Bright c1992:264)

Diagnosis: This species is not in above key. Distinguished by the small size; by the absence of tubercles and asperities on the pronotum; by the large stria punctures; and by the similarity of slender ground cover and erect setae on the interstriae. A male is required for proper placement.

Female: Length 1.4 mm, 1.8 times as long as wide; color very dark brown, vestiture pale. Frons convex above, somewhat flattened below, epistoma weakly elevated; surface reticulate, punctures small, obscure (not fully visible on type). Pronotum 0.72 times as long as wide; surface mostly reticulate; punctures rather small, shallow, moderately close, some punctures in lateral areas replaced by sparse, minute asperities; vestiture of moderately sparse, rather short, slender setae. Elytra 1.2 times as long as wide, 1.8 times as long as pronotum; about 6 submarginal crenulations behind basal row; striae not impressed, punctures large, deep; interstriae as wide as striae, surface smooth, shining, punctures at margins small, each interstriae with a central row of pointed tubercles (small at base, larger toward declivity). Declivity rather strongly convex, steep; striae and interstriae slightly narrower than on disc, interstitial tubercles on lower half distinctly smaller than at base. Vestiture of

ground cover of rather stout, almost hairlike setae, each two-thirds as long as erect setae and slightly shorter on declivity; erect setae in central rows on each interstriae equal in length to two-thirds distance between rows.

Distribution: Brazil: Corumba, Mato Grosso.

Notes: The above treatment was based on the female holotype from Brazil.

Chramesus simplicis Wood

Plate XXIII

Chramesus simplicis Wood, 1971:3. Holotype ♂; La Carbonera Experimental Forest 50 km NW Merida, Merida, Venezuela; USNM, Washington (References in Wood & Bright c1992:269)

Diagnosis: Body rather slender; striae punctures obscure to obsolete; elytral setae hairlike; lateral margin of male frons a simple crest, unmarked by special tubercles or beading.

Male: Length 2.0–2.5 mm, 2.1 times as long as wide; color almost black. Frons deeply, broadly concave from epistoma to upper level of eyes, surface reticulate, punctures sparse, minute; epistomal margin not sharply defined; lateral margin subacute on lower third, middle third with long, hairlike setae; antennal club 1.7 times as long as wide. Pronotum 0.84 times as long as wide; surface reticulate, dull; punctures replaced by small to medium-sized, rounded tubercles; vestiture of fine, moderately long, rather abundant hair. Scutellum rather large for this genus. Elytra 1.4 times as long as wide, 1.9 times as long as pronotum; striae not impressed, punctures very small, shallow (obscurely impressed in some specimens); interstriae almost flat, five times as wide as striae, subshining. Declivity restricted to posterior one-third, convex, steep; sculpture as on disc. Vestiture hairlike, central interstitial rows obscurely indicated only on declivity; setae varying from moderately long to long, rather abundant.

Female: Similar to male except frons weakly convex, almost flat on lower half, lateral margins not clearly marked; pronotal asperities slightly larger.

Distribution: Venezuela: La Carbonera Experimental Forest 50 km W Merida, Merida, 12-I-1970, 2500 m, native bamboo, SLW.

Biology: Parental tunnels occurred at nodes. Larvae were not present.

Notes: The above treatment was based on the type series of 35 specimens.

Chramesus acacicolens Wood

Chramesus acacicolens Wood, 1969:3. Holotype ♂; Finca La Pacifica, 4 km NW Canas, Guanacaste Prov., Costa Rica; USNM, Washington (References in Wood & Bright c1992:263)

Diagnosis: Distinguished from *denticulatus* Wood by the larger size; by the presence of a small denticle on the lateral margin of the frons in most males; and by the erect interstitial scales being three times as long as the ground setae.

Male: Length 1.5–1.8 mm, 1.6 times as long as wide; color brown. Frons broadly, moderately concave from epistoma to upper level of eyes, surface strongly reticulate, punctures minute, mostly obsolete; epistomal margin smooth, shining, feebly elevated; lateral margins on lower half acutely elevated, a minute denticle often present on crest at antennal insertion; glabrous except sparse, short setae at margins, eyes of normal size. Pronotum 0.75 times as long as wide; widest at base, sides strongly arcuate and converging on basal two-thirds then weakly constricted before rather narrowly rounded anterior margin; surface obscurely reticulate, rather dull; a few punctures on disc near base, anterior areas with moderately numerous, small to minute, rounded tubercles; vestiture of moderately slender scales each about 6 times as long as wide. Elytra 1.03 times as long as wide, 1.5 times as long as pronotum; 2 or 3 obscure submarginal crenulations behind marginal row; striae abruptly, rather shallowly impressed, punctures close, rather coarse; interstriae about twice as wide as striae, surface smooth, shining, with numerous minute punctures, central row of each interstriae armed by a row of small, usually pointed tubercles. Declivity broadly convex, very steep; sculpture almost as on disc except striae and interstriae narrower, interstitial tubercles smaller, some often obsolete. Vestiture of abundant, short interstitial ground scales, each scale slightly longer than wide and each with a central row of erect scales, each erect scale three times as long as ground setae and six times as long as wide, and equal in length to slightly more than half distance between rows.

Female: Similar to male except frons convex, lateral margins not elevated.

Distribution: Costa Rica to Venezuela.

Venezuela: 40 km E Canton, Barinas, 8-III-1970, 70 m, No. 872, Mimosaceae sp., SLW.

Biology: Removed from phloem tunnels in broken twigs less than 2 cm in diameter.

Notes: The above treatment was based on the type series of 82 specimens from Costa Rica and on 21 specimens from Venezuela.

Chramesus neglectus Schedl

Chramesus neglectus Schedl, 1978:296. Holotype ♀; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:267)

Diagnosis: Distinguished from *denticulatus* Wood by the larger size; by the stouter body; by the greatly enlarged eyes; by the discal striae not being impressed; and by other characters described below. This species is not closely related to others in this species group.

Male: Length 1.4–1.5 mm, 2.1 times as long as wide; color yellowish brown. Frons broadly, shallowly concave from epistoma to slightly below upper level of eyes, epistomal margins shining, weakly elevated, surface subreticulate to obscurely granulate, punctures minute, obscure, vestiture of moderately long, rather

abundant hair; eyes very coarsely faceted, greatly enlarged, separated both above and below by half width of an eye. Pronotum 0.75 times as long as wide; surface strongly reticulate, punctures moderately abundant, small, rather obscure, a few replaced by minute, rounded granules; vestiture moderately numerous, rather short, half of slender recumbent hair, half of stout, almost scalelike setae. Elytra 1.5 times as long as wide, 2.0 times as long as pronotum; bases with about five minute submarginal crenulations; disc occupying basal two-thirds of elytral length; striae not impressed, punctures rather small, moderately impressed; interstriae twice as wide as striae, smooth, shining, punctures sparse, minute, each with a central row of very small, rounded tubercles. Declivity strongly convex, steep; declivital interstriae as wide as striae, sculpture about as on disc. Vestiture of minute strial hair, of sparse, slender ground setae on posterior half, and of a central row of erect, slender scales on each interstriae (each ground scale two-thirds as long as erect setae), each erect seta on declivity about six times as long as wide, more slender on anterior half.

Female: Similar to male except frons convex, reticulate; eyes separated above by width of an eye, facets smaller; asperities on lateral areas of pronotum much larger, more numerous.

Distribution: Brazil: Nova Teutonia [Santa Catarina], IX-1972, 300–500 m, F. Plaumann.

Notes: The above treatment was based on a male “type” (1.5 mm) and a female “type” (1.8 mm) in the Schedl Collection; however, in the original description a “holotypus (das grossere Exemplar)” and a “paratypus” are designated. The larger female, therefore, is here recognized as the holotype and the male is designated as the allotype of *neglectus* Schedl.

Chramesus denticulatus Wood

Chramesus denticulatus Wood, 1971:6. Holotype ♂; 20 km SW El Vigia, Merida, Venezuela; USNM, Washington (References in Wood & Bright c1992:265)

Diagnosis: Lateral margin of male frons subacute, unarmed by a tubercle or special sculpture; male epistomal margin acutely elevated on at least median one-fourth.

Male: Length 1.3–1.4 mm, 1.6 times as long as wide; color yellowish brown, setae pale. Frons broadly concave on a subcircular pattern from epistoma to upper level of eyes, surface reticulate, with a few fine granules near upper margins; lateral margins subacutely elevated on lower third, unarmed by special sculpture; vestiture sparse, short, longer on lateral margins; epistomal margin acutely elevated on at least median one-fourth. Pronotum 0.80 times as long as wide; surface reticulate, tubercles small, mostly rounded. Scutellum very small. Elytra 1.16 times as long as wide, 1.5 times as long as pronotum; striae slightly impressed, punctures distinct;

interstriae twice as wide as striae, almost shining, with abundant, minute, confused punctures and a central row of tubercles, tubercles near and on declivity distinctly larger. Declivity on posterior half, convex, steep; striae deeper and interstriae narrower than on disc. Vestiture of ground cover of short, rather abundant, slender (not hairlike) setae and central rows of erect scales, each scale about three times as long as wide, about one-third as long as distance between rows, about half as long as distance between scales within a row.

Female: Similar to male except frons convex, epistomal elevation less strongly developed; tubercles on pronotum slightly larger.

Distribution: Costa Rica to Venezuela: 20 km SW El Vigia, Merida, 21-XI-1969, 50 m, *Bauhinia* liana, SLW.

Biology: The specimens were just entering a cut stem 2 cm in diameter. The galleries were not fully developed.

Notes: The above treatment was based on the holotype, allotype, and 1 male paratype and 2 female paratypes.

Chramesus minor Eggers

Chramesus minor Eggers, 1951:144. Lectotype ♂; Corumba, Mato Grosso, Brazil; USNM, Washington, designated by Anderson & Anderson 1971:20 (References in Wood & Bright c1992:267)

Diagnosis: Distinguished from *denticulatus* Wood by the less extensive impression on the male frons, with the epistoma not elevated; by the smooth, shining pronotum; and by the strongly flattened ground scales on pronotum and elytra.

Male: Length 1.3 mm, 2.0 times as long as wide; color yellowish brown, scales pale. Frons moderately concave from epistoma to upper level of eyes, impression not reaching margin of eyes; epistomal margin subacute, not elevated; surface smooth, shining below, subreticulate above, punctures small, shallow, not close, vestiture sparse, rather short, coarse. Pronotum 0.80 times as long as wide; anterior half armed by small asperities, including about 8 on anterior margin; surface smooth, shining, punctures small, shallow, rather abundant; vestiture of small, abundant scales, each about as wide as long. Elytra 1.4 times as long as wide, 1.9 times as long as pronotum; bases of interstriae 1–4 armed by a total of four submarginal crenulations; striae not impressed, punctures moderately coarse, deep; interstriae about one and one-half times as wide as striae, smooth, shining, punctures small, numerous, each with a row of small tubercles bearing erect setae. Declivity convex, steep; striae and interstriae slightly narrower than on disc. Vestiture of abundant, short scales, each as wide as long, and erect bristles almost twice as long as scales, each about 6–8 times as long as wide.

Distribution: Brazil: Corumba in Mato Grosso.

Notes: The above treatment was based on the male lectotype.

Chramesus asperulus Schedl

Chramesus asperulus Schedl, 1978:294. Holotype ♀; Encruzilhada, Bahia, Brazil, 980 m; NHMW, Wien (References in Wood & Bright c1992:263–264)

Diagnosis: Distinguished from *minulus* Wood by the smaller size; by the larger interstitial ground scales, the erect setae much longer than the ground setae; and by the longer, more slender setae on the anterior margin of the pronotum.

Male: Not seen. The male “type” of Schedl is actually a female.

Female: Length 1.4–1.6 mm, 1.9 times as long as wide; color brown. Frons essentially convex, with central half almost smooth, subreticulate; vestiture short, stout, rather numerous. Pronotum 0.70 times as long as wide; widest at base, sides weakly arcuate and converging on basal two-thirds to broadly rounded anterior margin; surface shining, punctures small, shallow, moderately abundant, almost a third of them replaced by small, rounded tubercles; vestiture of small, rather numerous scales uniformly distributed, each scale about 3–6 times as long as wide. Elytra 1.3 times as long as wide, 1.9 times as long as pronotum; about 7 submarginal crenulations behind marginal row; disc occupying slightly more than basal half; striae weakly impressed, punctures small, distinct; interstriae twice as wide as striae, surface shining, with numerous setiferous, minute punctures, each with a central row of pointed tubercles regularly spaced, each interstriae with a central row of erect scales, each scale twice as long as ground setae, about four times as long as wide, length of erect setae equal to almost half distance between rows.

Distribution: Brazil: Encruzilhada, Bahia, XI-1972, 980 m, M. Alvarenga (female type); M. Gerais, Pedra Azul, XI-1972, 700 m, Seabra & Olivera (“male type”).

Notes: The above treatment was based on the female holotype (labeled female type) and a female paratype that had been incorrectly labeled by Schedl as the “male type.”

Chramesus pumilus (Chapuis)

Chramesus pumilus (Chapuis), 1869:47 (*Rhopalopleurus*). Holotype ♂; Teapa, Tabasco, Mexico; IRSNB, Brussels (Synonymy and references in Wood & Bright c1992:268)

Chramesus tumidulus Blandford, 1897:170. Lectotype ♀; Las Mercedes, Guatemala; BMNH, London, designated by Wood 1972:143 (Synonymy and references in Wood & Bright c1992:268)

Chramesus panamensis Blackman, 1943:391. Holotype ♀; Canal Zone, Panama; USNM, Washington

Chramesus mexicanus Schedl, 1948:264. Holotype ♀; Comitán, Chiapas, Mexico; NHMW, Wien

Diagnosis: Distinguished by the presence of 2 pair of tubercles on lateral margin of male frons at level of antennal insertion; and by the hosts.

Male: Length 1.4–2.0 mm, 1.7 times as long as wide; color dark brown to almost black, vestiture pale. Frons broadly, moderately concave from epistoma to slightly

below upper level of eyes; surface reticulate, rather sparse, minute shining specks indicate obsolete punctures; vestiture sparse, fine, inconspicuous; lateral margins subacutely elevated on lower half, armed on crest by 2 pair of small tubercles (not clearly formed in some specimens); antennal club 2.1 times as long as wide. Pronotum 0.72 times as long as wide; surface reticulate, dull, rather coarsely asperate over most of surface, a few simple punctures concentrated on posteromedian area of disc, and a few scattered between asperities elsewhere; vestiture of stout almost scalelike pale bristles. Scutellum very small. Elytra 1.02 times as long as wide, 1.5 times as long as pronotum; striae distinctly impressed, punctures rather small, distinct; interstriae slightly more than twice as wide as striae, smooth, shining, with minute, confused, setiferous punctures, each interstriae with a central row of rather coarse tubercles from base to apex. Declivity commencing near middle of elytra, convex, steep; sculpture similar to disc except interstriae narrower, tubercles smaller. Vestiture of ground cover of small scales, each scale 1–2 times as long as wide, and central row of erect bristles (each bristle about 8 times as long as wide), each about half as long as distance between rows, spaced within a row by about 1.5 times length of a bristle.

Female: Similar to male except frons concave above, flattened on lower two-thirds, lateral margins rounded, lateral asperities on pronotum larger.

Distribution: Mexico (Jalisco) to Panama (Canal Zone), probably in South America (at least Colombia).

Hosts: *Canavalia*, *Phaseolus*, and “wild beans.”

Biology: Parent adults bore a diagonal tunnel in the main stem of wild, climbing beans, larvae then bore up and down the stem.

Notes: The above treatment was based on several hundred specimens from Mexico and Central America (south to the Canal Zone) some of which I compared directly to the holotype. Specimens have not yet been reported from South America, although several species of *Canavalia* occur there.

Chramesus aberrans Schedl

Plate XX

Chramesus aberrans Schedl, 1951:90. Lectotype ♂; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien, present designation (References in Wood & Bright c1992:263)

Diagnosis: A small species allied to *aspericollis* Schedl but distinguished by the more shining, less reticulate pronotum; by the more slender elytral setae; and by the much more shallowly impressed male frons.

Male: Length 1.3–1.4 mm, 1.7 times as long as wide; color very dark brown, vestiture pale. Frons shallowly concave on median half of area above level of antennal insertions and ending distinctly below upper level of eyes, this area obscurely reticulate; lower half almost flat, weakly rugose-reticulate; lateral margins weakly elevated, a minute, obscure tubercle at level of antennal

insertion; vestiture of sparse, short, fine hair. Pronotum 0.70 times as long as wide; widest at base, sides strongly, arcuately converging toward broadly rounded anterior margin; surface weakly reticulate, basal fourth on median fourth rather finely, closely punctured, punctures replaced elsewhere by numerous low tubercles or small subasperate crenulations; vestiture short, moderately abundant, of 2 kinds, part small, slender, fine hair, most of stout, semirecumbent bristles. Elytra 0.95 times as long as wide, 1.4 times as long as pronotum; basal area with about 5 submarginal crenulations behind basal row; striae abruptly, weakly impressed, punctures large, deep, interstriae slightly wider than striae, weakly convex, almost smooth, punctures minute, each with a central, uniseriate row of rather closely spaced, subacute tubercles. Declivity broadly convex, steep; striae and interstriae narrower than on disc, striae punctures half as large; interstitial tubercles much smaller than on disc. Vestiture of rather abundant ground setae, each rather slender and half as long as erect setae; erect setae rather stout, half as long as distance between rows.

Female: Similar to male except frons convex, with a large central fovea, sculpture subrugose; fine, short setae mostly on lower half of frons.

Distribution: Brazil: Ilheus, Cepec, Bahia, II-III-1981, blacklight, Kaston; Nova Teutonia, Santa Catarina, VIII-1941, F. Plaumann.

Biology: Attracted to ultraviolet light.

Notes: The above treatment was based on a large, syntypic series. Schedl (1979:8) subsequently cited a holotype and an allotype for this species that are invalid under the Code of Nomenclature. That male is here designated as the lectotype of *Chramesus aberrans* Schedl and the female as the lectoallotype. Nine other specimens from Brazil were also examined. The illustration published by Schedl (1951:90) is not an accurate rendition of this species.

Chramesus ovalis Schedl

Chramesus ovalis Schedl, 1952:454. Lectotype ♀; Loreto, Misiones, Argentina; NHMW, Wien, present designation (References in Wood & Bright c1992:267)

Diagnosis: Distinguished from *aspericollis* Schedl by having the concavity of the male frons extending distinctly above the upper level of the eyes; by the minute to obsolete striae punctures; by the discal interstriae being about five times as wide as the striae; and by the slightly stouter erect interstitial setae.

Male: Length 1.8 mm, body 1.7 times as long as wide; color very dark brown, vestiture pale. Frons as in *aspericollis* except concave area extending slightly above upper level of eyes. Pronotum essentially as in *aspericollis*. Elytra very similar to *aspericollis* except striae weakly impressed, smooth, shining, striae punctures minute to obsolete, about one-fourth as wide as striae groove; interstriae three to five or more times as wide as striae, interstitial ground scales very slightly

longer than wide, erect setae very slightly shorter than in *aspericollis*.

Female: Similar to male except frons very broadly convex and lateral margins not elevated, a weak transverse impression distinctly above level of antennal insertions, almost flat and rugose-reticulate above impression to upper level of eyes (more narrowly convex and much less rugose-reticulate in *aspericollis* female); more strongly asperate in lateral areas of pronotum; striae punctures on disc and declivity rather large, impressed, interstriae about twice as wide as striae (similar to *aspericollis*).

Distribution: Argentina to Brazil.

Argentina: Loreto, Misiones, A.A. Ogloblin.

Brazil: Nova Teutonia, Santa Catarina, 1952, F. Plaumann.

Notes: The above treatment was based on the female "holotype" and the male "allotype" of Schedl and on another male and female from Brazil that were identified by Schedl. Type locality data and type designations were not given in the original description of this species. A female "holotype" and male "allotype" were designated for this species by Schedl (1979:181). However, Schedl overlooked the fact that under the International Code on Zoological Nomenclature, a holotype can be designated only in the original publication of a newly established species. For that reason, his "holotype" and "allotype" designations are invalid. I here designate Schedl's male "allotype" as the lectotype of this species and his female "holotype" as the allotype for *Chramesus ovalis* Schedl. This reversal was made because the male, not the female, has the characters that most clearly distinguish this species (see above).

Chramesus aspericollis Schedl

Plate XXI

Chramesus aspericollis Schedl, 1938:23. Lectotype ♂; Isla Martin Garcia, Buenos Aires, Argentina; NHMW, Wien, present designation (References in Wood & Bright c1992:263)

Diagnosis: Male frons armed by a low, subquadrate elevation at level of antennal insertion; striae punctures minute; interstitial ground setae of small scales, each scale slightly longer than wide. Very similar to *ovalis* Schedl.

Male: Length 1.5–1.8 mm, 1.7 times as long as wide; color very dark brown, vestiture pale. Frons impressed from epistoma to slightly below upper level of eyes, upper one-third flattened, lower two-thirds rather strongly concave, surface reticulate; lateral margin on most of lower one-third acutely elevated, crest forming a low, subquadrate elevation at or just below level of antennal insertion; vestiture sparse, short, inconspicuous; antennal club 2.1 times as long as wide. Pronotum 0.80 as long as wide; surface reticulate, asperities rather small, except punctured at base on median one-fourth; vestiture of short, stout bristles. Scutellum very small, subcircular. Elytra 1.1 times as long as wide, 1.5 times

as long as pronotum; striae very slightly impressed, smooth, shining, punctures small; interstriae slightly more than twice as wide as striae, shining, with minute, confused, setiferous punctures, bristle-bearing punctures not granulate. Declivity confined to posterior half of elytra length, steep, broadly convex; striae and interstriae slightly narrower than on disc. Vestiture of ground cover of abundant scales, each scale slightly longer than wide, and erect bristles, each bristle at least twice as long as ground cover, stout, equal in length to less than half distance between rows, spaced within a row by 1.5 times length of a bristle.

Female: Similar to male except frons broadly convex, margins rounded; pronotal asperities distinctly larger; each bristle-bearing puncture on interstriae replaced by a small tubercle.

Distribution: Argentina to S Brazil.

Argentina: Loreto, Misiones, A.A. Ogloblin; Buenos Aires, Isla San Martin Garcia (male and female syntypes).

Brazil: Nova Teutonia, Santa Catarina, XI-1956, 300–500 m, F. Plaumann (Schedl series).

Hosts: *Celtis spinosa*, *Nectandra* sp. (Bright & Skidmore 2002:39).

Notes: The above treatment was based on Schedl's male syntype and his female syntype, on a male and a female from Nova Teutonia from Schedl's series, and on 2 male and 1 female paratypes from Argentina and on 10 specimens from Brazil. The male "type" (a syntype) is here designated as the lectotype of *Chramesus aspericollis* Schedl and the female "type" as the lectoallotype of this species.

Chramesus setiger Schedl

Chramesus setiger Schedl, 1951:92. Lectotype ♀; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien, present designation (References in Wood & Bright c1992:269)

Diagnosis: Distinguished from *aspericollis* Schedl by the weakly reticulate pronotum disc; by the discal striae not being impressed, with most punctures on middle half of disc obsolete; and by the more slender ground setae on the discal interstriae.

Male: Length 1.8–1.9 mm, 1.5 times as long as wide; color very dark brown, almost black, vestiture pale. Frons broadly, rather deeply concave from epistoma to slightly below upper level of eyes; surface largely shining, punctures minute, almost obsolete; vestiture sparse, rather long; lateral margin rather weakly subacute half distance to upper level of eyes, below level of antennal insertions margin elevated into a small denticle; vertex rather coarsely, shallowly punctured, scape ornamented by a small tuft of hair. Pronotum 0.70 times as long as wide; widest at base, convergently arcuate to broadly rounded anterior margin; surface moderately reticulate on anterior half, weakly reticulate behind, median third on basal half rather coarsely, deeply, closely punctured; vestiture moderately abundant, very fine hair and rather coarse bristles intermixed; several small asper-

ities in lateral areas. Elytra 1.02 times as long as wide, 1.4 times as long as pronotum; basal areas armed by about 6 submarginal crenulations behind basal row; striae not impressed, punctures on 1 small, regular, 2 and 3 with a few punctures at base then obsolete to near base of declivity; interstriae about five times as wide as striae, smooth, shining, punctures minute, rather numerous. Declivity occupying posterior half of elytra length; very broadly convex, steep; striae weakly impressed, punctures very small, impressed; interstriae three to four times as wide as striae, almost smooth, shining, with no indication of tubercles or granules, punctures minute. Vestiture in ground cover of short, abundant, slender setae each 4–6 times as long as wide on disc, 3–4 times on declivity, and central rows of erect, rather stout bristles, each bristle 2–3 times as long as ground setae.

Female: Similar to male except frons broadly convex, lateral margins not elevated or armed, reticulate, upper half irregularly, obscurely punctured, vestiture of fine, short hair; asperities in lateral areas of pronotum much larger; interstriae on disc and declivity each with a central row of subacutely pointed tubercles, larger on disc, smaller on declivity, obsolete before apex.

Distribution: Brazil: Nova Teutonia [Santa Catarina], 1946, F. Plaumann.

Notes: The above treatment was based on the male and female syntypes in the Schedl Collection. Schedl (1979:226) incorrectly designated these specimens as the female holotype and male allotype. Because a holotype designation can be made only in the original publication that validates a new name, I here designate his "holotype" as the female lectotype and the male as the lectoallotype of *Chramesus setiger* Schedl.

Chramesus priscus Wood

Chramesus priscus Wood, 1971:7. Holotype ♂; La Carbonera Experimental Forest 50 km NW Merida, Merida, Venezuela; USNM, Washington (References in Wood & Bright c1992:268)

Diagnosis: Male epistomal margin armed by a transverse carina; male lateral elevation on frons at and above level of antennal insertion with crest rounded and reticulate; interstitial ground setae on disc absent.

Male: Length 2.2–2.4 mm, 1.9 times as long as wide; color brown, vestiture pale. Frons broadly, rather deeply concave from epistoma to upper level of eyes, surface reticulate, upper half with sparse, minute granules; epistomal margin on median half armed by an acute transverse carina; lateral margin from level of antennal insertion one-third distance toward upper level of eyes rather broadly elevated, summit of elevation rounded and reticulate; vestiture of very fine, long, sparse hair; antennal club 3.0 times as long as wide, apex pointed. Pronotum 0.71 times as long as wide; surface strongly, uniformly reticulate, tubercles small, isolated, rather sparse; vestiture slender, rather short, moderately abundant. Elytra 1.3 times as long as wide, 2.1 times as long as pronotum; striae very weakly impressed, punctures

moderately large, impressed; interstriae twice as wide as striae, almost smooth, shining, each with a central row of very small bristle-bearing granules. Declivity confined to slightly more than posterior one-fourth, convex, steep; striae more strongly impressed, interstriae narrower than on disc. Vestiture mostly of erect bristles on disc, each bristle slender, less than half as long as distance between rows; on declivity and on discal interstriae 1–3 with confused supplemental setae similar to erect bristles.

Female: Similar to male except frons convex, lateral margins not elevated, a slight transverse impression below level of antennal insertion, epistomal carina weak, pronotal asperities rather coarse laterally.

Distribution: Venezuela: La Carbonera Experimental Forest 50 km NW Merida, Merida, 9-XII-1969, 2500 m, No. 175, *Phoradendron*, SLW.

Biology: Boring below phloem in small stems of mistletoe.

Notes: The above treatment was based on the holotype, allotype, and 9 paratypes in the type series.

Chramesus orinocensis Wood

Chramesus orinocensis Wood, 1971:4. Holotype ♂; Campamento Rio Grande, 30 km E Palmar, Bolivar, Venezuela; USNM, Washington (References in Wood & Bright c1992:267)

Diagnosis: Distinguished from *vinealis* Wood by the regularly impressed strial punctures; by the much finer setae on the male frons; and by the smaller, less numerous pronotal asperities.

Male: Length 1.6–1.9 mm, 1.5 times as long as wide; color dark brown to almost black, vestiture pale. Frons broadly, moderately concave from epistoma to above upper level of eyes; surface strongly reticulate (almost rugose-reticulate) on upper half, dull, almost smooth below; lateral margin acutely, rather strongly elevated from level of antennal insertion one-third distance toward upper level of eyes; vestiture fine, sparse, inconspicuous; antennal club 2.1 times as long as wide. Pronotum 0.80 times as long as wide; surface reticulate, rather dull, most of disc with fine, obscure punctures, anterior and lateral areas with rather sparse tubercles or fine asperities; vestiture short, of a mixture of slender and almost scalelike setae, scales about 4 times as long as wide. Elytra 1.2 times as long as wide, 1.4 times as long as pronotum; striae slightly impressed, punctures distinctly impressed, moderately coarse; interstriae slightly more than twice as wide as striae, almost smooth, punctures for ground setae small, confused, bristle-bearing punctures not granulate. Declivity occupying posterior half, convex, steep; striae deeper and striae and interstriae narrower than on disc. Vestiture in ground cover of short, confused scales, each scale slightly longer than wide, and central rows of erect bristles, each bristle about 6 times as long as wide, slightly less than half as long as distance between rows, spaced within a row by slightly more than length of a bristle.

Female: Similar to male except frons convex, lateral margins not marked by an elevation; pronotal asperities slightly larger; some females with a few small tubercles at bases of interstitial bristles.

Distribution: Venezuela: Campamento Rio Grande 30 km E Palmar, Bolivar, 12-VI-1970, 200 m, No. 568, “Bejuco trinitaria” (det. Balbino Rodriguez), SLW.

Notes: The above treatment was based on the holotype, allotype, and 71 paratypes.

Chramesus vinealis Wood

Chramesus vinealis Wood, 1971:7. Holotype ♂; 30 km N Canon Zancudo, Zulia, Venezuela; USNM, Washington (References in Wood & Bright c1992:270)

Diagnosis: Distinguished from *orinocensis* Wood by the larger size; by the less extensively impressed male frons; by the coarser setae on the male frons; by the minute, more widely spaced strial punctures; and by the larger, more numerous pronotal asperities.

Male: Length 1.9–2.1 mm, 1.5 times as long as wide; color dark brown to almost black. Frons about as in *orinocensis* except concavity ending distinctly below upper level of eyes, setae shorter, less abundant. Elytral striae on disc narrower, punctures much smaller, often minute.

Female: Similar to female *orinocensis* except pronotal asperities larger; interstriae with a central row of moderately large tubercles at bases of erect, bristle-bearing setae.

Distribution: Venezuela: 30 km N Canon Zancudo, 4-VI-1970, 10 m, No. 520, liana, SLW.

Notes: The above treatment was based on the holotype, allotype, and 129 paratypes.

Chramesus impolitus Wood

Plate XXII

Chramesus impolitus Wood, 1971:6. Holotype ♂; Campamento Rio Grande, 30 km E Palmar, Bolivar, Venezuela; USNM, Washington (References in Wood & Bright c1992:266)

Diagnosis: This species and *imporcatus* Wood are unique in the genus in having the lateral elevation on the male frons divided into a lower, subquadrate element at level of antennal insertion and an upper element on upper third just below upper level of eye; this species differs from *imporcatus* in having lower lateral element on male frons less strongly elevated, more broadly rounded at its summit, and interstitial setae on disc without a ground cover.

Male: Length 1.8–2.1 mm, 1.6 times as long as wide; color dark brown to almost black. Frons broadly, deeply concave from epistoma to distinctly above upper level of eyes; surface strongly reticulate; lateral margin below level of antennal insertion strongly, thickly elevated, its summit rounded; lateral margin on upper third (to just below upper level of eyes) strongly, acutely elevated; vestiture short, fine, inconspicuous; antennal club 2.2

times as long as wide. Pronotum 0.83 times as long as wide; a few obscure punctures near posterior margin on median half, remaining area with moderately abundant, isolated, small asperities; vestiture of short, coarse, rather sparse setae. Elytra 1.0 times as long as wide, 1.2 times as long as pronotum; striae feebly impressed, punctures moderately small, impressed; interstriae slightly more than twice as wide as striae, smooth, slightly shagreened, each bearing a row (two rows on 2 on disc) of rather coarse, rounded tubercles. Declivity occupying slightly more than posterior half, convex, steep; striae and interstriae narrower than on disc, tubercles abruptly much smaller, pointed to apex. Vestiture of stout, suberect bristles, in uniseriate rows from base to apex, except confused on 2.

Female: Similar to male except frons convex, its lateral margins not marked; interstitial tubercles subacutely pointed.

Distribution: Venezuela: Campamento Rio Grande 30 km E Palmar, Bolivar, 12-VI-1970, 200 m, No. 567, *Brownia*, SLW.

Biology: Breeding in small stems of a broken shrub. The broken or recently cut host had a very strong odor that somewhat resembled fresh, very potent pig excrement.

Notes: The above treatment was based on the holotype, allotype, and 54 paratypes.

Chramesus imporcatus Wood

Chramesus imporcatus Wood, 1971:5. Holotype ♂; 7 km NW Socopo, Barinas, Venezuela; USNM, Washington (References in Wood & Bright c1992:266)

Diagnosis: Distinguished from *impolitus* Wood by the more strongly, acutely elevated lateral crest on male frons; and by the presence of interstitial ground vestiture on the disc.

Male: Length 1.8–2.3 mm, 1.6 times as long as wide; color dark brown to almost black. Frons about as in *impolitus* except lateral elevation below level of antennal insertion more narrowly, acutely elevated, its summit shining. Pronotum about as in *impolitus*. Elytra resembling *impolitus* except striae punctures smaller, deeper, interstitial punctures smaller, about two-thirds as large, interstitial ground vestiture present, rather abundant.

Female: Similar to male except frons convex, its lateral margins not marked.

Distribution: Venezuela: 7 km NW Socopo, Barinas, 13-II-1970, 200 m, No. 323, Palito de Cruz, SLW; El Vigia, Merida, 22-X-1969, 100 m, unidentified seedling, SLW; Canon Zancudo, Zulia, 10 m, unidentified tree branch, SLW.

Hosts: Palito de Cruz.

Biology: Breeds in phloem tissues of host.

Notes: The above treatment was based on the holotype, allotype, 9 paratypes, and 22 other specimens from Venezuela.

Chramesus striatus Eggers

Chramesus striatus Eggers, 1943:344. Holotype ♀; Cochabamba, Bolivia; USNM, Washington (References in Wood & Bright c1992:269).

Diagnosis: Not in the above key. Named from a female of unknown phylogenetic position, although superficial features suggest it should be placed near *imporcatus* Wood or *phloeotriboides* Schedl. It is distinguished by the comparatively large size; by the presence of small pronotal asperities on the lateral fourths only; by the strongly reticulate pronotum, with small, shallow punctures; by the smooth, dull elytral surface, with rows of interstitial tubercles, with a ground cover of small, interstitial scales on the posterior disc and declivity and rows of slender, erect setae.

Female: Length 2.3 mm, 1.8 times as long as wide; color very dark brown. Frons broadly convex, surface reticulate, sparsely pubescent; on lateral margin at level of antennal insertion, a very weak, obscurely elevated row of granules extending dorsad for about 4 granules (indicating general phylogenetic position of this species). Pronotum 0.81 times as long as wide; surface dull, strongly reticulate; less than lateral fourths with small, rather numerous asperities; recumbent vestiture fine, short, moderately abundant. Elytra 1.2 times as long as wide, 1.8 times as long as pronotum; bases of interstriae 2–4 armed by a total of eight submarginal crenulations; striae distinctly impressed, punctures rather strongly impressed, moderately large except smaller on basal one-fourth; interstriae distinctly wider than striae, surface smooth, dull, each with a uniseriate row (slightly confused on 3) of narrow, rather high tubercles, minute punctures on 1 and 2 to base and posterior half of 3. Declivity broadly convex, steep; striae narrower and more strongly impressed than on disc, interstriae narrower, tubercles smaller. Vestiture of ground cover of short scales (each two or three times as long as wide) on declivity and to base on 1 and 2 and to middle of disc on 3, and erect coarse hairlike setae in uniseriate interstitial rows, each erect seta two-thirds as long as distance between rows.

Distribution: Bolivia: Cochabamba [F. Woytkowski].

Notes: The above treatment was based on the female holotype. In order to find its proper position in phylogeny a male is needed.

Chramesus granulipennis Schedl

Chramesus granulipennis Schedl, 1959:547. Holotype ♂; Rondon, Parana, Brazil; NHMW, Wien (References in Wood & Bright c1992:266)

Diagnosis: Distinguished from all known members of this genus by the unique sculpturing of the male frons; and by the large, rounded interstitial spines on the elytral disc.

Male: Length 2.1 mm, 1.6 times as long as wide; color almost black. Frons deeply, broadly concave from

epistoma to vertex; surface of concave area rugose-reticulate on more than upper half, smooth, shining below level of antennal insertions; vestiture almost obsolete, of a few minute, hairlike setae; lateral margins with an acutely elevated costa (its crest marked by 16 beads) from upper level of eyes two-thirds of distance to level of antennal insertions, a coarse, obtuse denticle on margin below level of antennal insertions, crest between denticle and beaded area rather broadly rounded, weakly elevated; antennal club 2.0 times as long as wide. Pronotum 0.80 times as long as wide; widest at base, rather strongly, arcuately converging to narrowly rounded anterior margin; surface strongly reticulate, closely armed by rather high, narrow, rounded tubercles uniformly distributed; vestiture of rather short, stout, recumbent setae of moderate abundance. Elytra 1.1 times as long as wide, 1.5 times as long as pronotum; disc occupying basal half of elytra length; basal area with about 16 submarginal crenulations behind basal row; striae slightly impressed, punctures rather large, deep; interstriae slightly wider than striae (except 2 twice as wide), 1 and 3–5 armed by uniseriate rows of large, somewhat rounded, closely set tubercles each as high as wide, 2 with a double row to base of declivity then uniseriate on declivity. Declivity broadly convex, steep; striae and interstriae narrower than on disc, tubercles not as close, slightly smaller, on 1–8. Ground vestiture entirely absent; erect interstitial setae in uniseriate rows, each rather stout, tapered on its apical half to a narrowly acute point, each equal in length to about half distance between rows.

Distribution: Brazil: Rondon [Parana], 24°38' S, 54°07' W, V-1962, F. Plaumann.

Notes: The above treatment was based on the male holotype from Brazil.

Chramesus peruanus Schedl

Chramesus peruanus Schedl, 1961:223. Holotype ♂; Urubamba, Ollantaitambo, Dep. Cruzeta, Peru; NHMW, Wien (References in Wood & Bright c1992:267)

Diagnosis: Distinguished from *phloeotriboides* Schedl and *advena* Schedl by the scalelike interstitial ground setae; by the abrupt, slightly projecting upper end of the lateral crest on the male frons; and by the larger size.

Male: Length 3.2 mm, 1.9 times as long as wide; color dark reddish brown. Frons broadly, deeply concave from epistoma to well above upper level of eyes, lateral margins subacutely elevated below level of antennal insertions and armed by about 2 small, weak denticles, crest above level of antennal insertions more strongly, more narrowly, almost subserrately elevated to its abrupt, subdentate termination above at a point half distance from antennal insertions to upper level of eye; concave area smooth below level of antennal insertions, upper area rather finely punctured, many punctures subtuberculate; vestiture in concave area hairlike, rather abun-

dant, moderately long; scape with a small tuft of hair; club 2.5 times as long as wide. Pronotum 0.74 times as long as wide, widest at base, basal two-thirds strongly, convergently arcuate toward broadly rounded anterior margin; surface smooth, shining, closely, rather finely punctured, a few punctures on lateral thirds very weakly tuberculate; vestiture of stout, semirecumbent, rather short setae. Elytra 1.1 times as long as wide, 1.6 times as long as pronotum; disc occupying basal one-fourth of elytral length; basal area with about 7 submarginal crenulations behind basal row; striae not impressed, punctures very small; interstriae about four times as wide as striae, punctures minute, without any tubercles. Declivity broadly convex, moderately steep above, very steep below; sculpture as on disc. Vestiture of abundant, confused, ground scales, each scale about 4–6 times as long as wide at base, becoming as long as wide on declivity; erect setae in central rows, each seta slender, about as long as ground setae at base, about twice as long as ground setae on declivity.

Distribution: Peru: Urubamba, Ollantaitambo, Dep. Cruzeta, 31-I-1949, G. Kuschel.

Notes: The above treatment was based on the male holotype from Peru.

Chramesus advena Schedl

Chramesus advena Schedl, 1951:91. Lectotype ♀; Cachoeirinha-Una, Bahia, Peru; NHMW, Wien, present designation (References in Wood & Bright c1992:263)

Diagnosis: Distinguished from *phloeotriboides* Schedl by the presence of ground setae on each margin of discal interstriae, each seta as slender as those in central row, each about four times as long as wide; and by the reticulate pronotum.

Male: Length 1.7–1.8 mm, 1.7 times as long as wide; color very dark brown, pronotum almost black. Frons deeply, broadly concave from epistoma to upper level of eyes, lateral margin acutely elevated on slightly less than lower half, obtusely margined above, crest of elevation uniform but its mesal margin marked by beading (5 beads); surface of concavity reticulate, punctures not clearly evident, setae of minute hair. Pronotum 0.74 times as long as wide; widest at base, sides convergently arcuate to rather narrowly rounded anterior margin; surface reticulate, punctures moderately large, impressed, irregularly spaced by diameter of a puncture, without any tubercles or asperities; vestiture of rather sparse, stout, semirecumbent, rather short setae. Elytra 1.3 times as long as wide, 1.8 times as long as pronotum; basal area with about 3 submarginal crenulations behind basal row; disc occupying basal half of elytra length; striae not impressed, punctures rather large, strongly impressed; interstriae slightly wider than striae, smooth, shining, punctures very small, about a fourth as wide as those of striae, unmodified at base, gradually replaced by a small tubercle toward base of declivity. Declivity strongly convex, steep; striae and interstriae narrower

than on disc, sculpture similar. Vestiture of interstitial setae, ground setae at each margin on posterior half, erect setae in central row on each interstriae, only slightly longer than ground setae on disc, twice as long on declivity, both of rather stout bristles.

Female: Similar to male except frons broadly convex, lateral margins rounded (not elevated), surface almost rugose-reticulate; about 4–10 low crenulations on lateral areas of pronotum; ground setae on declivity almost scalelike.

Distribution: Brazil: Cachoeirinha-Una, Bahia (type); Encruizilhada, 980 m, Bahia, XI-1972, M. Alvarenga; Corcovado, Guanabara, IX-1969, Alvarenga & Seabra; Nova Teutonia, Santa Catarina, III-1945, F. Plaumann.

Notes: The above treatment was based on 1 female syntype and on 2 other females and 1 male specimen from Brazil. Because this species was originally based on a syntypic series of females, the female "holotype" designated by Schedl (1979:12) is not valid. To correct the problem, I here designate the female syntype that was labeled as the holotype as the lectotype of *Chramesus advena* Schedl.

Chramesus phloeotriboides Schedl

Chramesus phloeotriboides Schedl, 1958:41. Holotype ♂; Gran Chaco, Argentina; NHMW, Wien (References in Wood & Bright c1992:268)

Diagnosis: Male frons with lateral margin acutely elevated from level of antennal insertion half distance toward upper level of eyes, its crest irregular but neither dentate nor beaded; interstitial ground setae confined to declivity.

Male: Length 2.3 mm, 1.8 times as long as wide; color dark brown, vestiture pale. Frons broadly concave from epistoma to well above upper level of eyes; concave area weakly reticulate on lower half, minutely, obscurely punctured below; lateral margins acutely elevated from level of antennal insertion half distance to upper level of eyes, its crest irregular but not dentate or beaded; vestiture of fine, long, erect, inconspicuous hair; antennal club 2.7 times as long as wide. Pronotum 0.80 times as long as wide; surface almost shining, obscurely reticulate; basal one-third on median one-half with fine punctures, remaining area with small tubercles, some in lateral areas forming small asperities; vestiture of rather coarse, semirecumbent hair of moderate length. Elytra 1.2 times as long as wide, 1.7 times as long as pronotum; striae distinctly impressed, punctures rather small; interstriae slightly more than twice as wide as striae, weakly convex, smooth, shining, each with a central row of small, setiferous tubercles, almost uniseriate except confused on posterior half of 3. Declivity on slightly less than posterior half of elytra length, convex, steep; striae and interstriae slightly narrower than on disc, interstriae with many small, setiferous punctures. Vestiture without ground setae on disc, sparsely present on declivity (each

scale slightly longer than wide); erect bristles rather slender, pointed, each half as long as distance between rows, spaced within a row by less than length of a bristle, uniseriate except confused on 3.

Female: Similar to male except frons broadly convex (frons of type covered by glue, not visible).

Distribution: Argentina: 21 km W Tucuman, P. Tucuman, 18-X-1968, L. & C.W. O'Brien; Gran Chaco, L. Bade.

Notes: The above treatment was based on the female holotype and on 1 male that had been compared by me directly to the holotype. Both are from Argentina.

Chramesus luteus Wood, n. sp.

Chramesus luteus Wood: Holotype ♂; Colombia; USNM, Washington, designated below

Diagnosis: Distinguished from *strigilis* Wood by the smaller size; by the confused ground scales on declivital interstriae 4, erect bristles on lower half.

Male: Length 1.7 mm, 1.6 times as long as wide; color yellowish brown, vestiture pale. Frons broadly concave from epistoma to upper level of eyes, surface shining on lower half, reticulate above, obscure punctures indicated by shining specks; lateral margin subacutely elevated on middle third beginning very slightly above level of antennal insertions, crest rather strongly marked by 10 "beads"; vestiture of rather sparse, fine, long hair; antennal club 2.0 times as long as wide. Pronotum 0.73 times as long as wide; surface weakly reticulate; a few small punctures near base on median one-fourth; asperities small, mostly in lateral areas. Elytra 1.06 times as long as wide, 1.6 times as long as pronotum; striae rather strongly impressed, punctures small, moderately impressed; interstriae about as wide as striae, each with a central row of narrow, bristle-bearing, rather strongly, acutely elevated crenulations, each about one-third as wide as an interstriae, most spaced within a row by width of an interstriae. Declivity occupying very slightly more than posterior half of elytra length, convex, steep; striae and interstriae slightly narrower than on disc; interstitial tubercles much smaller than on disc. Vestiture of abundant scales in ground cover, each scale slightly longer than wide; erect bristles in uniseriate rows, each arising from posterior margin of a tubercle, each bristle stout, most about 6 times as long as wide, 2 or 3 times as long as ground setae, almost half as long as distance between rows, spaced within a row by 2 or 3 times length of a bristle; declivital interstriae 4 with ground scales confused and erect bristles present on lower half.

Distribution: Colombia.

Type material: The male holotype is labeled "Colombia." It is in the U.S. National Museum, Washington.

Chramesus granulatus (Eggers)

Chramesus granulatus (Eggers), 1928:94 (*Pagiocerus*). Holotype ♂; E Bolivia [Cochabamba on label of holotype]; NHMW, Wien (References in Wood & Bright c1992:265)

Diagnosis: Distinguished from *phloeotriboides* Schedl by the larger size; by the strongly reticulate pronotum, with numerous tubercles to base; and by the more strongly impressed discal striae and more coarsely sculptured interstriae.

Male: Length 2.8 mm, 1.8 times as long as wide; color almost black. Frons broadly, deeply concave from epistoma to above upper level of eyes; lateral margins acutely elevated below and more strongly above level of antennal insertions, its crest weakly subserrate, declining gradually to inner margin of eye; surface of concave area reticulate except shining on epistoma, very fine punctures sparse, vestiture minute, hairlike, sparse. Pronotum 0.80 times as long as wide; very broadly convex, surface strongly reticulate, dull, punctures replaced by small, rounded tubercles (smaller in anteromedian area); vestiture of rather short, stout, moderately abundant hair. Elytra 1.2 times as long as wide, 1.8 times as long as pronotum; basal area with about 20 submarginal crenulations; disc occupying more than basal half; striae narrowly, rather deeply impressed, punctures small; interstriae about twice as wide as striae, convex, surfaces shining, with almost uniseriate, rather coarse crenulations (transversely subacute). Declivity broadly convex, steep; striae and interstriae narrower than on disc, sculpture about as on disc. Vestiture in ground cover of numerous small scales (each twice as long as wide) on declivity, mostly absent on disc except for a few hairlike setae, erect setae almost hairlike, in indefinite rows on and near declivity, obscure on disc.

Distribution: Peru: Cochabamba [F. Woytkowski].

Notes: The above treatment was based on the male holotype.

Chramesus strigilis Wood

Chramesus strigilis Wood, 1971:4. Holotype ♂; La Carbonera Experimental Forest 50 km NW Merida, Merida, Venezuela; USNM, Washington (References in Wood & Bright c1992:269)

Diagnosis: Distinguished from *luteus* Wood by the larger size; by the presence of interstitial ground setae on disc; and by the presence of uniseriate ground setae on declivital interstriae 4 with no erect bristles present.

Male: Length 1.9–2.3 mm, 1.6 times as long as wide; color dark brown, setae rather dark. Frons broadly, strongly concave from epistoma to well above upper level of eyes; surface reticulate above, almost smooth below, vestiture sparse, fine, inconspicuous; lateral margins strongly, acutely elevated from immediately above level of antennal insertion two-thirds distance to upper level of eyes, its crest clearly marked by 10–13 beads (variable between specimens and between right and left sides of same specimen); antennal club 1.2 times as long as wide. Pronotum 0.76 times as long as wide; surface reticulate, median half from anterior margin to base with shallow punctures interspersed with small tubercles, tubercles larger, subasperate laterally; vestiture rather sparse, coarse, recumbent. Elytra 1.14 times as

long as wide, 1.7 times as long as pronotum; striae moderately impressed, punctures rather small, close; interstriae slightly wider than striae, weakly convex, with fine punctures bearing ground scales, central row of pointed tubercles bearing erect bristles. Declivity occupying slightly less than posterior half of elytra length; interstriae narrower than on disc, ground setae on lower half of 2 and 4 uniseriate. Vestiture of rather abundant ground scales, each about twice as long as wide and erect bristles, each bristle 2 (at base) to 3 times as long as ground scales, some 8 times as long as wide, about two-thirds as long as distance between rows, spaced within a row by one to four times length of a bristle (erect bristles absent on lower half of declivital interstriae 2 and 4).

Female: Similar to male except frons convex, its lateral margins not marked; pronotal asperities slightly larger.

Distribution: Venezuela: La Carbonera Experimental Forest 50 km NW Merida, Merida, 27-X-1969, 2500 m, No. 89, tree seedlings (trail cuttings), SLW.

Biology: In phloem of recently cut stems.

Notes: The above treatment was based on the holotype, allotype, and 33 paratypes.

Chramesus argentinae Wood, n. sp.

Chramesus argentinae Wood: Holotype ♂; Tafi del Valle, Tucuman, Argentina; USNM, Washington, designated below

Diagnosis: Interstitial ground setae on disc sparse, slender; erect interstitial bristles without tubercle at their base; lateral margin of male frons strongly elevated and beaded only on lower third of area above level of antennal insertion.

Male: Length 2.0 mm, 1.9 times as long as wide; color brown, vestiture pale. Frons broadly, deeply concave from epistoma to well above upper level of eyes; surface almost smooth and shining on lower half, reticulate and with small, isolated granules above; vestiture of fine, sparse, rather long hair; more numerous near upper margin; antennal club 2.6 times as long as wide. Pronotum 0.74 times as long as wide; surface smooth, shining; posterior one-third on median half finely punctured, remaining area with small, isolated tubercles, some tubercles in lateral areas finely subasperate; vestiture of moderately long, rather abundant, stout hair. Elytra 1.3 times as long as wide, 1.9 times as long as pronotum; striae weakly impressed, punctures small, deep, rather close; interstriae slightly more than twice as wide as striae, smooth, shining, without any tubercles, punctures very fine (a central row bearing erect bristles, a row on each margin next to striae [bearing ground setae]). Declivity confined to posterior half, convex, steep; striae narrower, more deeply impressed than on disc, interstriae weakly convex. Vestiture of sparse ground setae on margins of interstriae, each slender, about six to eight times as long as wide (stouter and more numerous on declivity), and erect, slender bristles, each bristle about two-thirds as long as distance between rows, spaced within a row by length of a bristle.

Female: Similar to male except frons shallowly, narrowly concave from epistoma to upper level of eyes, margins weakly marked; pronotum mostly, weakly reticulate, asperities distinctly larger; interstitial setae more slender.

Distribution: Argentina.

Type material: The male holotype and female allotype were taken at Tafi del Valle, Tucuman, Argentina, 23-XI-1947, R. Golbach, both mounted on one pin. The holotype and allotype are in the U.S. National Museum, Washington.

Chramesus globosus Hagedorn

Chramesus globosus Hagedorn, 1909:742. Holotype, sex?; Argentina, La Plata; Hamburg Museum, lost; based on series in USNM, Washington, det. Blackman before type was lost (References in Wood & Bright c1992:265)

Chramesus eurypterus Schedl, 1963:214. Holotype ♂; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:265). *New synonymy*

Diagnosis: Setae forming a variegated pattern of dark and pale scales; lateral margins of male frons acutely elevated, its crest beaded; basal half of pronotum closely, rather deeply punctured.

Male: Length 2.0–2.2 mm, 1.6 times as long as wide; color very dark brown, vestiture forming a variegated pattern of about 50 percent dark and 50 percent pale scales. Frons broadly, deeply concave from epistoma to upper level of eyes, surface shining below, reticulate above, vestiture of fine, long, moderately abundant hair; lateral margins acutely elevated just above upper level of antennal insertion half distance toward upper level of eyes, its crest clearly marked by 9 beads; antennal club 2.3 times as long as wide. Pronotum 0.80 times as long as wide; posterior one-half (central) or one-fourth (lateral) smooth, shining, closely, rather deeply punctured, rather coarsely asperate laterally, finely on anteromedian area; vestiture stout, rather short, almost scalelike, moderately abundant. Elytra 1.1 times as long as wide, 1.6 times as long as pronotum; striae distinctly impressed, punctures small; interstriae three times as wide as striae, surface smooth, shining, punctures very small, confused, rather numerous, without tubercles. Declivity confined to posterior half of elytra length, convex, steep; striae and interstriae narrower than on disc, sculpture similar. Vestiture of rather abundant ground scales, each slightly longer than wide and central rows of erect bristles; each bristle twice as long as ground scales, about six times as long as wide, each less than half as long as distance between rows, spaced within a row by one (base) to three (base of declivity) times length of a bristle; scales dark brown to pale, forming a variegated pattern.

Female: Similar to male except frons convex, margins not marked; pronotal asperities larger; erect interstitial bristles shorter.

Distribution: Argentina to Uruguay and Brazil.

Argentina: La Plata; Tucuman, 11 km W Las Cejar, 1-14-X-1967, L. Stange.

Brazil: Nova Teutonia, Santa Catarina, III-1954, II-1966, 300–500 m, F. Plaumann.

Uruguay: Montevideo, No. 1011-24, H.L. Parker, unidentified native wood.

Hosts: *Celtis spinosa* (Bright & Skidmore 2002:29), not seen by me.

Notes: The above treatment was based on 1 male from Argentina that Blackman compared to the holotype of *globosus* Hagedorn, on the male holotype and 1 female paratype of *eurypterus* from Brazil, and on 1 male and 1 female from Uruguay. The male holotype of *eurypterus* Schedl was compared directly by me to the specimens Blackman compared to the holotype of *globosus* before the type was lost at Hamburg.

Chramesus brasiliensis Nunberg

Chramesus brasiliensis Nunberg, 1962:224. Holotype ♂; Serra do Urucum, Corumba, Mato Grosso, Brasil; MZUSP, Sao Paulo (References in Wood & Bright c1992:264)

Diagnosis: Distinguished from *peniculus* Wood by the larger size; by the occurrence of subcrenulate tubercles on the anterior slope of the pronotum and larger, shallow punctures on the pronotum disc; by the much shorter more closely spaced erect interstitial setae, with erect setae present on declivital interstriae 2.

Male: Length 1.6 mm, 1.7 times as long as wide; color of pronotum brown, elytra rather pale brown. Frons rather deeply concave eye to eye from epistoma to distinctly above upper level of eyes; surface of concave area reticulate; lateral margins subacutely elevated from near epistoma to slightly above level of antennal insertions, summit or crest continued above as a beaded row of small tubercles to near upper level of eye; hairlike vestiture in concave area sparse, short, distinctly longer at upper margin; antennal scape with a small tuft of short setae, club 2.0 times as long as wide. Pronotum 0.70 times as long as wide; widest at base, sides arcuately converging toward rather broadly rounded anterior margin; surface reticulate, punctures very small, uniformly close, with no asperities; vestiture of short, stout scales, each about 4–6 times as long as wide uniformly distributed. Elytra 1.06 times as long as wide, 1.6 times as long as pronotum; scutellar notch very shallow; basal margins almost straight, about 10 small crenulations on each; disc occupying about 50 percent of elytra length, declivity steep, uniformly convex; striae weakly impressed, punctures rather small, close, deep; interstriae 1 as wide as striae, 2 and others twice as wide as striae, smooth (except reticulate near base on about 1–3), punctures very small, confused. Declivity steep, convex; sculpture about as on disc except central row of erect setae on each interstriae about twice as long as ground setae. Vestiture on disc of stout setae each about four to six times as long as wide, a central row of slightly longer setae evident on disc, becoming longer on declivity, each of longest setae equal in length to half distance between rows.

Distribution: Brazil: Serra do Urucum, Corumba, Mato Grosso, 25-XI-1960, K. Lenko.

Notes: The above treatment was based on the male holotype.

Chramesus peniculus Wood

Chramesus peniculus Wood, 1971:8. Holotype ♂; 30 km N Canon Zancudo, Zulia, Venezuela; USNM, Washington (References in Wood & Bright c1992:267)

Diagnosis: Male frons deeply concave to upper level of eyes, lateral margin acutely elevated, obscurely beaded; male stria punctures largely obsolete, interstria tubercles absent.

Male: Length 1.3–1.4 mm, 1.6 times as long as wide; color brown, vestiture pale. Frons broadly, deeply concave from epistoma to upper level of eyes; surface reticulate; vestiture of fine, short, sparse hair; lateral margins strongly, acutely elevated from level of antennal insertion one-third distance to upper level of eyes, crest irregular, obscurely beaded; antennal club 2.0 times as long as wide, scape with a small tuft of long, yellow hair. Pronotum 0.73 times as long as wide; as in male *solicitatus* Wood. Elytra 1.0 times as long as wide; striae impressed, punctures obscure to obsolete; interstriae slightly wider than striae, apparently smooth, punctures minute, confused, granules apparently obsolete. Declivity occupying posterior half of elytra length, convex, steep; striae and interstriae narrower than on disc. Vestiture of interstria ground cover of short, confused scales, each scale almost as wide as long, and central rows of erect bristles, bristles varying from slender to stout (on 1 individual), each 3–4 times as long as ground scales, each about two-thirds as long as distance between rows, spaced within a row by 2–4 times length of a bristle.

Female: Similar to male except frons convex, lateral margins not marked; tuft of setae absent on scape; pronotum with asperities conspicuously larger; stria punctures more distinctly impressed.

Distribution: Venezuela: 30 km N Canon Zancudo, Zulia, 4-VI-1970, 10 m, No. 522, unidentified liana, SLW.

Notes: The above treatment was based on the holotype, allotype, and 14 paratypes.

Chramesus bolivianus Schedl

Chramesus bolivianus Schedl, 1973:370. Lectotype ♂; Valle de Rio Abalo, La Paz., Bolivia 3,200 m; NHMW, Wien, present designation (References in Wood & Bright c1992:264)

Diagnosis: Distinguished from *solicitatus* Wood by the smaller size; by the more shallowly impressed male frons, with its lateral margins more weakly elevated; and by the longer, more slender setae on the pronotum and elytra.

Male: Length 2.1 mm, 1.8 times as long as wide; color dark brown, setae mostly pale, some tan setae evident in an obscure variegated pattern. Frons shallowly, broadly concave, lateral margins rather weakly elevated and ornamented on lower one-third by about five weak beads; concavity extending about four-fifths of distance to upper

level of eyes, surface coarsely reticulate below, rugose-reticulate at vertex, lateral and upper margins with small, moderately numerous tubercles; vestiture of sparse, rather long, inconspicuous coarse hair; antennal scape ornamented by about 6 comparatively short setae, club 2.0 times as long as wide. Pronotum 0.74 times as long as wide; asperities confined to lateral thirds; surface rather strongly reticulate; punctures small, poorly formed, close, most with anterior or lateral margin weakly to moderately granulate except in median area near base. Elytra about 1.3 times as long as wide, 1.8 times as long as pronotum; bases of interstriae 2–3 with about six submarginal crenulations; striae distinctly impressed, punctures small, moderately deep, close; interstriae twice as wide as striae, smooth, shining, punctures minute, mostly on margins, a central uniseriate row of moderately coarse tubercles bearing erect setae. Declivity broadly convex, rather steep; striae more deeply impressed, striae and interstriae slightly narrower than on disc. Vestiture of ground setae slender each more than half as long as erect setae on disc, and on declivity, stouter, scalelike, about one-third as long as erect setae; slender erect setae in uniseriate rows on all interstriae on disc and declivity, each about two-thirds as long as distance between rows on disc and declivity.

Distribution: Bolivia: Valley of Rio Abaho, La Paz, 30-XII-1966, 3200 m, Balogh Mahunka, ZICSI, Soil Zoological Expedition.

Notes: The above treatment was based on the “male holotype,” cited above. An apparent female holotype was deposited in the Budapest Museum. If 2 “holotypes” actually exist, as was a common practice of Schedl, I here designate the male at NHMW, Wien, as the male lectotype of *Chramesus bolivianus* Schedl, as indicated above.

Chramesus solicitatus Wood

Plate XXIV

Chramesus solicitatus Wood, 1971:8. Holotype ♂; Campamento Rio Grande 30 km E Palmar, Bolivar, Venezuela; USNM, Washington (References in Wood & Bright c1992:269)

Diagnosis: Male frons feebly if at all concave, concavity ending well below upper level of eyes, elevation on lateral margin beaded; stria punctures almost obsolete; antennal club stouter.

Male: Length 1.4–1.6 mm, 1.6 times as long as wide; color brown, vestiture pale. Frons broadly, shallowly concave from epistoma to well below upper level of eyes; surface reticulate; vestiture of fine, sparse, inconspicuous hair; antennal club 2.0 times as long as wide, scape with a small tuft of yellow hair. Pronotum 0.72 times as long as wide; surface reticulate, basal one-third with shallow punctures, remaining areas with fine, isolated tubercles, subasperate laterally; vestiture of short, stout, rather sparse setae. Elytra 1.0 times as long as wide, 1.4 times as long as pronotum; striae distinctly impressed, punctures rather small, distinctly impressed,

close; interstriae twice as wide as striae, smooth, shining, punctures for ground cover very small, confused, each interstriae with a central row of small, pointed tubercles. Declivity occupying posterior half, convex, steep; striae and interstriae slightly narrower than on disc, tubercles obsolete. Vestiture of ground cover of abundant small scales, each scale about 3 times as long as wide, and erect bristles (arising from tubercles), each bristle about 3 times as long as ground setae and 6–8 times as long as wide.

Female: Similar to male except frons convex, lateral margins not marked; scape without tuft of hair; pronotal asperities conspicuously larger.

Distribution: Venezuela: Campamento Rio Grande, 30 km E Palmar, Bolivar, 12-VI-1970, 200 m, No. 569, unidentified liana, SLW.

Notes: The above treatment was based on the holotype, allotype, and 13 paratypes.

Chramesus badius Schedl

Chramesus badius Schedl, 1951:88. Holotype ♂; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:264)

Diagnosis: This species is distinguished by the small size and rather slender body form; by the subplumose interstitial ground setae; and by the male frons having a pair of denticles at level of antennal insertion set just mesad from lateral margin.

Male: Length 1.2–1.5 mm, 1.84 times as long as wide; color brown, vestiture pale. Frons moderately concave from epistoma to upper level of eyes; surface reticulate, vestiture very short, stout, sparse; lateral margins obtusely rounded except subangulate below level of antennal insertion, a low rounded tubercle at level of antennal insertion immediately mesad of lateral margin; antennal club 2.1 times as long as wide; a small tuft of yellow hair on scape. Pronotum 0.80 times as long as wide; surface reticulate, closely, moderately punctured throughout, margins of some lateral punctures finely tuberculate; vestiture of short, moderately abundant, stout (almost scalelike) setae. Elytra 1.26 times as long as wide; striae weakly impressed, punctures rather small, impressed; interstriae about as wide as striae, almost smooth, punctures very small, confused, each with a central row of fine tubercles. Declivity occupying posterior one-third, convex, steep; striae and interstriae slightly narrower than on disc. Vestiture in ground cover of small, confused, subplumose setae, and central rows of erect bristles, each bristle twice as long as ground scales, stout, blunt, each about half as long as distance between rows, spaced within a row by length of a bristle.

Female: Similar to male except frons convex, its lateral margins not subacute.

Distribution: Brazil: Cepec, Ilheus, Bahia, II-III-1981, blacklight, Kaston; Rondon, Parana, VI-1952, No. 156, F. Plaumann.

Biology: Attracted to ultraviolet light.

Notes: The above treatment was based on the holotype and on 6 specimens from Brazil (similar to holotype but slightly smaller).

Chramesus parvus Wood

Chramesus parvus Wood, 1971:6. Holotype ♂; Rancho Grande, Aragua, Venezuela; USNM, Washington (References in Wood & Bright c1992:267)

Diagnosis: Lateral crest of male frons with a pair of denticles at level of antennal insertion; male frontal concavity ending below upper level of eyes; interstitial setae all in uniseriate rows of blunt bristles; pronotum without any tubercles or asperities.

Male: Length 1.3–1.4 mm, 1.7 times as long as wide; color brown, vestiture pale. Frons somewhat narrowly, moderately concave from epistoma to distinctly below upper level of eyes; surface reticulate; vestiture of short, sparse, inconspicuous hair; antennal club 2.1 times as long as wide, scape without a tuft of long hair. Pronotum 0.84 times as long as wide; surface mostly reticulate, some smooth, shining areas, punctures impressed, of variable size, not close; vestiture of short, sparse, coarse hair, without any tubercles or asperities. Elytra 1.2 times as long as wide, 1.4 times as long as pronotum; striae not impressed, punctures rather coarse, deep; interstriae as wide as striae, smooth, shining, without any punctures for ground setae, a central uniseriate row of small tubercles bearing erect bristles present. Declivity confined to posterior half, convex, steep; striae, interstriae, and tubercles smaller than on disc. Vestiture of uniseriate rows of erect, blunt bristles, each bristle almost as long as distance between rows, spaced within a row by slightly less than length of a bristle.

Female: Similar to male except frons convex, lateral margins not marked.

Distribution: Venezuela: Rancho Grande, Aragua, 9-IV-1970, 1100 m, No. 426, *Tabebuia*, SLW.

Biology: Specimens were taken from broken twigs 2 cm in diameter.

Notes: The above treatment was based on the holotype, allotype, and 27 paratypes.

Chramesus cylindricus Schedl

Chramesus cylindricus Schedl, 1952:455. Holotype ♂; Dep. Concepcion, Santa Maria, Misiones, Argentina; NHMW, Wien (References in Wood & Bright c1992:264)

Diagnosis: Distinguished from *hylurgoides* Schedl by the smaller size; by the shallowly concave male frons, with different sculpture; by the normal eyes; and by the uniseriate declivital setae.

Male: Length 1.7 mm, 2.1 times as long as wide; color very dark brown. Frons moderately, broadly concave from epistoma to upper level of eyes, lateral margins rounded above antennal insertions; a subacute slight elevation at lateral margin below antennal insertions; concave area smooth, shining, some reticulation at epistoma and above

eyes; punctures small, almost obsolete below, larger and deeper toward vertex; vestiture of moderately long, rather numerous hair in lateral areas; eyes separated above by more than twice width of an eye. Pronotum 0.90 times as long as wide; widest at base, sides weakly arcuate on basal two-thirds, converging toward broadly rounded anterior margin; surface reticulate, punctures rather coarse, deep, close, a few in lateral areas weakly crenulate; vestiture of fine, moderately long, numerous hair. Elytra 1.4 times as long as wide, 1.8 times as long as pronotum; basal area with about 8 submarginal crenulations behind basal row; striae not impressed, punctures rather small, impressed; interstriae almost smooth, about twice as wide as striae, most punctures replaced by a small, rounded tubercle (vestiture rather abundant). Declivity rather broadly convex, steep; striae indicated but punctures much smaller than on disc; interstriae with a row of fine punctures, no granules. Vestiture consisting of fine, short, strial hair and longer interstitial setae consisting of a central row of longer hairlike setae and sparse, slightly shorter ground cover of hairlike setae.

Female: Similar to male except frons convex, with a strong central fovea, surface reticulate.

Distribution: Argentina to Brazil.

Argentina: Misiones, Dep. Concepcion, Santa Maria (male holotype).

Brazil: Rio Grande do Sul, Torres, I-1959, K.E. Hudepohl (allotype).

Notes: The above treatment was based on the male holotype and the female allotype (Schedl 1976:65).

Chramesus macrocornis Wood

Plate XXIII

Chramesus macrocornis Wood, 1971:3. Holotype ♂; Merida, Merida, Venezuela; USNM, Washington (References in Wood & Bright c1992:267)

Diagnosis: Lateral crest of male frons with a pair of denticles at level of antennal insertions; male frontal concavity extending above upper level of eyes; interstitial setae hairlike, confused; pronotum without any tubercles or asperities.

Male: Length 2.2–2.5 mm, 2.05 times as long as wide; color very dark brown, elytra mostly brown. Frons broadly, strongly concave from epistoma to well above upper level of eyes; surface reticulate, dull, with moderately abundant, minute punctures; vestiture of minute, fine, inconspicuous hair; lateral margin armed at level of antennal insertion to epistoma by a very large, pointed denticle, margin above denticle subacutely angled; antennal club 2.1 times as long as wide. Pronotum 0.82 times as long as wide; surface reticulate, punctures rather coarse, deep, moderately close; without any tubercles or asperities; vestiture of fine, short, sparse hair. Elytra 1.4 times as long as wide, 1.8 times as long as pronotum; striae feebly impressed, punctures rather small, distinctly impressed; interstriae twice as wide as striae, surface

smooth, shining (obscurely shagreened), punctures minute, rather sparse, each with a row of fine tubercles (reduced in size toward declivity, almost absent on declivity). Declivity confined to slightly more than posterior one-third, convex, steep; strial punctures much smaller than on disc. Vestiture (both ground and erect setae) of fine hair of moderate length and abundance.

Female: Similar to male except frons convex, lateral margins not marked, a distinct transverse callus on median two-thirds at middle; lateral areas of pronotum with several subgranulate irregularities.

Distribution: Venezuela: Merida, Merida, 22-IX-1969, 1700 m, No. 14, native bamboo, SLW.

Biology: Boring in nodes of the host.

Notes: The above treatment was based on the holotype, allotype, and 56 paratypes.

Chramesus hylurgoides Schedl

Chramesus hylurgoides Schedl, 1963:214. Lectotype ♀; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:266)

Diagnosis: Distinguished from *macrocornis* Wood by the striae being not at all impressed on the disc or declivity, the punctures also are very weakly impressed; by the much less abundant, almost uniseriate declivital setae; and by the enlarged eyes that are narrowly separated above.

Male: Not seen, probably similar to male *macrocornis*.

Female: Length 2.6–2.7 mm, 2.2 times as long as wide; color dark brown, pronotum almost black. Frons convex above, with a central fovea, transversely impressed on lower third; surface weakly reticulate, punctures small, shallow, obscure above, almost obsolete below; eyes enlarged, separated above by distinctly less than width of an eye; vestiture short, sparse, inconspicuous; antennal club 2.2 times as long as wide. Pronotum 0.88 times as long as wide; widest at base, weakly arcuate and converging toward broadly rounded anterior margin; surface strongly reticulate, punctures small, shallow, some on anterior half weakly tuberculate; vestiture hairlike, rather short, moderately numerous. Elytra 1.5 times as long as wide, 1.8 times as long as pronotum; disc occupying more than basal two-thirds of elytra length; about 8 small, submarginal crenulations behind basal row; striae not at all impressed, punctures small, shallow; interstriae three times as wide as striae, almost smooth, punctures very small, those on 2 and basal half of 3 weakly tuberculate. Declivity broadly convex, very steep; smoother than on disc, punctures smaller, in rows, those of interstriae not tuberculate. Vestiture of minute strial hair and larger, rather short interstitial hair, confused on disc, uniseriate and mostly obsolete on declivity.

Distribution: Brazil: Nova Teutonia, Santa Catarina, V-1967, 300–500 m, F. Plaumann.

Hosts: Probably native bamboo.

Notes: This species was based on female syntypes. The subsequent designation of a “holotype” and an “allotype” (Schedl 1979:120) is invalid. I here designate his

female "holotype" as the lectotype of this species. His "allotype" is also a female and, hence, invalid.

Chramesus bispinus Wood

Plate XXI

Chramesus bispinus Wood, 1982:225. Holotype ♂; Tenerife, Valle del Cauca, Colombia; USNM, Washington (References in Wood & Bright c1992:264)

Diagnosis: Ground cover setae on pronotum and elytra scalelike; declivity beginning at middle of elytra length, interstriae 3 armed on middle of declivity by one pair of very large spines.

Male: Length 1.9–2.0 mm, 2.0 times as long as wide; color dark brown, vestiture forming a pattern of about 50 percent dark and 50 percent pale scales. Frons impressed on median three-fourths (narrower than other species) from epistoma to well above upper level of eyes, a transverse elevation at level of antennal insertion somewhat dividing impressed area into 2 separate concave impressions; surface reticulate, with isolated granules; vestiture rather short, coarse, moderately abundant; antennal club only slightly asymmetrical, 2.3 times as long as wide. Pronotum 0.81 times as long as wide; surface smooth, shining, punctures fine, abundant, largely concealed by vestiture of abundant ground scales, each scale about twice as long as wide (central area dark, base and sides pale); tubercles apparently absent. Elytra 1.3 times as long as wide, 1.7 times as long as pronotum; striae 1 broadly, others not impressed, punctures very small, impressed; interstriae four times as wide as striae (except 1), smooth, shining, punctures small, numerous, confused. Declivity beginning on interstriae 1 slightly anterior to middle, steep on posterior third, somewhat sulcate to spines at middle of declivity, somewhat narrowly flattened below; middle of interstriae 3 armed by one pair of very large, cylindrical, pointed spines (resembling some male *Pityogenes*) that converge caudomesad, surface of spines closely punctured and with setae to their apices; striae not evident on face of declivity below spines. Vestiture of ground cover of abundant short, interstitial scales on disc and sides, each interstriae with a central row of erect bristles, those on 1–3 rather long anterior to spines, shorter at base and sides, longer laterally toward declivity, shorter below spines on face of declivity.

Female: Similar to male except frontal impression weaker above, absent below; pronotum with more than a dozen rather coarse crenulations in lateral areas; erect interstitial setae shorter; spines as in male.

Distribution: Colombia: Tenerife, Valle del Cauca, IX-1980, 2900 m, *Passiflora mollisima*, Patricia Chacon.

Hosts: *Passiflora mollisima*.

Biology: Adult specimens were removed from the tunnels in a cut stem of the host.

Notes: The above treatment was based on the holotype, allotype, and 5 paratypes.

Chramesus dentellus Wood, n. sp.

Plate XXII

Chramesus dentellus Wood: Holotype ♂; 10 km NW Banos, Ecuador; USNM, Washington, designated below

Diagnosis: Male declivital interstriae 3 armed by three or more coarse denticles; male frons shallowly concave, lateral margin below level of antennal insertion armed by a pair of small denticles; body form rather slender, elytral setae of fine hair.

Male: Length 1.9–2.0 mm, 2.2 times as long as wide; color dark brown, vestiture mostly pale. Frons broadly, weakly concave from epistoma to upper level of eyes; surface weakly reticulate, with rather sparse, minute punctures; vestiture of short, moderately abundant, fine hair; lateral margin subacute at level of antennal insertion, armed by a blunt, moderately large tubercle between epistoma and level of antennal insertion; antennal club 2.0 times as long as wide. Pronotum 0.86 times as long as wide; surface strongly reticulate, punctures rather coarse, deep, close throughout, a few small granules on anterolateral areas. Elytra 1.4 times as long as wide, 2.0 times as long as pronotum; striae 1 weakly, others not impressed, punctures small; interstriae twice as wide as striae, almost smooth, punctures minute, moderately abundant, confused. Declivity confined to posterior one-fourth, very steep, strongly sulcate between interstriae 3; striae obsolete on declivity; interstriae 3 armed by three coarse denticles (each higher than wide) on middle half, one or two smaller denticles above or below these, a small denticle usually present at base of 2, three to five small denticles usually present in lateral areas on each side. Vestiture of fine, confused hair, somewhat longer toward declivity.

Female: Similar to male except frons modestly convex, a low median callus from central fovea to level of antennal insertion; declivity feebly impressed, spines replaced by small tubercles; vestiture shorter.

Distribution: Ecuador.

Type material: The male holotype, female allotype, and 6 paratypes were taken 10 km NW Banos, Ecuador, 26-IV-1978, ex dead Bromeliaceae flower stalk, L. & C.W. O'Brien, Marshall. The holotype, allotype, and paratypes are in U.S. National Museum, Washington.

Biology: Breeding in a Bromeliaceae flower stalk.

Chramesus subtuberculatus Eggers

Chramesus subtuberculatus Eggers, 1951:146. Holotype ♂; Colombia (Hochland von Bogota); NHMW, Wien (References in Wood & Bright c1992:269)

Diagnosis: Distinguished from *tuberculatus* (Chapuis) by the larger size; by the larger spines on declivital interstriae 3; and by the smaller strial punctures.

Male: Length 3.5 mm, 2.3 times as long as wide; color light reddish brown. Frons similar to *tuberculatus*, except costa on lateral margin subacute on its lower half, rising distinctly to a subdentate summit about half

distance to upper level of eyes, lower and more broadly rounded above; surface mostly shining below, with punctures distinct, more numerous, weakly reticulate on upper half; fine vestiture slightly more numerous. Pronotum about as in *tuberculatus* except lateral asperities slightly smaller; punctures in median area partly tuberculate. Elytra similar to *tuberculatus*, moderately sulcate on declivity; discal striae with punctures smaller; interstriae about three times as wide as striae. Declivital interstriae 3 slightly elevated, armed by six to eight subacutely pointed moderately large denticles, none longer than distance equal to its basal width; 4 and 5 each with a similar row of smaller tubercles, 6–9 unarmed; ground setae mostly restricted to declivity.

Distribution: Colombia: Bogota highlands, 1914, E. Pehlke S.

Notes: The above treatment was based on the slightly crushed male holotype from Colombia.

Chramesus tuberculatus (Chapuis)

Chramesus tuberculatus (Chapuis), 1869:47 (*Rhopalopleurus*). Lectotype ♂; Colombia [published as Nouvelle Grenada]; IRSNB, Brussels, present designation (References in Wood & Bright c1992:270)

Diagnosis: Distinguished from *dentellus* Wood by the larger size; by the male frons; by the stronger male declivital sulcus; and by the larger, more numerous declivital spines.

Male: Length 2.3–2.6 mm, 2.2 times as long as wide; color light reddish brown. Frons broadly, rather strongly concave from distinctly elevated epistoma to very slightly below upper level of eyes; lateral margins from very weak denticle at epistoma continuously costate one-half distance to upper level of eyes; surface of concavity reticulate, sparse, minute punctures obscure; vestiture rather sparse, of a mixture of fine and rather coarse hairlike setae of moderate length; eyes rather coarsely faceted for this genus; antennal club 2.3 times as long as wide, its apex narrowly rounded. Pronotum 0.80 times as long as wide, a moderate constriction just behind anterior margin; surface weakly reticulate, shining; lateral one-fourth with fine, low, subasperate crenulations, central area rather finely, shallowly, closely punctured; setae rather abundant, recumbent, weakly flattened, moderately coarse. Elytra 1.5 times as long as wide, 2.1 times as long as pronotum; crenulations on basal margins well developed, about five to seven submarginal crenulations scattered on bases of interstriae 2 to 5; striae not impressed, punctures oval, moderately deep, rather close; interstriae weakly convex, about one and one-half times as wide as striae, surface smooth, shining, weakly wrinkled between fine, setiferous punctures of erect setae; ground setae very sparse on disc, moderately abundant on declivity. Declivity moderately steep, rather strongly sulcate between left and right interstriae 3; suture feebly elevated, interstriae 2 strongly impressed, narrower than on disc, tapered to its apex, one small tubercle often near base on 1 and 2; 3 moderately elevated,

armed by six to nine coarse denticles (largest just below middle), 4–9 with a few, rounded, subdentate tubercles. Vestiture on declivity with erect setae discontinued on interstriae 1 and 2, ground setae moderately abundant, rather stout, about half as long as erect setae. Protibia with 11 socketed denticles.

Distribution: Colombia: “Colombie.”

Notes: The 2 male syntypes in the Chapuis collection were used to prepare the above treatment. The first syntype is here designated at the lectotype of *Rhopalopleurus tuberculatus* Chapuis. This specimen is slightly crushed but has all antennae and legs present.

Chramesus erinaceus Schedl

Chramesus erinaceus Schedl, 1967:7. Holotype ♂; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:265); Schedl (1978:295) described female

Diagnosis: Distinguished by the large size and stout body form; by the occurrence on the male declivity on interstriae 2 a row of basally separate very large, pointed spines, rows of smaller spines on 3 and 4; and by other characters described below.

Male: Length 2.4–2.5 mm, 1.6 times as long as wide; color dark reddish brown. Frons deeply, broadly concave from epistoma to well above upper level of eyes; concave area strongly reticulate on upper half, weakly reticulate below and subglabrous; lateral margin acute, strongly elevated from level of antennal insertions and slightly above into a large spine directed dorsad. Pronotum 0.70 times as long as wide; surface reticulate, dull, punctures small, rather numerous, none tuberculate or asperate; vestiture of 2 kinds, on discal area partly of slender, almost hairlike setae equal in length to scales, and scales (each about 4 times as long as wide) over entire surface. Elytra 1.05 times as long as wide, 1.5 times as long as pronotum; bases with 0–5 very small submarginal crenulations behind basal row; disc occupying basal two-thirds of elytral length; striae abruptly, distinctly impressed on middle two-thirds, not impressed near base or near elytral apex; interstriae weakly convex, about twice as wide as striae, almost smooth, appearing dull, punctures minute, obscure, numerous, 1 unarmed throughout, 2 armed from middle of disc to lower fourth of declivity by eight coarse, sharply pointed spines (first and last one or two of them smaller), longest equal in length to width of an interstriae, each at least twice as long as its basal width, 3 and 4 similarly armed except spines half as large as on 2, 5 and 6 each with about eight small spines on posterior half. Declivity broadly convex, gradual above, steep below, weakly impressed on 1; spines obsolete on lower fifth. Vestiture of ground cover of abundant short scales, each less than twice as long as wide, and central rows of slender bristles associated with spines, each bristle half as long as distance between rows.

Female: As in male except frons very shallowly concave; elytral spines half as large (Schedl 1978:295).

Distribution: Brazil: Nova Teutonia, Santa Catarina, X-1965, 300–500 m, F. Plaumann.

Notes: The above treatment was based on the male holotype and on the subsequently designated female allotype (Schedl 1978:295).

Chramesus spinosus Brethes

Chramesus spinosus Brethes, 1921:167. Syntypes, sex?; La Plata, Argentina; not located (Synonymy and references in Wood & Bright c1992:269)

Chramesus cristatus Schedl, 1963:213. Lectotype ♀; Nova Teutonia, Santa Catarina, Brazil, 300–500 m; NHMW, Wien, present designation

Chramesus dentipes Schedl, 1978:295. Holotype ♂; Nova Teutonia, Santa Catarina, Brazil, 300–500 m; NHMW, Wien (References in Wood & Bright c1992:265). *New synonymy*

Diagnosis: Distinguished from *erinaceus* Schedl by the smaller, more slender body form; by the more shallowly concave frons, with different sculpture; and by the presence of spines only on interstriae 2 and 4.

Male: Length 1.8–2.3 mm, 2.0 times as long as wide; color dark reddish brown, vestiture pale. Frons moderately concave from epistoma to upper level of eyes, sometimes weakly concave on lower fifth, reticulate above, smooth, shining and closely, finely punctured below; lateral margins moderately elevated on lower two-thirds, a weak to moderately large denticle (variable) at or immediately above level of antennal insertion; upper half of frons with several moderately long, coarse setae associated with minute punctures. Pronotum 0.71 times as long as wide; surface reticulate, punctures very shallow, rather numerous; vestiture partly of small, fine recumbent hair, and suberect scales in equal numbers, each scale about four to six times as long as wide. Elytra 1.4 times as long as wide, 2.0 times as long as pronotum; basal area with about 5 small, submarginal crenulations behind basal row; disc indefinite, occupying basal half; striae not impressed, punctures coarse, deep; interstriae slightly wider than striae, surface smooth, shining, punctures minute, obscure, rather numerous; interstriae 1 unarmed, slightly impressed from posterior third of disc to near apex on declivity, 2 in this same area armed by a row of about nine coarse, pointed spines to near apex, each spine about equal in length to width of an interstriae and twice as long as its basal width; 3, 5, and 7 unarmed; 4 armed on declivity by about eight much smaller spines (half as large as on 2); 6 with about four small, pointed tubercles. Declivity very gradual above, steep below, shallowly impressed on interstriae 1; striae distinct, interstriae as described above. Vestiture of ground cover of numerous, short, interstitial scales, each about twice as long as wide, and stout, erect bristles in central rows (not visible on basal third) varying in length from half to full width of an interstriae.

Female: Similar to male except frons almost flat, lateral elevation and spine absent; elytral spines half to two-thirds as large.

Distribution: Argentina to Brazil.

Argentina: La Plata; Buenos Aires, Pilar, X-1939, M.J. Viana.

Brazil: Nova Teutonia, Santa Catarina, X-1960, 300–500 m, F. Plaumann; Faz. Pau d'Alho-Itti, Sao Paulo, 6-VIII-1960, U. Martins.

Hosts: *Acacia cavenia*, *A. bonariensis*.

Notes: The above treatment was based on 2 males and 2 females from Argentina and on 2 males and 1 female from Brazil, including the female lectotype and and 1 male paralectotype of *cristatus* Schedl. Schedl's (1979:70) citation of a holotype of *cristatus* is not valid. I here designate that female (Schedl's "holotype") as the lectotype of *Chramesus cristatus* Schedl. Schedl's male holotype of *dentipes* was examined and was found to be a junior synonym of *spinosus*.

Chramesus phloeosinites Schedl

Chramesus phloeosinites Schedl, 1951:89. Holotype ♂; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:267)

Diagnosis: Distinguished from *erinaceus* Schedl and *spinosus* Brethes by the occurrence of a row of about 14 blunt, basally contiguous spines on interstriae 2, interstriae 3 to 7 unarmed in male, except 4 armed near its apex by five to seven small denticles.

Male: Length 2.3–2.5 mm, 2.1 times as long as wide; color yellowish brown, vestiture pale. Frons deeply concave from epistoma to slightly above upper level of eyes, upper two-thirds reticulate, lower third shining; lateral margin at level of antennal insertions acutely elevated into an obtuse, moderate tubercle; concave area with moderately abundant long setae. Pronotum 0.80 times as long as wide; surface reticulate, punctures very small, obscure, numerous; tubercles and asperities entirely absent; vestiture partly of sparse, fine, short hair, partly of numerous, erect scales, each scale about six times as long as wide. Elytra 1.5 times as long as wide, 2.1 times as long as pronotum; basal area with about 7 submarginal crenulations; disc occupying basal two-thirds of elytral length; striae not impressed, punctures large, deep; interstriae slightly wider than striae, smooth, shining, punctures small, numerous, some feebly granulate. Declivity steep, shallowly sulcate on interstriae 1, convex laterally; interstriae 2 strongly, narrowly elevated and armed by a row of fourteen to fifteen large, blunt, basally contiguous spines from base of declivity almost to apex; interstriae 4 with six or seven very small tubercles near its apex. Vestiture of short ground setae, almost hairlike on basal half of elytra becoming slender scales on declivity, and central rows of erect, stout bristles equal in length to two-thirds distance between rows.

Female: Similar to male except frons weakly convex, with a strong central fovea, surface finely rugose-reticulate, with moderately abundant, stout setae of almost uniform length; elevation on declivital interstriae 2 not as strong, shorter, armed by six or seven basally contiguous spines; interstriae 4 with six small, isolated tubercles.

HYPOBORINI

Distribution: Brazil: Nova Teutonia, Santa Catarina, XI-1940, F. Plaumann.

Notes: The above treatment was based on the male holotype from Brazil. A female from a subsequent collection was also examined. Although apparently named

from a syntypic series, the only known original specimen is a male in the Schedl Collection that was labeled by Schedl as the holotype. This holotype and Schedl's female were examined.

TRIBE HYPOBORINI

Description: Frons sexually dimorphic or not, male often impressed, female either convex or less strongly impressed; eye entire; antennal funicle 4- to 5-segmented in Neotropical species; club with up to 3 sutures indicated by rows of setae, sutures absent in some species; pronotum variously armed in restricted areas; procoxae contiguous, tarsal segment 3 narrow; scutellum not visible; crenulations on elytral bases not con-

tinued laterad from interstriae 5; postnotum fused to metatergum.

Biology: All are monogynous and phloeophagous. In *Hypoborus* and *Liparthrum* the parental gallery is a simple oval cave. In *Chaetophloeus* up to 4 short egg galleries radiate from a large nuptial chamber. Larval mines radiate from the parental chamber or egg gallery and are visible on peeled bark.

Key to the Genera of Hypoborini

- 1. Protibia strongly flattened, rather broad, lateral apical half armed by a row of 7–10 closely set socketed teeth; pronotal asperities confined to 2 or 3 paired clusters on lateral thirds, each cluster containing 1–5 asperities; funicle 5-segmented, club with or without 3 sutures *Chaetophloeus*
- Protibia slender; lateral margin armed by about 4 rather widely spaced, socketed teeth; pronotal asperities mostly on median one-third, more abundant 2
- 2(1). Antennal funicle 4-segmented, club devoid of sutures; meso- and metatibiae slender; about equal to protibia *Liparthrum*
- Funicle 5-segmented, club with three obscure sutures; meso- and metatibiae rather strongly flattened, much wider and more coarsely serrate than protibiae; host *Ficus carica* *Hypoborus*

GENUS *CHAETOPHLOEUS* LeConte

Chaetophloeus LeConte, 1876:382. Type-species: *Hylesinus hystrix* LeConte, monobasic (Synonymy and references in Wood & Bright c1992:271–274)

Renocis Casey, 1886:257. Type-species: *Renocis heterodoxus* Casey, monobasic

Pseudocryphalus Swaine, 1917:20. Type-species: *Pseudocryphalus brittaini* Swaine = *Renocis heterodoxus* Casey, original designation

Diagnosis: Pronotal asperities restricted to 2 small, paired clusters in lateral areas (each cluster with 1–3 asperities); interstitial setae abundant, confused; protibiae broad.

Description: Length 1.1–2.5 mm, 1.4–2.1 times as long as wide; color brown to black, vestiture pale. Frons sexually dimorphic, male more strongly impressed,

female often convex; eye elongate, sinuate to feebly emarginate; antennal scape rather short, funicle 5-segmented, club slender to subcircular, usually marked by 3 transverse, aseptate sutures (absent in 1 species); pronotum wider than long, armed by 2 paired clusters of asperities (South American species) on lateral areas; elytral bases armed by crenulations from suture to striae 4, one submarginal crenulation at base of interstriae 1; tarsal segment 3 slender; vestiture of plumose to scale-like setae, often in various patterns of dark and pale scales.

Distribution: Canada to Brazil, Wood & Bright (1992: 271–274) record 23 species, 2 of which occur in South America.

Biology: All species are monogynous and phloeophagous. Most species breed in twigs or branches less

than 5 cm in diameter, although 1 species has been taken in boles larger than 30 cm in diameter. The male initiates the new attack and forms a large nuptial chamber at and below the cambium area and he may begin 1–4 short egg galleries. When he is joined by a female,

she then completes 1–4 egg galleries. Eggs are placed individually in niches and packed in frass. Larval mines radiate from the parental chambers. Adult and larval tunnels usually engrave the wood rather deeply. More than one generation each year is common.

Key to the Species of *Chaetophloeus*

- 1. Erect interstitial bristles (in rows) short, stout, each about twice as long as wide, about one-third as long as distance between rows; eyes smaller, separated above by 2.4 times width of an eye; emargination of male frons not as deep (occupying about one-fifth distance to upper level of eyes); male frons more evenly, more broadly, more extensively concave; Brazil (Ceara); host?; 1.2–1.4 mm *braziliensis* (Blackman)
- Erect interstitial bristles longer, more slender, each at least six times as long as wide, about one-half as long as distance between rows; eyes larger, separated above by 1.9 times width of an eye; emargination of male epistoma very deep (about two-fifths distance to upper level of eyes; male frons more narrowly concave, largely confined to upper half; Venezuela; *Mimosa*; 1.3–1.8 mm *andinus* Wood

Chaetophloeus braziliensis (Blackman)

Plate XXV

Chaetophloeus braziliensis (Blackman), 1940:398 (*Renocis*). Holotype ♀; Ceara, Brazil; USNM, Washington (References in Wood & Bright c1992:271)

Diagnosis: Distinguished from *andinus* Wood by the smaller average size; by the shorter, stouter, erect interstitial scales; by the smaller more finely faceted eyes; and by the very different male frons.

Male: Length 1.2–1.4 mm, 1.7 times as long as wide; color brown, vestiture pale. Frons broadly, moderately concave from broadly emarginate epistoma to well above upper level of eyes, epistomal emargination extending 16 percent of distance toward upper level of eyes; surface almost smooth, shining, with fine, isolated granules; vestiture in central area of fine, rather sparse hair of moderate length, lateral and upper margins with a row of rather coarse, long setae; anterior angle of mandible extended into a moderately long spine; antennal club 1.9 times as long as wide, sutures obscurely indicated by rows of setae, almost obsolete. Pronotum 0.95 times as long as wide; surface reticulate, punctures fine, rather close; asperities in 2 pair of clusters in lateral areas, 1 or 2 slender crenulations in each cluster; vestiture of 2 kinds of short setae in about equal numbers, 1 type slender, almost hairlike, second type stout, each about 4 times as long as wide. Elytra 1.2 times as long as wide, 1.8 times as long as pronotum; striae weakly impressed, punctures small, distinct; interstriae about twice as wide as striae, almost smooth, shining, each with a central row of granules, with a row of short, stout, recumbent setae on each margin, granules bearing erect bristles, each bristle about twice as long as wide, about one-third as long as distance between rows, spaced within a row by length of a bristle. Declivity confined to slightly less

than posterior half, convex, steep; sculpture about as on disc except tubercles obsolete.

Female: Similar to male except frons convex above, modestly, transversely impressed on lower half, setae short, stout, uniformly distributed; epistomal margin almost straight.

Distribution: Brazil: Ceara, 1947, D. da Rocha.

Notes: The above treatment was based on 10 specimens bearing identical data to the type series that were compared directly by me to the type series.

Chaetophloeus andinus Wood

Plate XXIV

Chaetophloeus andinus Wood, 1971:9. Holotype ♂; 3 km E Lagunillas, Merida, Venezuela; USNM, Washington (References in Wood & Bright c1992:271)

Diagnosis: Distinguished from *braziliensis* (Blackman) by the larger average size; by the longer, more slender, erect, interstitial setae; by the larger, more coarsely faceted eyes; and by the very different male frons.

Male: Length 1.3–1.8 mm, 1.7 times as long as wide; color brown, vestiture pale. Frons shallowly, somewhat narrowly subconcave to upper level of eyes; epistoma deeply emarginate, about two-fifths distance toward upper level of eyes; surface apparently subgranular, punctures obscure, vestiture coarse (subplumose), moderately long in central area, much longer at margins; anterior angle of mandible extended into a spine; antennal club 2.0 times as long as wide, sutures clearly indicated by aseptate sutures and rows of setae. Pronotum 0.63 times as long as wide, about as in *braziliensis*. Elytra 1.2 times as long as wide; striae weakly impressed, punctures small, distinct; interstriae twice as wide as striae, surface almost smooth, without a row of tubercles, ground setae as in *braziliensis*, erect bristles each about four

times as long as wide, half as long as distance between rows, spaced within a row by less than length of a bristle. Declivity confined to posterior one-third, convex, moderately steep on basal two-thirds, very steep below; striae and interstriae sculpture similar to disc.

Female: Similar to male except frons broadly convex, epistoma weakly, broadly emarginate, vestiture on frons much shorter; asperities on pronotum of same number but larger.

Distribution: Venezuela: 3 km E Lagunillas, Merida, 12-I-1970, 1000 m, No. 256, *Mimosa*, SLW.

Biology: Specimens were removed from the phloem of small branches.

Notes: The above treatment was based on the holotype, allotype, and 26 paratypes.

GENUS *LIPARTHURUM* WOLLASTON

Liparthrum Wollaston, 1854:294. Type-species: *Liparthrum bituberculatum* Wollaston, original designation (Synonymy and references in Wood & Bright c1992:274–275)

Erineosinus Blackman, 1920:53. Type-species: *Erineosinus squamosus* Blackman, monobasic

Phloeochilus Schedl, 1953:292. Type-species: *Phloeochilus palaquius* Schedl, original designation

Phloeotrypetus Wood, 1960:16. Type-species: *Phloeotrypetus palauensis* Wood, original designation

Dacryophthorus Schedl, 1971:281. Type-species: *Dacryophthorus brincki* Schedl, original designation

Trypanophellos Bright, 1982:166. Type-species: *Trypanophellos necopinus* Bright, original designation

Diagnosis: Distinguished from *Chaetophloeus* by the smaller size; by the more slender body form; by the 4-segmented antennal funicle; by the unsegmented antennal club; by the anteromesal position of pronotal asperities; and by other characters.

Description: Length 0.75–1.2 mm, 2.2–2.4 times as long as wide; color dark brown. In these 2 South American species the frons is sexually dimorphic, broadly concave in male, convex in female; eye oval, short, entire; antennal scape elongate, funicle 4-segmented, club aseptate, without indications of sutures. Pronotum about as long as wide, with minute asperities on median area from near anterior margin almost to base. Scutellum not visible. Elytra with basal margins armed by six pair of crenulations from suture to striae 5; striae not impressed, punctures distinct or not; declivity convex, steep, unarmed.

Distribution: There are 36 species recorded worldwide (Wood & Bright c1992:274–279). Of these, 10 occur in North America and the Antilles Islands, 2 occur in South America.

Biology: Most species are phloeophagous where a large cave-type parental chamber is formed in the cambium area. On the margins of this chamber egg niches are formed where eggs are placed individually in niches and packed in frass. One Asiatic species was removed from fallen fruit on the rainforest floor.

Key to the Species of *Liparthrum*

- 1. Pronotum larger, subquadrate in outline; striae punctures not clearly evident, almost obsolete; declivital interstriae 2 with erect, scalelike setae similar to those on 1 and 3; half of impressed area on male frons above upper level of eyes; body color reddish brown; Venezuela; *Carapa guianensis*; 0.9–1.2 mm **carapae** Wood
- Pronotum smaller, subtriangular in outline; striae punctures rather large, impressed; erect setae on declivital interstriae 2 slender, appearing as short, stout hair, those on 1 and 3 clearly scalelike; less than one-fourth of impressed area on male frons above upper level of eyes; body color dark brown; Venezuela (Merida); small, unidentified, resinous shrub; 0.75–0.85 mm **meridensis** Wood

Liparthrum carapae Wood

Plate XXV

Liparthrum carapae Wood, 1971:9. Holotype ♂; Campamento Rio Grande, 30 km E Palmar, Bolivar, Venezuela; USNM, Washington (References in Wood & Bright c1992:276)

Diagnosis: Larger than *meridensis* Wood and reddish brown in color; striae punctures not clearly evident, almost obsolete; declivital interstriae 1–3 with similar sculpture and vestiture, 2 with erect scales as on 1 and 3; half of male frontal concavity above upper level of eyes.

Male: Length 0.9–1.2 mm, 2.4 times as long as wide; color reddish brown, vestiture pale. Frons concave from

epistoma to vertex, almost half of concavity above upper level of eyes; surface shining, punctures minute, concave area almost glabrous, a brush of long hair on upper margin. Pronotum 1.0 times as long as wide, subquadrate in outline; surface subreticulate, with minute, isolated asperities on median area almost to base; vestiture of fine recumbent hair and sparse erect, slender scales. Elytra 1.4 times as long as wide, 1.4 times as long as pronotum; striae not impressed, punctures obscure to obsolete, recognized by insertion of striae hair where punctures should occur; interstriae minutely irregular, not smooth, each with a row of small setiferous granules. Declivity confined to posterior one-third of elytra length, convex, steep; striae and interstriae slightly narrower than

on disc, interstitial granules slightly larger. Vestiture of short, recumbent strial hair and a central uniseriate row of erect scales on each interstriae, each scale almost as wide as long, about half as long as distance between rows, spaced within a row by length of a scale.

Female: Similar to male except frons convex, vestiture short, sparse, inconspicuous; pronotum with asperities much larger and more conspicuous.

Distribution: Venezuela: Campamento Rio Grande, 30 km E Palmar, Bolivar, 12-VI-1970, 200 m, No. 580, *Carapa guianensis*, SLW.

Biology: Specimens attacked a recently felled bole of the host about 40 cm in diameter. Cave-type parental chambers were in the cambium area, with eggs placed individually in niches and packed in frass around the peripheral margin of the chamber. New larval mines were just beginning and showed on peeled bark.

Notes: The above treatment was based on the holotype, allotype, and 210 paratypes.

Liparthrum meridensis Wood

Plate XXVI

Liparthrum meridensis Wood, 1971:10. Holotype ♂; 5 km E Lagunillas, Merida, Venezuela; USNM, Washington (References in Wood & Bright c1992:278)

Diagnosis: Smaller than *carapae* Wood and dark brown in color; erect setae on declivital interstriae 2 slender, almost hairlike, those on 1 and 3 scalelike; male frontal concavity extending only slightly above upper level of eyes.

Male: Length 0.75–0.85 mm, 2.2 times as long as wide; color very dark brown, vestiture pale. Frons shallowly concave from eye to eye from epistoma to upper level of eyes; surface reticulate, punctures minute; vestiture on lateral and dorsal margins longer and more numerous. Pronotum 0.86 times as long as wide, subtriangular in outline; surface subreticulate, with rather abundant granules or small asperities on median two-

thirds to base. Elytra 1.4 times as long as wide, 1.6 times as long as pronotum; striae not impressed, punctures moderately large, rather deep; interstriae slightly narrower than striae, smooth, each with a row of setiferous punctures. Declivity confined to slightly more than posterior one-fourth of elytra length; convex, steep; sculpture about as on disc. Vestiture of uniseriate rows of short, recumbent strial hair and uniseriate rows of erect interstitial scales, each scale slightly longer than wide except almost hairlike on posterior half of 2, each slightly shorter than half distance between rows, spaced within a row near base by twice length of a scale, on declivity by less than length of a scale.

Female: Similar to male except frons convex, vestiture short, sparse, inconspicuous.

Distribution: Venezuela: 5 km E Lagunillas, Merida, 12-I-1970, 1000 m, No. 238, a small resinous shrub, SLW.

Host: Small, abundant, resinous, roadside shrub.

Biology: Galleries appeared to be similar to those of *carapae*.

Notes: The above treatment was based on the holotype, allotype, and 68 paratypes.

GENUS *HYPOBORUS* ERICHSON

Hypoborus Erichson, 1836:62. Type-species: *Hypoborus ficus* Erichson, monobasic (Synonymy and references in Wood & Bright c1992:279–281)

Diagnosis: Closely allied to *Liparthrum* but distinguished by the 5-segmented antennal funicle and by the clearly marked sutures on the club.

Notes: This genus, represented by *H. ficus* Erichson, is widely distributed in southern Europe, Asia Minor, northern Africa, and Madagascar. It has not yet been reported from North or South America, but the frequency with which the host, *Ficus carica* (cultivated fig), is grown in these areas suggests that its introduction there is only a matter of time.

SUBFAMILY SCOLYTINAE

The subfamily Scolytinae as presented here is based on Wood (1978, 1982, 1986), and Wood & Bright (c1992). It differs significantly from that of other previous authors.

The Scolytinae have the basal margins of the elytra forming a straight, transverse line across the body. These basal margins are usually unarmed [except armed by crenulations in South American *Cnemonyx* species allied to *galeritus* (Eichhoff)]. In several tribes (some Scolytini, Ctenophorini, Cryphalini) these margins may be weakly elevated on a continuous, smooth line. The scutellum is usually large and flat, although it may be absent or variously modified in some Xyleborini. The pronotum is usually weakly to more strongly declivous on the anterior half and is usually armed by asperate crenulations,

particularly on the median half. The head is usually partly to entirely concealed from the dorsal aspect and is slightly narrower than the pronotum. The protibiae are usually more slender than in Hylesiniinae and, in Scolytini, have secondarily lost their socketed denticles. Scales or deeply divided setae are an uncommon feature of this subfamily, although both features occur here in some tribes.

Inbreeding polygyny, with apparent male haploidy and dwarfism, and the xylomycetophagous habit, are much more common and widespread than in Hylesiniinae.

A key to the tribes of Scolytinae is included under "Family Scolytidae" following the introductory section of this volume.

TRIBE SCOLYTINI

Description: Lateral margins of pro- and (usually) metatibiae unarmed by spines or socketed denticles except for a single, apical spinelike process on lateral apical angle that curves toward and extends beyond inner apical angle. Recent research in Ctenophorini indicates that socketed tibial denticles were present, but were lost secondarily in that tribe from which the Scolytinae may have been derived (Jordal 1998). Lateral margins of pronotum subacutely elevated and costate. Antennal funicle 7-segmented; sutures of antennal club strongly procurved or partly to entirely obsolete. Pleural suture descending subvertically from pleural wing process to groove receiving groove and flange on costal margin of elytra, here this suture turns abruptly and follows this groove caudad to the metapleural coxal process. Male frons variously impressed, female frons convex. Eye oval and entire. Scape short to elongate; club strongly flattened.

Distribution: Four genera are known. Three of the 4 genera are restricted to South and Central America, the Antilles islands, and the southern, subtropical tip of Florida (USA). A limited segment of the character diversity of *Scolytus* extended into North America and a still more limited segment reached Asia and Europe where a substantial, secondary radiation occurred. Of the 118 species of *Scolytus* listed by Wood & Bright (c1992: 321–382) 33 species, exhibiting great character diversity, occur in South America, while 60 species, of much more limited character diversity, occur in Asia, Europe, and northern Africa. It is quite obvious that the tribe originated in South America and had a long history of endemism there before migrating into north temperate areas.

Biology: Three of the 4 genera of Scolytinae are strictly phloeophagous. The *Camptocerus* have adopted a unique form of xylomycetophagy. All species of the tribe practice monogyny, except that the *dimidiatus* species group of *Scolytus* are regularly bigynous.

Key to the Genera of Scolytini
(Adapted from Wood 1986:58)

- 1. Scutellar area of interstriae 1 not depressed, scutellum flush (even) with surface of elytral bases, basal margins of elytra with a fine raised line (some *Cnemonyx* with crenulations in place of line), outline of anterior margins form a continuous, straight, transverse line with scutellum; ventral profile of abdomen ascending gradually 2
- Scutellum depressed, subtriangular, apically (posteriorly) pointed, elytral bases depressed in scutellar area, appearing emarginate in median area, ventral profile of abdomen usually ascending abruptly at segment 2 3

- 2(1). Antennal club usually with two or three sutures clearly marked by setae; scutellum small, longer than wide, often convex; apical margin of meso- and metathoracic tibiae commonly bearing tubercles on anterior edge in addition to inner and outer apical spines; usually more coarsely sculptured; phloeophagous; USA (Florida) and Mexico to Argentina; 1.0–3.9 mm . . . **Cnemonyx**
- Antennal club with suture 1 (only) marked internally by a partial septum; scutellum flat, 1.5 or more times as wide as long; meso- and metathoracic tibiae acutely margined on apical anterior edge, without supplemental denticles; usually very finely sculptured; xylomycetophagous; Nicaragua to Argentina; 2.6–8.5 mm **Camptocerus**
- 3(1). Basal portion of costal margin of elytra deeply, broadly excised, metepisternum conspicuously expanded into this notch; abdomen abruptly flexed upward at posterior margin of segment 2; phloeophagous; Mexico (Oaxaca) and Cuba to Argentina; 1.6–3.5 mm **Scolytopsis**
- Costal margin of elytra normal (straight) and overlapping metepisternum; abdomen flexed upward from anterior margin of segment 2; phloeophagous; North and South America, Europe, N Asia, N Africa; 1.3–5.5 mm **Scolytus**

GENUS *CNEMONYX* EICHHOFF

Cnemonyx Eichhoff, 1868:150. Type-species: *Cnemonyx galeritus* Eichhoff, monobasic (Synonymy and references in Wood & Bright c1992:313–318)

Ceratolepis Chapuis, 1869:52. Type-species: *Ceratolepis jucundus* Chapuis, monobasic

Loganius Chapuis, 1869:52. Type-species: *Loganius flavicornis* Chapuis, monobasic

Minulus Eggers, 1912:206. Type-species: *Minulus barbatus* Eggers = *Cnemonyx galeritus* Eichhoff, monobasic

Coptodryas Schedl, 1948:262. Type-species: *Coptodryas hylurgoides* Schedl, monobasic, preoccupied by Hopkins 1914:10, 54

Coptosomus Schedl, 1952:363. Type-species: *Coptodryas hylurgoides* Schedl, replacement name for *Coptodryas* Schedl

Diagnosis: Distinguished from *Camptocerus* by the presence of two or three sutures on the antennal club, indicated both externally and internally; by the scutellum that is longer than wide and is often convex; by the apical meso- and metathoracic tibiae commonly bearing tubercles on the anterior edge (as well as the usual apical mesal and lateral spines); and by the phloeophagous habit.

Description: Length 1.0–3.9 mm, 1.8–2.8 times as long as wide; color brown to black, vestiture sparse, short, of

scales and/or hair. Frons moderately to strongly concave in male, convex to shallowly impressed in female, its vestiture varying from absent to an elaborate brush of hair; antennal scape elongate, funicle 7-segmented, club flattened, with 2 or 3 sutures indicated internally and externally. Pronotum large, broad, unarmed. Scutellum flat to convex, usually longer than wide, its surface about equal to level of elytra. Elytral bases marked by a fine raised line (broken into marginal crenulations in some species); sculpture moderate, declivity gradual; abdomen rising slightly to moderately to meet apex of elytra.

Distribution: Mexico and S Florida (USA) to Argentina. Wood & Bright (c1992:313–318) list 49 species, 28 of which were reported from South America.

Biology: The monogynous, phloeophagous species bore biramous parental tunnels in the phloem of the limbs and boles of their hosts. These are characteristic for each species and may be either longitudinal (rare) or transverse (most species) with respect to the grain of wood in the host. Larval mines radiate through the phloem from the parental mines.

Key to the Species of *Cnemonyx*

1. Antennal club clearly marked by three sutures, sutures indicated by rows of definite, closely set, long hair; basal margins of elytra marked by a continuous costa; Venezuela to Brazil and Argentina; 2.2–2.4 mm **flavicornis** (Chapuis)
- Antennal club obscurely marked by suture 1, internal septum sometimes indicated, clearly marked on 2 and 3, club often asymmetrical, sometimes without definite rows of long hair 2
- 2(1). Discal interstriae (at least on basal half) with punctures (and setae, when present) clearly confused, striae punctures usually narrower, interstriae wider; mostly larger species 3
- Discal interstriae with punctures and setae (when present) uniseriate from base to declivity, striae usually wider, interstriae narrower; body often conspicuously more slender; mostly smaller species 12

SCOLYTINI

- 3(2). Antennal club more nearly symmetrical, all setae on club hairlike; male frons more shallowly, usually less extensively impressed 4
- Antennal club strongly asymmetrical, most setae on antennal club short, palmately divided; male frons more strongly, more extensively impressed 7
- 4(3). Frons with transverse carina at epistoma (not at level of antennal insertions); frontal vestiture more uniformly distributed, of somewhat uniform length, color pale 5
- Frons with primary transverse carina above epistoma situated at level of antennal insertions, a much weaker carina sometimes at epistomal margin; frontal vestiture organized into 2 areas separated by a median subglabrous line, at least part of setae much longer, of golden color 6
- 5(4). Male frons with a short, weak, transverse carina on epistoma and a strong, long, transverse carina slightly above level of antennal insertion, area above upper carina broadly, shallowly concave to well above upper level of eyes; female frons convex above, transversely impressed on lower half and with a weak median carina on lower third; Costa Rica and Panama to Venezuela and Bolivia; tree limb; 2.0–2.4 mm *panamensis* (Blandford)
- Male frons with a short, transverse carina at level of antennal insertion, epistomal margin unarmed, area above carina flattened below to weakly convex above; Colombia to Venezuela; *Protium*, *Virola*; 1.9–2.4 mm *protivorus* Wood
- 6(4). Epistoma modestly, transversely carinate on median one-fifth (or slightly more) more weakly elevated toward lateral extremities, frons shallowly, narrowly impressed almost to upper level level of eyes, surface reticulate-granulate, vestiture of fine, sparse, uniformly distributed hair; pronotum and elytra glabrous; Bolivia; 2.5 mm *glaber* (Eggers)
- Epistoma weakly, transversely carinate, an additional weak, transverse crest at level of antennal insertions, upper two-thirds shallowly concave in male, convex in female; pronotum and elytra covered by moderately abundant setae; Venezuela to Bolivia; *Trichilus propinguus*; 2.0–2.5 mm *vestitus* (Eggers)
- 7(3). Male frons broadly concave to upper level of eyes, epistoma flat, reticulate, without a transverse epistomal carina; discal interstriae subreticulate, punctures small, confused, vestiture of fine, moderately long hair; color dark brown 8
- Male frons variously concave, with a distinct, transverse epistomal carina; setae on discal interstriae minute to obsolete 9
- 8(7). (Based on female) Frons shallowly concave from epistoma to distinctly below upper level of eyes, without a weak, median carina at vertex; surface reticulate on and near epistoma, becoming rugose-reticulate on upper half of frons to vertex; interstitial punctures on disc about half as large as those of striae, uniseriate except slightly confused at and near base of 1 and 2, vestiture of rather stout, recumbent setae, their length on declivity equal to diameter of a strial puncture, twice as long near base on 1 and 2, setae uniseriate except weakly confused at base of 1 and 2; Brazil (Amazonas); 2.5 mm *amazonicus* (Eggers)
- (Based on male) Frons broadly, moderately concave from epistoma to slightly above upper level of eyes, a short, low, median carina at vertex; surface rugose-reticulate from epistoma to vertex; discal striae with punctures smaller, not as deep, interstriae three times as wide as striae; interstitial punctures on disc small, deep, close, confused, vestiture of fine, confused hair; Brazil (N. Fribourg); about 2.8 mm *jucundus* (Chapuis)
- 9(7). Smaller species; male frons moderately concave from near epistoma to well above upper level of eyes, a straight, transverse carina on epistoma with a series of transverse wrinkles above (dorsal) carina; interstriae with confused, subrugose punctures on basal half, each with a uniseriate row of minute granules on declivity, minute, hairlike setae arise from punctures; Honduras to Colombia; 1.8–2.3 mm *maculicornis* (Blandford)

- Larger species; male epistoma with a rather strongly elevated, transverse carina, shallowly concave on lower half to as much as upper level of eyes; interstriae on basal one-third with fine, uniseriate or confused punctures, becoming subcarinate to carinate on posterior half, glabrous 10
- 10(9). Interstriae on declivity more rounded, not subcarinate, tubercles larger, closer; declivity and upper two-thirds of frons strongly rugose-reticulate; interstitial setae on declivity small, each about four to six times as long as wide; French Guyane; 2.5–2.8 mm *niger* (Eggers)
- Interstriae on declivity weakly subcostate, tubercles on crests smaller, not as close; upper declivity and upper frons finely, strongly reticulate; interstitial setae on declivity more slender and smaller to obsolete 11
- 11(10). Male frons more strongly concave to upper level of eyes, epistomal carina procurved; interstitial punctures on basal third of elytra much smaller, their anterior margin feebly elevated, never subcrenulate; punctures on pronotum slightly smaller, not as deep, longitudinal striations less conspicuous; striae punctures on declivity weak to obscure, rugose-reticulation covering entire declivity, interstriae obscurely subcostate, tubercles minute to obscure; Costa Rica to Colombia and Venezuela; *Vismia*; 3.5–3.9 mm *insignis* Wood
- Male frons less strongly, more broadly concave almost to upper level of eyes, epistomal carina straight; interstitial punctures on basal third coarser, almost uniseriate, their margin mostly elevated (a weak crenulation); punctures on pronotum larger, deeper, impressed, rugose-reticulation restricted to apical third of declivity; Bolivia; 2.5 mm *boliviae* (Blackman)
- 12(2). Basal margins of elytra a simple raised line, not noticeably broken into crenulations, without any submarginal crenulations (at bases of interstriae 2–5) 13
- Basal margins armed by a more or less definite row of crenulations, bases of interstriae 2 to 5 with several conspicuous, submarginal crenulations 17
- 13(12). Frons with a strongly developed transverse carina (male) or callus (female) at level of antennal insertion, flattened on a more limited area, vestiture sparse (but rather long in median area) . . . 14
- Frons without a transverse carina or callus in either sex (an epistomal callus sometimes present), more extensively flattened (at least on lower half) 15
- 14(13). Male frontal carina rounded, distinctly procurved, in female rather poorly developed; frontal vestiture above carina extending almost to upper level of eyes on median two-thirds in both sexes; pronotum longitudinally etched, dull on anterior two-thirds, punctures larger; interstitial punctures on disc distinctly smaller than those of striae, their anterior margins feebly elevated; Mexico (Veracruz) to Costa Rica; *Vismia*; 1.6–1.7 mm *minusculus* (Blandford)
- Male frontal carina straight, more acutely elevated in both sexes; frontal vestiture above carina ending well below upper level of eyes on median one-third; pronotum conspicuously etched on less than anterior half, punctures smaller; interstitial punctures on disc almost as large as those of striae, their bases subvulcanate (anterior margins conspicuously elevated; Bolivia to Venezuela; *Trichilus propingua*; 1.8–2.3 mm *rugulosus* (Eggers)
- 15(13). Larger species; pronotum and elytra glabrous; elytral surface on disc smooth, shining, striae not at all impressed, punctures small, distinct; interstitial punctures minute, simple, each about one-fourth as large as those of striae; Colombia; *Cespedesia macrophylla*, *Dialyanthera otoba*; 2.1–2.5 mm *furvescens* Wood
- Smaller species; rows of interstitial setae present at least on declivity; elytral surface minutely irregular, striae at least feebly impressed, interstitial punctures larger, at least two-thirds as large as those of striae 16
- 16(15). Body stouter, less than 2.3 times as long as wide; color almost black; pronotum longitudinally etched, punctures elongate; interstitial punctures much shorter, somewhat semirecumbent; male frontal vestiture shorter, less abundant over a smaller area; Venezuela; *Vismia*; 1.5–1.8 mm *vismiocolens* Wood

- Body more slender, 2.7 times as long as wide; color brown; pronotum reticulate, punctures oval; interstitial setae erect, much longer; male frons with abundant pubescence to upper level of eyes; Brazil (Santa Catarina); 1.7–1.9 mm *difformis* (Schedl)
- 17(12). Body stouter, 1.8–2.1 times as long as wide; crenulations on basal margins of elytra rather poorly formed, almost forming a continuous line; color usually brown 18
- Body rather slender, 2.5–2.6 times as long as wide; marginal and submarginal crenulations sometimes well-formed, separate; color usually almost black 20
- 18(17). Interstitial setae conspicuously flattened, each about six times as long as wide, about two-thirds as long as distance between rows; male frons subconvexly impressed on median three-fourths, pubescence attaining upper level of eyes; Brazil (Santa Catarina) to Argentina; 1.2–1.4 mm *minor* Schedl
- Interstitial setae almost hairlike; male frons flattened to well above upper level of eyes, setae extending to upper level of eyes 19
- 19(18). Pronotum dull, strongly reticulate, punctures rather shallow, spaced by 1–3 diameters of a puncture; interstitial setae of slender, recumbent hair, each about two-thirds as long as distance between rows; Brazil (Santa Catarina); 0.9–1.1 mm *creber* Schedl
- Pronotum shining, smooth, punctures rather coarse, close, deep, spaced by one-third to full diameter of a puncture; interstitial setae recumbent, hairlike, each equal in length to almost one-half distance between rows; Brazil (Santa Catarina); 1.8–2.1 mm *errans* (Blandford)
- 20(17). Superficially resembling *flavicornis* except entirely unrelated (antennal club with only one poorly formed suture); submarginal crenulations at elytral bases absent, marginal row rather poorly formed; interstitial punctures uniseriate to base, surface on disc shagreened, on declivity dull with interstriae more narrowly convex; pronotum reticulate on anterior third, punctures on basal third small, oval, rather close; a minute transverse carina at level of antennal insertions (somewhat resembling *flavicornis* but much smaller, lower); Brazil; 2.3 mm *longicollis* (Blandford)
- Smaller, more slender species; submarginal crenulations at elytral bases usually conspicuous 21
- 21(20). Submarginal crenulations at bases of elytra poorly developed, obscure (about two to four clearly visible); interstitial setae mostly restricted to declivity, uniseriate, short, longest setae equal in length to one-third distance between rows; interstitial tubercles absent; Brazil (Bahia); 1.5 mm *acuminatus* Schedl
- Submarginal crenulations at bases of elytra coarse, numerous; interstitial setae extending from base to declivity, more numerous, longer, some tubercles usually present; color dark brown to almost black 22
- 22(21). Interstitial setae hairlike, each almost as long as distance between rows; elytral declivity more gradual, striae more distinctly impressed, tubercles smaller, more sharply pointed; Chile; *Colliguaja intergerrima*; 1.5–1.6 mm *galeritus* Eichhoff
- Interstitial setae flattened, scalelike, each about eight times as long as wide and almost as long as distance between rows; elytral declivity steeper, striae weakly impressed, interstitial tubercles slightly larger 22
- 23(22). Diameter of punctures on pronotum much smaller than striae punctures, shallow; frontal impression narrower, not as deep, setae longer, more numerous; Argentina (Buenos Aires); 1.0–1.1 mm *brevisetosus* Schedl
- Diameter of punctures on pronotum about equal to striae punctures, deeper; impression on frons wider, deeper, setae less numerous, shorter; Bolivia; 1.3 mm *indisiosus* Schedl

Cnemonyx flavicornis (Chapuis)

Cnemonyx flavicornis (Chapuis), 1869:53 (*Loganius*). Lectotype ♂; Cumana, Venezuela; IRSNB, Brussels (References in Wood & Bright c1992:315)

Loganius scaliger Hagedorn, 1910:5. Holotype ♂; Argentina; Hamburg Museum, lost

Cnemonyx vianai Schedl, 1951:289. Syntypes, sex?; Tigre, Buenos Aires, Argentina; NHMW, Wien, and Viana Collection

Diagnosis: This is the only reported South American species in this genus possessing 3 strongly procurved rows of setae on the antennal club. From the closely allied *opacus* Wood it is distinguished by the fine, rather numerous granules on the impressed area of the frons in both sexes; by the more narrowly convex declivital interstriae 2–4 with serrations finer, closer; and by the rugose-reticulate surface of discal striae and interstriae almost attaining the base of the disc.

Male: Length 2.2–2.4 mm, 2.25 times as long as wide; color dark reddish brown. Frons shallowly concave on its median two-thirds from level of antennal insertion to slightly above upper level of eyes, concave area rather closely, finely tuberculate, lateral areas and above reticulate, rather coarsely, shallowly punctured; a subacute transverse carina at level of antennal insertion on median one-fourth; vestiture of stout, rather abundant, moderately long bristles; segments of antennal funicle ornamented by long setae; club with three sutures indicated by strongly procurved rows of setae. Pronotum 1.0 times as long as wide; surface smooth, shining, slight reticulation on anterior one-fourth; punctures moderately fine, almost round, rather close, spaced by distances equal to one to two diameters of a puncture; almost glabrous. Elytra 1.3 times as long as wide, 1.4 times as long as pronotum; striae not impressed at base, moderately impressed by base of declivity, punctures rather small, moderately deep, their interiors reticulate-granulate to base; interstriae twice as wide as striae, mostly wrinkled but shining on basal third, dull and reticulate-granulate behind, some reticulation at margins almost to base, punctures confused, moderately coarse and deep near base, small and uniseriate near declivity, anterior margins of punctures rounded, subcrenulate at base, of uniseriate tubercles before declivity. Declivity convex, rather steep; striae narrower, deeper than on disc, punctures more obscure; striae and interstriae more strongly reticulate-granulate, interstriae 1–9 each with a uniseriate row of fine, close, pointed tubercles to apex, punctures not indicated. Vestiture of uniseriate rows of very short, fine bristles each equal in length to less than one-fifth distance between rows, spaced within a row by slightly more than length of a bristle.

Female: Similar to male except frontal impression weak to absent, transverse epistomal carina half as long; reticulation on pronotum often extending to middle of pronotum length; declivital interstriae less strongly acute, tubercles smaller.

Distribution: Venezuela to Bolivia and Argentina.

Argentina: "Argentina" (type of *scaliger* Hagedorn).

Bolivia: San Esteban, 49 km N Santa Cruz, 7-XII-1959, 1120 ft., R. Cumming.

Brazil: Jatahy, Goyas.

Paraguay: Carumbe in San Pedro, 1-II-8-III-1966, I-1971, R. Golbach; San Bernardino, K. Friebrig.

Venezuela: Cumana in Sucre, Funk.

Notes: The above treatment was based on the male lectotype of *flavicornis* (Chapuis), 1 male paralectotype from Venezuela, 1 male from Bolivia, 1 female from Brazil, and on 4 males and 1 female from Paraguay.

Cnemonyx glaber (Eggers)

Cnemonyx glaber (Eggers), 1929:64 (*Loganius*). Holotype ♀?; E Bolivia; USNM, Washington (References in Wood & Bright c1992:316)

Diagnosis: Frons somewhat similar to *flavicornis* (Chapuis); distinguished from *vestitus* (Eggers) by the glabrous pronotum and elytra, and by the very different frons.

Female (?): Length 2.5 mm, 2.1 times as long as wide; color very dark brown, almost black. Frons flattened to feebly concave on a triangular area from epistoma three-fourths distance toward upper level of eyes; epistoma somewhat weakly carinate laterally, median fifth moderately carinate; surface rugose-reticulate above level of antennal insertions, area immediately above epistoma rather coarsely, deeply punctured; vestiture rather sparse on impressed area, uniformly distributed, rather fine, of moderate length; antennal club rather large, somewhat symmetrical, sutures not evident, setae of fine hair. Pronotum 1.0 times as long as wide; surface shining, punctures coarse in lateral areas, moderately coarse on anterior third of median area, gradually becoming smaller until rather fine at base, some punctures with partial, longitudinal strigose lines extending from them; subglabrous. Elytra 1.2 times as long as wide, 1.2 times as long as pronotum; striae distinctly, narrowly impressed, punctures small, distinctly impressed; interstriae about three times as wide as striae, shining, irregular, with numerous, confused punctures, these moderately coarse near base (as large as striae punctures), less than half as large on disc. Declivity occupying posterior half of elytral length, rather gradual; sculpture similar to disc except weakly to moderately reticulate. Glabrous.

Distribution: Bolivia: Cochabamba [F. Woytkowski].

Notes: The above treatment was based on the holotype, presumably a female, from Bolivia.

Cnemonyx vestitus (Eggers)

Plate XXVIII

Cnemonyx vestitus (Eggers), 1929:59 (*Loganius*). Lectotype ♂; E Bolivia; USNM, Washington, designated by Anderson & Anderson 1971:35 (References in Wood & Bright c1992:318)

Diagnosis: Male frons with a weak, transverse callus well above level of antennal insertion; concavity shallow, extending to upper level of eyes, setae of equal distribution; interstitial setae on disc confused, coarse, recumbent.

Male: Length 2.0–2.5 mm, 2.04 times as long as wide; color reddish brown except elytra dark reddish brown. Frons broadly, shallowly concave on upper two-thirds, a subcarinate transverse callus (with median summit) slightly above level of antennal insertion; epistoma abrupt, obscurely elevated; surface reticulate-granulate, punctures fine, obscure; vestiture uniformly distributed, of moderate, almost uniform length from epistoma to upper level of eyes; setae on funicle present, modestly developed. Pronotum 1.0 times as long as wide; surface rugose-reticulate on anterior one-third, transcending to reticulate by base; punctures small, close, moderately deep, spaced by about half diameter of a puncture, some punctures in obscure lines, separated by obscure, longitudinal ridges; setae on anterior third longer, coarser, on posterior third short, sparse, inconspicuous. Elytra 1.12 times as long as wide, 1.2 times as long as pronotum; scutellum twice as wide as long; striae weakly impressed, punctures small, impressed, some partly confluent; interstriae more than twice as wide as striae, shining, with numerous, small, confused, subcrenulate tubercles, each about one-fifth as wide as an interstriae (poorly formed near base); vestiture of recumbent, coarse, confused setae of moderate, uniform length, each seta equal in length to about two-thirds width of an interstriae. Declivity convex, moderately steep; striae wider than on disc, punctures obsolete; interstriae narrower than on disc, tubercles smaller, less numerous, obsolete or nearly so toward apex; vestiture similar to disc.

Female: Similar to male except frons uniformly convex, callus absent, punctures more distinctly impressed, posterior half of pronotum almost smooth.

Distribution: Bolivia to Venezuela.

Bolivia: "Ostbolivia."

Venezuela: 17 km SE Miri, Barinas, 17-XII-1969, 150 m, No. 195, *Protium*, SLW; 30 km E Palmar, Bolivar, 12-VI-1970, 200 m, No. 562, *Trichilia propingua*, SLW.

Biology: Limbs 3–10 cm in diameter on recently felled trees were attacked. Parental galleries were in the cambium area and were transverse and biramous. Larval mines were short, tortuous, and primarily in the phloem.

Notes: The above treatment was based on 17 specimens from Venezuela. One of these was compared by me directly to the male holotype.

Cnemonyx panamensis (Blandford)

Plate XXVII

Cnemonyx panamensis (Blandford), 1896:129 (*Loganius*). Lectotype ♂; Tole, Chiriqui, Panama; BMNH, London, present designation (References in Wood & Bright c1992:317)

Loganius setulosus Eggers, 1929:62. Holotype ♂; E Bolivia (Cochabamba, Woytkowski); NHMW, Wien (References in Wood & Bright c1992:317). *New synonymy*

Loganius similis Eggers, 1929:63. Lectotype ♂; E Bolivia; USNM, Washington, designated by Anderson & Anderson 1971:30 (References in Wood & Bright c1992:317). *New synonymy*

Diagnosis: Distinguished from *vestitus* (Eggers) by the more extensively, shallowly concave frons to well above

upper level of eyes; by the broad, transverse carina well above level of antennal insertion, setae in concave area of unequal length and distribution; interstitial setae on disc confused, much shorter.

Male: Length 2.0–2.4 mm, 2.1 times as long as wide; color reddish brown, elytra much darker, almost black. Frons broadly, moderately concave on upper two-thirds, margins rather abrupt, lower margin formed by a broad, subacute transverse carina, shallowly concave from carina to slightly above upper level of eyes, concave area rugose-reticulate, punctures fine, deep, close; shining and punctured below carina; epistomal margin abrupt; vestiture of concave area hairlike, longer in dorsolateral areas (separated at median line), extending three-fourths distance toward carina, shorter, less abundant below; setae on funicle sparse. Pronotum 1.0 times as long as wide; surface smooth, shining, except rugose-reticulate on anterior one-fourth, punctures moderately coarse, close, most elongate, several near center longitudinally confluent; coarse hair limited to anterior one-fourth. Elytra 1.3 times as long as wide, 1.3 times as long as pronotum; striae narrowly, abruptly, distinctly impressed, punctures obscure, indistinctly impressed; interstriae three times as wide as striae, subshining, with numerous, small, confused tubercles; vestiture recumbent, coarse, confused, each seta equal in length to one-third to one-half width of an interstriae. Declivity broadly convex, rather steep; striae and interstriae narrower than on disc; interstriae with granules almost obsolete.

Female: Similar to male except frons convex above, transverse carina absent, a weak median carina below ending in a small median tubercle on epistoma.

Distribution: Costa Rica and Panama to Venezuela and Bolivia.

Bolivia: "Ostbolivia" (label on type is Cochabamba, Woytkowski).

Venezuela: Rancho Grande, Aragua, 9-IV-1970, 1100 m, No. 415, tree limb, SLW; 8 km W Bumbum, Barinas, 11-II-1970, 150 m, *Protium*, SLW.

Hosts: *Vismia guianensis* (in Costa Rica).

Biology: Transverse, biramous parental galleries were formed in phloem of a broken limb 10 cm in diameter.

Notes: The above treatment was based on the male lectotype and on over 80 specimens from Costa Rica and Panama, on the male lectotype of *similis* Eggers from Bolivia, and on 46 specimens from Venezuela, 1 male of which was compared directly to the holotype of *similis*. I compared the holotype of *setulosus* Eggers directly by to my specimens from Venezuela and Central America. Although considerable variability is seen in the specimens at hand, it is presumed that only species exists. The male holotype of *setulosus* has the pronotum punctures smaller and more strongly strigose than those from elsewhere. Specimens from Venezuela (Rancho Grande) have the interstitial setae on the disc distinctly longer than those from Central America and Bolivia.

Cnemonyx protivorus Wood

Cnemonyx protivorus Wood, 1979:137. Holotype ♂; 40 km SE Socopo, Barinas, Venezuela; USNM, Washington (References in Wood & Bright c1992:317)

Diagnosis: Distinguished from *panamensis* (Blandford) by the flat male frons, transverse carina almost on the epistoma; and by the coarse, confused, moderately long interstitial setae on the disc.

Male: Length 1.9–2.4 mm, 2.1 times as long as wide; color very dark reddish brown, almost black. Frons about as in female *panamensis*, but convex on more than upper half, somewhat flattened below, upper margin of epistoma bearing on median one-third an acutely elevated, transverse carina; surface rugose-reticulate above, transcending to weakly reticulate at carina; vestiture resembling *panamensis* except very much less abundant; brush on funicle weak. Pronotum very similar to *vestitus* (Eggers), surface shining except subreticulate on anterior one-fourth. Elytra very similar to *vestitus* except recumbent interstitial setae shorter, each equal in length to about one-half width of an interstriae.

Female: Similar to male except frontal setae much more abundant, much longer, reddish yellow in color; interstitial crenulations slightly larger.

Distribution: Colombia to Venezuela.

Colombia: Campo Capote 27 km NE Montoya, Santander, 2-VII-1970, 150 m, No. 603, *Vismia*, SLW.

Venezuela: 8 km SE Bumbum, Barinas, 11-II-1970, 150 m, No. 312, *Protium*, SLW; 17 km SE Miri, Barinas, 17-XII-1969, 150 m, No. 195, *Protium*, SLW; 40 km SE Socopo, Barinas, 25-I-1970, 150 m, No. 256, *Protium*, SLW.

Biology: Specimens were removed from phloem of branches of recently felled trees. The galleries were as in *vestitus*.

Notes: The above treatment was based on the type series of 143 specimens from Venezuela, and on 4 specimens from Colombia.

Cnemonyx amazonicus (Eggers)

Cnemonyx amazonicus (Eggers), 1929:60 (*Loganius*). Lectotype ♂; Santarem, Amazonas, Brazil; USNM, Washington, designated by Anderson & Anderson 1971:4 (Synonymy and references in Wood & Bright c1992:313)

Ceratolepis amazonicus Schedl, 1952:349. Syntypes, sex?; Santarem, Amazonas, Brazil; NHMW, Wien, preoccupied by Eggers 1929:60, Synonymy and references in WEB 1992

Diagnosis: Distinguished from *jucundus* (Chapuis) by the less strongly concave frons; by the larger, almost uniseriate interstitial punctures; and by the shorter interstitial setae.

Male(?): Length 2.5 mm, 2.04 times as long as wide; color dark reddish brown. Frons broadly, shallowly concave from epistoma seven-eighths distance to upper level of eyes, with no indication of either a transverse or a longitudinal carina; surface reticulate on lower third, becoming rugose-reticulate above to vertex, punctures

small, shallow, obscure, moderately abundant; vestiture moderately abundant, of stout, blunt setae of moderate length (length equal to combined width of six facets of eye), shorter on vertex. Pronotum 1.0 times as long as wide; surface very finely, weakly, longitudinally etched, becoming rugose-reticulate on anterior fourth; punctures oval in shape, each about half as large as a stria puncture, spaced by 1–2 diameters of a puncture; vestiture restricted to anterior third, of minute hair, one arising from each puncture. Elytra 1.2 times as long as wide, 1.3 times as long as pronotum; striae distinctly impressed, punctures moderately large, distinctly, individually impressed (no apparent confluence); interstriae about twice as wide as striae, punctures at least half as large as those of striae near base, about one-third as large at base of declivity, uniseriate except confused at base of 1 and 2. Declivity occupying posterior half of elytra length; striae narrower than on disc, punctures becoming obscure near apex; interstriae narrower than on disc, becoming narrowly subcarinate, punctures reduced to a single row on crests; posterolateral margin weakly, finely serrate. Vestiture of semirecumbent interstitial setae, short on declivity (equal to about diameter of a stria puncture), longer on disc (equal to width of an interstriae); interstitial setae in uniseriate rows except very slightly confused at base of 1 and 2, rather stout (not hairlike).

Distribution: Brazil: Santarem (Amazonas), B.v. Bodenmeyer, Eggers Collection 1948.

Notes: The above treatment was based on the Eggers holotype, presumably a male, from Brazil. The Schedl syntypes came from the Eggers Collection, as noted on the labels.

Cnemonyx hylurgoides (Schedl)

Cnemonyx hylurgoides (Schedl), 1948 (1949):262 (*Coptodryas*). Holotype, sex?; Santa Catarina, Brazil; NHMW, Wien, lost except for a slide mount of 1 antenna (Synonymy and references in Wood & Bright c1992:313, 316)

Diagnosis: The holotype has been lost except for the slide mount of one antenna. From my examination of the antenna this species is placed in the genus *Cnemonyx* near *amazonicus* Eggers (Wood 1982:395, 399).

Female: Length 2.0 mm, 2.66 times as long as wide (Schedl 1948:262–263). The original description is quoted as follows:

“Piceous, 2.0 mm long, 2.66 times as long as wide. Pronotum subglabrous, elytra with short setae on the interspatial punctures and granules only.

“Front aplanate to subimpressed not quite to the eyes, subshining, minutely punctulate, indistinctly finely punctured, on the aplanate portion apparently rugosely punctured and with a brush of very short erect yellowish pubescence, a fringe of short pale hairs along the epistomal margin.

“Pronotum about as long as wide, widest before the base, sides distinctly divergent on the basal fifth, thence

convergent in a fairly straight line to the unarmed and narrowly rounded apex; rather feebly convex, subshining and remotely finely punctured in front, ground sculpture minutely punctulate, more shining behind, the punctures much larger, therefore appearing more crowded, the interspaces polished. Scutellum very small.

“Elytra somewhat wider (22.5:21), and 1.8 times as long as the pronotum, cylindrical and parallel-sided to far beyond the middle, moderately broadly and feebly angulately rounded behind, declivity commencing somewhat behind the basal half, evenly convex; disc striate-punctate, striae rather feebly impressed, strial punctures of moderate size, shallow and very closely placed, interstices narrow, each with a rather regular row of punctures, which soon are replaced by setose granules and these becoming somewhat larger on the declivity, the striae more shallow and the strial punctures indistinct on the latter, the interspatial punctures and granules short, semierect reddish scale-like hairs.”

Distribution: Brazil: Santa Catarina.

Notes: The description of the type is too general to permit identification at this time, but my examination of the slide mount of the antenna clearly places this species in *Cnemonyx* in the species group of *amazonicus* Eggers. The discrepancy in body proportions (2.66 by Schedl, 2.5 by me) is accounted for by Schedl's inclusion of the head and space between the scutellum and pronotum in Schedl's measurements.

Cnemonyx jucundus (Chapuis)

Cnemonyx jucundus (Chapuis), 1869:53 (*Ceratolepis*). Holotype ♂; Nova-Fribourg, Brazil; IRSNB, Brussels (References in Wood & Bright c1992:316)

Diagnosis: Distinguished from *maculicornis* Blandford and *insignis* Wood by the distinctive frons, as described below; and by the discal interstriae having confused punctures that lack tubercles and bear very fine, moderately long hair.

Male: About 2.8 mm (type crushed), about 2.0–2.1 times as long as wide (estimated); color dark brown. Frons broadly, moderately concave from epistoma to slightly above upper level of eyes, margins rounded except subacute near epistoma, median line on vertex at margin of impression with an obscure, short, low, median carina; epistoma broadly flattened on median two-thirds, its surface moderately rugose-reticulate, becoming more coarsely rugose-reticulate above to vertex; punctures small, close, moderately deep; vestiture of rather short, semirecumbent, moderately coarse hair of moderate abundance; fringe of setae on funicle sparse, short. Pronotum 0.85 times as long as wide; surface weakly etched by subreticulation except reticulate on anterior fourth; anterior third and lateral areas with very fine, rather short hair. Elytra about 1.3 (estimated) times as long as wide, 1.3 times as long as pronotum; striae narrowly, moderately impressed, punctures small, weakly impressed,

obscured through confluence; interstriae more than three times as wide as striae, surface subreticulate, almost smooth, punctures small, moderately deep, close, confused, anterior margin of some punctures feebly subcrenulate, without any true granules; vestiture of fine, confused hair, most appearing equal in length to at least one-half width of an interstriae, coarser setae in posterolateral areas. Declivity convex, rather steep; striae and interstriae 1–3 about as on disc, no granules.

Distribution: Brazil: “N. Fribourg, Deyr.”

Notes: The above treatment was based on the male holotype.

Cnemonyx maculicornis (Blandford)

Plate XXVII

Cnemonyx maculicornis (Blandford), 1896:127 (*Ceratolepis*). Lectotype ♀; Tole, Panama; BMNH, London, designated by Wood 1982:399 (References in Wood & Bright c1992:316)

Diagnosis: Antennal club asymmetrical, at least part of setae on club appearing palmately divided; male frons moderately concave, median area on lower one-third transversely wrinkled; interstitial setae confused, minute, surface apparently reticulate.

Male: Length 1.8–2.3 mm, 2.05 times as long as wide; color dark brown. Frons broadly, moderately concave from epistoma to well above upper level of eyes, its margins rather narrowly rounded; surface of concavity rugose-reticulate above, almost smooth at epistoma, punctures rather fine, moderately close, median area below transversely wrinkled just above a moderate, transverse, epistomal carina (on median half), vestiture of fine, rather long, moderately abundant hair uniformly distributed; funicular brush poorly developed; many setae on club appearing palmately divided. Pronotum 0.76 times as long as wide; surface obscurely reticulate on anterior third, mostly smooth behind, punctures moderately small near center, larger laterally and behind, much smaller in anterior areas; glabrous except for fine, short hair near anterior margin. Elytra 1.2 times as long as wide, 1.3 times as long as pronotum; scutellum small, as wide as long; striae moderately impressed, punctures rather small, weakly impressed, on 1 and 2 mostly confluent; interstriae twice as wide as striae, distinctly convex, surface rugose-reticulate, fine, confused punctures, each puncture with its anterior margin narrowly, acutely, rather finely crenulate. Declivity convex, gradual, commencing at middle of elytral length; interstriae almost as narrow as striae, their tubercles forming a uniseriate row of fine, pointed tubercles on 1 to 9, 9 slightly elevated. Interstitial vestiture of confused, very short, stout, sparse setae, length of a seta about equal to diameter of a strial puncture (less than one-fifth as wide as an interstriae).

Female: Similar to male except frons almost flat to upper level of eyes, wrinkles obscure on lower area, epistomal transverse carina weak; pronotum almost without reticulation; interstitial crenulations slightly larger; costal margin near apex more strongly serrate.

Distribution: Honduras to Colombia.

Colombia: Campo Capote 27 km NE Montoya, Santander, 2-VII-1970, 150 m, No. 594, *Virola*, SLW.

Biology: Transverse, biramous, parental galleries were made in the cambium area of a recently cut limb 10 cm in diameter.

Notes: The above treatment was based on 23 specimens from Colombia and on 26 from Central America. Two of the Costa Rican specimens I compared directly to the female lectotype.

Cnemonyx niger (Eggers)

Cnemonyx niger (Eggers), 1933:13 (*Ceratolepis*). Holotype ♀; St. Laurent du Maroni, French Guyane; MNHN, Paris (Synonymy and references in Wood & Bright c1992:317)

Camptocerus nigricans Schedl, 1962:485, an unneeded replacement name

Diagnosis: Distinguished from *boliviae* (Blackman) and *insignis* Wood by; the smaller size; by the rugose-reticulate upper frons and lower declivity, with the declivital interstriae rounded (not subcarinatae) and the tubercles larger and closer.

Female: Length 2.5–2.8 mm, 2.0 times as long as wide; color black. Frons shallowly concave on lower half of area below upper level of eyes, convex above; median two-thirds of epistomal margin weakly elevated to form a weak straight carina; lower half of impressed area smooth, shining and with close, rather coarse punctures, upper area to vertex strongly rugose-reticulate, punctures obscure to obsolete; sparse, short stout setae on lateral areas and all of upper half. Pronotum 0.92 times as long as wide, widest at base, arcuately converging to narrowly rounded anterior margin; surface on anterior fourth reticulate, becoming minutely, longitudinally etched to base; punctures rather coarse, becoming smaller on anterior third; glabrous. Elytra 1.2 times as long as wide, 1.3 times as long as pronotum; disc occupying basal half; striae rather strongly, narrowly impressed, interstriae on disc three to four times as wide as striae, convex, mostly smooth, shining, punctures rather coarse and confused on basal half of disc and without crenulations. Declivity moderately steep; striae rather strongly impressed, striae with obscure punctures, about as wide as interstriae, interstriae with minute subtuberculate crenulations below, slightly larger near base of declivity. Vestiture mostly confined to declivity, consisting of uniseriate rows of short, recumbent, stout setae, each seta 4–6 times as long as wide. Antennal club rather strongly asymmetrical, with numerous small palmately divided scales.

Distribution: French Guyane: St. Laurent du Maroni, 1909, E. Le Moul.

Notes: The above treatment was based on the female holotype and 3 female paratypes of *Ceratolepis niger* Eggers. Schedl (1962:485) erroneously transferred this species to *Camptocerus* and renamed it *C. nigricans*, an unneeded name.

Cnemonyx boliviae (Blackman)

Cnemonyx boliviae (Blackman), 1943:378 (*Camptocerus*). Holotype ♂; San Borja, Beni, Bolivia; USNM, Washington (References in Wood & Bright c1992:314)

Diagnosis: Distinguished from *insignis* Wood by the more broadly, less strongly impressed male frons; by the straight epistomal transverse carina; by the more coarsely punctured, subcrenulate interstitial punctures on the basal half of the elytra; and by the more strongly impressed striae punctures on the declivity, with the rugose-reticulate surface sculpture restricted to the lower third of the declivity.

Male: Length about 2.5 mm, about 2.0 times as long as wide (paratype specimen broken); color black. Frons impressed on lower two-thirds, a very feeble median carina on upper half of impressed area, rather coarsely, closely punctured on middle third; transverse epistomal carina straight, less strongly elevated than in *insignis*; vestiture fine, rather short, uniformly distributed; antennal club shape and palmate setae about as in *insignis*. Pronotum broken in specimen at hand; as in *insignis* except punctures slightly larger and longitudinal striations more conspicuous. Elytra resembling *insignis* except striae punctures distinctly larger, deeper, distinctly impressed to apex, surface rugose-reticulate only on lower third of declivity; interstriae subcarinate on posterior two-thirds of elytral length, their crests weakly subserrate, basal third broadly convex, punctures moderately impressed, mostly uniseriate, each about half to two-thirds as large as those of striae, anterior margin of most elevated, some obscurely subcrenulate. Pronotum and elytra subglabrous.

Distribution: Bolivia: San Borja, Dep. Beni, VIII-1925, G.L. Harrington.

Notes: The above treatment was based on 1 broken male paratype.

Cnemonyx insignis Wood

Plate XXVI

Cnemonyx insignis Wood, 1969:9. Holotype ♂; Moravia, Cartago, Costa Rica; USNM, Washington (References in Wood & Bright c1992:316)

Diagnosis: Distinguished by the large size, black color, and absence of interstitial setae; and by the distinctive frons.

Male: Length 3.5–3.9 mm, 2.04 times as long as wide; color black. Frons moderately concave on median two-thirds from epistoma to distinctly below upper level of eyes; surface dull, coarsely rugose-reticulate above level of antennal insertion, smooth, shining below, median half of epistoma armed by a rather strongly elevated procurved carina; concave area with fine, close, deep punctures, vestiture dark, erect, rather short, mostly in concave area; funicular brush weak, club strongly asymmetrical, with palmate setae. Pronotum 0.94 times as long as wide; posterior two-thirds almost smooth, shining, anterior

one-third reticulate to longitudinally etched, punctures small, mostly oval; glabrous. Elytra 1.2 times as long as wide, 1.3 times as long as pronotum; scutellum twice as wide as long; striae moderately impressed, punctures small, distinct; interstriae convex, about twice as wide as striae, smooth, shining, punctures small, confused, without tubercles, glabrous. Declivity broadly convex, occupying posterior half of elytral length; striae slightly wider than on disc, interstriae much narrower, narrowly convex, a uniseriate row of small punctures at summit on each; striae reticulate. Glabrous.

Female: Similar to male except discal interstriae partly to entirely reticulate; abdominal terga 7 and 8 give only reliable external method of determining sex.

Distribution: Costa Rica to Colombia and Venezuela.

Colombia: Campo Capote 27 km NE Montoya, Santander, 2-VII-1970, 150 m, No. 592, *Virola*, SLW.

Venezuela: 13 km SW El Vigía, Merida, 22-X-1969, 100 m, No. 77, *Virola*, SLW; 20 km SW El Vigía, Merida, 21-X-1969, 50 m, No. 148, *Virola*, SLW.

Biology: Parental galleries were longitudinal and biramous in the phloem in recently felled or broken limbs and logs 10 to more than 30 cm in diameter.

Notes: The above treatment was based on the type series of 7 specimens from Costa Rica, 49 from Colombia, and 60 from Venezuela.

Cnemonyx rugulosus (Eggers)

Plate XXVIII

Cnemonyx rugulosus (Eggers), 1929:64 (*Loganius*). Holotype ♀; E Bolivia; USNM, Washington (References in Wood & Bright c1992:317)

Diagnosis: Frons with a transverse carina in both sexes, male frons feebly impressed; interstitial setae on disc in uniseriate rows, almost scalelike.

Male: Length 1.8–2.3 mm, 2.04 times as long as wide; color very dark brown, almost black. Frons with an acute transverse carina on median half slightly above level of antennal insertion; area above carina flattened to feebly impressed on median half from carina to half distance to upper level of eyes; surface strongly reticulate, punctures rather fine, deep, close; vestiture rather sparse and moderately long and stout in marginal areas, longer, finer, and more abundant in median area above carina. Pronotum 1.04 times as long as wide; surface smooth, shining behind, subreticulate and somewhat rugulose on anterior fourth, punctures moderately large, deep, spaced by 1–3 diameters of a puncture behind, somewhat enlarged and obscure on anterior fourth; glabrous, except sparse, stout setae on anterior one-fourth. Elytra 1.35 times as long as wide, 1.35 times as long as pronotum; striae weakly impressed, punctures small, distinctly impressed; interstriae twice as wide as striae, shining, punctures uniseriate, almost as large as those of striae, their anterior margins distinctly elevated (rounded, not crenulate), each tubercle bearing an erect, flattened seta (each about

4–6 times as long as wide). Declivity restricted to posterior 40 percent of elytral length, convex, rather steep; surface finely rugose-reticulate; striae and punctures obscure, wider than on disc; interstriae much narrower than on disc, each with a row of small, rounded tubercles, setae as on disc.

Female: Similar to male except frontal carina only subacute (a strong callus in some specimens), vestiture less abundant, finer; pronotum often with longitudinal strigose lines associated with punctures.

Distribution: Bolivia to Venezuela.

Bolivia: "Ostbolivia."

Venezuela: Campamento Rio Grande 30 km E Palmar, Bolivar, 12-VI-1970, 200 m, No. 561 in *Tetragastria mucronata*, No. 562 in *Trichilia propingua*, SLW.

Biology: In phloem of recently cut limbs of the hosts.

Notes: The above treatment was based on 43 specimens from Venezuela, 1 of which I compared directly to the male holotype from Bolivia.

Cnemonyx furvescens Wood

Cnemonyx furvescens Wood, 1979:137. Holotype ♀; Campo Capote 27 km NE Montoya, Santander, Colombia; USNM, Washington (References in Wood & Bright c1992:315)

Diagnosis: Allied to *rugulosus* (Eggers) but easily distinguished by the very different frons as described below; by the glabrous elytra; and by the minute, uniseriate interstitial punctures.

Male: Length 2.1–2.5 mm, 2.1 times as long as wide; color very dark brown, shining. Frons with epistomal margin forming a subacute carina on median half; surface broadly, moderately concave from epistoma to upper level of eyes on an area slightly narrower than distance between eyes; surface reticulate above, smooth below, punctures fine, deep, close, uniformly distributed, slightly larger above eyes; vestiture fine, short, rather sparse, confined to concave area. Pronotum 1.0 times as long as wide; surface almost smooth, minutely, obscurely, longitudinally etched; punctures small, oval, moderately close; glabrous. Elytra 1.3 times as long as wide, 1.3 times as long as pronotum; striae distinctly impressed, punctures very small, spaced within a row by two to five diameters of a puncture; interstriae four to five times as wide as striae, slightly convex, smooth, brightly shining, glabrous, punctures minute, uniseriate. Declivity occupying posterior half of elytra length, convex, moderately steep; interstitial punctures replaced on declivity by minute, poorly formed, uniseriate rows of granules. Minute remnants of fine setae on some interstriae.

Female: Similar to male except epistomal carina weaker (a strong callus in some specimens), frontal setae more numerous, slightly longer; interstitial granules on declivity more definite, slightly larger.

Distribution: Colombia: Campo Capote 27 km NE Montoya, Santander, 2-VII-1970, 150 m, No. 632, *Cespedesia macrophylla*, *Dialyanthera otoba*, SLW.

Biology: Specimens were removed from phloem of limbs of recently broken trees.

Notes: The above treatment was based on the entire type series of 23 specimens.

Cnemonyx vismiacolens Wood

Plate XXIX

Cnemonyx vismiacolens Wood, 1979:138. Holotype ♀; Merida, Merida, Venezuela; USNM, Washington (References in Wood & Bright c1992:318)

Diagnosis: Allied to *rugulosus* (Eggers) but distinguished by the very different frons as described below; by the smaller pronotal punctures; and by other details described below.

Male: Length 1.5–1.8 mm, 2.3 times as long as wide; color black. Frons broadly, weakly, shallowly impressed on median two-thirds of lower half; surface rugose-reticulate on upper half and sides below, almost shining in central area below; epistoma slightly elevated, smooth (not at all carinate); vestiture stout, moderately short, rather abundant almost to upper level of eyes. Pronotum 0.95 times as long as wide; anterior third rugose-reticulate, transcending to longitudinal etching before middle, posterior areas mostly smooth, shining with slight, very weak etching; punctures small, oval; glabrous. Elytra 1.3 times as long as wide, 1.4 times as long as pronotum; striae feebly impressed, punctures small, shallow, spaced within within a row by one to two diameters of a puncture; interstriae about three times as wide as striae, very weakly convex, surface shining, minutely irregular, punctures small, uniseriate (almost as large as those of striae), their anterior margin not elevated. Declivity occupying posterior half of elytral length; convex, moderately steep; striae more distinctly impressed than on disc; interstriae 1 partly, longitudinally etched, each interstriae with a row of small, poorly formed granules. Vestiture of rows of erect, slender, interstitial scales, each scale 6–8 times as long as wide.

Female: Similar to male except frons less distinctly impressed, vestiture more abundant; pronotal etching extending to base; declivital tubercles on interstriae slightly larger, more fully formed.

Distribution: Venezuela: Rancho Grande, Aragua, 9-IV-1970, 1100 m, No. 432, Guttiferae sp., SLW.

Biology: Removed from transverse, biramous parental galleries in phloem of recently broken limbs.

Notes: The above treatment was based on the type series of more than 200 specimens.

Cnemonyx difformis (Schedl)

Cnemonyx difformis (Schedl), 1951:74 (*Loganius*). Syntypes, sex?; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien, and Plaumann Collection (References in Wood & Bright c1992:314)

Loganius cirratus Nunberg, 1958:480, 482. Holotype ♂?; Santa Catarina, Brazil; IZW, Warsaw

Diagnosis: Allied to *rugulosus* (Eggers), although the relationship is remote. Distinguished by the uniquely

punctured and pubescent frontal elevation at level of antennal insertion; by the abundant pubescence on the frons; by the largely reticulate pronotum (on anterior two-thirds); by the slender body; and by other characters described below.

Female: Length 1.7–1.9 mm, 2.7 times as long as wide; color brown. Frons almost flat from epistoma to upper level of eyes, with a punctured and pubescent transverse, subcarinate elevation on median third at level of antennal insertion (above epistoma); surface reticulate above and at sides, apparently shining below; vestiture of abundant, erect, coarse setae of uniform length. Pronotum 1.0 times as long as wide; surface reticulate on at least anterior two-thirds, smooth to weakly etched behind, punctures fine, moderately close; a few setae on anterior one-fourth. Elytra 1.6 times as long as wide, 1.6 times as long as pronotum; striae not impressed, punctures moderately large, impressed; interstriae twice as wide as striae, smooth, shining, each with a row of punctures slightly smaller than those of striae, punctures at base normal, those near declivity with anterior margin elevated into a small tubercle. Declivity restricted to posterior third of elytra length; convex, steep; striae narrowly, distinctly impressed; interstriae somewhat convex, each with a row of moderately large tubercles (smaller on 1); costal margin near suture coarsely, rather strongly serrate. Vestiture of uniseriate rows of slender bristles, each almost 10 times as long as wide on disc and declivity.

Distribution: Brazil: Nova Teutonia, Santa Catarina, 1-IV-1947, 300–500 m, F. Plaumann; Telemaco Borba, 1-XII-2003, Klabin Papel e Celulose forest, sulcatol trap in *Pinus taeda* stand, C.A.H. Flechtmann.

Notes: The above treatment was based on 6 specimens from Brazil, 1 female of *Loganius difformis* Schedl I compared directly to the type.

Cnemonyx minor Schedl

Cnemonyx minor Schedl, 1951:75. Syntypes, sex?; Santa Catarina, Brazil; NHMW, Wien, and Plaumann Collection (References in Wood & Bright c1992:316)

Diagnosis: This species, *creber* Schedl, and *errans* (Blandford) are allied to one another and are distinguished by the somewhat crenulate anterior margin of the elytra and strong submarginal crenulations. This species is distinguished by the wider, more nearly scale-like interstitial setae; and by the more strongly impressed male frons.

Male: Length 1.2–1.4 mm, 2.0 times as long as wide; color dark brown. Frons shallowly, broadly, subconcavely impressed from level of antennal insertion to upper level of eyes, sparsely, finely punctured on margins, more densely on lower third, small, central area smooth, shining; epistoma smooth, shining, slightly elevated, a smooth, shining, oval callus occupying median one-third; rather coarse, moderately long setae rather abundant on impressed area. Pronotum 0.90 times as long as wide; surface

strongly reticulate interiorly, weakly toward base, punctures moderately coarse, rather deep, spaced by one-half to twice diameter of a puncture; vestiture sparse, of rather long, flattened, somewhat coarse setae. Elytra 1.3 times as long as wide, 1.5 times as long as pronotum; basal margins with crest distinctly marked into crenulations, interstriae 2–5 with a combined total of at least 12 submarginal crenulations; striae feebly impressed, punctures distinctly impressed, spaced within a row by one-half diameter of a puncture; interstriae slightly wider than striae, surface almost smooth, each with a uniseriate row of fine, rather close punctures. Declivity occupying slightly less than posterior half, convex, steep; striae and interstriae narrower than on disc, punctures with their anterior margin slightly elevated (not tuberculate). Vestiture of uniseriate rows of suberect, flattened interstitial setae, each seta eight to 10 times as long as wide, as long as distance between rows, spaced within a row by two-thirds length of a seta.

Female: Similar to male except frons flattened, not impressed, less closely punctured, callus smaller, less definite.

Distribution: Brazil: Nova Teutonia, Santa Catarina, VII-1944, F. Plaumann; Rondon, Parana, 24°38' B, 54°07' L, 1952, 500 m, F. Plaumann.

Notes: The above treatment was based on 2 paratypes and on 11 other specimens from Brazil.

Cnemonyx creber Schedl

Cnemonyx creber Schedl, 1951:76. Syntypes ♂; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien, and Plaumann Collection (References in Wood & Bright c1992:314)

Diagnosis: Distinguished by the strongly reticulate pronotum; by the slender, almost hairlike interstitial setae; and by the unique male frons.

Male: Length 0.9–1.1 mm, 2.0 times as long as wide; color very dark brown. Frons flattened from epistoma to well above upper level of eyes; epistoma indistinctly elevated, callus poorly defined; middle third (actually slightly below middle one-third) densely pubescent, resembling velvet (setae very short, of uniform length), lateral setae longer and extending higher on sides, areas above and below more finely, less densely punctured. Pronotum 0.82 times as long as wide; surface strongly reticulate, punctures rather small, not sharply defined; apparently glabrous. Elytra 1.14 times as long as wide, 1.2 times as long as pronotum; basal margins subcrenulate, submarginal crenulations coarse, few in number; striae distinctly impressed, punctures small, distinct; interstriae slightly wider than striae, each with a uniseriate row of fine tubercles. Declivity occupying posterior half of elytra length, convex, rather steep; striae slightly deeper, striae and interstriae slightly narrower than on disc. Vestiture of uniseriate rows of recumbent setae, each seta rather short (length equal to one-half distance between rows), slender, spaced within row by length of a seta.

Female: Similar to male except frons less extensively flattened (convex above upper level of eyes), setae more generally distributed without dense, short velvet.

Distribution: Brazil: Nova Teutonia, Santa Catarina, 1949, X-1951, F. Plaumann.

Notes: The above treatment was based on 1 male paratype, and on 1 other male and 2 females from Brazil.

Cnemonyx errans (Blandford)

Cnemonyx errans (Blandford), 1896:127 (*Ceratolepis*). Lectotype ♂; "Mexican" (actually Brazilian) tobacco refuse intercepted at Paris; BMNH, London, designated by Wood 1972:192 (References in Wood & Bright c1992:314)

Ceratolepis brasiliensis Schedl, 1936:104. Syntypes, sex?; Rio Grande do Sul, Brazil; NHMW, Wien

Ceratolepis barbatus Schedl, 1954:24. Syntypes ♂ ♀; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien and Plaumann Collection (preoccupied by Eggers 1912:207)

Cnemonyx schedli Wood, 1972:244. Syntypes; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien, and Plaumann Collection, unneeded replacement name

Diagnosis: Distinguished by the smooth, shining, coarsely punctured pronotum; by the slender, hairlike interstitial setae; and by the frontal vestiture.

Male: Length 1.8–2.1 mm, 1.9 times as long as wide; color brown. Frons feebly concave from epistoma to well above upper level of eyes; central three-fourths from upper level of eyes almost to epistoma densely pubescent, setae coarse, erect, slightly longer on lateral and dorsal margins; surface above eyes and laterally to epistoma finely, closely punctate (finely granulate above); epistomal margin narrowly subcarinate on median half; callus poorly formed, moderately large. Pronotum 0.94 times as long as wide; surface obscurely reticulate on anterior half, smooth, shining behind, punctures rather coarse, deep, close, most spaced by less than half diameter of a puncture; glabrous. Elytra 1.25 times as long as wide, 1.3 times as long as pronotum; bases as in *creber* Schedl; striae moderately impressed, punctures small, distinct; interstriae slightly convex, surface dull, each with a uniseriate row of rather coarse, acute crenulations from base to base of declivity, each two-thirds or more times as wide as an interstriae. Declivity occupying posterior half, convex, rather steep; striae deeper and interstriae narrower than on disc; crenulations narrower and slightly higher. Vestiture of uniseriate rows of fine, short, semirecumbent bristles, each equal in length to one-third to one-half distance between rows, spaced within a row by less than length of a bristle.

Female: Similar to male except frons convex almost to epistoma, subreticulate and punctured to epistoma, vestiture more evenly, sparsely distributed over a smaller area.

Distribution: Brazil: Rio Grande do Sul; Nova Teutonia, Santa Catarina, XII-1940, F. Plaumann.

Notes: The above treatment was based on 3 males and 2 females from Nova Teutonia that were compared by me directly to the male lectotype of *errans* (Blandford) and to the syntypes of *brasiliensis* Schedl and *barbatus*

Schedl. The species *errans* was named from specimens recovered in Paris from tobacco refuse that was thought to have originated in Mexico. Because all known specimens of this species are from Brazil, it is now obvious that the lectotype of *errans* came from Brazil, not Mexico.

Cnemonyx longicollis (Blandford)

Cnemonyx longicollis (Blandford), 1896:128 (*Loganius*). Holotype ♀; "Mexico" (actually Brazil) tobacco refuse intercepted at Paris; BMNH, London (References in Wood & Bright c1992:316)

Diagnosis: Superficially resembling *flavicornis* (Chapuis) in size, form, and sculpture, but probably remotely related; antennal club with only one obscure suture; frons at level of antennal insertion with an obscure, minute, transverse carina; anterior third of pronotum reticulate.

Female: Length 2.3 mm, 2.47 times as long as wide; color dark reddish brown. Frons somewhat flattened from epistoma to upper level of eyes; surface reticulate, punctures rather small, moderately close, shallow; vestiture hairlike, rather short, moderately abundant, uniformly distributed from epistoma to upper level of eyes; median one-sixth at level of antennal insertion with a small, rather weak transverse carina (much lower in height and smaller than in *flavicornis*). Antennal club with only one obscure suture. Pronotum 1.02 times as long as wide; surface reticulate on anterior third, somewhat etched on middle third, almost smooth near base; punctures small, oval, spaced by about one to three diameters of a puncture; vestiture of sparse, rather long, coarse setae in lateral areas of anterior third. Elytra 1.3 times as long as wide; basal margins with weak crenulations obscurely indicated, submarginal crenulations absent; striae not impressed, punctures small, moderately deep; interstriae about twice as wide as striae, smooth, somewhat shagreened, punctures about two-thirds as large as those of striae. Declivity convex, steep; striae moderately, narrowly impressed; interstriae rather narrowly convex, anterior margins of punctures weakly tuberculate, surface rather dull; costal margin at declivity subserrate. Vestiture of uniseriate rows of interstitial setae at least on declivity largely abraded on disc and sides, each about equal in length to half distance between rows, somewhat flattened, about six times as long as wide.

Distribution: Brazil: "Mexican tobacco refuse intercepted at Paris." All Blandford species bearing this label are now known to have come from Brazil. The exact locality is unknown.

Notes: The above treatment was based on the female holotype.

Cnemonyx acuminatus Schedl

Cnemonyx acuminatus Schedl, 1976:61. Holotype ♀; Encruzilhada, Bahia, Brazil; NHMW, Wien (References in Wood & Bright c1992:313)

Diagnosis: Distinguished by the very small size and slender body form; by the reddish brown body color; by

the near absence of submarginal interstitial crenulations behind the marginal row at the base of the elytra; and by the near absence of interstitial setae on the elytral disc.

Female: Length 1.5 mm, 2.8 times as long as wide; color rather light reddish brown. Frons rather deeply, abruptly concave on median half to distinctly below upper level of eyes; sides and above rather finely rugose-reticulate and glabrous; concave area rather densely filled by rather short, erect setae; antennae missing except for one rather short, stout scape; eye elongate-oval, entire, rather coarsely faceted. Pronotum 1.1 times as long as wide; sides subparallel on basal half, gradually converging toward rather broadly rounded anterior margin; surface almost smooth, shining on basal half, reticulate on anterior third; punctures rather small, oval, shallow, rather numerous; glabrous. Elytra 1.8 times as long as wide, 1.6 times as long as pronotum; basal margins regularly, finely crenulate, submarginal crenulations very weak, apparently about two to four crenulations present on 2 and 3; striae not impressed, punctures small, shallow, distinctly impressed; interstriae slightly more than twice as wide as striae, mostly smooth, shining, punctures mostly shallow, obscure, some almost as large as those of striae, uniseriate. Declivity occupying almost posterior third of elytral length, convex, rather steep, somewhat narrowly rounded behind; striae shallowly impressed; interstriae reticulate or rugose-reticulate, 1–9 armed by several, uniseriate, small, pointed tubercles on or near declivity. Vestiture of uniseriate rows of sparse, interstitial setae on and near declivity, longest setae equal in length to about one-fourth distance between rows.

Distribution: Brazil: Bahia, Encruzilhada, XI-1972, 980 m, M. Alvarenga.

Notes: The above treatment was based on the female holotype.

Cnemonyx brevisetosus Schedl

Cnemonyx brevisetosus Schedl, 1939:407. Lectotype ♀; Isla Martin Garcia, Buenos Aires, Argentina; NHMW, Wien, present designation (References in Wood & Bright c1992:314)

Diagnosis: Distinguished from *insidiosus* (Schedl) by the smaller size; by the much larger, shallow punctures on the pronotum; by the narrower frontal impression with setae longer and more numerous.

Male: Similar to female except frontal impression not as deep, vestiture slightly shorter, less abundant.

Female: Length 1.0–1.1 times as long as wide; color almost black. Frons convex above and laterally, central third moderately concave, surface somewhat rugose-reticulate at sides and above, epistomal area procurved and smooth, shining, concave area very finely punctured; vestiture of fine hair of moderate length and abundance. Pronotum 0.90 times as long as wide; widest at base, slides weakly arcuate and converging toward rather broadly rounded anterior margin; surface strongly reticulate, punctures moderately numerous, rather large,

most about equal in size to a stria puncture (on disc); vestiture rather sparse, of rather stout hair. Elytra 1.5 times as long as wide, 1.8 times as long as pronotum; crenulations on basal row rather coarse, about eight submarginal crenulations on 2 and 3; striae not impressed, punctures small, distinct; interstriae three times as wide as striae, each with a uniseriate row of subvulcanate, setiferous tubercles to base. Declivity confined to posterior third of elytral length, convex, steep; sculpture about as on disc, except striae weakly impressed. Vestiture of minute stria hair on declivity, and uniseriate rows of erect interstitial setae regularly placed from base to apex, each seta flattened, about eight times as long as wide, equal in length to distance between rows, slightly more closely spaced within a row.

Distribution: Argentina: Isla Martin Garcia, Buenos Aires, IV-1938, M.J. Viana.

Notes: This species was based on a syntypic series. Subsequently, Schedl (1979:47) labeled and cited a female from his series as the "holotype." Because subsequent designations of primary types must be lectotypes, I here designate Schedl's "holotype" as the lectotype of *Cnemonyx brevisetosus* Schedl.

Cnemonyx insidiosus (Schedl)

Cnemonyx insidiosus (Schedl), 1939:171 (*Loganius*). Syntypes, sex?; Isla Martin Garcia, Buenos Aires, Argentina; NHMW, Wien, and Viana Collection (References in Wood & Bright c1992:316)

Diagnosis: Distinguished from *galeritus* Eichhoff by the stouter, almost scalelike interstitial setae; by the steeper elytral declivity; and by the less strongly impressed declivital striae and larger interstitial tubercles.

Female: Length 1.3 mm, 2.2 times as long as wide; color black, setae white. Frons shallowly impressed on central half, ending below upper level of eyes; surface shining, smooth in central area, finely, not closely punctured in lateral areas, finely rugose above upper level of eyes; fine, sparse, moderately long hair in impressed area, except absent on median line. Pronotum 0.94 times as long as wide; surface strongly reticulate to base, punctures moderately coarse, shallow, spaced by 1–3 diameters of a puncture; vestiture restricted to anterior third, sparse, flattened, moderately long. Elytra 1.45 times as long as wide, 1.53 times as long as pronotum; basal margins armed by a row of coarse crenulations, bases of interstriae 2–5 with at least eight coarse, submarginal crenulations; striae not impressed, punctures small, shallow, distinct; interstriae about twice as wide as striae, smooth, shining, each with a uniseriate row of small tubercles. Declivity confined to posterior one-third of elytral length, convex, steep; sculpture about as on disc except interstitial tubercles very slightly larger. Vestiture of interstitial rows of semierect, flattened setae, each about eight times as long as wide, length slightly shorter than distance between rows, slightly closer within a row; costal margin serrate near suture.

Distribution: Argentina to Bolivia.

Argentina: Isla San Martin Garcia in Buenos Aires. Bolivia: Montenguideo (Monteagudo?), Rio Azero, IX-1920, G.L. Harrington.

Notes: The above treatment was based on 1 specimen that I compared to the "allotype," presumably a female.

Cnemonyx galeritus Eichhoff

Cnemonyx galeritus Eichhoff, 1868:150. Holotype, sex?; Chili; NHMW, Wien (References in Wood & Bright c1992:315–316)
Minulus barbatus Eggers, 1912:207. Holotype ♀?; Creta (intercepted?); Museo Zoologico, Universitatis Havniae (now UZMC, Copenhagen) (References in Wood & Bright c1992:314). *New synonymy*

Diagnosis: Distinguished from *insidiosus* (Schedl) by the hairlike interstitial setae; by the more gradual elytral declivity; and by the more strongly impressed declivital striae, with the interstitial tubercles smaller.

Male: Length 1.5–1.6 mm, 2.4 times as long as wide; color dark brown to black.

Frons about as in female *insidiosus* except vestiture from epistoma to upper level of eyes densely pubescent, setae fine, hairlike, slightly longer. Pronotum 0.95 times as long as wide; smooth, shining on basal fourth, apparently at least partly reticulate on anterior half (obscured by frass), punctures small, close, shallow; vestiture of fine, moderately long, rather abundant hair. Elytra 1.5 times as long as wide, 1.8 times as long as pronotum; basal margin, striae, and discal interstriae about as in *insidiosus*. Declivity occupying slightly more than posterior third of elytral length, not as steep as in *insidiosus*; striae more strongly impressed, interstitial tubercles slightly smaller. Vestiture of uniseriate interstitial rows of erect, almost hairlike bristles.

Female: Similar to male except frons more distinctly impressed, setae less abundant.

Distribution: Chile: "Chili"; Cerro Robles, P. Santiago, 7-IV-1968, 6300 ft.; Cordillera, Rio Clarillo, 28-IX-1989, C. Ganzales; Santiago, El Volcan, 9-I-1990, *Colliguaja intergerrima*, Euphorbiaceae, E. Fuentes; Santiago, Pudahuel, XI-1953, L. Pena.

Notes: The above treatment was based on my homotype that I compared directly to the holotype of *galeritus* (Eichhoff), on 6 specimens from Chile, and on the holotype of *Minulus barbatus* Eggers that was apparently intercepted on the Island of Crete.

Species Not Seen

Cnemonyx parvus (Nunberg)

Cnemonyx parvus (Nunberg), 1933:13 (*Ceratolepis*). Holotype, sex?; St. Laurent du Maroni, French Guyane; MNHN, Paris (References in Wood & Bright c1992:317). Not found

GENUS *CAMPTOCERUS* LATREILLE

Camptocerus Latreille, 1829:91. Type-species: *Hylesinus aeneipennis* Fabricius (References in Wood & Bright c1992:318–321)

Diagnosis: Flat elongate scutellum even (flush) with basal surface of elytra (not depressed); ventral profile of abdomen ascending gradually; suture 1 on antennal club marked internally by a partial septum; meso- and metathoracic tibiae acutely margined on apical anterior edge, without supplemental denticles.

Description: Length 2.7–8.5 mm, 1.6–2.3 times as long as wide; color dark brown to black, except *aeneipennis* (Fabricius) often with a bright, metallic sheen, males of some species ornamented by variegated patterns formed by erect scales. Frons of male deeply, broadly concave from epistoma to vertex, often ornamented by setae, convex in female; antennal scape elongate, funicle 7-segmented, club rather strongly flattened, somewhat asymmetrical in outline, suture 1 indicated internally by a partial septum, surface densely covered by fine pubescence. Pronotum large, broad, unarmed; lateral margins acutely marked by a fine costa. Scutellum flat, flush with elytral surface. Elytral bases marked by a fine, raised, continuous line, not emarginate toward scutellum; striae not impressed, punctures fine, sculpture simple, except in *quadridens* Blackman; abdomen ascending rather strongly to meet apex of elytra. Vestiture varying from absent to abundant hair or scales.

Distribution: Tropical America. Wood & Bright (c1992: 318–320) list 19 species, 17 of which occur in South America.

Biology: All species are xylomycetophagous. While some infest large logs, others breed in tiny twigs. Several species bore an entrance tunnel to the cambium area where a transverse, biramous tunnel is formed (without turning or egg niches). Near the center of this transverse gallery, but never directly below the entrance tunnel, a new radial tunnel is excavated that penetrates deeply into the wood. This deep, inner tunnel usually branches into 2–4 arms along which eggs are deposited in niches. The larvae then expand these niches into short, broad, larval cradles where pupation occurs. The walls of the tunnels and cradles are stained black by mycelial growth of the symbiotic fungi. Apparently a few species bore directly into the deep wood and eliminate the transverse tunnel in the cambium area. In smaller species, such as *infedelis* Wood, the gallery system is radically modified to accommodate the confining space of small stems. While most of the recorded hosts of species in this genus are species of *Protium*, it should not be implied that they are restricted to hosts of that genus.

Key to the Species of *Camptocerus*

- 1. Setae on metepisternum bifid or trifid; male frons with excavated area (usually deeper) extending to epistoma; area between antennal insertions of male either unarmed, armed by a large median tubercle, or armed by a short, transverse carina occupying less than median third (see also *latipilis*) 2
- Setae on metepisternum palmately divided into more than four filaments; male frons armed on lower fourth by a transverse carina extending from margin to margin (absent in *tectus*; feebly developed in *occidentalis* and *niger*) 8
- 2(1). Interstriae with punctures more numerous, usually confused, either glabrous or with setae confused; striae punctures smaller; lower male frons either unarmed or armed by a large, median tubercle; scape only moderately expanded on apical half, setae distributed over apical two-thirds 3
- Interstriae with punctures less numerous, usually uniseriate, setae uniseriate; striae punctures larger; male frons with a short transverse carina; apical third of male scape abruptly, rather strongly expanded, setae confined to expanded area; surfaces of pronotum and elytra smooth, shining (females unknown) 7
- 3(2). Male frons unarmed 4
- Male frons armed by a large median tubercle at level of antennal insertion 6
- 4(3). Pronotum and elytra glabrous, smooth, shining, with minute micropunctures (80X), usually black, with a metallic sheen; pronotum often rufescent; Costa Rica to Argentina; *Protium*; 3.5–6.0 mm *aeneipennis* (Fabricius)
- Pronotum (part or all) and elytra clothed by long, recumbent, pale setae borne by both striae and interstitial punctures; color almost black (rather dull) or with a black and reddish brown pattern ... 5
- 5(4). Body more slender, 2.1 times as long as wide; pronotum 0.91 times as long as wide, profile more evenly rounded from base to anterior margin, punctures slightly larger, with very fine, moderately

SCOLYTINI

- long hair uniformly distributed from base to anterior margin (sometimes abraded); eyes more narrowly separated above by 2.5 times width of an eye; presumably NE South America and Guiana; 4.2 mm *cinctus* Chapuis
- Body stouter, 1.8 times as long as wide; pronotum 0.77 times as long as wide, dorsal profile much more strongly arched on anterior one-fifth, punctures finer, densely pubescent on anterior one-fifth, almost glabrous behind; eyes separated above by 3.5 times width of an eye; Guiana and French Guyane to Brazil (Sao Paulo); 3.2–4.3 mm *suturalis* (Fabricius)
- 6(3). Anterior margin of pronotum above eye more evenly rounded in both sexes, never transversely sulcate; striae not impressed, punctures smaller, deeper; interstitial punctures on disc mostly uniseriate, on lower declivity smaller, deeper; most of setae on upper half of male frontal excavation with their apex flattened (consistent?); French Guyane to Brazil; 2.5–3.8 mm *aterrimus* Eggers
- Area above anterior margin of pronotum transversely impressed (female) to sulcate (male) at least in lateral area; striae not impressed, punctures slightly larger, more shallow; interstitial punctures on disc mostly confused, on lower declivity slightly larger, not as deep; setae in male frontal excavation with their apices pointed, only a few on lateral margins flattened; Colombia to Bolivia and Brazil; 4.5–5.5 mm *angustior* Eggers
- 7(2). Male declivital striae distinctly impressed, punctures larger, deeper, basal area unarmed; male declivital interstitial setae uniseriate, stout, shorter than distance between rows; Trinidad to Brazil; 3.0–3.2 mm *costatus* Chapuis
- Male declivital striae not impressed, punctures smaller, not as deep; male discal interstriae 1 and 2 each ending in a large spine at a point about one-third elytra length from base, bases of these spines join to form a fold overhanging declivity; male interstitial setae on declivity uniseriate, slender, much longer than distance between rows; Panama; 3.1 mm *quadridens* Blackman
- 8(1). Interstitial setae more abundant, confused; male frons less abruptly excavated, its surface sculpture with lateral areas closely punctured, median line and lateral margins impunctate, punctured areas ornamented by conspicuous, long, yellow setae 9
- Interstitial setae uniseriate or absent; male frons more abruptly impressed, surface sculpture uniform, punctures not clearly evident, setae sparse inconspicuous 14
- 9(8). Male frons with a transverse carina below level of antennal insertion feeble to obsolete 10
- Male frons with conspicuous, moderately to strongly developed transverse carina, if carina weak then a median epistomal tubercle present 11
- 10(9). Male frons with carina entirely obsolete, central area at and below level of antennal insertions very finely, densely rugose-reticulate; Colombia to Peru and Brazil (Pernambuco); 2.8–3.2 mm *tectus* Eggers
- Male frons with carina weak to moderate, central area below level of antennal insertion with several small punctures; Guiana and French Guyane to Brazil (Mato Grosso; *Protium*; 2.6–3.5 mm *niger* (Fabricius)
- 11(9). Male frontal carina below level of antennal insertion, rather weak, procurved 12
- Male frontal carina above level of antennal insertion, strong, almost straight 13
- 12(11). Male frontal carina subacute, without a median tubercle below carina; Brazil (Bahia to Pernambuco); 3.0–3.5 mm *orientalis* Eggers
- Male frontal carina with its summit obtuse, a conspicuous median tubercle immediately below carina; Nicaragua to Guiana and Venezuela; 3.3–4.0 mm *auricomus* Blandford

- 13(11). Male frons very weakly concave on small area equal to about one-third diameter of frons; male frontal carina highest on its median third, weakly developed on lateral thirds; Venezuela; *Protium*; 3.0–3.4 mm **rectus** Wood
- Male frons extensively concave from eye to eye from vertex to carina; male frontal carina subacute from one lateral margin to other, highest at lateral ends, its crest running a moderately concave course; Bolivia to Peru; 3.6–4.1 mm **occidentalis** Eggers
- 14(8). Body stout, 1.6 times as long as wide; male carina immediately above epistoma, short, about one-fifth as wide as lower area of frons; female interstriae with low, transverse crenulations from base to near apex; Brazil (Para); 2.3–2.7 mm **latipilis** Schedl
- Body more slender, 2.0 or more times as long as wide; male carina at level slightly above level of antennal insertions 15
- 15(14). Elytra appearing subglabrous, minute hairlike interstitial setae present 16
- Interstriae with longer, scalelike setae at least on declivity 17
- 16(15). Male frontal carina rather strongly developed, of uniform height; Brazil (Santa Catarina); 2.5–3.2 mm **inoblitus** (Schedl)
- Male frontal carina not of uniform height, highest on median third, less clearly impressed below; Brazil (Santa Catarina); 2.1 mm **morio** (Schedl)
- 17(15). Pronotum feebly reticulate on discal area, punctures small, spaced by 2–6 diameters of a puncture; striae not impressed, punctures small, shallow, spaced within a row by two or more diameters of a puncture; interstriae smooth, shining, punctures very small, shallow, at least as widely spaced as those of striae (about four to eight diameters of an interstitial puncture); setae confined to declivity, each about 6 to 8 times as long as wide; Costa Rica; ex 1 cm tree seedling; 2.7–3.2 mm **infedelis** Wood
- Pronotum strongly reticulate throughout, punctures larger, spaced by 1 to 3 diameters of a puncture; striae feebly impressed, punctures deeper, spaced within a row by one diameter of a puncture; interstriae almost smooth, punctures smaller than those of striae and as closely spaced (about three times diameter of an interstitial puncture) 18
- 18(17). Pronotal punctures larger, spaced by one-half diameter of a puncture; interstitial scales each about four to six times as long as wide; Bolivia to Brazil; 1.8–2.5 mm **opacicollis** (Eggers)
- Pronotal punctures smaller, spaced by more than 1 to 2 diameters of a puncture; interstitial scales more slender, each six to eight times as long as wide 19
- 19(18). Pronotum rather strongly reticulate to or near base; interstitial punctures small, their anterior margins feebly if at all elevated; Brazil (Amazonas, Goyas); 2.7–3.3 mm **major** (Eggers)
- Posterior two-thirds of pronotum smooth, brightly shining, punctures minute; interstitial punctures as large as those of striae, their anterior margin weakly to moderately elevated; Brazil (Ceara); 3.4 mm **annectens** Wood

Camptocerus aeneipennis (Fabricius)
Plate XXIX

Camptocerus aeneipennis (Fabricius), 1801:392 (*Hylesinus*). Lectotype ♂; labeled [Rio] Essequibo [Guiana], published as *America Meridionali*; UZMC, Copenhagen, designated by Wood 1982:412 (Synonymy and references in Wood & Bright c1992:318–319)
Hylesinus gibbus Fabricius, 1801:392. Holotype ♀; labeled [Rio] Essequibo [Guiana], published as *America meridionali*; UZMC, Copenhagen

Diagnosis: Distinguished by the large size; by the metallic sheen; by the glabrous elytra, with fine, confused punctures; and by the unarmed lower male frons.

Male: Length 3.5–6.0 mm, 1.8 times as long as wide; mature color black, pronotum somewhat reddish brown when not fully mature, frequently with a brilliant metallic sheen. Frons deeply, broadly concave eye to eye from vertex to level of antennal insertion; lateral margins

subacute below; surface reticulate, transcending to smooth below, very closely, moderately punctured in concave area, almost smooth (a few minute punctures) in sulcus; vestiture of abundant, moderately long hair in concave area, sparse, minute hair in sulcus; funicle segments 2–7 ornamented by a brush of long hair. Pronotum 0.77 times as long as wide, widest at base; surface smooth, shining, some reticulation near anterior margin, wrinkling often on basal fourth; punctures minute, not close, slightly larger near anterior margin; glabrous. Elytra 1.1 times as long as wide, 1.5 times as long as pronotum; widest at base; striae not impressed, punctures very small, spaced within a row by one to three times diameter of a puncture; interstriae four to five times as wide as striae, smooth, shining, punctures minute, moderately abundant, confused. Declivity convex, rather steep; sculpture about as on disc, except some interstriae with punctures almost uniseriate. Glabrous.

Female: Similar to male except frons convex, reticulate, shallowly, closely punctured, with a median callus, vestiture sparse, very short; funicle brush absent.

Distribution: Costa Rica to Argentina.

Argentina: Cited in Wood & Bright c1992:318.

Bolivia: Chuma, La Paz, XII-1935, Y. Mexia.

Brazil: Benevides, Para, II-1895, Gounelle, Pery-Pery, Pernambuco, 5-VI-1982, Gounelle; Monte Alegre, Para, perforating leguminous leaves, G. Vogt; Salobro, Bahia, 7-VI-1885, E. Gounelle; Recife [Pernambuco], 6-V-1892; Sao Paulo, Santa Catarina; Presidente Figueireido, Amazonas, Forest, P. Grossi.

Colombia: Bogota; 8 km S Colonia, Valle de Cauca, 9-VII-1970, 30 m, No. 628 in *Icica altissima*, No. 631 in *Protium nervosum*, SLW.

Venezuela: 9 km S Barancas, Barinas, 2-XII-1969, 150 m, No. 170, *Protium*, SLW; 40 km E Canton, Barinas, 8-III-1970, 70 m, No. 398, *Protium tenuifolium*, *Protium*, SLW; 40 km SE Socopo, Barinas, 25-I-1970, 150 m, No. 262, *Protium*, SLW.

Biology: Felled and broken trees were attacked in stems 8 to more than 30 cm in diameter. An entrance tunnel was excavated in the bark to the surface of the wood where a transverse, biramous gallery was formed, each arm about 3 cm or more in length. From this gallery, but not directly below the entrance tunnel, a radial tunnel was bored an additional 3–6 cm into the wood. This inner tunnel usually divided into 2–4 branches along which egg niches were formed at about 3-mm intervals. Two rows of egg niches were formed above and 1 below in the egg gallery. The larvae enlarged their egg niche into a cradle as they grew and later used these cradles as pupation chambers. The galleries were stained black by the ambrosia fungus mycelium that apparently was used as the principal source of food. In Venezuela, where this species was present in near epidemic numbers, the transverse tunnel in the cambium area was eliminated; the entrance tunnel extended directly into the deep brood area. In a number of areas this species was observed

to cut small, circular holes in thick leaves (each hole about the diameter of a gallery chamber) then a beetle crawled into the hole and rested or merely passed through the perforation. Although this habit could relate to maturation feeding, its significance has not been investigated.

Notes: The above treatment was based on the lectotype of *Hylesinus aeneipennis* Fabricius, the holotype of *Hylesinus gibbus* Fabricius, 25 specimens from Costa Rica, 2 from Bolivia, 31 from Brazil, 8 from Colombia, and 57 from Venezuela.

Camptocerus cinctus Chapuis, n. status

Camptocerus cinctus Chapuis, 1869:51. Holotype ♀; Amerique meridionale; IRSNB, Brussels (References in Wood & Bright c1992:320)

Camptocerus charpentierae Schedl, 1970:582. Holotype ♂; Massikiri-Haut Oyapock, French Guyane; NHMW, Wien (References in Wood & Bright c1992:319). *New synonymy*

Diagnosis: Distinguished from *suturalis* (Fabricius) by the more evenly arched dorsal profile of the pronotum; by the uniform distribution of slender setae from the anterior margin to the base of the pronotum; by the more slender body; and by other characters described below.

Female: Length 4.2 mm, 2.1 times as long as wide, mature color probably very dark brown, type rather pale reddish brown with parts of elytra dark brown (not fully colored?). Frons broadly convex on upper two-thirds, shallowly, transversely impressed below; eyes separated above by 2.5 times width of an eye (3.5 times in *suturalis*); surface reticulate, punctures close, rather small, moderately deep above, almost smooth and more finely punctured on lower one-third; vestiture rather short, moderately coarse, of recumbent setae of moderate abundance; funicular brush not present. Pronotum 0.91 times as long as wide; dorsal profile evenly arched (not conspicuously more abrupt on anterior one-fifth), surface smooth, shining, punctures distinctly deeper, slightly larger than in *suturalis*, vestiture uniformly distributed from anterior margin to base, setae finer, recumbent. Elytra 1.2 times as long as wide, 1.3 times as long as pronotum; striae not impressed, punctures small, shallow, distinct from base to apex; interstriae subreticulate, densely covered by micropunctures, punctures about half as large as those of striae, confused from base at least to base of declivity, somewhat uniseriate on declivity. Declivity broadly convex, moderately steep, sculpture essentially as on disc. Vestiture of slender, recumbent setae, rather short on striae, distinctly longer on interstriae; setae on ventral surfaces of metathorax and abdominal segment 1 bifid (on *suturalis* as least half divided into 3–5 filaments).

Distribution: Brazil, French Guyane, and “South America.”

South America: “Am. meri., Dejean.”

Brazil: 69 km N Manaus, 7-XII-1979, G. Stevens.

French Guyane: Massikiri-Haut Oyapock.

Notes: The above treatment was based on the female holotype of *cinctus* Chapuis. Chapuis Collection specimens of other species similarly labeled came from northeastern South America, possibly Guiana. The male holotype of *charpentieri* Schedl was examined and compared to my female from Manaus. The color, color pattern, slender body and narrow spacing between the eyes match exactly the female holotype of *cinctus*, except that the Manaus specimen has lost almost all of the setae from the pronotum and elytra. Because the few setae remaining on the lateral areas of the pronotum and on the lateral areas and declivity of the Manaus female, they are considered to be identical to those in similar positions on the holotype of *cinctus*, the 2 names are considered synonymous. The name *cinctus* has been previously incorrectly identified by all authors except Chapuis.

Camptocerus suturalis (Fabricius)

Plate XXXIII

Camptocerus suturalis (Fabricius), 1801:393 (*Hylesinus*). 4 syntypes, sex?; labeled [Rio] Essequibo [Guiana], published as *America meridionale*; UZMC, Copenhagen (Synonymy and references in Wood & Bright c1992:320)

Hylesinus fasciatus Fabricius, 1801:392. Syntypes 1 ♂, 1 ♀; Esequibo [River], Guiana; UZMC, Copenhagen

Camptocerus hirtipennis Schedl, 1973:165. Holotype ♂; Tefe (=Ega), Brazil; MZUSP, Sao Paulo

Diagnosis: Distinguished by the large size, with confused interstitial punctures; by the long, recumbent, pale setae borne by both striae and interstitial punctures; and by the unarmed lower male frons.

Male: Length 3.2–4.3 mm, 1.8 times as long as wide; color very dark reddish brown, almost black, vestiture pale. Frons as in *aeneipennis* (Fabricius) except lower area reticulate almost to epistoma, brush on funicle much smaller. Pronotum 0.77 times as long as wide; as in *aeneipennis* except surface reticulate, punctures smaller, anterior one-fifth rather densely covered by coarse, recumbent hair of moderate length. Elytra 1.2 times as long as wide, 1.5 times as long as pronotum; resembling *aeneipennis* except surface reticulate, striae punctures minute, almost indistinguishable from those of interstriae. Vestiture of white or yellowish, rather coarse, recumbent, confused, hairlike setae of moderate length and abundance covering entire surface.

Female: Similar to male except frons convex, a weak impression on median half from vertex to epistoma, surface rugose-reticulate, vestiture sparse; brush on funicle absent; posterior half of pronotum smooth, shining.

Distribution: French Guyane and Guiana to Brazil (Sao Paulo).

Brazil: Tefe (=Ega); 69 km N Manaus, 7-XII-1979, G. Stevens.

Guiana: [Rio] Essequibo (type).

Notes: The above treatment was based on the syntypes of *Hylesinus suturalis* Fabricius and *H. fasciatus* Fabricius, and on 14 other specimens from Brazil.

Camptocerus aterrimus Eggers

Plate XXX

Camptocerus aterrimus Eggers, 1933:12. Holotype ♀; Passoura, French Guayane; MNHN, Paris (References in Wood & Bright c1992:318)

Diagnosis: Distinguished from *angustior* Eggers by the smaller size; by the median epistomal tubercle on the male; by the mostly uniseriate interstitial punctures on the elytral disc; and by the more evenly convex area behind the anterior margin in the lateral area of the pronotum.

Male: Length 2.5–2.8 mm, 1.9 times as long as wide; color black, glabrous. Frons concavely impressed about as in *aeneipennis* (Fabricius), except 2–3 setae on lateral margin near eye moderately spatulate; epistoma armed by a strong, conical, median tubercle; funicle segments 2–7 with a large brush of dark hair. Pronotum 0.84 times as long as wide; surface weakly reticulate on anterior half, shining behind, median half of posterior half conspicuously, transversely wrinkled, punctures rather small, moderately close, distinctly impressed; anterior area from anterior end of lateral costa shallowly, often concavely impressed (immediately above anterior margin) less than half distance to median line; glabrous. Elytra 1.1 times as long as wide, 1.3 times as long as pronotum; striae not impressed, punctures small, distinctly impressed, surface smooth, with numerous minute micropunctures; interstriae five or more times as wide as striae, punctures about half as wide as those of striae, mostly uniseriate, those on 1, 2, and 4 moderately confused at least on basal half of disc. Declivity broadly convex, moderately steep; striae and interstitial punctures slightly smaller, deeper than on disc. Glabrous.

Female: Similar to male except frons convex, surface reticulate, punctures moderately coarse, rather deep, median tubercle on epistoma present, comparatively smaller than in male; vestiture of sparse, short, coarse hair; pronotum reticulate on anterior fourth, wrinkled area not present (smooth, shining); micropunctures on elytra much smaller.

Distribution: French Guyane to Brazil.

Brazil: Amazonenstromgebiet (syntype); 69 km N Manaus, 7-XII-1979, G. Stevens; Corcovado N.P., near Manaus, 26-XI-1979, G. Stevens; Mato Grosso 12°31'S, 51°46'W, 12-XI-1968, 12°50'S, 51°47'W, RS/RGS Exp.

French Guyane: Passoura.

Notes: The above treatment was based on 29 specimens from Brazil, 2 females of which I compared directly to the female holotype.

Camptocerus angustior Eggers

Plate XXX

Camptocerus angustior Eggers, 1928:91. Lectotype ♂; Bolivia (Yungas, 1000 m); USNM, Washington, designated by Anderson & Anderson 1971:4 (References in Wood & Bright c1992:318)

Diagnosis: Distinguished from *aterrimus* Eggers by the larger size; by the more strongly confused interstitial

punctures on the disc; and by the distinct impression (female) or transverse sulcus (male) immediately above the anterior margin of the pronotum at least in the lateral areas.

Male: Length 4.5–5.5 mm, 1.83 times as long as wide; color black, glabrous. Frons as in *aterrimus* except spatulate setae on lateral margin near eye apparently wider, more numerous. Pronotum about as in *aterrimus* except sulcus extending from anterior end of lateral costa (immediately above anterior margin) much stronger, more conspicuous, usually attaining median line (continuous with opposite side). Elytra about as in *aterrimus*, striae punctures slightly larger, not as deep, interstitial punctures on disc more strongly confused to upper declivity.

Female: As in female *aterrimus* except pronotum smooth, shining except near anterior margin; micropunctures on elytral disc obscure at 80X, almost obsolete; sulcus near anterior margin of pronotum much less strongly impressed than in male.

Distribution: Colombia to Bolivia and Brazil.

Bolivia: Yungas, 1000 m.

Brazil: 68 km N Manaus, Amazonas, 7-XII-1977, G. Stevens.

Colombia: Cited in Wood & Bright c1992:318.

Peru: 15 mi. NE Tingo Maria, 11-XI-1954, 700 m, E.I. Schlinger, E.S. Ross.

Notes: The above treatment was based on the male lectotype, 1 other male, 1 female from Brazil, and 1 female from Peru.

Camptocerus costatus Chapuis

Plate XXXI

Camptocerus costatus Chapuis, 1869:51. Holotype ♂; Brazil, taken by Dejean; IRSNB, Brussels (References in Wood & Bright c1992:319)

Camptocerus seriatus Eggers, 1933:12. Holotype ♀; Les roches de Konourou, French Guyane; MNHN, Paris (References in Wood & Bright c1992:320). *New synonymy*

Diagnosis: Male distinguished by presence of a short transverse carina just below middle of frontal concavity; by the uniseriate rows of erect interstitial bristles; by the declivity occupying the posterior four-fifths of the elytra length; and by the strongly elevated, narrowly convex declivital interstriae 8 that continues to the suture.

Male: Length 3.0–3.2 mm, 1.9 times as long as wide; color dark reddish brown. Frons with a short, transverse carina (on median one-sixth) distinctly above level of antennal insertion, broadly, moderately sulcate to epistoma below carina, deeply, broadly concave above carina to well above upper level of eyes, surface reticulate and closely, rather finely punctured above carina, smooth and sparsely, finely punctured below; vestiture of fine erect, abundant, rather long hair above, much shorter and sparse below carina; funicle segments 2–7 bearing a brush of long, dark hair. Pronotum 0.83 times as long as wide; surface reticulate, weakly near base, moderately on anterior half, punctures small, shallow, obscure, rather close; glabrous. Elytra 1.1 times as long as wide,

1.3 times as long as pronotum; declivity occupying posterior four-fifths, basal one-fifth with striae not represented, punctures very small, obscure, interstriae subreticulate (based on micropunctures), rather closely covered by broad, low crenulations. Declivity (posterior four-fifths) moderately impressed to apex; interstriae about twice as wide as striae, distinctly convex, each with a uniseriate row of crenulations (each crenulation more than half as wide as an interstriae near base, gradually decreasing in width to small tubercles on posterior one-fifth to obsolete at apex; interstriae 8 broadly, rather strongly elevated near middle of elytra, crest becoming narrowly costate on posterior one-fifth to suture. Vestiture confined to declivity, consisting of uniseriate rows of erect, stout bristles, each bristle slightly shorter than distance between rows, spaced within a row by slightly less than length of a bristle (each bristle slightly flattened, about 10 times as long as wide).

Female: Length 3.4 mm; similar to male except frons convex, rather finely punctured; antennal funicle and scape without long setae; declivity more strongly, evenly convex, interstriae 9 not elevated.

Distribution: Brazil to Trinidad Island.

Brazil: “Bresil, Dejean” (type).

French Guyane: Les roches de Kourou.

Trinidad: Morne Bleu, 21-VIII-1969, H. & A. Howden.

Notes: The above treatment was based on the male holotype of *Camptocerus costatus* and on my male that was compared to this holotype, and on the female holotype of *C. seriatus* Eggers.

Camptocerus quadridens Blackman

Plate XXXIII

Camptocerus quadridens Blackman, 1943:379. Holotype ♂; Cooper’s near source of Rio Aejeta, Canal Zone, Panama; USNM, Washington (References in Wood & Bright c1992:320)

Diagnosis: Male distinguished by the short transverse carina at the level of antennal insertion; by the impressed declivity, with very slender, long, interstitial setae; and by the very coarse spine and lateral lobe at the base of the declivity.

Male: Length 3.1–3.4 mm, 1.9 times as long as wide; color rather dark reddish brown. Frons with a strong transverse carina on median one-fifth at level of antennal insertion, broadly, strongly concave above carina to well above upper level of eyes, continued below carina as a broad sulcus to epistoma; surface of concave area reticulate, rather finely, closely, deeply punctured, more nearly smooth below carina and sparsely, more finely punctured; vestiture of fine, erect, abundant, long hair; funicle segments 2–7 with a moderate brush of long hair. Pronotum 0.87 times as long as wide; surface smooth, shining except reticulate on anterior third; punctures small, deep, moderately close; almost glabrous. Elytra 1.1 times as long as wide, 1.3 times as long as pronotum; declivity occupying more than posterior half, separated from disc by an abrupt impression and overhanging

spine and lobe; disc smooth, shining, striae punctures minute to obsolete, interstriae punctures not evident; posterior margin of disc on interstriae 1 formed into a large, pointed spine directed caudad, its base continued laterad to form a large, procurved, rounded lobe above interstriae 2 and 3, crest declining laterad and becoming crest of slightly elevated interstriae 8. Declivity broadly convex, moderately steep; striae weakly impressed, punctures small, distinct; interstriae about three times as wide as striae, surface smooth, shining, each with a sparse row of obtusely pointed tubercles; crest of 8 continued as ventrolateral margin to suture. Vestiture restricted to declivity, consisting of uniseriate rows of setae, those on basal half of 1–3 very long, slender, others rather stout, each about as long as distance between rows.

Distribution: Panama: Cooper's near source of Rio Aejeta, Canal Zone, 19-VIII-1923, No. 2198, from felled tree, J. Zetek; Cerro Jefe, 19°12'N, 79°21'W, 24-II-1973, Stockwell.

Notes: The male holotype and 2 other males were examined. Zetek took *aneipennis* Fabricius at the same locality and date that he took this species; this suggests the possibility that the host might have been a *Protium* sp.

Camptocerus tectus Eggers

Camptocerus tectus Eggers, 1943:244. Holotype ♂; Sarra da Bermada, Pernambuco, Brazil; DEI, Muncheberg (References in Wood & Bright c1992:320)

Diagnosis: Male distinguished from male *orientalis* Eggers by absence of a transverse carina on the lower frons and by other minute differences in sculpture on the lower frons (see below).

Male: Length 3.0–3.2 mm, 1.8 times as long as wide; color dark brown, setae all pale. Frons resembling *orientalis* except transverse carina absent, frons less strongly concave (especially in lower area), area from level of antennal insertion to epistoma (tips of long yellow setae shorter than *orientalis*) less strongly impressed, minutely rugose-reticulate, median half without punctures (finely, rather closely punctured and not rugose-reticulate in *orientalis*, with no indication of a transverse carina; yellow setae in concave area ending well above level of antennal insertion). Pronotum and elytra about as in *orientalis* except interstitial setae appearing larger, broader, closer, on disc each about four times as long as wide, on lower declivity more slender, each about six to eight times as long as wide.

Female: Differences in females not clearly evident in material examined.

Distribution: Colombia to Peru and Brazil.

Brazil: Sarra de Berada, Pernambuco, 5-VI-1894, Duhant.

Colombia: Carton de Colombia forest 8 km S Colonia, Valle de Cauca, 9-VII-1970, 30 m, *Protium nervosum*, SLW.

Peru: Varias-Aguaytia, Tingo Maria, 6-7-IX-1944, E.J. Hambleton.

Notes: The above treatment was based on the male holotype and on 2 male paratypes, all bearing the type data, from Brazil, all in the DEI, Eberswalde; on 1 from Peru; and on 9 from Colombia. In general, *tectus* occurs at higher elevations toward the west and *niger* (Fabricius) in the lowlands east of the Andes Mountains. It is suspected that the two will fully intergrade when more material is available for study in intervening areas.

Camptocerus niger (Fabricius)

Plate XXXII

Camptocerus niger (Fabricius), 1801:393 (*Hylesinus*). Lectotype ♂; type labeled [Rio] Essequibo [Guiana], published as America meridionali; UZMC, Copenhagen, designated by Wood 1982:415 (Synonymy and references in Wood & Bright c1992:419)

Camptocerus squammiger Chapuis, 1869:51. Syntypes 1 ♂, 1 ♀; Cayenne, French Guyane; IRSNB, Brussels

Camptocerus striatulus Hagedorn, 1904:547. Syntypes, sex?; French Guyana; MNHN, Paris

Diagnosis: Male frons without a carina and few or no micropunctures below level of antennal insertion, median line and lateral areas without punctures or setae; interstitial setae abundant, confused.

Male: Length 2.6–3.5 mm, 1.8 times as long as wide; color very dark brown, setae pale to brown in an indefinite pattern. Frons rather strongly concave from eye to eye, from level of antennal insertion to vertex; surface subreticulate, closely, rather finely punctured in concave area, median line and lateral margins without setae, setae fine, long above, shorter below; area between antennal bases minutely rugose-reticulate, impunctate, transverse carina on median half of epistoma obscure, poorly formed; antennal scape with a conspicuous brush. Pronotum 0.86 times as long as wide; surface smooth, shining, obscurely reticulate near anterior margin, punctures small, deep, very close, spaced by less than diameter of a puncture; vestiture sparse, fine, short. Elytra 1.05 times as long as wide, 1.2 times as long as pronotum; striae weakly impressed, punctures small, impressed; interstriae about three times as wide as striae, surface almost smooth, shining, punctures two-thirds as large as those of striae, moderately impressed, strongly confused. Declivity occupying slightly more than posterior half of elytra length, broadly convex, moderately steep; striae more strongly impressed than on disc, interstriae narrower and more strongly convex, punctures uniseriate. Vestiture of erect scales, each scale about 5–6 times as long as wide, confused on disc, uniseriate on declivity, on declivity each scale two-thirds as long as distance between rows.

Female: Similar to male except frons convex, with setae sparse, inconspicuous; funicle without a brush; setae usually abraded on pronotum and on elytral disc.

Distribution: Costa Rica (?) to Brazil.

Brazil: RS-RGS Exp., 12°31'S, 51°46'W, Mato Grosso, 7-X-1968, RA. Beaver.

Colombia: Carton de Colombia forest 8 km S Colonia, Valle de Cauca, 9-VII-1970, 30 m, No. 631, *Protium nervosum*, SLW.

French Guyana: Cayenne.

Guiana: [Rio] Essequibo (type).

Peru: Tingo Maria, 6-7-IX-1942, E.J. Hambleton.

Hosts: *Protium nervosum*.

Biology: As described for *aeneipennis*.

Notes: The type series of *Hylesinus niger* Fabricius and *H. squamiger* Chapuis were examined, as well as 2 from French Guyane, and 18 from Brazil (Pernambuco). This species was previously reported from Costa Rica, Colombia, and Peru; the Costa Rican specimens were examined and are of *auricomus* Blandford, those from Colombia and Peru are of *tectus* Eggers.

Camptocerus orientalis Eggers

Camptocerus orientalis Eggers, 1943:244. Holotype ♂; Salobro, Prov. de Bahia, Brazil; DEI, Munchenberg (References in Wood & Bright c1992:320)

Diagnosis: Male frons without a conspicuous, median, epistomal tubercle below transverse carina; pronotum more distinctly reticulate on basal fourth; male declivity with scalelike setae extending to apex (setae on lower declivity confused, hairlike in *auricomus* Blandford); female striae on declivity less strongly impressed, punctures much smaller.

Male: Length 3.3–3.4 mm (female 3.7 mm), 1.9 times as long as wide, color very dark brown, setae variegated, pale and brown. Frons about as in *auricomus* except epistomal tubercle below carina absent; lateral patches of yellow hair in concave area less widely separated, setae slightly more abundant and longer. Pronotum about as in *auricomus* except surface more distinctly reticulate, punctures slightly larger, deeper. Elytra similar to *auricomus* except striae more distinctly impressed, punctures distinctly larger, larger than those of interstriae; interstitial setae on disc each about six times as long as wide, on lower declivity of erect scales, each about four times as long as wide, distinctly shorter than on disc.

Female: Similar to *auricomus* except weak transverse impression extending from epistoma only to upper level of eyes (much higher in *auricomus*).

Distribution: Brazil: Salobro, Bahia, 6-VII-1885, Gounelle.

Notes: The above treatment was based on the male holotype and on 1 male and 2 female paratypes with type data in DEI, Munchenberg.

Camptocerus auricomus Blandford

Plate XXXI

Camptocerus auricomus Blandford, 1896:125. Syntypes ♂ ♀; Chontales, Nicaragua, Bugaba and Volcan de Chiriqui, Panama; BMNH, London (References in Wood & Bright c1992:319)

Diagnosis: Distinguished by the confused, variegated interstitial setae; and by the weak, transverse male carina above the epistoma, and the median epistomal tubercle.

Male: Length 3.3–4.0 mm, 1.9 times as long as wide; color very dark brown, setae variegated pale and brown. Frons rather shallowly, broadly concave from carina at level of antennal insertions to vertex; surface minutely rugose at sides and below, pubescent areas finely, closely, shallowly punctured; median line, lateral areas, and area near carina glabrous, pubescent areas begin at vertex and extend seven-eighths distance toward carina, each pubescent area occupying middle half of distance from median line to lateral margin; carina weak, obtusely elevated, distinctly procurved, a strong, acute, median tubercle on epistoma below carina, surface weakly reticulate, almost impunctate; funicle with a strong brush of hair. Pronotum 0.86 times as long as wide; surface weakly reticulate, more strongly reticulate on anterior third, punctures rather small, deep, close, spaced by less than diameter of a puncture; setae on anterior third coarse, rather long, moderately close, on posterior areas very fine, rather short, easily abraded. Elytra about 1.0 times as long as wide, 1.1 times as long as pronotum; striae feebly or not impressed, punctures small, close; interstriae about four times as wide as striae, surface smooth, shining, punctures rather numerous, confused, each about two-thirds as large as those of striae. Declivity occupying posterior half or more of elytral length, convex, moderately steep; sculpture about as on disc. Vestiture of abundant, erect, variegated interstitial scales, each scale about four to six times as long as wide and equal in length to half width of an interstriae on disc, on lower declivity distinctly longer and very slender; almost hairlike bristles.

Female: Similar to male except frons convex, reticulate, vestiture very fine, sparse, carina and tubercle absent; without coarse setae on anterior third of pronotum; declivital setae scalelike as on disc.

Distribution: Nicaragua to Guiana and Venezuela.

Guiana: Cited by Wood & Bright c1992:319.

Venezuela: 20 km SW El Vigia, Merida, 21-XI-1969, 50 m, No. 149, tree limb, SLW.

Hosts: *Protium tenuifolium*, *P. sp.*

Biology: About as in *aeneipennis* Fabricius.

Notes: The above treatment was based on the male in the BMNH, London, that has generally been regarded as the holotype of *auricomus* Blandford and on 65 other specimens from Central America and 21 from Venezuela.

Camptocerus rectus Wood

Camptocerus rectus Wood, 1972:245. Holotype ♂; Venezuela: 40 km E Canton, Barinas; USNM, Washington (References in Wood & Bright c1992:320)

Diagnosis: Distinguished from *auricomus* Blandford by the subacute frontal carina (highest on median third); and by the absence of a median epistomal tubercle.

Male: Length 3.0–3.4 mm, 1.9 times as long as wide; color very dark brown, vestiture pale (when present). Frons similar to *auricomus* except upper area more

strongly concave, vestiture slightly shorter, more abundant; carina at level of antennal insertion straight, much stronger, highest on middle third. Pronotum about as in *auricomus* except surface strongly reticulate, setae usually abraded. Elytra similar to *auricomus* except surface reticulate, scales slightly shorter and much wider, each about 2–3 times as long as wide on both disc and declivity.

Female: Similar to male except frons convex, reticulate, moderately punctured, vestiture fine, sparse, short; posterior two-thirds of pronotum smooth, shining, glabrous.

Distribution: Venezuela: 40 km E Canton, Barinas, 8-III-1970, 70 m, No. 398, *Protium tenuifolium*, SLW; 9 km S Barancas, Barinas, 2-XII-1969, 150 m, No. 170, *Protium*, SLW; 10 km SE Miri, Barinas, 150 m, No. 298, *Protium tenuifolium*, SLW; 40 km SE Socopo, Barinas, 25-I-1970, 150 m, No. 253, *Protium*, SLW.

Hosts: *Protium tenuifolium*, *P.* sp.

Biology: About as in *aeneipennis* Fabricius; limbs less than 10 cm in diameter were infested.

Notes: The above treatment was based on the entire type series of 40 specimens.

Camptocerus occidentalis Eggers

Camptocerus occidentalis Eggers, 1928:91. Lectotype ♂; Yungas, La Paz, Bolivia; USNM, Washington, designated by Anderson & Anderson 1971:23 (References in Wood & Bright c1992:319)

Diagnosis: distinguished from *rectus* Wood by the more extensively, more deeply impressed male frons; and by the stronger, subacute, transverse male carina, its crest moderately concave.

Male: Length 3.6–4.1 mm, 2.0 times as long as wide; color dark reddish brown, elytral vestiture pale. Frons with a straight, subacute, transverse carina very slightly above level of antennal insertions, extreme ends highest, crest following a moderately concave course; area below carina to epistomal margin transversely, somewhat concavely impressed; area above carina to vertex broadly, rather deeply concave, surface reticulate, finely, obscurely punctured, median line glabrous, median half of each half ornamented by a dense patch of long hair from deepest point in concave area almost to its upper margin, longest setae not capable of extending to carina. Pronotum 0.90 times as long as wide; surface minutely reticulate, punctures rather small, close, deep, spaced by 1–22 diameters of a puncture; vestiture mostly abraded, anterior third with many long, slender setae. Elytra 1.2 times as long as wide, 1.3 times as long as pronotum; striae weakly impressed, punctures small, close; interstriae three times as wide as striae, surface smooth, shining, punctures small, confused, each about half as large as those of striae. Declivity occupying slightly more than posterior half, gradual, convex; surface reticulate, striae punctures mostly obsolete. Vestiture of rather abundant interstitial setae from base to apex, each slightly flattened and about equal in length to width of an interstriae.

Distribution: Bolivia to Peru.

Bolivia: Yungas, La Paz.

Peru: "Peru, Gehr. W. Mueller, Vermacht, 1909."

Notes: The above treatment was based on 2 male cotypes from Peru.

Camptocerus latipilis Schedl

Camptocerus latipilis Schedl, 1973:166. Holotype ♂; Benfica, Ananindeua, Para, Brazil; MZUSP, Sao Paulo (References in Wood & Bright c1992:319)

Diagnosis: Distinguished by the stout body; by the transverse male frontal carina located on the epistomal margin; and by the unique female elytral disc.

Female: Length 2.3–2.7 mm, 1.6–1.7 times as long as wide; color black, pronotum dark reddish brown. Frons convex, rugose-reticulate, punctures sparse, minute, subglabrous. Pronotum 0.80 times as long as wide; surface finely reticulate from base to anterior margin, punctures very small, shallow, moderately spaced; glabrous. Elytra 1.0 times as long as wide, 1.0 times as long as pronotum; surface reticulate; striae not impressed, punctures obsolete on basal one-fourth of elytral length (no indication of striae), small distinct, shallow from there to apex; basal third of elytral length with low, moderately broad, close, confused crenulations over striae and interstriae, becoming uniseriate on posterior half as broad tubercles. Vestiture abraded on basal half, present as slender bristles behind, each less than half as long as distance between rows, spaced within a row by distances slightly greater than length of a bristle.

Distribution: Brazil: Benfica, Ananindeua in Para; 69 km N Manaus, Amazonas, 7-XII-1979, G. Stevens.

Notes: The above treatment was based on 1 female that was compared by me to the male holotype.

Camptocerus inoblitus (Schedl)

Camptocerus inoblitus (Schedl), 1939:722 (*Loganius*). Holotype ♂; Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:319)

Diagnosis: Distinguished by the slender body form; by the strong, slightly procurved male frontal carina; and by the short, very fine, hairlike interstitial setae.

Male: Length 2.5–3.2 mm, 2.3 times as long as wide; color dark brown. Frons rather strongly concave from eye to eye from carina at level of antennal insertions to well above eyes, deepest on its lower third; surface rugose-reticulate, punctures minute, subgranulate, subglabrous except several bristles on lateral margin between carina and eye; carina strong, subacute, moderately procurved; shallowly sulcate below carina, almost smooth, with a few fine punctures, several bristles at lateral margin. Pronotum 1.0 times as long as wide; surface reticulate, punctures rather coarse, deep, spaced by about twice diameter of a puncture; glabrous behind, several bristles on anterior third; funicle with a small brush of long hair. Elytra 1.3 times as long as wide, 1.3 times as

long as pronotum; striae feebly impressed, punctures rather small, distinctly impressed; interstriae almost three times as wide as striae, surface almost smooth, with several short, impressed lines, punctures uniseriate, each two-thirds as large as those of striae. Declivity occupying posterior half of elytral length, broadly convex, moderately steep; surface with dense micropunctures, striae moderately impressed, punctures rather obscure, interstitial punctures uniseriate, slightly smaller than on disc. Vestiture of short, very fine, interstitial hair.

Female: Similar to male except frons convex, strongly reticulate, punctures shallow, obscure.

Distribution: Brazil: Nova Teutonia, Santa Catarina, 7-III-1950, F. Plaumann.

Notes: The above treatment was based on 3 males and 2 females from the type locality; 1 of these males was compared by me directly to the male holotype.

Camptocerus morio (Schedl)

Camptocerus morio (Schedl), 1952:348 (*Loganius*). Holotype ♂; Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:319)

Diagnosis: Distinguished from *inoblitus* (Schedl) by the smaller size; and by the much more strongly elevated median half of the male carina on the lower frons.

Male: Length 2.1 mm, 2.08 times as long as wide; color very dark brown. Frons as in *inoblitus* except slightly less strongly concave; transverse carina near level of antennal insertions much more strongly elevated on median half, less strongly elevated laterally. Pronotum 0.90 times as long as wide; surface of anterior half more nearly rugose-reticulate; punctures slightly smaller and more nearly circular; vestiture sparse on anterior half. Elytra 1.2 times as long as wide, 1.4 times as long as pronotum; as in *inoblitus* except striae punctures smaller, not as deep, interstriae about three times as wide as striae, punctures greatly reduced, most obsolete. Declivity similar to *inoblitus* except striae more strongly impressed, punctures more nearly obsolete; interstriae more narrowly convex, punctures obsolete. Vestiture almost obsolete, a few very small, uniseriate hairlike setae scattered on posterior half.

Distribution: Brazil: Santa Catarina.

Notes: The above treatment was based on the male holotype from Brazil.

Camptocerus infedelis Wood

Camptocerus infedelis Wood, 1969:11. Holotype ♀; Peralta, Cartago, Costa Rica; USNM, Washington (References in Wood & Bright c1992:319)

Diagnosis: Distinguished by the smooth, shining pronotum and elytra; and by the sparse, distinctly flattened, longer, interstitial setae.

Female: Length 2.7–3.2 mm, 2.1 times as long as wide; color black. Frons about as in *inoblitus* (Schedl).

Pronotum 1.0 times as long as wide; surface reticulate on anterior half, smooth, shining behind, punctures fine, moderately close, spaced by about 2–4 diameters of a puncture; glabrous except several recumbent, stout setae on anterior fourth. Elytra 1.2 times as long as wide, 1.2 times as long as pronotum; striae not impressed, punctures moderately large, not close, shallow, distinct; interstriae twice as wide as striae, shining, almost smooth, punctures minute, sparse, uniseriate. Declivity convex, rather steep; striae distinctly impressed, about as on disc. Vestiture abraded on disc, sparse setae on sides hairlike, those on disc flattened, each about 6–8 times as long as wide, each slightly shorter than distance between rows.

Distribution: Costa Rica: Peralta, Cartago, 10-III-1964, 500 m, No. 463, tree seedling, SLW.

Hosts: Tree seedling 1 cm in diameter.

Biology: The 2 known females and several larvae were removed from the same pith tunnel, 15 cm long, in a small, broken tree seedling. The larval cradles were made in a herringbone pattern, with 1 series above and the other below the egg tunnel at an oblique angle.

Notes: The above treatment was based on the female holotype and the female paratype.

Camptocerus opacicollis (Eggers)

Plate XXXII

Camptocerus opacicollis (Eggers), 1929:61 (*Loganius*). Holotype ♂; E Bolivia; NHMW, Wien (References in Wood & Bright c1992:319–320)

Camptocerus aquilus Wood, 1972:244. Holotype ♂; Brazil: 12°49'S, 51°46'W; BMNH, London

Diagnosis: Distinguished from *major* (Eggers) by the smaller size; by the smaller pronotal punctures; and by the much stouter interstitial scales.

Male: Length 1.8–2.5 mm, 2.1 times as long as wide; color black. Frons very similar to male *inoblitus* (Schedl). Pronotum 0.95 times as long as wide; surface strongly reticulate from base to anterior margin, subrugose on anterior fifth, punctures moderately coarse, deep, spaced by 1–4 diameters of a puncture; vestiture of sparse, recumbent, stout setae on anterior fourth. Elytra 1.2 times as long as wide, 1.2 times as long as pronotum; striae feebly impressed, punctures small, distinct; interstriae about three times as wide as striae, almost smooth, punctures uniseriate, as large as those of striae. Declivity convex, moderately steep; striae distinctly impressed; interstitial punctures slightly smaller than on disc. Vestiture of uniseriate rows of erect scales, each scale 4–6 times as long as wide, about two-thirds as long as distance between rows, spaced within a row by length of a scale.

Female: Similar to male except frons convex (and about as in female *inoblitus*); pronotum shining on posterior half, reticulate in front; interstitial punctures more slender, each six to eight times as long as wide.

Distribution: Bolivia to Brazil.

Bolivia: E Bolivia [F. Woytkowski].

Brazil: 69 km N Manaus, Amazonas, 7-XII-1979, G. Stevens; RS-RGS Exp., 12°31'S, 5146'W, R.A. Beaver.

Notes: The above treatment was based on the male holotype of *Loganius opacicollis* Eggers, on the type series of *aquilis* Wood, and on 6 other specimens from Brazil.

Camptocerus major (Eggers)

Camptocerus major (Eggers), 1929:60 (*Loganius*). Holotype ♀; Chanchamayo [Peru]; NHMW, Wien (Synonymy and references in Wood & Bright c1992:319)

Camptocerus uniseriatus Schedl, 1972:54. Holotype ♂; Corcovado, Guanabara, Brazil; NHMW, Wien

Diagnosis: Distinguished from *opacicollis* (Eggers) by the larger body size; by the larger pronotal punctures (in the anterolateral areas), and by the much stouter interstitial setae.

Male: Length 2.7 mm (females 2.9–3.3 mm), 2.2 times as long as wide; color black. Frons as in male *opacicollis* except transverse carina very slightly less strongly elevated and longitudinal axis of concave area more distinctly longer than wide. Pronotum as in *opacicollis* except punctures distinctly larger especially on anterior third. Elytra about as in *opacicollis*, interstitial punctures feebly or not at all crenulate, interstitial setae more slender, each about six to eight times as long as wide, those on lower half of declivity shorter, more slender.

Female: Similar to male except frons convex, carina absent.

Distribution: Brazil to Peru.

Brazil: Corcovado, Guanabara; Jatahy, Goyas, VI-XI-1897.

Peru: [Rio] Chanchamayo [Dep. Junin].

Notes: The above treatment was based on 1 male and 3 females from Brazil.

Camptocerus annectens Wood, n. sp.

Camptocerus annectens Wood: Holotype ♀; Serra de Baturite, Ceara, Brazil; DEI, Muncheberg, designated below

Diagnosis: Female pronotum smooth, brightly shining on basal two-thirds, the punctures very small.

Female: Length 3.4 mm, 2.2 times as long as wide; color black. Frons as in female *major* (Eggers). Pronotum 1.0 times as long as wide; surface on posterior two-thirds smooth, brightly shining and very finely punctured, anterior third rather strongly reticulate, punctures slightly larger. Elytra as in *major* except interstitial punctures larger, as large as those of striae, their bases weakly to moderately elevated at least on anterior margin from base to apex; lower declivity reticulate; vestiture mostly

abraded, those present each about eight times as long as wide, declivital interstriae 7–9 each with a few slender bristles of moderate length.

Distribution: Brazil.

Type material: The female holotype was taken at Serra de Baturite, Ceara, Brazil, 1995, Gounelle. The holotype is in DEI, Muncheberg.

GENUS *SCOLYTOPSIS* BLANDFORD

Scolytopsis Blandford, 1896:120, 123. Type-species: *Scolytopsis puncticollis* Blandford, monobasic (References in Wood & Bright c1992:320)

Diagnosis: Distinguished from *Scolytus* by the near absence of an internal septum in the antennal club; by the deeply excised basal half of the costal margin of the elytra into which the metepisternum conspicuously expands; and by the abruptly flexed abdomen upward from the posterior margin of visible sternum 2.

Description: Length 2.0–3.5 mm, 2.1–2.3 times as long as wide; color dark reddish brown. Male frons usually flattened from epistoma to vertex (covered by a dense brush of long hair); female frons convex and punctured above, lower half variously impressed, vestiture sparse; antennal scape shorter than 7-segmented funicle, club moderately flattened, remnants of septum of procurved suture 1 usually visible. Pronotum large, unarmed, punctured, lateral margins marked by a raised costa. Elytra bases narrowly, strongly impressed along suture of basal one-fifth of elytra length; scutellum very small, rounded; striae distinctly impressed, rows of interstitial punctures impressed or not, often resembling those of striae; costal margin on basal half of elytral length deeply emarginate, metepisternum strongly, conspicuously expanded into this emargination; declivity rather weak, gradual, descending almost half distance to meet strongly ascending abdomen; abdomen ascending from posterior margin of visible sternum 2.

Distribution: Tropical America. Six species are listed by Wood & Bright (c1992:520–521) from Mexico (Veracruz) and Cuba to Argentina. Four species were recorded from South America. All 6 species are so poorly known that they are all treated below in the event that all might be found in South America.

Biology: The 3 species observed by me were phloeophagous and monogynous. All made biramous parental tunnels in the phloem that engraved the wood slightly. One species made longitudinal parental galleries, 2 made transverse galleries with respect to the grain of the wood. Larval mines were mostly in the phloem and were visible on peeled bark. They clearly resembled the engravings of *Scolytus*.

Key to the Species of *Scolytopsis*

1. Elytral surface smooth, shining from base to apex (posterior one-fifth sometimes with micropunctures, dull), striae and interstitial punctures usually smaller, ridges between rows of striae and interstitial punctures about equal in width to diameter of an adjacent puncture, interstitial setae more slender, usually longer; female frons less extensively convex, a conspicuous transverse impression present occupying as much as lower third of area below upper level of eyes 2
- Elytral surface with dense micropunctures (dull) from apex almost to base, striae and interstitial punctures rather coarse, ridges between rows of punctures narrow, their width equal to less than half diameter of an adjacent puncture; elytral setae shorter, stouter, flattened, each about eight times as long as wide or less; female frons more strongly convex to epistoma, setae shorter (usually), stouter 5
- 2(1). Elytral surface smooth, shining from base to apex, without micropunctures; interstitial setae moderately to very slender, longer, almost hairlike; striae and interstitial punctures smaller, less distinctly punctured 3
- Elytral surface near apex dull, with dense micropunctures; interstitial setae slightly flattened, at least 10 times as long as wide; female frons with transverse impression restricted to lower fourth, setae coarser, shorter 4
- 3(2). Interstitial setae very slender, almost hairlike, each at least 10 times as long as wide; male frons less broadly flattened, flattened area separated from eye by distance equal to two-thirds width of an eye, pubescent area narrower, setae less abundant, shorter, about one-eighth of pubescent area above upper level of eyes; punctures near base of pronotum disc larger, almost as large as adjacent interstitial punctures; Peru to S Brazil; 2.8–3.5 mm *peruanus* Eggers
- Interstitial setae rather slender, each about six to eight times as long as wide; male frons more broadly flattened to within one-fourth width of an eye from margin of eye, pubescent area wider, setae more dense, longer, about one-fourth of pubescence above upper level of eyes; punctures near base on pronotum disc small, less than one-third as large as adjacent interstitial punctures; female not seen; Brazil (Santa Catarina); 3.0 mm *brasiliensis* Eggers
- 4(2). Rows of striae punctures impressed, rows of interstitial punctures not impressed; pronotal punctures slightly larger; median callus on female frons subcarinate, frontal vestiture rather abundant, moderately long; brush of male setae on frons widely separated above into 2 areas; Mexico (Oaxaca); *Plumeria*, etc.; 2.5–3.1 mm *laticollis* Wood
- Rows of striae and interstitial punctures about equally impressed; pronotal punctures slightly smaller; median callus of female frons brightly shining, feebly elevated; frontal vestiture very short; Venezuela; *Terminalia guianensis*; 2.9–3.3 mm *orinocanus* Wood
- 5(1). Pronotum brightly shining from base to anterior margin, punctures minute on disc, become rather small near lateral margin; Argentina to Paraguay; 2.3–2.5 mm *toba* Wichmann
- Pronotum shining in median area on basal half, often reticulate on parts of anterior half and in lateral areas, punctures of moderate size on disc, becoming large in lateral areas; Cuba and Mexico (Veracruz) to Costa Rica and Brazil; *Laguncularia racemosa*, White Mangrove, etc.; 2.0–2.8 mm *puncticollis* Blandford

Scolytopsis peruanus Eggers

Plate XXXV

Scolytopsis peruanus Eggers, 1937:83. Lectotype ♀; Marcapata [Dep. Cuzco], Peru; USNM, Washington (References in Wood & Bright c1992:320)

Diagnosis: Distinguished by the smooth, shining surface of the elytra from base to apex; by the more slender,

longer interstitial setae; and by the stronger, more slender (narrower) impression on the lower half of the female frons.

Male: Length 2.8–3.5 mm, 2.3 times as long as wide; color very dark reddish brown. Frons broadly flattened from epistoma to well above upper level of eyes, separated from margin of eye by 0.5–1.0 times width of an eye, lateral thirds bearing a dense brush of long, fine,

rather dark hair from vertex to epistoma, brush narrowly divided on median line above, glabrous central area apparently becoming wider on lower half, weakly wrinkled near epistoma; epistoma with a small median brush at margin, immediately above margin with a small, short transverse carina below wrinkled area. Pronotum 1.0 times as long as wide; surface smooth, shining from base to apex, punctures small on disc, spaced by two to four diameters of a puncture, distinctly larger in lateral areas, punctures on disc near base almost as large as those of adjacent interstriae. Elytra 1.4 times as long as wide, 1.3 times as long as pronotum; sides conspicuously constricted on basal third, caused by deep costal emargination on basal half into which metepisternum expands; surface smooth, shining from base to apex; striae narrowly, moderately impressed, punctures on 1 and 2 small, larger laterally; interstriae somewhat irregularly impressed along rows of small punctures (sulcate in some areas, some not), spaces (ridges) between striae and interstitial sulci about as wide as diameter of an adjacent puncture. Declivity convex, descending less than half distance to meet elytra, moderately steep; striae and interstitial sulci narrower, deeper than on disc, punctures smaller. Vestiture of interstitial rows of erect, very slender, almost hairlike setae, each seta almost equal in length to two-thirds distance between rows of setae, spaced within a row by slightly less than length of a seta.

Female: Similar to male except frons convex above, transversely impressed on more than lower half of area below upper level of eyes, surface mostly reticulate, rather coarsely, deeply, closely punctured, lower third with a weak median carina, epistomal transverse carina present, slightly larger than in male, setae sparse, fine, long, epistomal margin with small brush as in male.

Distribution: Brazil to Peru.

Brazil: "Southern Brazil, 1986," Jatahy, Goyas; Rio de Janeiro; "Mexican tobacco refuse intercepted at Paris" (actually from Brazil).

Peru: Marcapata, Dep. Cuzco, Eggers Collection 1948 (type).

Notes: The above treatment was based on the female holotype and on 20 other specimens from Brazil, and on the Rio de Janeiro and Mexican tobacco refuse specimens that were removed from the Blandford series of *puncticollis* Blandford.

Scolytopsis brasiliensis Eggers

Scolytopsis brasiliensis Eggers, 1931:16. Holotype ♂; Lages, Santa Catarina, Brazil; USNM, Washington (References in Wood & Bright c1992:320)

Diagnosis: Distinguished from *peruanus* Eggers by the stouter interstitial setae; by the more broadly flattened male frons (flattened area separated from margin of eye by a distance equal to less than one-fourth width of an eye); and by the much smaller pronotal punctures.

Male: Length 2.1 mm, 2.2 times as long as wide; color

dark reddish brown, elytral vestiture pale. Frons similar to *peruanus* except more broadly flattened, flattened area separated from margin of eye by distance equal to less than one-fourth width of an eye (more than 0.5–1.0 times this distance in *peruanus*); pubescent area 1.0 times as long as wide (1.2 times in *peruanus*), one-fourth of pubescent area above upper level of eyes (one-eighth in *peruanus*), setae longer and much more dense than in *peruanus*. Pronotum about as in *peruanus* except punctures smaller, those on disc near base about one-third as large as adjacent interstitial punctures. Elytra similar to *peruanus* except interstitial setae much more slender, each about 10 or more times as long as wide (about 6–8 times as long as wide in *peruanus*).

Female: Frons convex, coarsely punctured, shining, epistoma with a moderate median tubercle, lower half of frons with sparse, uniformly distributed long hair.

Distribution: Brazil: Lages [Santa Catarina], H. Fruhstorfer, leg. I-III-1887, vend., Eggers Collection 1948, type; Nova Teutonia, Santa Catarina, XII-1972, F. Plauermann; Jatahy, Goyaz.

Notes: The above treatment was based on the male holotype from Brazil.

Scolytopsis laticollis Wood

Scolytopsis laticollis Wood, 1968:14. Holotype ♀; 31 km SE Cameron, Oacaca, Mexico; USNM, Washington (References in Wood & Bright c1992:320)

Diagnosis: Posterior one-fifth of elytral length with dense micropunctures, rather dull; rows of striae punctures impressed, rows of interstitial punctures not sulcate; median callus on female frons subcarinate; dense male frontal setae divided on median line at vertex into two areas.

Male: Length 2.5–3.1 mm, 2.2 times as long as wide; color dark reddish brown. Frons similar to *brasiliensis* Eggers except with an obtuse, transverse hump just below upper level of eyes, dense reddish yellow brush of fine hair on lateral areas from vertex to epistoma, separated on vertex at median line by a distance equal to one-half width of space between eyes, epistomal carina apparently absent; median area apparently smooth, shining. Pronotum 0.90 times as long as wide, about as in *brasiliensis*. Elytra 1.3 times as long as wide, 1.3 times as long as pronotum; sides distinctly constricted on basal half; surface smooth, shining on basal four-fifths, with dense micropunctures on lower declivity; striae moderately, narrowly impressed, punctures rather small; interstriae not definitely sulcate, punctures almost as large as those of striae, spaces between striae and interstitial punctures about equal in width to diameter to an adjacent puncture. Declivity broadly convex, moderately steep, posterior margin finely serrate. Vestiture of rows of semierect interstitial setae, each seta distinctly stouter and shorter, length equal to one-half distance between rows.

Female: Frons similar to female *brasiliensis* Eggers except median line impunctate, moderately carinate from upper level of eyes to epistoma, vestiture more abundant, almost as long, otherwise as in male.

Distribution: Mexico: 30 km SE Cameron, 21-VI-1967, No. 79, *Plumeria*, and 2 other tree species, SLW.

Biology: A mining disturbance caused the destruction of more than 200 trees of several species resulting in a local epidemic of this species a month or 2 previous to the collection of dead stragglers. The biramous parental mines were transverse. Of the 3 or more tree species infested, only *Plumeria* was identifiable.

Notes: The above treatment was based on the type series of 15 specimens.

Scolytopsis orinocanus Wood

Plate XXXIV

Scolytopsis orinocanus Wood, 1971:18. Holotype ♀; Campamento Rio Grande 30 km E Palmar, Bolivar, Venezuela; USNM, Washington (References in Wood & Bright c1992:320)

Diagnosis: Posterior one-fifth of elytra surface with dense micropunctures, dull; both rows of striae and interstitial punctures about equally impressed; median callus on female frons smooth, shining, not elevated.

Male: Length 2.9–3.3 mm, 2.1 times as long as wide; color very dark brown, almost black. Frons broadly flattened from epistoma to well above upper level of eyes, lateral and dorsal margins with a dense brush of dark, long, fine hair; central area smooth, brightly shining, impunctate; median area above epistoma weakly wrinkled, without a carina, epistomal margin with a brush of hair. Pronotum as long as wide, about as in *laticollis* Wood except punctures distinctly larger. Elytra 1.3 times as long as wide, 1.3 times as long as pronotum; surface smooth, shining on basal four-fifths, with dense micropunctures on posterior one-fifth, dull; striae rather strongly, narrowly impressed, rows of interstitial punctures of equal size to those of striae, equally impressed, crests between striae and interstitial rows of punctures about equal in width to diameter of a puncture. Declivity and smooth posterior margin of elytra similar to *brasiliensis* Eggers. Vestiture of erect bristles, each stouter and slightly shorter than in *brasiliensis*.

Female: Similar to male except frons convex except lower third transversely impressed, punctures rather small, deep, close, median line impunctate, not elevated, vestiture short, stout, moderately abundant.

Distribution: Venezuela to Brazil (Goyas).

Brazil: Jatahy in Goyas, IX-1897.

Venezuela: Campamento Rio Grande 30 km E Palmar, Bolivar, 12-VI-1970, 200 m, No. 573, *Terminalia guianensis*, SLW.

Biology: The biramous parental galleries were longitudinal, parallel to the grain of the wood.

Notes: The above treatment was based on the type series of 49 specimens from Venezuela, and on 4 males from Brazil.

Scolytopsis toba Wichmann, n. status

Scolytopsis toba Wichmann, 1914:136. Holotype ♀; Santa Sofia, Paraguay; NHMW, Wien (Synonymy and references in Wood & Bright c1992:321)

Scolytopsis argentinensis Eggers, 1937:84. Lectotype ♂; Prov. Tucuman, Argentina; USNM, Washington, designated by Anderson & Anderson 1971:4 (References in Wood & Bright c1992:321). *New synonymy*

Scolytus bruchi Schedl, 1939:170. Lectotype ♂; orillas del Ignazu, Misiones (published record), Argentina; NHMW, Wien (References in Wood & Bright c1992:321). *New synonymy*

Diagnosis: Elytral surface with dense micropunctures from base to apex; pronotum brightly shining from anterior margin to base, punctures on pronotal disc minute, slightly larger in lateral areas; female frons strongly convex from epistoma to vertex.

Male: Length 2.3–2.5 mm, 2.1 times as long as wide; color very dark brown. Frons apparently as in *orinocanus* Wood, concealed by dense brush of long hair; longest setae on vertex extending well beyond epistomal margin. Pronotum about as long as wide; surface smooth, shining from anterior margin to base, punctures on disc minute, moderately large in lateral areas. Elytra 1.3 times as long as wide, 1.3 times as long as pronotum; striae moderately, narrowly impressed, punctures rather coarse, distinct; interstriae with punctures as coarse as those of striae, rows of punctures not impressed, space between striae and interstitial punctures equal in width to less than half diameter of an adjacent puncture; surface on more than posterior half with dense micropunctures, dull. Declivity convex, moderately steep, posterior margin weakly serrate in lateral areas; striae and interstitial punctures smaller than disc. Vestiture of rows of suberect, stout interstitial bristles, each about two-thirds as long as distance between rows, spaced within a row by length of a bristle, each seta about 10 times as long as wide.

Female: Similar to male except frons convex almost to epistoma, punctures small, deep, close, setae rather sparse, moderately long; median line on frons with a weak obtuse carina.

Distribution: Argentina to Paraguay.

Argentina: Prov. Tucuman, H. Richler.

Paraguay: Santa Sofia.

Notes: The above treatment was based on the female holotype of *toba* Wichmann, 1 male of *argentinensis* Eggers that I had compared directly to the male lectotype, and 1 other female, both from Argentina; and on the male holotype of *Scolytus bruchi* Schedl.

Scolytopsis puncticollis Blandford

Scolytopsis puncticollis Blandford, 1896:123. Lectotype ♂; Las Mercedes, Guatemala; BMNH, London, present designation (References in Wood & Bright c1992:321)

Scolytopsis cubensis Wood, 1961:48. Holotype ♀; Cayamas, Cuba; USNM, Washington

Diagnosis: Distinguished from *toba* Wichmann by the reticulation on the anterior and lateral areas of the pronotum, with the punctures distinctly larger.

Male: Length 2.0–2.8 mm, 2.2 times as long as wide; color dark reddish brown. Frons apparently as in *toba* (surface concealed by setae). Pronotum as long as wide; disc surface mostly smooth and shining, reticulate on anterior fourth and lateral areas, punctures on disc of moderate size. Elytra similar to *toba* except interstitial setae distinctly shorter, length equal to slightly more than half distance between rows, spaced within a row by almost twice length of a seta, each about four to six times as long as wide.

Female: Similar to male except frons convex almost to epistoma, frontal setae much shorter and less numerous than in *toba*.

Distribution: Mexico (Veracruz) and Cuba to Costa Rica and Brazil.

Belize: Stann Creek, Tabacco Range, 31-VII-1989 (4-89), white mangrove, C. Feller & W. Mathis.

Costa Rica: Canas, Guanacaste, 13-VII-1966, 50 m, liana, SLW.

Cuba: Cayamas, 5-IX, E.A. Schwarz.

Guatemala: Las Mercedes, Rio Maria Linda, Torola, Zapote (Blandford series).

Mexico: Mandinga, Veracruz, 12-III-1980, *Laguncularia racemosa*, S-047, T.H. Atkinson.

Argentina: orillas del Iguazu, Misiones.

Brazil: Jatahy in Goyas.

Hosts: *Laguncularia racemosa*.

Biology: This species was locally abundant in cut lianas of one species that were 8 cm in diameter. Parental galleries were biramous and transverse.

Notes: The above treatment was based on 1 specimen from Belize, 1 from Costa Rica, 3 from Cuba, 2 from Mexico, and 9 from Guatemala. The Cuban specimens were compared to the Blandford type series of *puncticollis*. The first specimen in the Blandford series, a male from Las Mercedes, Guatemala, is here designated as the lectotype of *puncticollis* Blandford.

GENUS *SCOLYTUS* GEOFFROY

Scolytus Geoffroy, 1762:309. Type-species: *Bostrichus scolytus* Fabricius, subsequent designation by International Commission on Zoological Nomenclature 1963:416, China 1963:416 (Synonymy and references in Wood & Bright c1992:321–382)

Ekkoptogaster Herbst, 1793:124. Type-species: *Bostrichus scolytus* Fabricius, subsequent designation by Hopkins 1914:8

Coptogaster Illiger, 1807:321. Type-species: *Bostrichus scolytus* Fabricius, subsequent designation by Hopkins 1914:118

Eccoptyogaster Gyllenhal, 1813:346. Type-species: *Bostrichus scolytus* Fabricius, automatic, invalid emendation of *Ekkoptogaster* Herbst

Scolytochelus Reitter, 1913:23. Type-species: *Ips multistriatus* Marsham, subsequent designation by Wood 1982:419

Ruguloscolytus Butovitsch, 1920:20. Type-species: *Bostrichus rugulosus* Muller, subsequent designation by Wood 1982:419

Archaeoscolytus Butovitsch, 1929:21, 23. Type-species: *Scolytus claviger* Blandford, nomen nudum, a species group name, no generic standing

Spinuloscolytus Butovitsch, 1929:21, 24. Type-species: *Ips multistriatus* Marsham, subsequent designation by Wood 1986:59, nomen nudum, a species group name, no generic standing

Tubuloscolytus Butovitsch, 1929:21, 33. Type-species: *Eccoptyogaster intricatus* Ratzeburg, subsequent designation by Wood 1986:59, a species group name, no generic standing

Diagnosis: Distinguished from *Scolytopsis* by the normal costal margin on the basal half of the elytra; by the normal metepisternum; and by the abdomen ascending from the posterior margin of visible sternum 1 to meet the weakly declivous elytra.

Description: Length 1.5–4.9 mm, 2.0–2.4 times as long as wide; color dark reddish brown to almost black. Frons usually sexually dimorphic, male usually less strongly convex, variously impressed or elevated, female flat to convex, both sexes with distinctive vestiture. Eye elongate, sinuate to shallowly emarginate on anterior mesal margin. Antennal scape short; funicle 7-segmented; club rather large, oval to obovate, flattened, either without sutures or suture 1 partly to completely septate, not externally grooved in most South American species. Pronotum large, lateral margins costate. Scutellum large, depressed, its apex subacute. Elytral bases depressed toward scutellum, weakly declivous behind; striate. Anterior coxae rather narrowly separated. Abdomen ascending abruptly from posterior margin of visible sternum 1 to meet apex of elytra; sternum 2 usually ascending abruptly, often impressed and armed in one or both sexes, sexually dimorphic in most species. In all native South American and several Central American species sternum 1 fused to sternum 2 with partial or total loss of intersegmental suture.

Distribution: Wood & Bright (c1992:321–382) record 120 species from North and South America, Asia, Europe, and northern Africa; 33 of these were recorded from South America. The South American species exhibit much greater diversity than do species in the remainder of the world.

Biology: The species are phloeophagous, with the entrance tunnel and biramous [uniramous in *rugulosus* (Muller)] parental gallery excavated by the female. This gallery is usually transverse, perpendicular to the grain of wood in the host, but may be longitudinal or diagonal in some species. In some species mating occurs on the bark surface and the male never enters the gallery system; in others the male spends from very little time up to the normal time in the parental gallery. Species in this genus are largely monogynous worldwide, except 1 species in Europe, and about one-third of the Central and South American species are bigynous. The parental gallery engraves the wood slightly to deeply, larval mines are almost entirely in the phloem where they may wander aimlessly or form definite patterns. Pupation occurs in the wood in *rugulosus*, but is usually in the phloem in South American species. The hosts of only a few South American species have been reported.

Key to the Species of *Scolytus*

1. Intersegmental line between visible sterna 1 and 2 fully formed, visible throughout its length; ventral profile of abdomen rising either gradually or abruptly to meet apex of elytra, sternum 2 armed or not, 3 to 5 never armed, sternum 2 not excavated (introduced to South America) 2
- Visible sterna 1 and 2 fused, intersegmental line usually obliterated, sternum 2 often ascending abruptly, excavated or sterna 2–5 sometimes armed by spines (native species) 4
- 2(1). Profile of abdomen ascending gradually from sternum 1–5 to meet descending elytra, none of sterna excavated or armed by spines; vestiture attaining base of elytra on all interstriae; Peru to Argentina (Europe, Asia, North America); *Malus*, *Pyrus*, *Prunus*, etc.; 1.5–2.7 mm *rugulosus* (Muller)
- Profile of abdomen ascending subvertically at base of sternum 2, elytra descend only slightly to meet abdomen; anterior margin of sternum 2 armed by a large median spine; elytra subglabrous on basal two-thirds 3
- 3(2). Abdomen at posterior margin of sternum 1 rising only slightly, profile of segments 2–5 more nearly convex, median spine on sternum 2 shorter, stouter, not longer than its basal width; punctures on pronotum disc distinctly larger; (Europe), Argentina, Brazil; *Ulmus*; 2.0–2.7 mm *kirschi* Skalitsky
- Profile of abdomen rising abruptly at base of sternum 2, remaining segments rise only slightly, median spine on sternum 2 much longer, more slender, much longer than its basal width; punctures on pronotum disc distinctly smaller; (Europe, Asia, North America), Argentina; *Ulmus*; 1.9–3.1 mm *multistriatus* (Marshall)
- 4(1). Frons in both sexes variously flattened to moderately convex or concave, surface longitudinally (often convergently), punctured or weakly to very strongly aciculate, never with a median tubercle or conspicuous elevation; basal margin of abdominal sternum 1 occasionally, transversely carinate, more commonly rounded, one or more sterna sometimes armed by spines; apparently all are monogynous 5
- Frons usually not aciculate, male with a conspicuous, large tubercle or obtuse median elevation; visible abdominal sternum 2 vertical, rising perpendicularly from 1, posterior crest of 1 sometimes acutely elevated; sternum 2 armed by a median spine, anterior (ventral) margin of this spine touching anterior margin of sternum 2, at least in male; interstitial punctures usually much smaller than those of striae, rows usually not impressed; apparently all species are bigynous . . . 27
- 5(4). Antennal club normal or elongate; striae punctures small interstitial punctures minute (less than one-fourth as large as those of striae); female sternum 2 armed by a large conically pointed or laterally compressed spine, 5 unarmed; male sternum 2 unarmed, sternum 5 sometimes with a bulla or large, slightly compressed median spine; elytra often bicolored 6
- Antennal club normal, less than twice as long as wide, only slightly longer than combined length of funicle and scape; interstitial punctures larger, never less than half as large as those of striae . . . 9
- 6(5). Junction between female abdominal sterna 1 and 2 rounded (not abrupt); female sternum 2 convex, a median spine about in middle of segment, spine conical, very sharply pointed, higher than its basal width; lateral margins of female sterna 3 and 4 unarmed by denticles; female sternum 5 flat to somewhat concave, not armed by a spine or callus; Suriname; 2.2 mm . . . *spinidens* Schedl
- Junction between female abdominal sterna 1 and 2 abrupt, 2 rather broadly flattened, 5 armed by a median spine or strong callus 7
- 7(6). Female frons more strongly convex, central half conspicuously reticulate, margins with moderately long, fine hair; antenna normal; female sternum 5 armed by a subglobular (slightly oval) median spine on anterior half of segment (not attaining anterior margin); Venezuela; 2.1 mm *bicolor* Eggers

—	Frons weakly to strongly aciculate, variously convex, central area without reticulation, with fine, longer hair	8
8(7).	Antennal club moderately elongate; female frons more strongly convex, rather coarsely aciculate, transverse impression above epistoma weak; spine on sternum 2 at anterior margin, slender, its base occupying about a third of segment length; bulla on sternum 5 much stronger; lateral margin of sterna 3 and 4 each armed by a small tubercle; Brazil (Gerais); 1.1 mm	<i>elongatus</i> Schedl
—	Antennal club greatly enlarged, more than twice as long as wide, 3 times as long as combined funicle and scape length; transverse impression on lower frons stronger and more extensive; spine on sternum 2 at anterior margin, its base occupying two-thirds of segment length, rather low, its highest point at posterior margin; bulla on sternum 5 weak; lateral margin of sterna 3 and 4 unarmed by a tubercle; Brazil (Sao Paulo to Bahia); 1.9–2.7 mm	<i>antennatus</i> Schedl
9(5).	Abdominal sternum 2 unarmed in either sex	10
—	Abdominal sternum 2 armed by a median spine or carina in one or both sexes	16
10(9).	Junction between abdominal sterna 1 and 2 rounded, with no indication of a transverse carina, broadly, strongly convex to suture between 2 and 3; lateral margins of 3 and 4 unarmed by tubercles, 5 convex, with its apical margin rounded (not abrupt or carinate); interstriae impressed almost equal to striae, punctures slightly smaller (male not seen); Brazil (Parana); 2.5 mm	<i>convexus</i> Schedl
—	Junction between abdominal sterna 1 and 2 abrupt, often weakly, transversely carinate, 2 ascending rather abruptly, lateral margins of 3 and 4 armed by a small spine (weak in <i>bolivianus</i>)	11
11(10).	Median half of 2 and all of sternum 5 almost flat, tubercle at lateral margin of 3 and 4 weak to absent; female frons rather strongly convex, aciculation weak but present, lateral areas and above ornamented by numerous, rather long, hairlike setae; interstriae not impressed on basal half, moderately impressed behind, punctures almost as large as those of striae	12
—	Sterna 2 and 5 at least slightly concave, lateral tubercle on 3 small to moderately large, usually pointed	13
12(11).	Larger species; punctures on pronotum disc very small; interstitial setae slender, almost hairlike, almost as long as distance between rows, extending from apex almost to base; frontal setae of female less abundant; Bolivia; 3.2 mm	<i>bolivianus</i> Schedl
—	Smaller species; punctures on pronotum disc rather small; interstitial setae stouter, almost two-thirds as long as distance between rows, mostly on posterior half; frontal setae of female much more abundant; Brazil (Gerais); 2.9 mm	<i>neofacialis</i> Schedl
13(11).	Sternum 3 armed by a transverse pair of large spines significantly displaced mesad from lateral margins in male, reduced to small nodules in female; Mexico (Oaxaca); <i>Combreton</i> ; 3.3–3.9 mm	<i>binodus</i> Wood
—	Spines on sternum 3 at lateral margins, small to moderately large	14a
14a(13).	Body size very small; striae punctures rather coarse, strongly impressed; vestiture on abdominal sterna short	14b
—	Much larger species, over 3.5 mm; interstitial punctures conspicuously smaller than those of striae and less strongly impressed; spine on lateral margin of sternum 3 comparatively small	15
14b(14a).	Interstitial punctures minute to obsolete; setae on abdominal sterna short, sparse, hairlike; base of sternum 2 rounded, rather coarsely punctured, not elevated, armed near apical margin by a transverse pair of moderately large spines, spines separated by one-fifth width of segment; segments 3–5 unarmed by tubercles, punctures very small; Brazil (Amazonas); 1.4 mm	<i>bispinatus</i> Wood

SCOLYTINI

- Strial and interstitial punctures subequal in size, moderately large, strongly impressed; setae on abdominal sterna of short, abundant scales; sternum 2 with anterior margin strongly produced, crest narrowly rounded (not costate), extended beyond posterior apex of sternum 2; sternum 2 armed on lateral margins by a rather large spine; Brazil (Jacareacanga); 1.5 mm *bicinctus* Schedl
- 15(14). Abdominal sternum 2 rather sparsely pubescent, setae shorter; male frons less strongly aciculate, setae on upper and lateral margins less numerous; Brazil (Amazonas); 3.8–4.0 mm *amazonicus* Schedl
- Sternum 2 ornamented by a dense brush of long golden hair, particularly on anterior half of segment; setae on upper and lateral margins of frons more abundant, longer; Brazil (Bahia); 4.8 mm *barbatus* Schedl
- 16(9). Male sternum 2 with median portion at base strongly, transversely elevated, its apex transversely carinate, without a median spine or longitudinal carina; lateral margins of visible sterna 2–4 with or without spines 17
- Male sternum 2 armed by a median spine on face or by a strongly elevated transverse costa at junction of 1 and 2, female with or without a spine or costa 19
- 17(16). (Female not seen); male frons minutely reticulate above, smooth below, with moderately abundant, minute punctures (no aciculation); male base of sternum 2 with a strongly elevated, transverse costa on median third, lateral margins of 2–4 each with a small spine; Brazil (Bahia) to Guiana; 3.5 mm *angustatus* Browne
- Male and female frons convergently aciculate from epistoma to at least half distance to vertex; male with a strongly elevated transverse costa at base of sternum 2 on median half of width of segment, lateral margins of 2–4 unarmed by spines; female with base of sternum 2 rounded, with a median, slightly elevated, punctured, subcircular callus; strial and interstitial rows of punctures equally impressed, costae between rows smooth, impunctate, each as wide as an adjacent puncture 18
- 18(17). Female frons flat on slightly narrower area (slightly mesad of eye) from epistoma to upper level of eyes, aciculation rather fine, setae much finer, half as long (north) to almost as long (south), less abundant; male interstitial setae shorter, restricted to posterior half of elytra; large liana; Costa Rica to Venezuela and Brazil; 3.2–3.9 mm *costellatus* Chapuis
- Female frons broadly flattened from eye to eye from epistoma to vertex, aciculation rather coarse as in male *costellatus*; male with uniseriate rows of fine, moderately long interstitial hair from base to apex, conspicuously longer near apex; Brazil; 3.9–4.0 mm *pseudocostellatus* Schedl
- 19(16). Male sternum 2 armed by a median spine at anterior margin of 2, sternum 4 armed by a small, median spine at posterior margin of segment; female abdomen unarmed by median spines 20
- Male and female sternum 2 armed by a median spine, other abdominal sterna unarmed by median spines 21
- 20(19). Median spine on male sternum 2 moderately compressed (laterally), longer than its basal (longitudinal) width, its apex narrowly rounded; male frons much more broadly convex, more strongly aciculate, vestiture much longer and more abundant; female abdomen unarmed; Costa Rica to Panama; 2.7–3.7 mm *nodatus* Wood
- Spine on male sternum 2 strongly compressed (laterally), its apex truncate, not as high as distance equal to basal (longitudinal) width; male frons more strongly convex, less strongly aciculate, vestiture shorter, less numerous; female not seen; Brazil (Sao Paulo); 2.6–2.9 mm *pinnatus* Eggers
- 21(19). Median spine on abdominal sternum 2 positioned at anterior margin of segment; vestiture of fine short hair in both sexes; male frons flattened (either weakly convex or slightly concave) 22

- Median spine on sternum 2 not attaining anterior margin of segment; male frons deeply excavated or spine on sternum 2 strongly, laterally compressed 23
- 22(21). Male frons with a weak transverse impression above epistoma, upper area transversely, weakly convex, punctures larger, rather dense, most longitudinally confluent; median spine on sternum 2 subquadrate, its height at anterior base equal to longitudinal base width, its anterior height about half its posterior height; Brazil (Parana); 3.0–3.2 mm *plaumanni* Wood
- Male frons rather strongly, transversely impressed above epistoma, upper area transversely, shallowly concave to upper level of eyes; frons rather densely, more finely punctured in both sexes, punctures in male small, few confluent, female strongly, convergently aciculate; median spine on abdominal sternum 2 quadrate, its height equal to longitudinal width; Brazil (Sao Paulo) to Paraguay; 3.5–4.5 mm *golbachii* Schedl
- 23(21). Male frons deeply, broadly, complexly excavated from epistoma to well above upper level of eyes; male sternum 2 armed by a large, cylindrical spine at middle of segment; Bolivia; ex “cuqui”; 4.3 mm *excavatus* Wood
- Frons not concave in either sex; spine on abdominal sternum 2 laterally compressed, not cylindrical 24
- 24(23). Setae on abdominal sternum 2 all very short, each palmately divided into 4 or more filaments; male sternum 2 moderately large, blunt, slightly compressed laterally; male frons with a brush of fine, rather long hair, setae distinctly longer and more abundant on vertex; Argentina to Brazil; 2.5 mm *caudatus* Eggers
- Setae on abdominal sternum 2 simple, undivided, either long or short 25
- 25(24). Median spine or carina on sternum 2 large, laterally compressed, occupying at least middle half of segment in both sexes (larger in male), its base not attaining either anterior or posterior margin of segment; frontal setae minute to absent in female, long and mostly in lateral areas below upper level of eyes in male; Mexico (Jalisco) to Costa Rica and Venezuela; large liana; 2.0–3.0 mm *cristatus* Wood
- Median spine or carina in male only, small, slightly, laterally compressed near posterior (dorsal) margin of sternum 2, female unarmed 26
- 26(24). Striae distinctly impressed, punctures small, distinct, interstriae not impressed on basal half, weakly impressed behind, punctures distinctly smaller than those of striae; male frons shining, finely, very closely punctured, rather conspicuously aciculate above, obscurely below, punctures separated by distances equal to less than diameter of a puncture, a narrow, median, impunctate line on lower half, setae finer, more uniformly distributed; color reddish brown (mature?); from Brazilian root of *Canella winterana* intercepted at New York (from Peru?); 3.2 mm *canellae* Wood
- Striae and interstriae about equally impressed from base to apex, punctures small, of about equal size; frons dull, aciculation obscure especially on dorsal half, punctures small, obscure, spaced on upper half by more than two diameters of a puncture, finer and closer below, vestiture fine, shorter and rather sparse in central area, longer and more abundant at margins; Venezuela; 3.0 mm *venezuelensis* Wood
- 27(4). Frons more strongly convex, at least upper half dull, strongly reticulate in both sexes (sometimes weak in *propinquus*); majority of female frontal setae below upper level of eyes; female abdominal sternum 2 either with or without a median spine at anterior margin, spine always present in male 28
- Frons usually less strongly convex, upper half appearing smooth at 80X, shining; majority of setae on female frons usually above upper level of eyes; sternum 2 always armed by a median spine on anterior margin in both sexes 32

SCOLYTINI

- 28(27). Male frons broadly flattened from epistoma to well above upper level of eyes, median elevation conical, moderately high, all setae on lateral margins; female frons less conspicuously flattened, subconcavely impressed below, vestiture of fine long, abundant hair on area below upper level of eyes, reticulation obscure in both sexes; female sternum 2 without a median spine, vestiture moderately long; male sternum 2 with a large spine and a conspicuous penicillate tuft of long hair on its posterior base, other setae on sternum 2 uniformly short; Mexico (Chihuahua, Veracruz) and Cuba to Costa Rica; *Inga paterno*, *Lonchocarpus*; 2.4–3.6 mm ***propinquus* Blandford**
- Upper half of frons more strongly convex and strongly reticulate in both sexes, male median elevation not as high, somewhat dorsoventrally compressed; setae on male sternum 2 a mixture of fine and coarse setae, not of uniform length, posterior base of median spine without a tuft of setae 29
- 29(28). Male sternum 2 with low, fine, palmately divided setae mixed among erect, coarse, rather short, simple setae, median spine large, subquadrate, laterally (moderately) compressed; setae on frons rather sparse, of moderate length; Nouvelle Granada (Colombia?) to Venezuela; ex “Haevea”; 2.5 mm ***proximus* Chapuis**
- Male sternum 2 with median spine smaller, more nearly cylindrical, setae mostly simple, a few bifid setae present in one species 30
- 30(29). Female sternum 2 subvertical (weakly convex), angle between 1 and 2 obtuse, median spine present; female frontal vestiture on lateral margins fine, long, rather sparse, about equal in abundance to dorsal half; Costa Rica; legume tree (*Lonchocarpus*?); 2.0–2.4 mm ***torulus* Wood**
- Female sternum 2 vertical, flat on anterior half, angle between 1 and 2 narrowly acute, median spine absent 31
- 31(30). Upper male frons more strongly convex, area at upper level of eyes smooth, shining, median elevation not as close to epistoma, without a connecting median crest; lateral and dorsal setae on male frons sparse, much shorter, not oriented into a definite line (female not seen); male sternum 2 less strongly, less extensively impressed, apparently no bifid setae present; Mexico (Yucatan); 2.3 mm ***marginatus* Chapuis**
- Upper male frons less strongly convex, area to and above upper level of eyes strongly reticulate; median elevation closer to epistoma and with a weak connecting crest to epistoma; lateral and dorsal setae on male frons arranged in a rather definite line, more than twice as abundant and twice as long; male sternum 2 more strongly, more extensively impressed, bifid setae present over most of surface (mixed with simple setae); Mexico (Nayarit); *Inga paterno*; 2.4–2.5 mm ***laetus* Wood**
- 32(27). Male and female frons with median tubercle small, sometimes obscure, surface punctured (to subaculate above) to median line in area above tubercle, vestiture usually less abundant, less conspicuous in both sexes; carina on sternum 2 very strongly, laterally compressed, low or strongly elevated, extending from anterior margin or near almost to middle of segment (female) or beyond middle (male) 33
- Male frons with median elevation varying from a small median carina to a moderate tubercle to a large, transverse, subcarinate elevation, area above elevation smooth, impunctate on a somewhat narrow to very broad area; spine on sternum 2 as long or much longer than longitudinal width of base in male, smaller in female, base extending from anterior margin rarely attaining middle of segment 35
- 33(32). Male with spine on abdominal sternum 2 displaced moderately from anterior margin, strongly elevated, length conspicuously greater than longitudinal basal width in male (not truncate), short and irregular in female; abdominal setae on 2–5 very short, almost scalelike; Peru; 3.2–3.4 mm ***peruensis* Schedl**
- Male abdominal spine on sternum 2 attaining anterior margin of segment, its apex truncate, not as high; abdominal setae hairlike 34

- 34(33). Setae on male frons mostly below upper level of eyes, upper brush almost entirely absent, setae sparse in female above and below; median spine on male sternum 2 not as high, both apical angles somewhat rounded, distal margin longitudinally arched, not parallel to base; Venezuela; "Hevecito"; 2.0–2.9 mm *barinensis* Wood
- Setae on male frons above upper level of eyes very long, dense, of dark reddish brown color; setae on lower areas shorter, yellowish (female without upper brush); median spine on male sternum 2 higher, quadrate, its distal angles abrupt, distal margin straight, parallel to base, much smaller; less definite in female; Colombia; 2.8–3.3 mm *carinatus* Chapuis
- 35(32). Median elevation on male frons a low, laterally compressed carina occupying middle third of area between epistoma and upper level of eyes, smooth, impunctate area above occupying about one-sixth area between eyes, vestiture rather abundant, long, mostly below upper level of eyes including median area; male spine on sternum 2 about twice as long as longitudinal width; female frontal carina similar to male, without impunctate area above, spine on sternum 2 half as large; Argentina to Brazil (Santa Catarina); 3.6–4.3 mm *novateutonicus* Schedl
- Median elevation on male frons tuberculate to broadly transverse, impunctate area above much larger, both elevation and impunctate area absent in female 36
- 36(35). Male median elevation on frons more nearly subconical, impunctate area above elevation narrower, less than half as wide as distance between eyes 37
- Male elevation on frons moderately to strongly transverse, impunctate area above elevation much wider, occupying more than half of space between eyes 39
- 37(36). Male frontal elevation rising more gradually on its lower slope, impunctate area above elevation narrower, distinctly less than a third as wide as distance between eyes; male vestiture less abundant, shorter; female frons with a strong brush of long hair above upper level of eyes; Brazil to Paraguay; 2.5–4.0 mm *submarginatus* Schedl
- Male frontal elevation rising more abruptly on lower slope, impunctate area above elevation equal in width to at least one-third distance between eyes; male vestiture more abundant, longer (female not seen) 38
- 38(37). Median tubercle on male frons low, dorsoventrally compressed on median third to a strong crest, tubercle transversely somewhat obscure, lateral areas below level of tubercle punctured, not all aciculate; female frons with a weak brush of long setae on dorsal margin extending to slightly above upper level of eyes, longest setae capable of extending almost one-fourth distance to epistomal margin, most setae on lower half of frons; striae and interstriae punctures minute, those of interstriae not in grooves; Brazil (Santa Catarina); 3.4–3.6 mm *obscuriceps* Wood
- Median tubercle on male frons strongly elevated, transversely acute, lateral areas below level of tubercle aciculate almost to epistoma; female not seen; striae and interstriae punctures moderately larger, both in impressed grooves; Brazil; 4.9 mm *nodulus* (Wichmann)
- 39(36). Male frontal elevation not as strong, subcarinate elevation occupying about one-sixth of distance between eyes; spine on male sternum 2 simple, moderately large, tapered from base to apex, usually with a penicillate tuft of hair at posterior base of spine; female frons with a dense brush of long hair above upper level of eyes, tips of some setae attain epistoma; Mexico (Veracruz) and Cuba to Venezuela; *Lonchocarpus margaritensis*, *L. sp.*, etc.; 2.1–3.3 mm *dimidiatus* Chapuis
- Male frontal elevation forming a strong, transverse carina on median half; spine on male and female sternum 2 rising to full height at its anterior margin, its posterior half abruptly stepped down to half or less of that height, its base extending behind middle of segment, similar but smaller in female; setae on female frons short, moderately abundant, without a conspicuous tuft on vertex; Brazil (Santa Catarina); 3.0–4.2 mm *thoracicus* Chapuis

Scolytus rugulosus (Muller)

- Scolytus rugulosus* (Muller), 1818:247 (*Bostrichus*). Syntypes, sex?; Odenbach, Deutschland; 1 at IRSNB, Brussels, several at DEI, Munchebereg (Synonymy and references in Wood & Bright c1992:364–370)
- Eccoptogaster punctatus* Ratzeburg, 1837:187. Syntypes, sex?; Deutschland, locality not given; DEI, Muncheberg
- Scolytus haemorrhous* Schmidberger, 1837:270. Syntypes, sex?; Europe, locality and repository not given; synonymy in Ratzeburg 1837:187
- Scolytus assimilis* Boheman, 1858:88. Syntypes, sex?; Buenos Aires, Argentina; NHR, Stockholm
- Scolytus fauveli* Reitter, 1894:43. Syntypes, sex?; Kaukasus, Armenien, Persien; NHMB, Budapest
- Eccoptogaster mediterraneus* Eggers, 1922:121. Lectotype ♂; Adana, Asia Minor; USNM, Washington, designated by Anderson & Anderson 1971:19
- Scolytus rugulosus similis* Butovitsch, 1929:52. Syntypes, sex?; Deutschland, Tschechoslowakien; NHR, Stockholm
- Scolytus caucasicus* Butovitsch, 1929:54. Syntypes, sex?; Dzhubga (Drasnodar Territory); NHR, Stockholm
- Scolytus samarkandicus* Butovitsch, 1929:56. Syntypes, sex?; Samarkand (Uzbekistan); NHR, Stockholm
- Scolytus sanctaluciae* Hoffmann, 1935:84, 87. Syntypes, sex?; not seen
- Scolytus mangliensis* Lezhava, 1940:71. Syntypes, sex?; Manglisi, Georgia; Institute of Zoology, Academy of Sciences, Tbilisi
- Scolytus taxicola* Lezhava, 1941:193. Lectotype, sex?; Tasgveri prope Borzhomi, Georgia; Institute of Zoology, Academy of Science, designated by Michalski 1968, cited in Michalski 1973:127
- Scolytus rugulosus baluchistani* Schedl, 1958:165. Syntypes, sex?; Baluchistan, Quetta; FRI, Dehra Dun, and NHMW, Wien
- Scolytus rugulosus intermedius* Sokanovskii, 1960:675. Syntypes, sex?; Tzhkent, Uzbekistan; Sokanovskii Collection

Diagnosis: Distinguished from endemic South American species by the visible, complete suture between abdominal sterna 1 and 2; by the gradual ascent of the profile of the abdomen to meet the elytra; and by the absence of abdominal spines.

Male: Length 1.5–2.7 mm, 2.2 times as long as wide; color very dark brown. Frons broadly convex, weakly impressed on lower fourth in median area, surface subshining, rather finely, convergently aciculate; punctures fine, obscure; vestiture of fine, moderately abundant, long hair. Pronotum 1.0 times as long as wide; surface smooth, shining, punctures coarse, close, deep, most separated by less than diameter of a puncture; glabrous, except a few hairlike setae on and near anterior and lateral margins. Elytra 1.3 times as long as wide, 1.3 times as long as pronotum; striae obscurely to distinctly impressed, punctures rather coarse, uniseriate, punctures without setae; interstriae about as wide as striae, punctures about equal in size to those of striae, rows of punctures often equally impressed, punctures bearing setae. Declivity convex, moderate; posterior margin finely serrate; striae and interstriae usually confused. Abdomen gradually ascending to meet apex of elytra; segments unarmed, without special sculpture.

Female: Similar to male except frons less distinctly impressed below; visible sternum 5 with subapical impression not as strong, more weakly concave.

Distribution: Europe, Asia, Africa, introduced into Australia, North and South America.

Argentina: Buenos Aires, 1858; Catamarca, Ciudad, III-1950, Martinez; Posadas, Misiones, R.A., XI-1945, Prosen; San Rafael, Mendoza, 10-I-1939, Prosen.

Brazil: Martinique, Sao Paulo, 29-X-1970, A. Moma; Nova Teutonia, Santa Catarina, I, II, III, XII 1955, I-1956, F. Plaumann.

Chile: Cordillero, Rio Clarillo, 25-X-6-XI-1988, C. Gonzales; Valparaiso, Villa Alemana, IV-1973, Solvercens; Chile, cortex pruni, 1882.

Peru: Tacana, Wille.

Uruguay: Cited by Wood & Bright (c1992:364).

Hosts: *Malus*, *Prunus*, *Pyrus*, etc.

Biology: An important species that is able to cause severe economic damage in domestic fruit orchards. Parental galleries are monoramous, longitudinal, and usually do not engrave the wood deeply. Larval mines wander at random in the phloem. Pupation occurs in the wood about 1 cm below the surface. They breed in cut, broken, or unthrifty limbs and branches, but can kill healthy stems under certain circumstances.

Notes: The above treatment was based on several hundred specimens from Europe, Asia, and North America and on 3 specimens from Brazil and 11 specimens from Chile.

Scolytus kirschi Skalitzky

Scolytus kirschi Skalitzky, 1876:110. Syntypes, sex?; Prague, Czechoslovakia; not located (Synonymy and references in Wood & Bright c1992:336–337)

Scolytus fasciatus Reitter, 1800:395. Holotype, sex?; Arexthal bei Orudbad; NHMB, Budapest

Eccoptogaster demaisonii Eggers, 1912:47. Syntypes ♂; Sicilia, Algeria, Hispania; Eggers Collection (USNM, Washington, or NHMW, Wien?).

Diagnosis: Distinguished from *multistriatus* (Marshall) by the less abruptly elevated (subvertical) abdominal sternum 2, its longitudinal and transverse profile much more distinctly convex; by the median spine on abdominal sternum 2 being smaller and distinctly displaced from the transverse costa at the base of sternum 2, this spine is usually smaller and more distinctly, laterally compressed; punctures on the pronotum disc are of larger average size.

Male: Length 2.0–2.7 mm, 2.3 times as long as wide; color dark reddish brown. Frons less strongly flattened than in *multistriatus*; punctures on pronotum variable but averaging larger than in *multistriatus*; elytral sculpture variable, variation similar to *multistriatus*. Junction of sterna 1 and 2 abrupt, transversely costate, 2 rising rather abruptly but face of segment moderately convex both transversely and longitudinally, base of median spine distinctly displaced dorsad from transverse costa at base of segment, spine smaller, more distinctly, laterally compressed than in *multistriatus*; sterna 3–5 less strongly impressed; sterna 3 and 4 never with small spines at lateral margins (usually present in *multistriatus*).

Female: Similar to male except frons more strongly, less extensively impressed; median spine on sternum usually smaller.

Distribution: Europe, Asia Minor, and N Africa, introduced into Argentina and southern Brazil.

Argentina: Oral report, not confirmed.

Brazil: Specimens examined, data not recorded.

Hosts: *Ulmus*, *Prunus*, *Fraxinus*, *Populus alba* in Europe.

Notes: Available reports from South America require confirmation. The above treatment was based on my European and North American series.

Scolytus multistriatus (Marsham)

Scolytus multistriatus (Marsham), 1802:54 (*Ips*). Syntypes, sex?; England; not located, probably at BMNH, London (Synonymy and references in Wood & Bright c1992:345–354)

Scolytus flavicornis Chevrolat, 1838:181. Syntypes, sex?; Pavis (Lombardy), Italy, not located, presumably at Liege

Scolytus ulmi Redtenbacher, 1849:361. Syntypes, sex?; Austria; not located

Scolytus javanus Chapuis, 1869:56. Holotype, sex?; Java; IRSNB, Brussels

Eccoptogaster orientalis Eggers, 1910:557. Lectotype ♂; Elisabethpol, Caucasiae rossicae; USNM, Washington, designated by Anderson & Anderson 1971:23

Scolytus nodifer Reitter, 1913:24. Holotype ♂; Walachei, Romania; NHMB, Budapest

Eccoptogaster abhorrens Wichmann, 1913:210. Holotype, sex?; Umgebung von Zara, Yugoslavia (?), Muller Collection

Eccoptogaster affinis Eggers, 1914:108. Holotype ♂; Macedonia; USNM, Washington

Scolytus therondi Hoffmann, 1939:36. Holotype, sex?; Nimes (Gard), France; MNHN, Paris

Scolytus papuanus Schedl, 1936:8. Syntypes, sex?; Kap Koenig Wilhelm, New Guinea; MNB, Berlin

Diagnosis: This species was introduced into South America and, consequently, has the intersegmental line between abdominal sterna 1 and 2 clearly marked to its lateral limits. It is also distinguished by the host and by the presence of a median spine at the anterior margin of subvertical abdominal sternum 2.

Male: Length 1.9–3.1 mm, 2.2 times as long as wide; color reddish brown, pronotum usually darker. Frons very broadly, distinctly convex from epistoma to vertex; surface shining, closely, longitudinally, somewhat convergently aciculate toward epistoma, crests rather fine and close to vertex, punctures obscure; vestiture of fine long hair over entire surface, longer and more abundant toward margins. Pronotum 1.0 times as long as wide; surface smooth, brightly shining, punctures rather coarse, close (spaced by about diameter of a puncture); glabrous except for a few setae near anterior margin. Elytra 1.3 times as long as wide, 1.3 times as long as pronotum; striae narrowly impressed, punctures small, very close, rather deep; interstriae about three times as wide as striae, smooth, shining, central third of each moderately sulcate from near base to near apex, punctures uniseriate (in interstitial sulci), punctures about half to two-thirds as large as those of striae. Declivity modest, punctures near apex confused; a few erect setae in declivital area. Abdominal sternum 2 subvertical on more than its anterior half, a coarse median spine on anterior one-

third; vestiture short, inconspicuous, moderately abundant, most setae divided into two parts.

Female: Similar to male except frons much more strongly convex, but similar.

Distribution: Asia, Europe, North America, etc., wherever elms are grown. Reported from South America (Argentina, Chile?), but specimens were not seen by me.

Hosts: *Ulmus* spp.

Biology: This species breeds in the limbs and boles of their host. They normally form feeding or hibernation maturation tunnels in twigs or small branches of green trees. They are a principal vector of the Dutch Elm Disease and are a major economic threat to the existence of elm species in some areas. An abundance of literature has been published on the biology of this species. For references see Wood & Bright (c1992:345–354).

Notes: The above treatment was based on several hundred North American and European specimens that were compared to the series of Eggers, Schedl, etc.

Scolytus facialis Schedl

Scolytus facialis Schedl, 1973:164. Holotype ♀; Maturaca, alto Rio Cauabun, Amazona, Brazil; MZUSP, Sao Paulo (References in Wood & Bright c1992:331)

Diagnosis: This species is not in the above key. The holotype of this species is a female, not a male as reported by Schedl. The exact placement of this species in classification cannot be determined until the male is found. The unique female is distinguished by the small striae and interstitial punctures, the interstitial punctures are uniseriate. Both sexes are essential to the correct placement in classification. In the above key it probably fits somewhere between couplets 9 and 20.

Female: Length 2.2 mm, 2.1 times as long as wide; color dark reddish brown. Frons convex, weakly, transversely impressed on lower third, more strongly convex above to vertex; median one-fourth moderately sulcate from near middle of frons to vertex; lateral thirds rather coarsely, closely punctured from epistoma to upper level of eyes, median third (median one-fifth near epistoma expanding to one-half above eyes) reticulate to transversely etched; lateral areas with fine, sparse, long hair (longest at lateral margins), lateral thirds above upper level of eyes with a small fringe of long reddish yellow hair; antennal club 2.0 times as long as wide. Pronotum 1.1 times as long as wide; surface smooth, shining, very finely punctured on posterior half of disc, punctures more than twice as large in lateral areas, becoming more than three times as large toward anterior margin. Elytra 1.2 times as long as wide, 1.1 times as long as pronotum; striae rather weakly impressed, punctures small, distinctly impressed; interstriae three or more times as wide as striae, smooth, shining, punctures uniseriate, very small on basal half (half as large as those of striae), irregularly larger on posterior half (some two or more times as large as those of striae); erect interstitial bristles slender, sparse (abrasion?), a few extend to anterior half.

Ventral surface of abdomen only partly visible on type; sternum 2 subvertical, its junction with 1 abrupt, 2–5 unarmed by spines; fine, moderately abundant, rather short hair uniformly distributed on 2–5.

Distribution: Brazil: Maturaca, Amazonas, alto Rio Cauaburi, 12-17-XII-1962, J. Bechyne.

Notes: The above treatment was based on the female holotype.

Scolytus spinidens Schedl

Scolytus spinidens Schedl, 1966:96. Holotype ♀; Suriname; NHMW, Wien (References in Wood & Bright c1992:377)

Diagnosis: Remotely allied to *bicolor* Eggers except abdominal sternum 5 without a median spine or callus; sternum 2 not ascending abruptly at its base, longitudinally convex, a small conical, acutely pointed spine rather remote from posterior margin; frons strongly convex, punctured, no aciculation; striae weakly impressed, interstitial punctures minute, mostly obsolete.

Female: Length 2.2 mm, 2.5 times as long as wide; color yellowish brown. Frons strongly, broadly convex; surface smooth, shining, punctures uniformly distributed, moderately coarse, deep, rather close; vestiture hairlike from epistoma to vertex, uniformly distributed, longer at sides and above; antennae removed from type. Pronotum 1.1 times as long as wide; widest at base, sides on basal half weakly arcuate and converging slightly toward broadly rounded anterior margin; surface smooth, shining, small and rather widely spaced on posterior two-thirds of pronotum length, a few setae on anterior fourth. Elytra 1.5 times as long as wide, 1.5 times as long as pronotum; striae weakly impressed, punctures small (some obsolete near base); interstriae about three times as wide as striae, smooth, brightly shining, punctures minute, uniseriate except mostly obsolete on anterior two-thirds; posterior margin with an obscure tubercle in line with striae 2; a few hairlike setae near apex, mostly glabrous. Abdominal sternum 2 not ascending abruptly from 1, junction rounded, 2 convex, rather coarsely punctured, a small acutely pointed median spine placed slightly below middle remote from posterior margin; lateral margin of 3 and 4 unarmed by tubercles, 5 moderately concave, apical margin raised; setae on 2–5 sparse, hairlike.

Distribution: Suriname: “Niederl. Guayana.”

Notes: The above treatment was based on the female holotype from Suriname.

Scolytus bicolor Eggers

Scolytus bicolor Eggers, 1931:15. Holotype ♀; Guya. Ven. Mor.; MNB, Berlin (References in Wood & Bright c1992:325)

Diagnosis: Distinguished from *antennatus* Schedl by the normal antennae; by the reticulate female frons; by the much smaller punctures on the pronotum; and by the subglobular spine on female sternum 2.

Female: Length 2.1 mm, 2.4 times as long as wide; color reddish brown, basal two-thirds of elytra yellowish brown (clearly bicolored). Frons uniformly, rather strongly convex upward from epistoma, median half conspicuously reticulate, finely punctured on lateral fourths and toward vertex; vestiture of fine, long hair on margins. Antennal club 1.7 times as long as wide, of normal size, only slightly longer than combined length of funicle and scape. Pronotum 1.16 times as long as wide; surface smooth, shining; punctures on basal half minute, gradually transcending to small size on anterior one-fourth. Elytra about as in *antennatus* except posterior one-third reddish brown, anterior two-thirds yellowish brown. Sternum 2 with spine subglobular in one specimen, higher than wide in another; 5 with a rather strong, transverse callus near middle.

Distribution: “Guya. Ven. Mor.” [presumably Venezuela, taken by Moritz].

Notes: The area near the Moritz home at Colonia Tovar, Aragua, Venezuela, is presumed to be the type locality. The above treatment was based on the female holotype.

Scolytus elongatus Schedl

Scolytus elongatus Schedl, 1972:54. Holotype ♀; S. Caraca, S. Barbara, M. Gerais, [Brazil], 1450 m; NHMW, Wien (References in Wood & Bright c1992:329)

Diagnosis: Distinguished from *pinnatus* Eggers by the smaller size; by the very different abdominal spines; and by the presence of a conspicuous callus or bulla on abdominal sternum 5.

Female: Length 2.0 mm, 2.3 times as long as wide; color dark brown, pronotum almost black. Frons rather strongly convex from eye to eye from near epistoma to vertex; surface shining, rather strongly, convergently aciculate from epistoma to vertex, no punctures; vestiture of uniformly distributed, fine, long hair; sparse in central area, slightly more numerous at margins. Pronotum 1.1 times as long as wide; widest near base, sides weakly arcuate, converging toward broadly rounded anterior margin; surface smooth, shining, punctures on disc small, oval, 2–3 times larger near anterior margin, much larger in lateral areas; glabrous except sparse hair near anterior margin. Elytra 1.3 times as long as wide, 1.2 times as long as pronotum; striae feebly impressed, punctures small; interstriae about four times as wide as striae, smooth, shining, punctures mostly obsolete, except a few on apical fourth, those present mostly larger than striae punctures; vestiture restricted to apical fourth, of fine, rather short hair. Abdominal sternum 2 subvertical, junction with 1 abrupt, almost transversely costate, a median spine slightly displaced from basal margin, its base extending almost half length of segment; spine laterally compressed, higher than basal (longitudinal) width, its apex slightly curved dorsad; 3 and 4 each with a very small tubercle at lateral margin; 5 weakly concave, its apical margin weakly elevated,

median fourth with a rounded bulla or callus slightly behind middle; vestiture of moderately abundant, fine, long hair.

Distribution: Brazil: S. Caraca, S. Barbara, M. Gerai, IV-1969, F.M. Oliveira; Nova Vicos, Bahia, 29-IX-1997, ethonal trap in *Eucalyptus grandis* stand, C.A.H. Flechtmann.

Notes: The above treatment was based on the female holotype from Brazil and on 1 other female.

Scolytus antennatus Schedl

Plates XXXV, XXXVI

Scolytus antennatus Schedl, 1935:272. Holotype ♀; Sao Paulo, Brazil; NHMW, Wien (References in Wood & Bright c1992:324)

Diagnosis: Distinguished by the very greatly enlarged and elongated antennal club in both sexes (more than twice as long as combined length of scape and funicle); male sternum 2 unarmed, sternum 5 with a large, median spine, female sternum 2 armed by a large, laterally compressed spine, sternum 5 unarmed.

Male: Length 1.9–2.7 mm, 2.1 times as long as wide; color reddish brown, elytra often bicolored. Frons rather broadly flattened from epistoma to well above upper level of eyes; surface rather finely, convergently aciculate; vestiture of long, moderately abundant hair. Antennal club very long, twice as long as combined length of funicle and scape. Pronotum 1.0 times as long as wide; surface smooth, shining, punctures rather small, spaced by one to three diameters of a puncture, conspicuously larger in anterolateral areas; a dozen long, coarse setae and several small, fine setae near anterior margin. Elytra 1.2 times as long as wide, 1.3 times as long as pronotum; surface smooth, shining, striae feebly to not impressed, punctures distinct, moderately large on basal half, small to very small behind; interstriae two (anterior) to four (posterior) times as wide as striae, punctures very minute, uniseriate. Declivity very weak; posterior margin smooth. Sternum 2 oblique, angle with 1 obtuse, narrowly rounded, dull to sternum 5; sternum 5 with a large, weakly compressed median spine on anterior half; vestiture moderately abundant, of medium length from sternum 2–5.

Female: Similar to male except frons convex on upper half, moderately, transversely impressed below, aciculation about as in male, vestiture less abundant but much longer.

Distribution: Brazil: Bahia, Cepec, Ilheus, I-III-1961, blacklight, Kaston; Mato Grosso, Xingu, XI-1961, Avarenga & Bokermann.

Notes: The above treatment was based on 12 specimens 1 of which I compared directly to the holotype.

Scolytus convexus Schedl

Scolytus convexus Schedl, 1972:53. Holotype ♀; Bocaiuva, Parana, Brazil; NHMW, Wien (References in Wood & Bright c1992:328)

Diagnosis: The convex, rounded female abdomen and equally impressed striae and interstriae suggest this

species is allied to *costellatus* Chapuis, however, the frons is very different. Correct placement must await discovery of the male. The female frons resembles that of female *costellatus*.

Female: Length 2.5 mm, about 2.0 times as long as wide (elytra spread); very dark brown. Frons broadly convex, lower two-thirds on median half somewhat flattened; surface shining, finely, convergently aciculate from epistoma to vertex; vestiture moderately abundant, uniformly distributed, of fine, long hair from epistoma to vertex. Pronotum 0.95 times as long as wide; sides widest one-third pronotum length from base, moderately arcuate, converging toward broadly rounded anterior margin; surface smooth, shining, punctures small, oval, moderately abundant; glabrous. Elytra about 1.1 times as long as wide (spread on type), about 1.1 times as long as pronotum; striae narrowly, moderately impressed, interstriae similarly impressed except mostly obsolete on basal fourth, costae between grooves narrowly rounded (not acute); vestiture mostly abraded, a few interstitial setae near apex rather stout. Abdominal sternum 2 convex, junction with 1 rounded, without a costa or median elevation; surface rather dull, punctures rather small, deep, moderately close, their interiors shining; sternum 5 slightly convex, its apical margin semiabrupt, not elevated.

Distribution: Brazil: Bocaiuva (Parana), 25°08', 49°04', 1000 m, DEI, Muncheberg, 1963, F. Plaumann.

Notes: The above treatment was based on the female holotype.

Scolytus bolivianus Schedl

Scolytus bolivianus Schedl, 1966:97. Holotype ♀; Bolivia; NHMW, Wien (References in Wood & Bright c1992:325)

Diagnosis: Allied to *convexus* Schedl except abdominal sternum 2 subvertical, junction with 1 abrupt, transversely, weakly costate; female frons rather strongly convex, somewhat similar to *convexus*; elytra resembling *convexus* but impressions weaker, less extensive.

Female: Length 3.2 mm, 2.1 times as long as wide, color very dark brown, elytra reddish brown. Frons of type covered by resin except for a small area at center, apparently moderately convex, shining, aciculate about as in *convexus* (no flattened area), vestiture apparently similar to female *convexus* except more abundant in lateral and dorsal areas. Both antennae missing from type. Pronotum 1.1 times as long as wide, about as in *convexus*. Elytra 1.1 times as long as wide, 1.0 times as long as pronotum; striae weakly narrowly impressed, punctures small, distinct; interstriae smooth, shining, grooves equally impressed on posterior fifth to those of striae, impression decreasing anteriorly, almost obsolete on basal half of elytral length; interstitial setae suberect, rather stout, each equal in length to about one-half to two-thirds distance between rows, rather regularly placed on posterior third, sparse to absent on anterior half.

Distribution: Bolivia: "Bolivien."

Notes: The above treatment was based on the female holotype.

Scolytus neofacialis Schedl

Scolytus neofacialis Schedl 1976:60. Holotype ♀; Varginha, M. Gerais, Brazil; NHMW, Wien (References in Wood & Bright c1992:354)

Diagnosis: Distinguished from *bolivianus* Schedl by the smaller punctures on the pronotum disc; by the shorter interstitial setae; and by the much more abundant setae on the female frons.

Female: Length 3.2 mm, 2.1 times as long as wide; color very dark brown, elytra dark reddish brown. Frons broadly, moderately convex from eye to eye from epistoma to vertex, convergently rather finely aciculate from epistoma to vertex, shining; vestiture on lateral and dorsal margins of long, moderately abundant, incurved hair; hair in central area shorter; finer, less abundant. Pronotum 1.04 times as long as wide; smooth, shining; punctures very small, oval on disc, more than twice as large and subrugose on anterior one-sixth; glabrous, except sparse, short hair near anterior margin. Elytra 1.2 times as long as wide, 1.2 times as long as pronotum; striae very narrowly, distinctly impressed on posterior half to two-thirds, usually not impressed toward base, punctures very small, distinct; interstriae impressed on posterior fourth almost equal to striae, impression discontinued near middle, surface smooth, shining; interstitial setae almost hairlike, in uniseriate rows on posterior half, obsolete toward base. Abdominal sternum 2 subvertical, junction with 1 abrupt, transversely subcostate, its surface almost smooth, sparse punctures minute, obscure; 5 weakly concave, apical margin weakly elevated; abdominal setae on 2–5 of moderately abundant, long hair (abdomen very similar to *bolivianus* except setae much longer).

Distribution: Brazil: Varginha, M. Gerais, II-1972, M. Alvarenga.

Notes: The above treatment was based on the female holotype. A male placed under this name in the Schedl material at Wien is actually a misidentified female of *submarginatus* Schedl.

Scolytus binodus Wood

Scolytus binodus Wood, 1982:230. Holotype ♀; Uxpanapa, Oaxaca, Mexico; USNM, Washington (References in Wood & Bright c1992:325)

Diagnosis: Distinguished by the presence of a transverse pair of widely spaced, large spines (male) or conspicuous nodules (female) on visible abdominal segment 3.

Male: Length 3.0–3.9 mm, 2.0 times as long as wide; color dark brown. Frons flattened (very weakly convex) from epistoma to vertex; surface shining, finely, longitudinally aciculate, aciculation converging toward median line below; vestiture of fine rather long hair; setae on

lateral and upper margins much longer. Pronotum 1.0 times as long as wide; surface smooth, brightly shining, punctures minute on disc, distinctly larger in lateral areas especially on anterior half; glabrous except for a few hairlike setae near anterior margin. Elytra 1.2 times as long as wide, 1.2 times as long as pronotum; striae narrowly, rather deeply impressed, punctures small, distinct; interstriae three to four times as wide as striae, surface smooth, brightly shining, punctures minute, uniseriate, rows not impressed on basal half, on posterior half rows impressed almost equal to striae, rows of stout hairlike setae on posterior half only. Declivity moderate, posterior margin smooth. Sternum 2 subvertical on anterior half, a row of large punctures and setae at anterior margin, another transverse row at middle of segment, smooth, shining, impunctate between these rows; sternum 3 dull, armed by a widely spaced, transverse pair of large, cylindrical, blunt spines, punctures absent; 4 and 5 dull, densely punctured, 5 subconcavely impressed, setae only at apical margin.

Female: Similar to male except spines on sternum 3 reduced to moderately large, rounded nodules.

Distribution: Mexico: Uxpanapa, Oaxaca, 24-V-1981, 120 m, S-282, *Combreton* sp., A. Equihua.

Notes: The above treatment was based on the type series of 11 specimens and on 10 other topotypic specimens that bear the type data. This unique species might occur in South America.

Scolytus bispinatus Wood, n. sp.

Scolytus bispinatus Wood: Holotype ♂?; Armalus, Amazonas Timber, S.A. forest, Brazil; MZUSP, Sao Paulo

Diagnosis: This is the smallest and most slender known member of this genus known to me; it is easily distinguished from the distantly related *bicinctus* Schedl by characters in the above key and in the description below

Male (?): Length 1.4 mm, 2.6 times as long as wide; color yellowish brown. Frons rather broadly convex, a feeble transverse impression above epistoma; smooth, shining, punctures small, close, weakly subrugose, a weak median tubercle about one-third distance above epistoma toward upper level of eyes; vestiture of minute, rather numerous, hairlike seta; both antennae missing from type. Pronotum 1.16 times as long as wide; sides on basal three-fourths feebly arcuate and converging slightly toward rather narrowly rounded anterior margin; surface smooth, brightly shining, punctures very small, slightly longer than wide, rather widely spaced except anterior fifth much more coarsely, closely punctured; glabrous. Elytra 1.5 times as long as wide, 1.4 times as long as pronotum; disc occupying basal 70 percent of elytra length; striae feebly impressed, punctures moderately large, rather strongly impressed; interstriae smooth, brightly shining, almost twice as wide as striae, uniseriate punctures minute, half or more obsolete.

Declivity descending moderately about one-third distance to meet abdomen; surface reticulate, stria and interstria punctures obsolete except near base; glabrous. Abdominal sterna 1 and 2 fused, suture not visible, base of 2 rounded, not elevated, rather coarsely punctured, armed near apical margin by a transverse pair of moderately pointed spines, spines separated by one-fifth width of segment; segments 3–5 unarmed by tubercles, punctures very small, setae sparse, short, almost hair-like.

Distribution: Brazil (Amazonas).

Type material: The male (?) holotype was taken in Brazil at Armalus, Amazonas Timber, S.A., 2 MC Jous, 1987, No. 015 G1, A.P. Santos. The holotype is in the Museu de Zoologie, Universidade de Sao Paulo, Sao Paulo.

Scolytus bicinctus Schedl

Scolytus bicinctus Schedl, 1972:52. Holotype ♂; Jacareacanga, Para, Brazil; NHMW, Wien (References in Wood & Bright c1992:325)

Diagnosis: Distinguished by the very small body size; by the rather coarse, strongly impressed stria and interstria punctures; and by the short, almost scalelike, setae on abdominal sterna 2–5.

Male (?): Length 1.5 mm, 2.3 times as long as wide; color reddish brown. Frons broadly, rather strongly convex from epistoma to weak transverse impression immediately above epistoma; surface obscurely reticulate to rugose-reticulate and closely, deeply, moderately punctured over entire area; vestiture of sparse, fine, short hair; antennal club with acutely angulate groove for suture 1 clearly marked. Pronotum 1.04 times as long as wide; surface smooth, shining, punctures on disc small, oval, rather close, becoming two to three times as large on anterior fifth and lateral areas; vestiture reduced to sparse hair near anterior margin. Elytra 1.4 times as long as wide, 1.3 times as long as pronotum; striae irregularly, weakly impressed, punctures moderately coarse, close, strongly impressed; interstriae obscurely impressed (grooves about equal in width to those of striae); stria and interstria punctures about equal in size. Minute stria hair present near apex; interstria setae uniseriate, semirecumbent, uniseriate, very short at base, becoming longer near apex, length mostly equal to less than half distance between rows. Abdominal sternum 2 with anterior margin very strongly produced, crest narrowly rounded (not acutely costate), extending beyond level of posterior apex of sternum 2; lateral margin of 3 armed by a coarse, sharply pointed spine; 5 moderately concave, apical margin moderately elevated; surface of 1–5 shining, punctures rather coarse, deep, very close, with abundant setae very short, stout, some almost scalelike.

Distribution: Brazil: Jacareacanga, Para, VI-1970, F.R. Barbosa [M. Alvarenga Collection].

Notes: The above treatment was based on the holotype from Brazil, presumed to be a male.

Scolytus amazonicus Schedl

Scolytus amazonicus Schedl, 1972:52. Holotype ♂; Manaus, Amazonas, [Brazil]; NHMW, Wien (References in Wood & Bright c1992:322)

Diagnosis: Allied to *barbatus* Schedl but smaller; it lacks the conspicuous brush of hair on male sternum 2, and the male frons is less strongly reticulate, with setae on the lateral areas less numerous.

Male: Similar to female except frons weakly convex from eye to eye from epistoma to vertex, shining, rather coarsely, convergently aciculate, punctures not evident; frontal vestiture of fine, long hair; setae rather sparse and shorter in central area, longer and more abundant in lateral and dorsal areas.

Female: length 3.8–4.0 mm, 2.2 times as long as wide; color dark reddish brown. Frons moderately convex on upper half, a distinct transverse impression on lower half; rather coarsely, convergently aciculate from eye to eye from epistoma to vertex, no punctures; hairlike vestiture rather sparse, short. Pronotum 1.1 times as long as wide; surface smooth, shining, punctures very small on disc, 3 times as large near anterior margin, larger in lateral areas; mostly glabrous, sparse setae near margins. Elytra 1.14 times as long as wide, 1.0 times as long as pronotum; striae distinctly, narrowly, rather shallowly impressed, punctures small, distinct; interstriae smooth, shining, narrowly impressed, almost equal to striae on posterior fourth, feebly or not impressed on anterior half, punctures minute, less than one-third as large as those of striae; interstria setae rather stout, most restricted to posterior third. Abdominal sternum 2 vertical, anterior margin slightly elevated, costate; surface dull, subreticulate, punctures on posterior half rather small, distinct, uniformly distributed, on anterior half unequally distributed, some close and confluent between small impunctate areas; 5 closely punctured, subconcave, apical margin elevated; vestiture of sparse, short coarse hair, partly abraded.

Distribution: Brazil: Manaus, Amazonas; “Brasilia, Boa Vista.”

Notes: The above treatment was based on the female holotype and on 1 male, both from Brazil.

Scolytus barbatus Schedl

Scolytus barbatus Schedl, 1976:59. Holotype ♂; Encruzilhada, 980 m, Bahia, Brazil; NHMW, Wien (References in Wood & Bright c1992:325)

Diagnosis: Distinguished by the large size; and by the conspicuous, dense tuft of long, yellow hair on the anterior half of male sternum 2.

Male: Length 4.8 mm, 2.2 times as long as wide; color very dark reddish brown. Frons very weakly convex eye to eye from epistoma to vertex, with surface rather coarsely, convergently aciculate; vestiture of long hair, sparse in central area, rather abundant on sides and above. Pronotum 1.1 times as long as wide; surface

smooth, shining, punctures on disc small, oval, about three times as large near anterior margin, larger in lateral areas; glabrous except for sparse setae near anterior margin. Elytra 1.2 times as long as wide, 1.1 times as long as pronotum; sculpture as in *amazonicus* Schedl except striae less strongly impressed on anterior half, setae less numerous. Abdominal sternum 2 subvertical, junction with 1 abrupt, transversely subcostate, costa not elevated; anterior half of 2 densely ornamented by a tuft of long yellow hair, less abundant on middle third, subglabrous and impunctate near posterior margin; 3 armed at lateral angle by a small denticle, anterior half with rather short, stout setae of moderate abundance, posterior half glabrous and impunctate; 4 and 5 closely, finely punctured and ornamented by very short setae, apical margin of 5 elevated.

Distribution: Brazil: Encruzilhada, 980 m, Bahia.

Notes: The above treatment was based on the male holotype from Brazil.

Scolytus angustatus Browne

Scolytus angustatus Browne, 1970:575. Holotype ♂; Santarem, Bahia, Brazil; BMNH, London (References in Wood & Bright c1992:324)

Diagnosis: Possibly allied to *costellatus* Chapuis, distinguished by total absence of frontal aciculation; by the much shorter, transverse costa at the base of abdominal sternum 2 (only a third as wide as segment); and by the presence of small spines at the lateral margins of abdominal segments 2–4.

Male: Length 3.5 mm, 2.0 times as long as wide; color reddish brown. Frons convex, upper half feebly flattened, lower half with a weak median crest; surface weakly reticulate above, almost smooth, shining below, punctures small, moderately abundant below, very small and less abundant above; vestiture hairlike, moderately abundant, rather long, a moderate epistomal brush present. Pronotum 1.0 times as long as wide; surface smooth, brightly shining, punctures oval, very small, moderately abundant, only slightly larger in lateral areas; glabrous. Elytra 1.1 times as long as wide, 1.2 times as long as pronotum; striae narrowly, rather weakly impressed from base to declivity; interstriae about three times as wide as striae, punctures mostly half as wide as those of striae, uniseriate, on some interstriae punctures positioned in a weak groove (not always indicated); punctures near weak declivity larger, deeper, confused. Vestiture of uniseriate interstitial rows of rather stout, erect setae, some rows extending to basal half (2, 5, 7), others only near declivity (1, 3, 4, 6). Anterior margin of sternum 2 very strongly carinate on median third of segment width; sterna 3–5 unarmed, dull, with sparse, short setae.

Distribution: Guiana to Brazil.

Brazil: Santarem, Bahia; Campus do INCA, Manaus, Amazonas, 1-XII-1986, R.L.S. Abreu.

Guiana: Upper Courantyne River, IX-1935, G.H. Hudson (B.M. 1936-360).

Notes: The above treatment was based on the male holotype, 1 other male from Brazil, and 1 badly crushed male of obviously the same species from Guiana.

Scolytus costellatus Chapuis

Plates XXXVII, XXXVIII

Scolytus costellatus Chapuis, 1869:58. Holotype ♀; Nova Fribourg, Brazil; IRSNB, Brussels (References in Wood & Bright c1992:328)

Diagnosis: Pronotum clearly longer than elytra; striae and interstriae equally sulcate and punctured; male sternum 2 with a subacute transverse costa on median two-thirds, female sternum 2 convexly rounded, with a round, punctured, median callus, costa absent.

Male: Length 3.2–3.9 mm, 1.8 times as long as wide; mature color black. Frons flat from eye to eye from epistoma to vertex; surface shining, aciculation fine, weak above, stronger and converging slightly on lower half; vestiture of fine hair shorter, rather sparse in central area, much longer, more numerous on margins. Pronotum 0.96 times as long as wide; surface smooth, brightly shining, punctures rather small, spaced by one to three diameters of a puncture on disc, much larger in lateral areas; glabrous, except for a few fine hairs near anterior margin. Elytra 0.88 times as long as wide, 0.94 times as long as pronotum; striae and interstriae equally sulcate and punctured, smooth, shining, punctures fine, distinct. Declivity weak, posterior margin smooth. Sternum 2 subvertical, its anterior margin subacutely costate on median two-thirds, punctures rather coarse, uniformly distributed; sterna 3–5 dull, punctures abundant, fine; vestiture sparse, short, inconspicuous.

Female: Similar to male except frons weakly convex, setae finer, shorter, much less numerous; sternum 2 with costa absent, basal margin rounded, anterior half with a submarginal, punctured, subcircular, moderately high, median callus.

Distribution: Costa Rica to Brazil.

Brazil: Nova Fribourg.

Venezuela: 40 km E Canton, Barinas, 8-III-1970, No. 346, large liana, SLW.

Hosts: A liana 10 cm in diameter.

Biology: Adult galleries biramous and transverse.

Notes: The above treatment was based on the female holotype, 77 specimens from Costa Rica, and from Venezuela.

Scolytus pseudocostellatus Schedl

Scolytus pseudocostellatus Schedl, 1937:159. Holotype ♂; Sao Paulo, Brazil; NHMW, Wien (References in Wood & Bright c1992:357)
Scolytus strigipennis Schedl, 1976:60. Holotype ♀; Brazil; NHMW, Wien (References in Wood & Bright c1992:377). *New synonymy*

Diagnosis: Distinguished from *costellatus* Chapuis by having the female frons more broadly flattened from eye to eye from epistoma to vertex, the aciculation rather coarse as in male *costellatus*; and by the larger average size; frontal setae longer (as in *costellatus*)

frontal setae are short in northern part of range but gradually increase in length, those from southern Brazil about equal to this species.

Male: Similar to female except sternum 2 radically different; abdominal sternum 2 subvertical, rising abruptly from costate anterior margin, costa on median two-thirds, weakly costate on its median third, more strongly elevated laterally, vertical face of sternum 2 smooth, shining, coarsely, deeply closely punctured, without a median callus (a female character).

Female: Length 3.9–4.0 mm, 1.8 times as long as wide; color black. Frons strongly, broadly flattened from eye to eye from epistoma to vertex, shining, closely aciculate from eye to eye, aciculation slightly finer than in male; vestiture of fine, long hair, longer and more abundant on margins (more numerous and longer in male). Pronotum 0.72 times as long as wide; surface brightly shining, punctures small, uniformly distributed in central area, larger near lateral margins; glabrous. Elytra 1.04 times as long as wide, 1.04 times as long as pronotum; striae and interstriae equally, strongly impressed, punctures small, obscure, some confluent, costae between grooves subacute, continuous; interstriae bearing uniseriate rows of fine, erect hair from base to apex, each seta equal in length to distance between rows. Abdominal sternum 2 with basal margin rounded, transverse costa absent, face moderately convex, with a subcircular, punctured median callus near anterior margin as in *costellatus* female.

Distribution: Brazil: Uloatuba, Sao Paulo, V-VI-1967, P.C. Montonchet; Sao Paulo, "female" (male holotype of *pseudocostellatus*); "Alte Sammlung, Brasilien" (female type of *strigipennis*).

Hosts: Probably a large liana.

Notes: The above treatment was based on the male holotype of *pseudocostellatus*, on 1 other male, both from Brazil, and on the female holotype of *strigipennis*.

Scolytus nodatus Wood

Scolytus nodatus Wood, 1969:12. Holotype ♂; Santa Ana, San Jose, Costa Rica; USNM, Washington (References in Wood & Bright c1992:354–355)

Diagnosis: Frons convergently aciculate in both sexes; male sternum 2 with a median spine, 2 and 3 each with a small lateral spine, 4 with a median, subglobular spine, 5 unarmed except for apical carina.

Male: Length 2.7–3.7 mm, 1.6 times as long as wide; color dark reddish brown, pronotum almost black. Frons finely, rather deeply, convergently aciculate from epistoma to vertex; vestiture hairlike, fine, rather long, mostly on margins. Pronotum 1.03 times as long as wide; posterior four-fifths smooth, shining, with fine punctures moderately spaced, anterior one-fifth minutely etched, punctures shallow, more than twice as wide as on disc. Elytra 1.03 times as long as wide, 0.96 times as long as pronotum; striae very narrow, distinctly impressed, punctures minute, distinct; interstriae shining, narrowly,

distinctly impressed only near declivity, weakly impressed to middle, punctures minute, equal in size to those of striae; vestiture of erect, slender, hairlike setae on all interstriae, each equal in length to less than two-thirds distance between rows. Sternum 2 with anterior margin subacute, with a large median spine on anterior third; lateral margins of 2 and 3 each with a small tubercle, 4 with a median subglobular spine on posterior third of 4, apical margin of 5 carinate; vestiture hairlike, rather short, moderately abundant on segments 2–5.

Female: Similar to male except median spines on abdominal segments 2 and 4 absent, those on lateral margins of 2 and 3 present, subapical carina on 5 present; setae on 2–5 longer.

Distribution: Costa Rica to Panama.

Hosts: A large, spiny liana.

Biology: Parental galleries were biramous and longitudinal.

Notes: The above treatment was based on the type series of 26 specimens. It probably occurs in South America.

Scolytus pinnatus Eggers

Scolytus pinnatus Eggers, 1928:94. Holotype ♂?; Blumenau, Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:356)

Diagnosis: Distinguished by the comparatively small size; by the occurrence of a median spine or tubercle at the posterior margin of male abdominal sternum 4; and by the compressed, quadrate shape of the median spine on male sternum 2.

Male (?): Length 2.6–2.8 mm, 2.0 times as long as wide; color dark reddish brown. Frons moderately convex eye to eye from epistoma to vertex, surface rather coarsely, convergently aciculate, no punctures; vestiture moderately abundant, fine, rather short, uniformly distributed. Pronotum 0.94 times as long as wide; surface smooth, shining, punctures on disc small, oval, about three times as large near anterior margin, larger in lateral areas, glabrous except near anterior margin. Elytra 1.1 times as long as wide, 1.0 times as long as pronotum; striae shallowly, narrowly impressed, punctures small, distinct; interstriae impressed on posterior third about equal to striae, interstitial impressions ending at or near middle of elytra length; interstitial setae mostly on posterior third of elytra length, of fine hair. Abdominal sternum 2–5 dull, punctures obscure to obsolete; 2 vertical, its junction with 1 abrupt, weakly, transversely costate, a coarse denticle on lateral end of posterior margin, a large lateral compressed median spine at anterior margin, its base extending to middle of segment, spine truncate apically, its basal width slightly greater than its height; sternum 3 armed at lateral margin by a rather coarse denticle; 4 armed by a small median denticle at posterior margin; 5 shallowly concave, apical margin weakly elevated; vestiture on 2–5 of sparse, short, fine hair.

Distribution: Brazil: Blumeneau (type); Itanhaen, 14-VIII-1949, E.X. Rabello.

Notes: The above treatment was based on the holotype and on 1 other specimen, both of the same sex (presumed to be males), from Brazil.

Scolytus plaumanni Wood, n. sp.

Plate XLI

Scolytus plaumanni Wood: Holotype ♂; Nova Teutonia, Santa Catarina, Brazil; USNM, Washington, designated below

Diagnosis: Distinguished from *golbachii* Schedl by the smaller size; by the different sculpture of the frons in both sexes; and by the different size and shape of the median spine on abdominal sternum 2 in both sexes.

Male: Length 3.0–3.2 mm, 2.0 times as long as wide; color yellowish brown (mature?). Frons weakly, convexly flattened on median three-fourths from vertex to moderate transverse impression immediately above smooth, shining epistoma; surface shining, punctures very small, confluent, rather weakly aciculate; vestiture of fine, uniformly distributed setae of moderate, uniform length. Pronotum and elytra about as in *golbachii* except punctures of pronotum averaging slightly larger, punctures of striae and interstriae smaller. Abdominal sternum 2 with surface obscurely subreticulate, punctures slightly larger than *golbachii*; median spine moderately, laterally compressed, its base attaining anterior margin of segment, base extending almost to middle of segment; anterior height about equal to longitudinal basal width, its crest oblique, highest at anterior margin, descending obliquely to half this height at posterior margin; vestiture of fine long hair.

Female: Similar to male except frons more strongly convex, particularly toward vertex; surface sculpture similar to male (not forming strong carinae as in female *golbachii*; spine on sternum 2 slightly smaller.

Distribution: Brazil (Santa Catarina).

Type material: The male holotype, female allotype, and 1 female paratype were taken at Nova Teutonia, Santa Catarina, Brazil, III-1941, F. Plaumann. The holotype and allotype are in the DEI, Muncheberg; the paratype is in the U.S. National Museum, Washington.

Scolytus golbachii Schedl

Scolytus golbachii Schedl, 1951:288. Syntypes ♂; Pto. Bemberg, Misiones, Argentina; NHMW, Wien (References in Wood & Bright c1992:331)

Diagnosis: Median pair of aciculations on male frons conspicuously enlarged; neither striae nor interstriae impressed except weakly near apex.

Male: Similar to female except frons moderately, transversely, impressed immediately above epistoma, upper area flattened on median two-thirds to slightly above or well above upper level of eyes (variable in males at hand), punctures fine, abundant, most in subaciculate, confluent rows; vestiture of fine, moderately long hair.

Female: Length 3.3–4.4 mm, 1.9 times as long as wide; color very dark reddish brown. Frons convex, convergently aciculate (punctures obscure, very small), median pair of aciculations conspicuously enlarged on upper two-thirds; vestiture rather sparse, of fine, long, uniformly distributed hair. Pronotum 1.0 times as long as wide; as in *nodatus* Wood. Elytra 1.0 times as long as wide, 0.96 times as long as pronotum; striae and interstriae as in *nodatus* except hairlike interstitial setae restricted to odd-numbered interstriae, present only near declivity. Sternum 2 subvertical, smooth, shining, punctures small, shallow, median line near anterior margin armed by a large subcylindrical, somewhat blunt spine; segments 3–5 apparently with surface similar to 2 (not visible), 2 to 5 with fine, moderately abundant, long hair.

Distribution: Argentina to Brazil and Paraguay.

Argentina: Pto. Bemberg, Misiones, 12-29-I-1945, Hayward-Willink-Goldbach.

Brazil: Rondon, Parana, VIII-1952, 24°38'B, 24°07'L, F. Plaumann.

Paraguay: Hohenau, Jacob.

Notes: The above treatment was based on 1 male that was compared by me to a female paratype of *golbachii* Schedl, and on specimens from Brazil and Paraguay.

Scolytus excavatus Wood, n. sp.

Plate XXXIX

Scolytus excavatus Wood: Holotype ♂; Warnes near Santa Cruz [de la Sierra], Bolivia; USNM, Washington, designated below

Diagnosis: Male distinguished by the deeply, complexly excavated frons; and by sternum 2 bearing a large median denticle at middle of segment.

Male: Length 4.3 mm, 1.7 times as long as wide; color black. Frons deeply concave eye to eye from epistoma to well above upper level of eyes, upper area flattened from margin of concavity to vertex; main cavity deeply excavated on median one-fifth from epistoma to upper margin of concave area, this deep inner cavity smooth, shining, its margins densely pubescent, more sparsely pubescent at abrupt margin near eye; upper flattened area (above main concavity) densely, finely punctured and ornamented by a marginal tuft of long, dark hair (this tuft interrupted at median line); antennal club rather small. Pronotum as long as wide; surface smooth, shining, punctures small, mostly spaced by one to three diameters of a punctures, not larger in lateral areas; glabrous except a few, fine, hairlike setae near anterior margin. Elytra 0.90 times as long as wide, 0.90 times as long as pronotum; striae distinctly, rather narrowly impressed, punctures small, distinct; interstriae about four times as wide as striae, punctures very small, uniseriate. Declivity very weak; posterior margin smooth. Sternum 2 with basal margin rounded, subvertical, convex, middle of segment with a large, cylindrical, blunt spine; surface of 1–5 dull, punctures small, obscure; sternum 5 moderately concave, apical margin acute; vestiture of

short, fine, moderately abundant hair, longer between spine and anterior margin.

Distribution: Bolivia.

Type material: The male holotype was taken at Warones, near Santa Cruz [de la Sierra], Bolivia, X-1952, ex "Cuqui," Munro #127a, 53 1170. The holotype is in the U.S. National Museum, Washington.

Notes: The above treatment was based on the male holotype.

Scolytus caudatus Eggers

Plate XXXVII

Scolytus caudatus Eggers, 1931:35. Lectotype ♂; Rio de Janeiro, Brazil; USNM, Washington, designated by Anderson & Anderson 1971:9 (References in Wood & Bright c1992:327)

Scolytus pseudocaudatus Eggers, 1931:35. Holotype, sex?; Sao Paulo, Brazil; NHMW, Wien

Scolytus conidens Browne, 1970:574. Holotype ♀; Bahia, Brazil; BMNH, London (References in Wood & Bright c1992:328). *New synonymy*

Diagnosis: Female sternum 2 subvertical, angle with sternum 1 abrupt (about 90 degrees); sternum 2 with a small spine at middle of segment, setae on this segment all short, each palmately divided into about 4 filaments.

Male: Length 2.5 mm, 1.8 times as long as wide; color dark reddish brown. Frons from epistoma to vertex broadly, rather strongly convex; surface shining, densely, uniformly, rather coarsely punctured from eye to eye; vestiture apparently of rather sparse, short, fine hair in central area, much longer and more abundant on margins (especially above), tips of longest setae capable of reaching slightly beyond middle of frons length. Pronotum as long as wide; surface smooth, shining, punctures minute on posterior area of disc, distinctly larger toward anterior margin and much larger toward lateral margins; glabrous except for a few setae near anterior margin. Elytra 0.94 times as long as wide, 0.94 times as long as pronotum; striae very narrow, not impressed at base, distinctly impressed on posterior two-thirds, punctures very small, distinctly impressed; interstriae about five times as wide as striae, punctures uniseriate, rows impressed, almost equal in width and depth to striae, punctures very slightly smaller than those of striae; two or three short setae near apex on some interstriae. Declivity very weak; posterior margin smooth. Sternum 2 subvertical, meeting sternum 1 at an abrupt angle; 2 with a rather large, subcylindrical, blunt spine at middle of segment, surface of 2 rather coarsely, closely punctured; vestiture on 2 uniformly very short, each seta palmately divided into three to five filaments; sternum 3–5 dull, apparently obscurely punctured (setae abraded?).

Female: The holotype of *conidens* Browne appears to be this species; the frons is more strongly convex and the setae above the upper level of the eyes are much more dense.

Distribution: Argentina to Brazil.

Argentina: Misiones, Member, 12-I-1943, Hayward et al.

Brazil: Rio de Janeiro; Sao Paulo.

Notes: The above treatment was based on 1 female from Argentina that was compared by me to the Schedl series. The female holotype and all paratypes of *conidens* Browne were examined and quite clearly are synonymous with *caudatus* Eggers.

Scolytus cristatus Wood

Plate XXXVIII

Scolytus cristatus Wood, 1969:12. Holotype ♂; Lower Rio Tempisque, Guanacaste, Costa Rica; USNM, Washington (References in Wood & Bright c1992:328)

Diagnosis: Abdominal sternum 2 armed by a strong, laterally compressed spine (occupying middle half of segment) that does not attain either the anterior or posterior margin, the short setae simple, hairlike; male setae on frons mostly below upper level of eyes.

Male: Length 2.0–3.0 mm, 2.0 times as long as wide; color dark reddish brown. Frons with a weak transverse impression immediately above epistoma, almost flat from there to upper level of eyes; surfaces shining, moderately, convergently aciculate from epistoma to vertex; vestiture mostly below upper level of eyes, much longer and more abundant on and near lateral margins. Pronotum 1.0 times as long as wide; surface smooth, shining, punctures small, deep on disc, much larger on lateral fourths; glabrous. Elytra 1.1 times as long as wide, 1.1 times as long as pronotum; striae and interstriae narrowly, about equally impressed (except interstriae feebly impressed on basal third or less), punctures small, distinct, those of striae and interstriae about equal in size; interstitial punctures (near weak declivity) with a few short setae; posterior margin smooth. Sternum 2 subvertical, with a strong, median, laterally compressed carina occupying central half of segment, its highest point near posterior margin; surface of 2 with coarse, circular punctures, their interiors reticulate; setae moderately abundant, short, rather stout, simple.

Female: Similar to male except frons much more strongly convex, setae sparse, minute; carina on sternum 2 slightly smaller.

Distribution: Mexico (Jalisco) to Costa Rica and Venezuela.

Venezuela: 9 km S Barrancas, Barinas, 2-XII-1969, No. 159, "Batatillo" (a liana), SLW.

Hosts: Lianas "batatillo" and *Clematis* sp.

Biology: Transverse, biramous parental galleries in the phloem. The host stems were 4 to 10 cm in diameter.

Notes: The above treatment was based on the type series of 29 specimens from Costa Rica, 5 other specimens from Costa Rica, 9 from Mexico (Jalisco and Colima), and 51 from Venezuela.

Scolytus canellae Wood, n. sp.

Scolytus canellae Wood: Holotype ♂; in Barbasco root from Brazil intercepted at New York; USNM, Washington, designated below

Diagnosis: Male sternum with a minute tubercle near posterior margin, female unarmed; interstriae not impressed on basal half, weakly impressed behind; male frons closely punctured, becoming aciculate above.

Male: Length 3.2 mm, 1.7 times as long as wide; color reddish brown (mature?). Frons transversely flattened eye to eye, longitudinally rather weakly convex from epistoma to vertex; surface shining, closely, subaciculate punctured on lower half, punctures less definite, more coarsely aciculate above; median line just below middle weakly elevated and rather narrowly impunctate. Vestiture of abundant, fine, long hair uniformly distributed, slightly longer at margins. Pronotum 0.96 times as long as wide; surface shining, punctures moderately coarse, rather deep, mostly spaced by two to three diameters of a puncture; glabrous. Elytra 0.90 times as long as wide, 0.90 times as long as pronotum; striae moderately, narrowly impressed, punctures rather coarse, distinct; interstriae at least twice as wide as striae, smooth, shining, punctures uniseriate, each half as wide as those of striae, rows not impressed on basal half, distinctly impressed on posterior fourth; odd-numbered interstriae each with a sparse row of stout setae (a seta about equal in length to width of an interstriae. Sternum 2 with basal half vertical, junction with 1 abrupt (about 90 degrees), surface almost smooth, dull; punctures close, shallow (interiors shining), spaced by one-half to twice diameter of a puncture; a very small, median spine near (not on) posterior margin; sternum 5 with a strong submarginal costa on entire posterior margin; setae on 2–5 erect, rather stout, moderately abundant.

Female: Similar to male except frons similarly but more finely sculptured; sternum 2 without a spine.

Distribution: Brazil to Peru.

Type material: The male holotype and female allotype were taken in Barbasco root (?=*Canella* sp.) from Brazil intercepted at New York, 13-V-1940, lot No. 40-10064; 1 male paratype is from cube root from Peru intercepted 21-V-1960 at New York, 163400 lot 60-15792, Sedgwick et al. The holotype, allotype, and paratype are in the U.S. National Museum, Washington.

Scolytus venezuelensis Wood, n. sp.

Scolytus venezuelensis Wood: Holotype ♂; Union Orinoco-Ugueto TFA (Alto Orinoco), Venezuela; USNM, Washington, designated below

Diagnosis: Allied to *canellae* Wood except striae and interstriae about equally, narrowly impressed; male frons with punctures more widely spaced, not aciculate above, surface rather dull, obscurely subreticulate.

Male: Length 4.3 mm, 1.7 times as long as wide; color almost black. Frons rather dull, very obscurely reticulate, punctures small, rather deep, obscurely subaciculate in lateral areas, a slight median summit below middle. Vestiture sparse, dark, long, more abundant on lateral margins below upper level of eyes. Pronotum as in *canellae*. Elytra similar to *canellae* except striae and

interstriae narrowly sulcate to base, setae on odd-numbered interstriae on declivity. Abdomen with sterna as in *canellae*.

Distribution: Venezuela (Ter. Amazonas).

Type material: The male holotype was taken at "Union Orinoco-Ugueto TFA, 7-X-1951, Exp. Fco Ven., Alto Orinoco" [Ter. Amazonas, Venezuela]. The holotype is in the U.S. National Museum, Washington.

Scolytus propinquus Blandford

Scolytus propinquus Blandford, 1896:121. Syntypes, sex?; Mexico, Veracruz and Teapa in Tabasco, and Guatemala, Chacaoj; BMNH, London (Synonymy and references in Wood & Bright c1992:357) *Scolytus penicillus* Schedl, 1973:165. Holotype ♂; Veracruz, Mexico; NHMW, Wien

Diagnosis: Male vertical sternum 2 with vestiture abundant, very short, a large median spine at anterior margin, a penicillate tuft of long hair arising from its posterior basal margin, female without spine or tuft of hair; and setae hairlike, longer.

Male: Length 2.4–3.6 mm, 1.8 times as long as wide; color dark reddish brown, pronotum almost black. Frons almost flat from eye to eye from epistoma to slightly above upper level of eyes; surface subshining, obscurely reticulate at 80X (not at 40X), punctures small, not close, a moderately large, conical, median spine midway between epistomal margin and upper level of eyes; central area almost glabrous, lateral margins with a dense row of erect, long hair from near epistoma to well above upper level of eyes (not present on median half of upper margin). Pronotum 1.0 times as long as wide; surface smooth, shining, punctures on disc very small, rather close, spaced by 1–3 diameters of a puncture, coarse in lateral areas; glabrous except for a few setae near anterior margin. Elytra 0.93 times as long as wide, 1.0 times as long as pronotum; striae not impressed except some weakly near declivity, punctures small, rather strongly impressed; interstriae about twice as wide as striae, smooth, shining, punctures about one-half to two-thirds as large as those of striae; odd-numbered interstriae with a few setae. Abdominal sternum 2 vertical, angle with segment 1 abrupt (about 90 degrees); surfaces of segments 1–5 dull, closely punctured, bearing very short, abundant, stout hair; 2 with a large, somewhat laterally compressed, median spine at anterior margin, its posterior base bearing a conspicuous, large tuft of long, yellow hair; carina on posterior margin of sternum 5 subacute, not strongly elevated.

Female: Similar to male except frons without a spine, area below upper level of eyes, from eye to eye, with a large tuft of long hair; spine and tuft on sternum 2 absent, setae on 2–5 hairlike, longer.

Distribution: Mexico (Chihuahua to Veracruz) and Cuba to Costa Rica.

Hosts: *Inga paterno*, *Lonchocarpus* spp.

Biology: Transverse, biramous parental galleries are bored in limbs and boles larger than 5 cm in diameter.

Two females are normally associated in a gallery with each male.

Notes: The above treatment was based on 96 specimens, 2 males of which were compared to Blandford's syntypes. This species has not been recorded from South America, but could occur there in northern areas where appropriate hosts are present.

Scolytus proximus Chapuis

Plate XLI

Scolytus proximus Chapuis, 1980:57. Holotype ♀; Nouvelle Granada; IRSNB, Brussels (References in Wood & Bright c1992:357)

Diagnosis: Male frons more strongly convex, more coarsely punctuated than in *propinquus* Blandford, without any long setae on lateral margins; sternum 2 with a large, laterally compressed spine, setae include both palmate and simple setae.

Male: Length 2.5 mm, 1.9 times as long as wide; color dark reddish brown. Frons rather strongly convex, reticulate to vertex, punctures moderately coarse; a moderately large, somewhat dorsoventrally compressed median elevation about midway between epistoma and upper level of eyes; vestiture sparse, hairlike, rather short, longer in lower, lateral areas. Pronotum 1.0 times as long as wide; surface smooth, shining, most punctures on disc appearing very feebly subvulcanate, very small on disc, becoming very coarse toward anterior and lateral margins; glabrous except for sparse hair at margins. Elytra 1.0 times as long as wide, 1.0 times as long as pronotum; striae feebly impressed on posterior half, punctures rather small, distinct; interstriae three times as wide as striae, weakly impressed on posterior half, punctures slightly smaller than those of striae, smooth, shining; vestiture of rather stout, suberect bristles on posterior half of interstriae 1–3, one or two setae on 4–9, with two or three additional setae on 5 and 7. Sternum 2 subvertical, somewhat convex, a large, laterally compressed spine at anterior margin, punctures rather coarse, with two kinds of setae, 60 percent plumose, about 40 percent stout bristles of moderate length, sterna 3–5 with only bristles.

Distribution: Colombia to Venezuela.

Colombia: "Nouvelle Grenada."

Venezuela: 9 km S Barrancas, Barinas, 1-X-1969, 150 m, No. 31, "Haevea," SLW.

Hosts: Apparently *Lonchocarpus* sp., identified by a local campesino as "haevea."

Notes: One male was walking on the outer bark of a log 30 in cm diameter. That male I compared directly to the holotype.

Scolytus torulus Wood

Scolytus torulus Wood, 1975:25. Holotype ♂; Rincon de Osa, Puntarenas, Costa Rica; USNM, Washington (References in Wood & Bright c1992:378)

Diagnosis: See description.

Male: Length 2.0–2.4 mm, 2.0 times as long as wide; color dark reddish brown. Frons about as in *proximus* Chapuis except shining above upper level of eyes, tubercle slightly smaller, punctures smaller, setae on upper half much longer, slightly more numerous. Pronotum about as in *proximus* except punctures on disc not at all subvulcanate. Elytra about as in *proximus* except setae almost absent from interstriae 2. Sternum 2 without any palmately divided setae, median spine much smaller.

Female: Similar to male except frontal tubercle absent, setae on lateral and dorsal margins much more abundant, longer; median spine on sternum 2 half as large as in male, all setae simple (no palmately divided setae). It is entirely possible that my "female" is a male that lacks a frontal tubercle and has longer than normal setae (for a male).

Distribution: Costa Rica: Rincon, Osa Peninsula, 11-VIII-1966, 30 m, No. 72, legume tree.

Hosts: Leguminosae tree (presumably *Lonchocarpus* sp.), 30 cm in diameter.

Notes: The above treatment was based on the type series of 11 specimens.

Scolytus marginatus Chapuis

Scolytus marginatus Chapuis, 1869:56. Holotype ♀; Yucatan, Mexico; IRSNB, Brussels (References in Wood & Bright c1992:344)
Scolytus productus Hagedorn, 1905:547. Holotype ♂; San Esteban, Venezuela; MNHN, Paris

Diagnosis: See description.

Male: Length 2.5 mm, 2.1 times as long as wide; color dark reddish brown. Frons more strongly convex than males of allied species; tubercle not as high, dorsoventrally compressed, weaker than in *laetus* Wood; punctures coarser; reticulation near epistoma and above upper level of eyes reduced, smooth, shining; setae short, sparse (even less than in *proximus* Chapuis). Pronotum and elytra about as in allied species. Sternum 2 spine not laterally compressed, rather long, pointed; surface dull on 2–5 (largely covered by an incrustation), setae simple, fine, hairlike, rather short.

Distribution: Mexico: Yucatan, Deyr.

Notes: The above treatment was based on the holotype of *marginatus* Chapuis. The holotypes of *proximus*, *torulus* Wood, *laetus* Wood, and *marginatus* were all compared directly to one another for these notes. It is probable that *productus* Hagedorn (not seen) is a synonym of *proximus*, rather than of *marginatus*.

Scolytus laetus Wood

Scolytus laetus Wood, 1975:25. Holotype ♂; 48 km N Rosamorada, Nayarit, Mexico; USNM, Washington (References in Wood & Bright c1992:339)

Diagnosis: See description below.

Male: Length 2.4–2.5 mm, 2.2 times as long as wide; color dark reddish brown. Frons similar to *torulus* Wood except less strongly convex, frontal tubercle lower, more

dorsoventrally compressed, setae on lateral margin coarser; longer. Pronotum about as in *torulus* except punctures distinctly larger. Elytra as in *torulus* except striae and interstriae punctures slightly larger. Sternum 2 with median spine larger; its dorsal, apical angle more prominent.

Female: Distinguished from female *torulus* by lateral setae on lower half of frons much longer and more abundant, those on dorsal margin very sparse, shorter; sternum 2 unarmed.

Distribution: Mexico: Nayarit, 30 km N Rosamorada, 15-VII-1965, 100 m, No. 251, *Inga paterno*, SLW.

Notes: The above treatment was based on the type series of 5 specimens.

Scolytus peruensis Schedl

Scolytus peruensis Schedl, 1937:157, 160. Lectotype ♂; Rio Toro, La Merdet Chanchamayo, Peru; NHMW, Wien, designated by Schedl 1979:192 (References in Wood & Bright c1992:356)

Diagnosis: Distinguished from *barinensis* Wood by the less definite central tubercle on the male frons; by the much more abundant vestiture on the male frons; by the more finely punctured pronotum; and by the very different sculpture of the elytra.

Male: Length 3.2–3.4 mm, 1.9 times as long as wide; color dark reddish brown, pronotum almost black. Frons on upper two-thirds to vertex obscurely subaciculate, small punctures in rows mostly confluent, elevations between rows of punctures irregular, not forming continuous costae; central tubercles much less definite than in *barinensis*; a moderate, transverse impression immediately above epistoma, punctation in impressed area continued from above, but much smaller, not as deep; vestiture hairlike, fine, sparse, short in central area, moderately abundant, longer on sides to upper level of eyes, dense, darker and much longer on dorsal margin. Pronotum 1.0 times as long as wide; sides almost straight and parallel on basal half, arcuately converging toward broadly rounded anterior margin; surface smooth, shining, punctures on disc minute, becoming 4 or more times larger at anterior margin, larger in lateral areas; glabrous except sparse setae at margins. Elytra 0.90 times as long as wide, 0.90 times as long as pronotum; striae weakly impressed, punctures small, distinctly impressed; interstriae almost four times as wide as striae, smooth, shining, punctures mostly minute, less than half as large as those of striae, some on apical fourth as large as those of striae; declivital slope on apical fourth much weaker than in *barinensis*; vestiture of very sparse interstitial hair on apical fourth. Sternum 2 subvertical, junction with 1 abrupt, median spine occupying middle half of segment length (not attaining anterior margin or posterior margin), laterally compressed, length on type appearing altered by sibling chewing; surface of 2–5 dull, punctures on 3–5 very small, moderately close; vestiture entirely abraded on type.

Female: Similar to male except pseudoaciculation on frons weaker; vestiture much less abundant, especially above eyes; median spine on sternum 2 longer than wide, its apex narrowly rounded; setae on 2–5 of very short, stout, almost scalelike hair.

Distribution: Peru: Rio Toro, La Merced on Rio Chanchamayo (32 mi. NE Tarma).

Notes: The above treatment was based on the male holotype and female allotype from Peru.

Scolytus barinensis Wood

Plate XXXVI

Scolytus barinensis Wood, 1971:18. Holotype ♂; Campamento Cachicamo, 40 km E Canton, Barinas, Venezuela; USNM, Washington (References in Wood & Bright c1992:325)

Diagnosis: Male frons closely aciculate to median line, a rather small, median tubercle at middle; male sternum 2 armed on anterior two-thirds by a strongly compressed carina (about half as high as its basal length); female frontal tubercle almost obsolete, carina on sternum 2 similar but smaller than in male.

Male: Length 2.0–2.9 mm, 1.7 times as long as wide; color very dark reddish brown, pronotum black. Frons shining, transversely, modestly impressed on lower third, weakly convex and moderately aciculate above to median line, a moderate, subconical, median tubercle at center of area below upper level of eyes; lower third finely, closely tuberculate except on epistomal margin; vestiture mostly below upper level of eyes, of moderately abundant, fine, long hair, longer on lateral margins. Pronotum 1.0 times as long as wide; surface smooth, shining, punctures moderately coarse on disc, deep, spaced by about 1–3 diameters of a puncture, slightly larger in lateral areas; glabrous except for a few hairlike setae near anterior margin. Elytra 0.82 times as long as wide, 0.82 times as long as pronotum; striae distinctly impressed at base, more strongly toward apex, punctures rather small, strongly impressed; interstitial punctures at least two-thirds as large as those of striae, interstitial rows feebly impressed at base, almost as deep as those of striae at apex. Declivity modest; posterior margin smooth. Vestiture hairlike, confined to declivity on odd-numbered interstriae. Sternum 2 vertical, dull; anterior two-thirds armed by a strong median carina, its crest longitudinally convex, about half as high as longitudinal length; vestiture of moderately long, coarse hair.

Female: Similar to male except frontal tubercle much smaller to obsolete, vestiture shorter, less numerous; carina on sternum 2 distinctly smaller.

Distribution: Venezuela: 40 km E Canton, Barinas, 8-III-1970, 70 m, No. 356, 381, "Hevecito" (?*Lonchocarpus* sp.), SLW.

Biology: Parent galleries were biramous and transverse. Two females were associated with each male in a gallery system.

Notes: The above treatment was based on the type series of 99 specimens.

Scolytus carinatus Chapuis

Scolytus carinatus Chapuis, 1869:55. Lectotype ♂; Cartagena, Bolivar, Colombia; IRSNB, Brussels, present designation (References in Wood & Bright c1992:325)

Scolytus atratus Chapuis, 1869:58. Holotype ♂; Colombia; IRSNB, Brussels, present limitation (Wood & Bright c1992:324). *New synonymy*

Diagnosis: Distinguished from *barinensis* Wood by the near absence of frontal aciculation, median tubercle smaller, setae above eyes in male dense, reddish brown; spine on male sternum 2 straight, on its apical margin, both apical angles abrupt.

Male: Length 2.8–3.3 mm, 1.9 times as long as wide; color dark reddish brown, pronotum almost black. Frons weakly convex; tubercle about as in *barinensis*; upper area rather finely, closely punctured to median line, aciculation obscure to absent; surface in transverse impression on lower third somewhat granular; tubercles not evident; setae on margin above eyes reddish brown, dense, very long; setae below upper level of eyes similar to *barinensis*. Pronotum as in *barinensis* except punctures on disc slightly smaller. Elytra as in *barinensis* except both striae and interstriae punctures distinctly smaller. Sternum 2 as in *barinensis* except median spine longer (laterally more strongly compressed), its apical margin straight, both anterior and posterior apical angles abrupt (posterior angle subacute).

Female: See notes below; this female could be a species different from male. Similar to male except frons reticulate, punctures sparse, fine, median tubercle replaced low callus; frontal vestiture very sparse, short, none above upper level of eyes; striae punctures feebly impressed, interstriae not impressed, punctures minute; sternum 2 with spine chewed by siblings, only base still present.

Distribution: Colombia: Cartagena [Bolivar], Dejean.

Notes: Although 2 males are cited by Chapuis in the original description, only 1 is now present under this name in his collection. This male is here designated as the lectotype of *carinatus* Chapuis. The second male (from Colombia) now bears the “Chapuis” (?) identification tag of *atratus* Chapuis and is placed as the first of 2 specimens in the *atratus* series. The female holotype of *atratus*, that was the basis for the description, is incorrectly now placed as the second specimen of *atratus*. There is some doubt that the female of *atratus* is of the same species as the 2 males of *carinatus*, even though she bears the locality data of the lectotype of *carinatus*. Although listed above as synonyms in order to call attention to this problem, more material is needed to properly resolve this problem.

Scolytus novateutonicus Schedl

Plate XL

Scolytus novateutonicus Schedl, 1937:162. Syntypes ♂ ♀; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien, and Plaumann and Strohmeier (DEI, Munchenberg) Collections (Wood & Bright c1992:355)

Diagnosis: Median elevation on frons of both sexes a low, laterally compressed carina on middle one-third; setae on frons mostly below upper level of eyes in both sexes; male spine on abdominal sternum 2 a simple sword.

Male: Length 3.6–4.3 mm, 1.9 times as long as wide; color dark reddish brown, pronotum almost black. Frons weakly convex; middle third on median line with a rather low, laterally compressed carina, median line above carina smooth, impunctate on median one-seventh, lateral areas rather coarsely aciculate; lateral areas on lower third somewhat aciculate-granulate; vestiture of fine, long, moderately abundant hair from epistoma to upper level of eyes, longer on lateral margins, similar but rather sparse above eyes. Pronotum 1.0 times as long as wide; surface smooth, shining, punctures on disc minute, distinctly larger laterally and near anterior margin; a few hairlike setae near anterior margin. Elytra about 1.0 times as long as wide, 1.0 times as long as pronotum; striae weakly to not impressed, punctures small; interstriae about three times as wide as striae, punctures about one-half to two-thirds as large as those of striae, a few rows weakly impressed on posterior half. Declivity rather weak, posterior margin smooth. Vestiture of stout hair on posterior half of odd-numbered interstriae except near apical margin. Sternum 2 vertical; median spine (its base on anterior one-third) large, swordlike, modestly, laterally compressed, tapered to blunt apex, its dorsoapical angle subacute; vestiture of fine long hair; setae on sternum 5 short, rather abundant near apical margin.

Female: Similar to male except frontal carina and aciculation finer; frontal setae shorter but more numerous; spine on sternum 2 about one-third as large (apex more nearly pointed).

Distribution: Argentina to Brazil.

Argentina: Juto, Jujuy, 14-III-1957, F. Monros; Tabillas, Salta, G.L. Harrington.

Brazil: Nova Teutonia, Santa Catarina.

Notes: The above treatment was based on 3 males and 2 females from Argentina. Two of the males were compared by me directly to Schedl's male syntypes at the NHMW, Wien.

Scolytus submarginatus Schedl

Plate XLII

Scolytus submarginatus Schedl, 1937:163. Syntypes, sex?; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien, Plaumann, and Strohmeier (DEI, Munchenberg) Collections (References in Wood & Bright c1992:377)

Diagnosis: Distinguished from *novateutonicus* Schedl by the much stronger brush of hair on the frons above the upper level of the eyes; by the stronger male frontal tubercle that is larger and obscurely, dorsoventrally compressed, with the impunctate area above the tubercle much larger; and by the smaller average size.

Male: Length 2.5–4.0 mm, 2.0 times as long as wide; color rather dark reddish brown, pronotum darker. Frons convex except transversely impressed on lower one-fourth; finely, closely, subacutely punctured, moderately large tubercle near center weakly, dorsoventrally compressed, median one-fourth above tubercle smooth, impunctate from tubercle to vertex; vestiture mostly on lateral margins, long, rather abundant, at least half of setae above upper level of eyes. Pronotum 1.03 times as long as wide; surface smooth, shining, punctures small on disc, distinctly larger near anterior margin, twice as large near lateral margins, glabrous except a few hair-like setae in lateral areas on anterior third. Elytra 1.03 times as long as wide, 1.0 times as long as pronotum; striae feebly to not at all impressed, punctures small, distinctly impressed; interstriae three to four times as wide as striae, smooth, shining, punctures very small (half as large as those of striae), in uniseriate rows (rows not at all impressed, including declivity); odd-numbered interstriae on posterior half with rows of suberect hairlike setae. Sternum 2 subvertical with a large, tapered spine on anterior third, its base slightly, laterally compressed.

Female: Similar to male except frontal tubercles absent, dorsal margin of vertex with a dense row of long setae, their color dark reddish brown; spine on sternum 2 less than half as large.

Distribution: Brazil to Paraguay.

Brazil: Rondon, Parana, 24°38'S, 54°07'W, 500 m, F. Plaumann; Nova Teutonia, Santa Catarina, 20-V-1935, IV-1947, XI-1956, 300–500 m, F. Plaumann.

Paraguay: (Cited in Wood & Bright c1992:337).

Notes: The above treatment was based on 27 specimens from Brazil, 1 male of which I compared to Schedl's male syntypes of *submarginatus*. In 2 females from Nova Teutonia (1935) the female brush of upper setae on the vertex is absent, although the impressions for their insertion are present.

Scolytus obscuriceps Wood, n. sp.

Plate XL

Scolytus obscuriceps Wood: Holotype ♂; Rio Caraguata, Brazil, 24°48'B, 52°27'W, 400 m; DEI, Muncheberg, designated below

Diagnosis: Distinguished from *submarginatus* Schedl by the smaller size; by the much stronger, dorsoventrally compressed median elevation of the male frons, with upper area much more broadly impressed and impunctate on at least median half, lower frons more strongly, more broadly impressed; striae and interstriae punctures slightly larger; spine on sternum smaller (two-thirds as large as in *submarginatus*).

Male: Length 3.4–3.6 mm, 2.0 times as long as wide; color almost black. Frons with a strong dorsoventrally compressed elevation on median third of length of frons below upper level of eyes, this elevation resembling a crest (rather than a tubercle); upper surface flattened and impunctate on slightly more than central half

(impunctate area twice as wide as in *submarginatus*); vestiture resembling *submarginatus* except number of setae on vertex reduced. Pronotum and elytra about as in *submarginatus* except sparse on odd-numbered interstriae, about half as long; spine on sternum 2 similar but half as large as in *submarginatus*.

Distribution: Brazil (Rio Caraguata).

Type material: The male holotype, female allotype, and 3 male paratypes are labeled Brasilien, Rio Caraguata, 24°48'B, 52°27'W, 21-IV-1953, 400 m, F. Plaumann. The holotype, allotype, and 2 paratypes are in the DEI, Muncheberg. One paratype is in the U.S. National Museum.

Brazil (non-types): ESALQ campus, Piracicaba, Sao Paulo, 11-VIII-1973, *Eucalyptus* sp., G.J.M (4 specimens).

Scolytus nodulus (Wichmann)

Scolytus nodulus (Wichmann), 1915:102 (*Eccoptogaster*). Holotype ♀; Petropolis (nordlich von Rio de Janeiro), Brazil; data not given (Synonymy and references in Wood & Bright c1992:355)

Eccoptogaster nodicornis Wichmann, 1915:216. Syntypes, sex?; Brazil: Ypanema; Natterer Collection and NHMW, Wien

Diagnosis: Distinguished from male *submarginatus* Schedl by the much higher frontal tubercle and wider impunctate area above tubercle (more than one-third of distance between eyes); by the more slender spine on sternum 2; and by the larger size.

Male: Length 4.9 mm, 1.8 times as long as wide; color very dark reddish brown. Frons more nearly flat than in *submarginatus*, with central tubercle higher, subacutely elevated, median impunctate area above tubercle much wider (equal to at least one-third distance between eyes). Pronotum about as in *submarginatus*. Elytra similar to *submarginatus* except striae at least moderately impressed, interstriae usually impressed on declivity. Sternum 2 with median spine more slender, not longer. Vestiture on sternum 5 more abundant, more widely distributed.

Distribution: Brazil: Rio de Janeiro; Curitiba, Parana, 28-XI-1937, Claretiano; Ypanema.

Notes: The above treatment was based on one male from Brazil that was compared by me to Schedl's series.

Scolytus dimidiatus Chapuis

Plate XXXIX

Scolytus dimidiatus Chapuis, 1869:57. Lectotype ♀; Toxpan, Veracruz, Mexico; IRSNB, Brussels, present designation (References in Wood & Bright c1992:329)

Diagnosis: Male median frontal elevation dorsoventrally compressed, its transverse length equal to one-sixth of the distance between the eyes, smooth, impunctate area above median elevation equal to more than half distance between the eyes; spine on male abdominal sternum 2 tapered from its base to its apex, usually with a penicillate tuft of hair at its posterior base; female

frons with a dense brush of hair above upper level of eyes.

Male: Length 2.1–3.3 mm, 1.9 times as long as wide, color dark reddish brown. Frons weakly convex above, moderately, transversely impressed on more than lower third; median tubercle dorsoventrally compressed, occupying median one-sixth of area between eyes; impunctate area above tubercle occupying more than median half; lateral areas rather finely punctured, not aciculate; vestiture almost restricted to lateral margins, forming a dense row at margin from epistoma to upper level of eyes, almost glabrous above eyes. Pronotum about as long as wide; surface smooth, shining; punctures on disc fine, distinctly larger near anterior margin, much larger in lateral areas; vestiture restricted to a few hairlike setae on margins on anterior half. Elytra 0.94 times as long as wide, 0.94 times as long as pronotum; striae distinctly, rather weakly impressed, punctures small, distinct; interstriae three to four times as wide as striae, surface smooth, shining, punctures uniseriate, half as large as those of striae, rows not impressed; vestiture restricted to a few setae on posterior half of odd-numbered interstriae. Sternum 2 vertical, median spine at anterior margin large, tapered, with a small tuft of hair at its posterior base.

Female: Similar to male except dorsal margin of frons above eyes with a dense brush of very long, yellowish brown hair, central tubercle absent; spine on sternum 2 much smaller; tuft of hair absent.

Distribution: Mexico (Veracruz) and Cuba to Venezuela.

Venezuela: 40 km E Canton, Barinas, 5-III-1970, 70 m, Nos. 345, 385, 388, *Lonchocarpus margaritensis*, No. 344 from an unidentified liana, SLW.

Hosts: *Lonchocarpus margaritensis*, *L.* spp. and an unidentified, large liana.

Biology: Parental tunnels were biramous and transverse in the cambium area. Two females were usually associated with 1 male in a gallery system.

Notes: The above treatment was based on the 5 male and 3 female syntypes in the Chapuis Collection (he had the sexes reversed), 36 specimens from Mexico and Central America, and 240 specimens from Venezuela. The first specimen in the Chapuis series of syntypes, a female from Toxpam [Veracruz, Mexico], is here designated as the lectotype of *dimidiatus* Chapuis.

Scolytus thoracicus Chapuis

Plate XLIII

Scolytus thoracicus Chapuis, 1869:55. Lectotype ♂; Brazil; IRSNB, Brussels, present designation (Synonymy references in Wood & Bright c1992:378)

Eccoptogaster brevicauda Wichmann, 1915:104. Holotype, sex?; Boa Sorta, Minas Geraes, Brazil; data not given

Diagnosis: Distinguished by the “stepped” median spine on sternum 2 in both sexes; by the strong, transverse elevation on the male frons; and by the convex, finely subaciculate female frons with short, moderately abundant setae.

Male: Length 3.0–4.2 mm, 1.9 times as long as wide; color dark reddish brown, pronotum darker. Frons flattened on dorsal half, rather strongly, transversely impressed on lower third, median tubercle rather strongly, dorsoventrally compressed, transversely subcarinate on median half; upper area smooth, usually dull on more than median half, rather coarsely, closely punctured in lateral areas; vestiture very long, largely restricted to dense rows on lateral margins from near epistoma to slightly above eyes, very sparse on upper margin. Pronotum 1.0 times as long as wide; surface smooth, shining, punctures on disc very small, rather close, slightly larger toward anterior and lateral margins; glabrous except for sparse setae near anterior margin. Elytra 1.0 times as long as wide, 1.0 times as long as pronotum; striae weakly, narrowly impressed, punctures small, spaced by diameter of a puncture; interstriae smooth, shining, three to four times as wide as striae, punctures uniseriate, each half as large as those of striae, some rows weakly impressed near declivity (usually 3, 5). Vestiture almost hairlike, restricted to posterior fourth on 1, 3, and 5, sparse near declivity elsewhere. Sternum 2 vertical, armed by a median, laterally compressed spine on more than anterior half, its posterior two-thirds half as high as its longitudinal base, its anterior one-third conspicuously higher (usually twice as high as posterior area); vestiture of fine, long, moderately abundant hair.

Female: Similar to male except frons convex, tubercle (carina) absent; punctures fine, coarse, rather weakly aciculate; vestiture of fine, uniformly distributed, moderately short hair, extending above upper level of eyes; spine on sternum 2 two-stepped as in male but much smaller.

Distribution: Brazil: “Bresil, Deyr.”; Nova Teutonia, Santa Catarina, 27°11'B, 52°23'L, 14-VIII-1934, IX-1934, XI-1956, F. Plaumann.

Notes: The above treatment was based on the 2 male syntypes in the Chapuis Collection and on 16 specimens from Nova Teutonia. The first male syntype is here designated as the lectotype of *Scolytus thoracicus* Chapuis.

Species Not Seen

Scolytus transversalis Eggers

Scolytus transversalis Eggers, 1943:375. Holotype, sex?; Cochabamba, Bolivia; MNHN, Paris; not found (References in Wood & Bright c1992:378)

TRIBE CTENOPHORINI

Description: Frons sexually dimorphic, male impressed in *Pycnarthrum* and *Gymnochilus*, impression obscure in *Microborus*, male convex and female variously sculptured and ornamented in *Scolytodes*. Eye usually elongate, its anterior margin entire to sinuate. Antennal scape elongate; funicle 5–6-segmented, 7-segmented in *Gymnochilus*; club with or without sutures. Pronotum with anterior slope armed or not, its lateral margins costate; procoxae widely separated. Protibia with 1 or more socketed denticles moderately to usually embedded in cuticle on lateral margin, spine at lateral apical angle usually extending beyond level of tarsal insertion.

Biology: The biology of *Scolytodes* is unusually diverse. The other 3 genera are more similar to one another. All are monogynous, except for a few polygynous *Scolytodes*.

All are phloeophagous, except *Scolytodes multistriatus* is xylophagous and many of the species in *Cecropia* petioles are myelophagous. Parental galleries in *Pycnarthrum* and *Gymnochilus* are transversely biramous; in *Microborus* they are indefinite, largely nondirectional and without a definite pattern. In *Scolytodes* they vary from an indefinite to elongate cave to stellate (in polygynous species). The eggs may be deposited in irregular clusters in the frass of parental galleries or placed in crude niches. Definite niches are formed in *Pycnarthrum* and *Gymnochilus*. The larvae feed communally in some *Scolytodes*; they form individual mines in the other three genera. Except for those species that have been transported abroad through commerce, all members of this tribe are restricted to the American tropics.

Key to the Genera of Ctenophorini
(Adapted from Wood 1986:60)

- | | | |
|-------|--|---------------------------|
| 1. | Eyes elongate, usually approximate above and below, coarsely faceted, shallowly emarginate; entire surface of pronotum smooth and punctured, not armed | 2 |
| — | Eye oval, entire, finely faceted, pronotum asperate on anterior areas or, if smooth, then anterior margin of elytra bearing a fine, raised line | 3 |
| 2(1). | Antennal club subglobular, about as long as wide, sutures not clearly indicated; pronotum longer than wide, its lateral margins straight or feebly constricted; vestiture hairlike, usually sparse; small, slender species; phloeophagous; 1.1–1.5 mm | <i>Microborus</i> |
| — | Antennal club asymmetrically flattened, pointed, at least 1.5 times as long as wide, sutures 1 and 2 clearly marked by setae; pronotum wider than long, its lateral margins arcuate; vestiture of abundant, short, bristlelike scales; larger, stouter species; phloeophagous; 1.3–2.1 mm | <i>Pycnarthrum</i> |
| 3(1). | Antennal funicle 7-segmented, club large, broad, usually with procurved sutures or sutures obsolete; elytral vestiture consisting of abundant, minute hair and sparse interstitial rows of long, erect, scalelike bristles, summit of pronotum on basal third, asperities on anterior area coarse; elytral base without a fine, raised line; phloeophagous; 1.5–2.3 mm | <i>Gymnochilus</i> |
| — | Antennal funicle 5- or 6-segmented, club small, sutures present or not; elytral vestiture (usually) sparse, hairlike; pronotal asperities fine, if present; summit at middle or indefinite; basal margins of elytra marked by a fine, raised line; mostly phloeophagous; 0.9–3.5 mm | <i>Scolytodes</i> |

GENUS *MICROBORUS* BLANDFORD

Microborus Blandford, 1897:175. Type-species: *Microborus boops* Blandford, monobasic (References in Wood & Bright c1992:383–384)
Pseudocrypturgus Eggers, 1919:236. Type-species: *Pseudocrypturgus camerunus* Eggers = *Microborus boops* Blandford, monobasic (Synonymy and references in Wood & Bright c1992:383)

Diagnosis: Antennal club subglobular, sutures not clearly indicated; funicle 6-segmented; vestiture hairlike; body slender.

Description: Body elongate. Frons obscurely dimorphic; antennal scape elongate; funicle 6 segmented, club subglobular, sutures not clearly indicated; vestiture sparse, hairlike; sculpture very conservative.

Distribution: Eight species were reported by Wood & Bright (1992:383–384) of which 4 have been recorded from South America. One species (*boops* Blandford) was transported through commerce to tropical Africa. Wood (1982:452–453) presents a key to 7 of the species. The eighth species, *bicolor* Eggers, is known only from the holotype.

Biology: This genus is unique. The species infest the thick bark of tropical trees in the cork cambium (at the fracture point near the middle of thick outer bark in some tropical trees) where they make long, wandering tunnels. The larvae are comparatively few in number and may not emerge between generations. Apparently more than 1 generation can develop in bark of the same prostrate tree.

Key to the Species of *Microborus*

- 1. Punctures on at least discal interstriae 3 and 4 minute, almost obsolete, very widely spaced; eyes spaced above by 0.82 times width of an eye; vestiture absent except sparse and minute on declivity; tubercles on male declivity small, not larger than in female; French Guyane; 1.3 mm *bicolor* Eggers
- Punctures on discal interstriae closer, more regular; elytral vestiture more abundant, longer; one or more tubercles on male declivital interstriae 2 conspicuously larger than on female 2
- 2(1). Eyes broadly separated above by twice width of an eye; tubercles on male declivital interstriae 2 only slightly enlarged; setae on all declivital interstriae uniseriate, none longer than distance between rows; crest of subapical declivital carina (apex of interstriae 9 to costa) of almost uniform height, only feebly serrate; Venezuela; *Clusia*; 1.4–1.5 mm *lectus* Wood
- Eyes narrowly separated above by half width of an eye; one to four enlarged tubercles on each male declivital interstriae 2; setae (except on a few females) on at least declivital interstriae 2 abundant, confused, most much longer than distance between rows; crest of subapical declivital carina more distinctly serrate 3
- 3(2). Discal striae more strongly impressed, as wide or wider than interstriae; setae on declivital interstriae as long as distance between rows, those on 3 usually uniseriate; crest of subapical declivital carina strongly serrate; Guatemala to Panama, etc.; *Rheedia*, lianas, etc.; 1.2–1.4 mm *boops* Blandford
- Declivital striae feebly impressed, narrower than interstriae; setae on declivital interstriae up to two or more times longer than distance between rows, those on 3 abundant and confused; crest of subapical declivital carina only moderately serrate; Venezuela and Suriname to Brazil; *Clusia*, etc.; 1.3–1.4 mm *aberrans* Wichmann

Microborus bicolor Eggers

Microborus bicolor Eggers, 1933:19. Holotype ; Nouveau Chantier, French Guyane; MNHN, Paris (References in Wood & Bright c1992:383)

Diagnosis: See description.

Female: Length 1.4 mm, 2.6 times as long as wide; color very dark brown, elytra reddish brown. Frons as in *ambitius* Wood except reticulation coarser; eyes separated above by 0.82 times width of an eye. Pronotum 1.22 times as long as wide; stouter than *ambitius*, with

punctures slightly deeper, closer. Elytra 1.6 times as long as wide, 1.5 times as long as pronotum; stouter but outline similar to *ambitius*; disc as in *ambitius* except interstitial punctures smaller, closer. Declivity as in *ambitius* except striae punctures distinctly smaller, interstriae proportionately very slightly wider, granules indistinctly larger; ventrolateral margin much less strongly elevated. Declivital vestiture short as in *ambitius* but very slightly stouter.

Distribution: French Guyane: Bas Carsvenne, 1899, F Geay.

Notes: The above treatment was based on the female holotype of *bicolor* Eggers from notes made by me on 27 June 1972.

Microborus lectus Wood

Plate XLIV

Microborus lectus Wood, 1971:17. Holotype ♂; La Carbonera Experimental Forest 50 km NW Merida, Merida, Venezuela; USNM, Washington (References in Wood & Bright c1992:384)

Diagnosis: Eyes separated above by about twice width of an eye; setae on all declivital interstriae uniseriate, none longer than distance between rows; male declivital interstriae 2 with tubercles small.

Male: Length 1.4–1.5 mm, 2.8 times as long as wide; color rather dark reddish brown. Frons moderately convex, a slight elevation just above level of antennal insertion, a weak, transverse impression just above epistoma; surface shining except reticulate at sides and above; punctures sparse, moderately coarse; eyes separated above by twice width of an eye. Pronotum 1.4 times as long as wide; sides weakly constricted, almost straight on basal three-fourths, broadly rounded in front; surface weakly reticulate, punctures rather coarse, deep, close, oval; glabrous. Elytra 1.8 times as long as wide, 1.5 times as long as pronotum; striae rather strongly impressed, punctures coarse, deep, close; interstriae as wide as striae, smooth, shining, rather strongly convex, punctures fine, uniseriate, rather widely spaced. Declivity steep, convex; striae strongly impressed except lower half of 1, punctures strongly reduced, minute on 1; interstriae strongly narrower on left side, moderately so on right, 2 feebly elevated and armed by three to six small teeth (not equal on both sides), 3 and 4 convex, unarmed, continuing to 7, 7 strongly, acutely elevated and continued to apex. Vestiture confined to declivity, of coarse, rather short interstitial hair, a few scales on 1 and 2.

Female: Similar to male except pronotum more finely sculptured; elytral declivity about as on disc except interstitial punctures very finely granulate and punctures on striae 1 much smaller; declivital interstriae 2 only moderately elevated; without any scales on declivity.

Distribution: Venezuela: La Carbonera Experimental Forest 50 km NW Merida, Merida, 14-X-1969, 2500 m, No. 57, *Clusia*, SLW.

Biology: Most galleries were in the cork cambium fracture-point in thick bark of old, prostrate trees from which other bark beetles had previously emerged. It appeared that more than one generation developed in the same log. Parental galleries were not clearly defined, few larvae developed from each gallery system.

Microborus boops Blandford

Microborus boops Blandford, 1897:175. Holotype ♀; Tamahu, Alta Verapaz, Guatemala; BMNH, London (Synonymy and references in Wood & Bright c1992:383)

Pseudocrypturgus camerunus Eggers, 1919:236. Syntypes, sex?; Kamerun; Hamburg Museum, lost, 1 in NHMW, Wien

Diagnosis: Eyes separated above by one-half diameter of an eye; setae on male declivital interstriae 2 and 3 strongly confused, rather long; discal striae impressed, narrower than interstriae.

Male: Length 1.2–1.4 mm, 2.7 times as long as wide; color dark reddish brown. Frons with eyes separated above by half width of an eye, reticulate and finely, sparsely punctured above, smooth below, with punctures of irregular size; vestiture sparse, hairlike, inconspicuous. Pronotum about as in *lectus* Wood, except surface weakly reticulate, punctures slightly smaller, not as deep. Elytral disc similar to *lectus*, striae punctures slightly smaller, interstriae less strongly convex. Declivity with interstriae 2 distinctly elevated and armed by two to four small denticles (enlarged granules, those on opposite elytron may differ), setae on 2 abundant, confused, on 1–4 little if any longer than distance between rows; no scales.

Female: Similar to male except striae less strongly impressed; declivital interstriae 2 not elevated or armed by tubercles, and setae uniseriate.

Distribution: Guatemala and Jamaica to Panama, introduced to tropical Africa. Not yet recorded from South America, but probably introduced there through commerce.

Hosts: *Clusia*, *Rheedia*, and a large liana.

Biology: As described for *lectus*.

Notes: The above treatment was based on 59 specimens from Jamaica, Guatemala, Honduras, Panama, and Africa. The holotypes of *boops* Blandford and *camerunus* Eggers were examined and compared to my material.

Microborus aberrans Wichmann

Plate XLIV

Microborus aberrans Wichmann, 1914:143. Syntypes, sex?; Nouveau Chantier, French Guyane; Wichmann Collection (?) (Synonymy and references in Wood & Bright c1992:383)

Microborus setulosus Eggers, 1933:19. Holotype, sex?; French Guayane; MNHN, Paris

Microborus inittans Eggers, 1940:131. Holotype ♂; Insel Guadeloupe; USNM, Washington

Diagnosis: Declivital striae weakly impressed, narrower than interstriae; male declivital setae two or more times longer than in *boops* Blandford and strongly confused on both interstriae 2 and 3; crest of subapical carina from interstriae 9 to apex on declivity more finely serrate.

Male: Length 1.3–1.4 mm, 2.8 times as long as wide; color reddish brown, pronotum darker. Frons convex, reticulate, punctures rather coarse, distinctly impressed; vestiture sparse, short, hairlike, inconspicuous; eyes separated above by distance equal to one-half width of an eye. Pronotum about as in *lectus* Wood except surface rather strongly reticulate, punctures slightly smaller, not as deep. Elytra resembling *lectus*, except surface rather strongly reticulate, punctures slightly smaller, not as deep. Elytra resembling *lectus*, striae weakly impressed, more distinctly near declivity, punctures rather small, deep, close; interstriae distinctly wider (one and

GENUS *PYCNARTHURUM* EICHHOFF

one-half times) than striae, smooth, shining, punctures small, uniseriate, almost half as large as those of striae. Declivity steep, convex; interstriae 2 (not elevated) armed by two (variable) moderately large denticles. Vestiture on interstriae 2 and 3 strongly confused, rather abundant, length of fine setae equal to two or more times width of an interstriae.

Female: Similar to male except denticles on declivital interstriae 2 absent, small tubercles on 1–3 about equal; hairlike setae on declivital interstriae 2 and 3 much less abundant, most uniseriate, shorter, few longer than distance between rows.

Distribution: Venezuela and Suriname to Brazil.

Brazil: Bahia, Cepec, Ilheus, 11-III-1981, blacklight, Kaston.

Suriname: “Surinam, 180.”

Venezuela: 40 km SE Socopo, Barinas, 25-I-1970, 150 m, No. 277, *Clusia*, SLW.

Biology: As described for *lectus*.

Notes: The above treatment was based on 7 specimens from Brazil, 1 from Suriname, and 41 from Venezuela. This species is variable; males often have only one pair of denticles on declivital interstriae 2 and the setae on 2 and 3 may be uniseriate and comparatively short. The holotypes of *aberrans* Wichmann, *imitans* Eggers, and *setulosus* Eggers were examined and compared directly to my series.

Pycnarthrum Eichhoff, 1878:41, 104. Type-species: *Pycnarthrum gracile* Eichhoff = *Hypoborus hispidum* Ferrari, subsequent designation by Hopkins 1914:128 (Synonymy and references in Wood & Bright c1992:384)

Nemobius Chapuis, 1869:41. Type-species: *Nemobius lambottei* Chapuis = *Hypoborus hispidum* Ferrari, subsequent designation by Hopkins 1914:128, preoccupied by Serville 1839

Monebius Hopkins, 1914:125. Type-species: *Nemobius lambottei* Chapuis = *Hypoborus hispidum* Ferrari, automatic, an isotypical junior synonym

Nomebius Novas, 1915:34. Type-species: *Nemobius lambottei* Chapuis = *Hypoborus hispidum* Ferrari, automatic, an isotypical junior synonym

Diagnosis: Male frons feebly to strongly impressed, female convex; antennal funicle 6 segmented, club asymmetrical, with 2 sutures; eyes approximate below, coarsely faceted. Pronotum quadrate, unarmed by asperities, closely punctured; lateral margins costate. Elytra striate, declivity steep, convex, unarmed. Vestiture short, abundant, most somewhat scalelike.

Distribution: Tropical America, including the Galapagos Islands. Wood & Bright (c1992:385–386) list 16 species, 9 of which occur in South America.

Biology: The species are monogynous and phloeophagous. Parental galleries are biramous, transverse, and mostly in the phloem. Eggs are deposited individually in niches. Larval mines wander in the phloem and are comparatively short. Larval mines are commonly dense and may obliterate gallery patterns.

Key to the Species of *Pycnarthrum*

- 1. Male frons feebly to weakly impressed near center on middle third; pronotum shining (anterior third with obscure reticulation in some *hispidum*); declivital interstriae rarely with tubercles 2
- Male frons moderately to strongly, broadly concave from epistoma to near or above upper level of eyes (weak in *kleinei*); pronotum partly to entirely reticulate; ground setae on discal interstriae hairlike (feebly plumose in *carinatus* and *subcarinatus*) 5
- 2(1). Erect interstitial setae slender, almost hairlike, in uniseriate rows; ground setae of fine, short, strial hair and very sparse, similar interstitial hair on both disc and declivity; elytral declivity more strongly, much more narrowly convex; Colombia; *Guarea trichilioides*; 1.7–2.0 mm *fulgidum* Wood
- Erect interstitial setae stout, not hairlike; ground setae stout or plumose at least on declivity; declivity very broadly convex to flattened 3
- 3(2). Erect interstitial setae stout, short, each three to four times as long as wide, equal in length to no more than half distance between rows; setae in ground cover stout, plumose on both disc and declivity; setae on pronotum a mixture of stout and slender; USA (S Texas and S Florida) to Colombia and Guiana; 1.5–2.1 mm *hispidum* (Ferrari)
- Erect interstitial setae more slender, each six to eight times as long as wide, equal in length to two-thirds distance between rows; setae in ground cover hairlike on disc, hairlike to stout or plumose on declivity; setae on pronotum of fine hair; male striae 1 with punctures enlarged and interstriae 1–3 with tubercles 4

CTENOPHORINI

- 4(3). Male discal interstriae 1 and 2 each with a row of tubercles almost to base, 3 with tubercles near and on declivity; declivity moderately flattened, more distinctly arched; interstitial setae stout to subplumose on declivity; Costa Rica to Colombia and Venezuela; *Brosimum*; 1.9–2.2 mm *brosimi* Wood
- Male discal interstriae 1 and 2 each with a row of tubercles almost to base, 3–8 each with a row of tubercles near and on declivity, some of those on 6–8 acutely pointed; declivity rather strongly flattened, with little or no arch; interstitial ground setae hairlike on both disc and declivity; Ecuador; 1.9 mm *tuberculifer* Wood
- 5(1). Striae not impressed, punctures distinct, very small, interstriae about three to five times as wide as striae; ground setae on disc hairlike; declivity more narrowly convex; pronotum reticulate to base 6
- Striae weakly, distinctly impressed, punctures larger, interstriae not more than three times as wide as striae 7
- 6(5). Punctures on pronotum distinctly smaller, vestiture finer, longer; on elytral declivity ground setae at least two-thirds as long as setae in rows of erect bristles and distinctly, more conspicuously subplumose; Galapagos Islands (Pacific); 2.2–2.3 mm *insulare* Blair
- Punctures on pronotum distinctly larger, vestiture coarser; on elytral declivity ground setae half as long as bristles in erect rows, much less conspicuously subplumose; Fernando Noronha Island of Brazil (Atlantic); 1.8 mm *setulosum* Waterhouse
- 7(5). Mature color yellowish brown; striae minutely subgranular, punctures small, indistinct; interstriae less than twice as wide as striae; interstitial setae on disc hairlike; pronotum reticulate to base; Mexico (Jalisco) and Guadalupe Island to Venezuela; *Ficus*; 1.6–1.7 mm *pallidum* (Chapuis)
- Mature color brown to reddish brown; striae never granular, punctures larger, clearly impressed; pronotum partly reticulate, partly shining 8
- 8(7). Male frontal concavity not attaining upper level of eyes, epistoma without an acute, transverse carina on median area; erect setae on discal interstriae slender, ground setae slender (not at all plumose); declivity more narrowly convex 9
- Male concavity on frons attaining upper level of eyes, epistoma armed by an acute, transverse carina on median one-fifth; erect interstitial setae on disc stouter, about half of ground setae obscurely plumose; declivity more broadly convex 11
- 9(8). Body form more slender, 2.3 times as long as wide; setae on pronotum very short, inconspicuous, stoutest setae very slender, others hairlike; interstitial ground cover setae on disc hairlike, setae in erect rows each about twice as long as ground setae on disc and declivity and each about eight times as long as wide; interstitial ground setae on declivity obscurely, weakly plumose; Brazil (Bahia); 1.4–1.7 mm *bahiae* Wood
- Body stouter, 2.0 times as long as wide; setae on pronotum of 2 kinds, both longer, stouter setae about four to six times as long as wide; interstitial ground cover setae on basal half of disc either absent or stout, rows of erect setae evident only on and near declivity, most about four times as long as wide 10
- 10(9). Discal interstriae twice as wide as striae; striae in uniseriate rows from base to apex, interstitial ground setae absent, erect interstitial scales uniseriate to base; Brazil (Para); 1.3 mm *uniseriatum* Schedl
- Discal interstriae three times as wide as striae; striae present, interstitial, interstitial setae on disc including confused hairlike ground setae as well as uniseriate rows of erect scales; Brazil (Mato Grosso); 1.7 mm *kleinei* Eggers

- 11(8). Upper half of male concavity on frons less strongly impressed, carina on epistoma not as strongly elevated; erect interstitial setae on disc and declivity more slender, most at least six times as long as wide; female epistoma with a weak carina similar to male; Venezuela; *Brosimum*; 1.6–2.0 mm
 *subcarinatum* Wood
- Upper half of male concavity on frons much more strongly impressed, carina on epistoma distinctly higher; erect interstitial setae on disc and declivity stouter (some four times as long as wide); female not seen; Bolivia to Peru; 1.9–2.0 mm *carinatum* Wood

Pycnarthrum fulgidum Wood

Pycnarthrum fulgidum Wood, 1977:217. Holotype; Carton de Colombia forest 8 km S Colonia, Valle de Cauca, Colombia; USNM, Washington (References in Wood & Bright c1992:384)

Diagnosis: Distinguished by the feebly impressed male frons; by the narrowly convex elytral declivity; by the absence of interstitial ground setae on the elytra (strial setae are present); and by the smooth, shining surfaces of pronotum and elytra.

Male: Length 1.7–2.0 mm, 2.1 times as long as wide; color pale brown, elytra yellowish brown. Frons convex on upper third, shallowly, weakly impressed on central third, somewhat flattened toward epistoma, epistomal lobe conspicuous; surface shining below, weakly reticulate above; punctures small, shallow, moderately close; vestiture sparse, rather short, moderately coarse, inconspicuous; eyes separated above by twice width of an eye. Pronotum 0.90 times as long as wide; surface smooth, shining, punctures small, deep, moderately close, spaced by about one to two diameters of a puncture; vestiture of fine, short, inconspicuous hair. Elytra 1.3 times as long as wide, 1.6 times as long as pronotum; basal margin a continuous costa; striae not impressed, punctures small, shallow, spaced within a row by diameter of a puncture; interstriae about four times as wide as striae, smooth, shining, minute setiferous punctures uniseriate (no other punctures or setae present). Declivity rather narrowly convex, steep, moderately arched; sculpture as on disc except strial punctures slightly larger, more distinctly impressed. Strial setae of uniseriate rows of very fine, moderately long hair; interstitial setae uniseriate on disc and declivity, slender, each about two-thirds as long as distance between rows, spaced within a row by length of a seta.

Female: Similar to male except frons more extensively convex, its central impression less extensive, weaker; discal interstriae 3 and 4 each with up to ten interstitial ground hairs.

Distribution: Colombia: 8 km S Cononia, Valle de Cauca (Carton de Colombia woodland), 9-VII-1970, No. 650, *Guarea trichilioides*, SLW.

Biology: Parental tunnels were made in a broken log about 15 cm in diameter. Parental galleries were biramous and were primarily in the phloem.

Notes: The above treatment was based on the type series of 6 whole and 4 broken specimens.

Pycnarthrum hispidum (Ferrari)

Plate XLV

Pycnarthrum hispidum (Ferrari), 1867:19 (?*Hypoborus*). Holotype, sex?; Cuba; NHMW, Wien, lost from pin (Synonymy and references in Wood & Bright c1992:384–385)

Nemobius lambottei Chapuis, 1869:42. Lectotype ♀; Teapa, Mexico, IRSNB, Brussels, designated by Wood 1973:183

Pycnarthrum gracilis Eichhoff, 1878:104. Lectotype ♂; Cuba insula Americana; USNM, Washington, designated by Wood 1973:183

Pycnarthrum quadraticolle Eichhoff, 1878:106. Lectotype ♂; Mexico; USNM, Washington, designated by Wood 1973:183

Pycnarthrum transversum Blandford, 1897:177. Lectotype ♀; Mirandilla, Guatemala; BMNH, London, designated by Wood 1973:183

Pycnarthrum reimoseri Schedl, 1934:208. Syntypes ♀; Jimenez on Osa Peninsula, and Volcan Irazu, Costa Rica; NHMW, Wien

Diagnosis: Male frons very weakly impressed, not truly concave; erect interstitial setae less than half as long as distance between rows; setae in ground cover plumose on both disc and declivity.

Male: Length 1.5–2.1 mm, 2.2 times as long as wide; color brown, elytra usually lighter. Frons somewhat flattened from epistoma to upper level of eyes, shallowly, subconcavely impressed on median half of middle third of this area; frons strongly reticulate above, weakly below, punctures small, shallow, rather close; vestiture coarse, moderately abundant, short, about uniformly distributed. Pronotum 0.94 times as long as wide; surface smooth, shining except reticulate on anterior fourth, punctures rather small, close, deep; vestiture rather abundant, short, a mixture of fine hair and stout setae of about equal abundance. Elytra 1.3 times as long as wide, 1.7 times as long as pronotum; basal margin undulating, somewhat subcrenulate; striae feebly impressed, punctures rather coarse, close, deep; interstriae about 1.5 times as wide as striae, smooth, shining, punctures minute, rather numerous, confused. Declivity steep, broadly convex, somewhat flattened; interstriae narrower than on disc; sculpture similar. Vestiture of interstitial rows of erect setae, each about four times as long as wide, half as long as distance between rows, spaced within a row by less than length of a seta; ground cover of small setae of moderate abundance, subplumose on both disc and declivity (plumose filaments obscure in some specimens).

Female: Similar to male except frons more strongly convex and without a central impression.

Distribution: Mexico (Jalisco), S Texas, and S Florida to Venezuela and Guiana.

Guiana: Cited in Wood & Bright c1992:384).

Venezuela: 5 km W El Pino, Zulia, 20-X-1969, 10 m, No. 141, at light, SLW.

Hosts: *Ficus* spp.

Biology: Parent galleries were biramous, transverse, and almost entirely in the phloem. Larval mines wandered aimlessly and usually obliterated parent mines. It is very abundant within its range and is commonly attracted to light.

Notes: The above treatment was based on 90 specimens from the USA, Mexico, and Central America (Wood 1982:459) and on 1 from Venezuela.

Pycnarthrum brosimi Wood

Plate XLV

Pycnarthrum brosimi Wood, 1971:14. Holotype ♂; 9 km S Barancas, Barinas, Venezuela; USNM, Washington (References in Wood & Bright c1992:384)

Diagnosis: Distinguished from *fulgidum* Wood by the total absence of a male frontal impression; by the eyes being separated above by less than the diameter of an eye; and by the broadly convex elytral declivity, with interstriae 1–4 each with a row of fine tubercles.

Male: Length 1.9–2.2 mm, 2.2 times as long as wide; color rather dark reddish brown. Frons with eyes separated by 0.82 times width of an eye; weakly convex from epistoma to upper level of eyes, a weak, almost foveate impression on central one-sixth; surface shining, almost smooth below, becoming reticulate above, punctures very small, distinct, moderately close; vestiture of sparse, rather coarse hair, mostly on lateral margins; eyes very coarsely faceted. Pronotum 0.94 times as long as wide; surface smooth, shining, punctures small, deep, spaced by half to full diameter of a puncture; vestiture on posterior half obsolete to minute hair, margins and anterior area with sparse, coarse hair (tips flattened on some setae). Elytra 1.4 times as long as wide, 1.6 times as long as pronotum; costa at basal margin low, undulating; striae not impressed, punctures on 1 very coarse, very deep, 2 moderately coarse, deep, 3–9 small, moderately deep; interstriae smooth, shining, almost flat, 1, 2, and posterior half of 3 each with a uniseriate row of small tubercles, punctures on 3–9 in uniseriate rows. Declivity moderately steep, very broadly convex; punctures on striae 1 and 2 coarse, about twice as large as punctures on lateral striae; interstriae 1 to 4 each with a row of fine tubercles. Vestiture of interstitial rows of erect bristles, those on declivity moderately flattened; moderately sparse interstitial ground setae (subplumose slender scales) mostly on declivity.

Female: Similar to male except frons much more strongly convex from epistoma to vertex, central concavity absent; punctures on discal striae 1 smaller, almost equal to those on 2; declivity more strongly convex, tubercles on interstriae 1–4 greatly reduced.

Distribution: Costa Rica to Colombia and Venezuela.

Colombia: Carton de Colombia forest 8 km S Colonia, Valle de Cauca, 9-VII-1970, 30 m, No. 645, "Ceibo"

(probably error in identification by Carton de Colombia forester), SLW.

Venezuela: 9 km S Barancas, Barinas, 5-XI-1969, 150 m, No. 106, 1-X-1969, No. 22, *Brosimum*, SLW.

Biology: Parent adults were taken from large limbs and boles of felled or broken trees.

Notes: The above treatment was based on the type series of 24 specimens from Venezuela, 31 from Colombia, and 6 from Costa Rica.

Pycnarthrum tuberculiferum Wood, n. sp.

Pycnarthrum tuberculiferum Wood: Holotype ♂; Pichincha, Puerto Quito, Ecuador; USNM, Washington, designated below

Diagnosis: Distinguished by the rather strongly impressed declivity; and by the presence of pointed tubercles on declivital interstriae 1–8, those on 1–3 extend almost to base on disc. Closely allied to *brosimi* Wood.

Male: Length 1.9 mm, 2.2 times as long as wide; color reddish brown. Frons weakly convex from epistoma to upper level of eyes, a weak median (longitudinal) impression on less than middle third; surface mostly shining below, obscurely reticulate above, punctures small, shallow, not close; vestiture hairlike, rather short, sparse, uniformly distributed; eyes separated above by slightly less than width of eye. Pronotum 0.93 times as long as wide; surface smooth, shining, punctures very small, close; vestiture rather short, hairlike, of moderate abundance. Elytra 1.4 times as long as wide, 1.7 times as long as pronotum; basal margins weakly crenulate; striae 1 moderately, others not impressed, punctures on 1 larger and deeper near and on declivity; interstriae smooth, shining, punctures minute, confused, 1 and 2 each with a uniseriate row of tubercles to base, 3–8 with tubercles near and on declivity, those on 6–8 pointed. Declivity occupying posterior two-fifths of elytral length, gradual, strongly sulcate between interstriae 4. Vestiture of fine, short, hairlike ground setae on disc and declivity; and uniseriate rows of erect setae, almost twice as long as ground setae, each six to eight times as long as wide (shorter and very slender on lower declivity), each about two thirds as long as distance between rows on 1 to 3, one-half as long in lateral areas.

Distribution: Ecuador.

Type material: The male holotype was taken at Pichincha, Puerto Quito, Ecuador, II-1983, G. Onore. The holotype is in the U.S. National Museum, Washington.

Pycnarthrum insulare Blair

Pycnarthrum insulare Blair, 1933:487. Syntypes, sex?; Albermarle Id., Tagus Cove, 200 ft., and Charles Id. sea level, Tower Id., and Hood Id. Galapagos Islands; CAS, San Francisco (References in Wood & Bright c1992:385)

Diagnosis: Distinguished by the concave male frons; by the very small striae punctures; by the narrowly, rather strongly convex elytral declivity; and by the hairlike setae on pronotum and elytra.

Male: Length 2.2–2.3 mm, 2.3 times as long as wide; color yellowish brown. Frons broadly, moderately concave from epistoma to upper level of eyes; surface reticulate, punctures minute, of moderate abundance; vestiture of moderate abundance in central area, slightly more abundant and longer on lateral margins. Pronotum 0.95 times as long as wide; surface reticulate to base, punctures very small, shallow, moderately abundant; vestiture short, of moderately slender hair, rather abundant. Elytra 1.4 times as long as wide; 1.9 times as long as pronotum; basal margins with a row of very weak crenulations; striae feebly impressed, punctures very small, rather deep; interstriae four to five times as wide as striae, almost smooth (obscurely reticulate), punctures very small, moderately numerous, confused. Declivity rather narrowly convex and moderately arched, steep; striae more distinctly impressed; surfaces shining. Erect setae obscure, slightly longer and similar to ground setae, slender, moderately abundant, each about equal in length to one-half to two thirds width of an interstriae, each very obscurely plumose; striae hair present.

Female: Similar to male except frons convex, a very small, weak, median impression; erect interstitial setae more clearly evident on and near declivity.

Distribution: Galapagos Islands: Albermarle Island, Tagus Cove, 200 ft.; Charles Island, sea level; Hood Island; Tower Island, 14-16-IX-1906, F.X. Williams.

Hosts: Although the host was not recorded, allied species infest *Ficus* and *Brosimum*, both in Moraceae.

Notes: The above treatment was based on 1 male and 1 female that were compared by me to part of the original series of *insulare* Blair.

Pycnarthrum setulosum Waterhouse

Pycnarthrum setulosum Waterhouse, 1890:553. Lectotype ♂; Fernando [de] Noronha Island, Brazil; BMNH, London, present designation (References in Wood & Bright c1992:386)

Diagnosis: Distinguished from *insulare* Blair by the smaller size; by the distinctly larger punctures on the pronotum, with coarser, longer vestiture; and by the much shorter, less plumose ground cover setae on the elytral declivity. It is very closely allied to *insulare* but is definitely distinct.

Male: Length 1.8 mm (female 1.8 mm), 2.25 times as long as wide; color light brown. Frons broadly, rather deeply concave from epistoma to upper level of eyes (concealed above by pronotum), surface subshining, weakly reticulate; vestiture sparse, rather coarse, short; eyes separated above by very slightly more than twice width of an eye. Pronotum 0.96 times as long as wide; surface reticulate to base (weak behind summit); punctures distinctly larger and deeper than in *insulare*; vestiture shorter, coarser, less abundant than in *insulare*. Elytra 1.4 times as long as wide, 1.6 times as long as pronotum; striae impressed, punctures small, close, distinctly impressed; interstriae about three to five times as wide as striae, surface smooth, shining, punctures

minute, moderately abundant, confused. Declivity confined to posterior fourth, somewhat narrowly convex, rather steep; striae 1 and 2 distinctly impressed, their punctures deeper. Vestiture of ground cover of short setae (hairlike on disc, feebly subplumose on declivity), and erect, uniseriate rows of rather stout setae (each twice as long as ground cover), each about two-thirds as long as distance between rows, separated within a row by length of a seta, each perhaps 8–10 times as long as wide.

Female: Similar to male except frons rather strongly, somewhat irregularly convex from epistoma to vertex (a few minute granules present).

Distribution: Brazil: Fernando [de] Noronha Island (Atlantic), 88–17.

Hosts: An endemic *Ficus* sp.

Notes: The first pin in the type series bears a male on the right, a female on the left side of the microcard, using the pin perforation nearest the observer as a reference point. This male syntype is here designated as the lectotype of *Pycnarthrum setulosum* Blair. The female syntype is designated as the lectoallotype.

Pycnarthrum pallidum (Chapuis)

Plate XLVI

Pycnarthrum pallidum (Chapuis), 1869:41 (Nemobius). Syntypes 2♂; Guadeloupe; IRSNB, Brussels (References in Wood & Bright c1992:385)

Pycnarthrum reticulatum Schedl, 1940:335. Lectotype ♀; Tonala, Chiapas, Mexico; NHMW, Wien, designated by Wood 1974:287 (References in Wood & Bright c1992:385). *New synonymy*
Pycnarthrum fici Wood, 1971:11. Holotype ♂; Olanchito, Honduras; USNM, Washington

Diagnosis: Distinguished by the strongly concave male frons; by the yellowish brown mature color; by the granular striae; and by the reticulate pronotum.

Male: Length 1.6–1.7 mm, 2.3 times as long as wide; color yellowish brown. Frons broadly, strongly concave from epistoma to upper level of eyes; surface reticulate, punctures minute; vestiture short, uniformly distributed throughout concave area; eyes separated above by almost twice width of an eye. Pronotum 0.96 times as long as wide; surface reticulate to base, punctures small, shallow, close; vestiture short, hairlike, moderately abundant. Elytra 1.4 times as long as wide, 1.5 times as long as pronotum; basal margins with a row of minute, obscure crenulations; striae weakly impressed, minutely rugose in most specimens, punctures rather small, not clearly impressed; interstriae slightly wider than striae, almost shining to obscurely reticulate, punctures minute, confused. Declivity broadly convex, rather steep; striae more strongly impressed than on disc, interstriae slightly narrower, more distinctly impressed. Vestiture of ground cover of rather abundant, short, confused, stout setae (almost hairlike); and uniseriate rows of erect setae, each seta stout (sometimes almost scalelike), varying from two to about six times as long as wide, length varying from one-third to one-half distance between rows, spaced within a row by length of a seta

(length of erect setae appears to vary within series, even with setae on an individual).

Female: Similar to male except frons broadly convex from epistoma to vertex.

Distribution: Mexico (Jalisco), Jamaica, and Guadeloupe Island to Venezuela.

Venezuela: 5 km W El Pino, Zulia, 20-X-1969, 10 m, No. 143, *Ficus*, SLW; 50 km W El Pino, Merida, 11-XII-1969, 10 m, No. 193, SLW.

Biology: Limbs and boles of felled, broken, and unthrifty trees were attacked. The parental galleries were biramous and transverse. Larval mines were short and wandered indiscriminantly. They were very abundant.

Notes: The above treatment was based on the 2 male syntypes of *Nemobium pallidus* Chapuis in the Chapuis Collection, on 47 specimens from Mexico and Central America (including the type series of *Pycnarthrum fici* Wood, and the female lectotype of *reticulatum* Schedl), and on 103 specimens from Venezuela.

Pycnarthrum kleinei Eggers

Pycnarthrum kleinei Eggers, 1951:151. Lectotype ♂; Corumba, Mato Grosso, Brazil; USNM, Washington, designated by Anderson & Anderson 1971:17 (References in Wood & Bright c1992:385)

Diagnosis: Distinguished from *bahiae* Wood by the stouter body form; by the much stouter setae on both pronotum and elytra; and by the darker color.

Female: Length 1.7 mm, 2.0 times as long as wide; color dark brown. Frons convex except narrow median line shallowly impressed near center; surface strongly reticulate, punctures very small, shallow; vestiture rather coarse, moderately long, uniformly distributed from epistoma to upper level of eyes. Pronotum 0.90 times as long as wide; surface smooth, shining, except reticulate on anterior one-fifth, punctures small, close, deep; vestiture moderately abundant, a mixture of stout and moderately slender, rather short setae. Elytra 1.4 times as long as wide, 1.6 times as long as pronotum; transverse costa at base of elytra undulating; striae on disc not impressed; interstriae three times as wide as striae, smooth, shining, small punctures confused, rather abundant. Declivity rather broadly convex, arch moderately convex, steep; striae weakly impressed, interstriae narrower than on disc. Vestiture on disc of minute strial hair and erect interstitial, uniseriate rows of setae not evident until near declivity; each seta on disc stout, about four to six times as long as wide; on declivity some setae shorter, forming an obscure ground cover, those in erect rows slightly longer.

Distribution: Brazil: Corumba in Mato Grosso.

Notes: The above treatment was based on 1 male and 11 females bearing the label "*Pycnarthrum similis* Egg., det. Egg.," a manuscript name. Schedl (1979:127) cites it as a synonym of *kleinei*; his series appears to have come from the Eggers Collection and probably is part of the same series as the type.

Pycnarthrum uniseriatum Schedl

Plate XLVII

Pycnarthrum uniseriatum Schedl, 1973:370. Holotype ♀; Faz. Taparinha, prox. Santarem, Para, Brazil; NHMW, Wien (References in Wood & Bright c1992:386)

Diagnosis: Near *kleinei* Eggers, distinguished by the smaller size; by the complete absence of interstitial ground setae; and by the uniseriate elytral vestiture. My female of *similis* (ms Eggers ?=*kleinei*) is much larger (1.7 mm) and has the discal interstitial ground setae more abundant and confused, the body is also more slender.

Female: Length 1.3 mm, 2.0 times as long as wide; color reddish brown. Frons and pronotum similar to female *kleinei*. Elytra 1.3 times as long as wide, 1.8 times as long as pronotum; basal margins a continuous transverse costa; striae not impressed, punctures moderately coarse, rather deep; interstriae twice as wide as striae, punctures small, uniseriate to base. Declivity occupying posterior third of elytra length; broadly convex, steep; sculpture about as on disc except striae and interstriae of equal width. Vestiture of uniseriate, fine, short strial hair from base to apex, interstitial ground cover almost entirely absent; erect interstitial setae in uniseriate rows from base to apex, each erect seta stout, about four to five times as long as wide, equal in length to about half distance between rows.

Distribution: Brazil: Faz. Taparinha prox. Santarem, Para, 29-XII-1967-9-I-1968.

Notes: The above treatment was based on the female holotype of *Pycnarthrum uniseriatum* Schedl.

Pycnarthrum bahiae Wood, n. sp.

Pycnarthrum bahiae Wood: Holotype ♂; Cepec, Bahia, Brazil; USNM, Washington, designated below

Diagnosis: Distinguished by the male frontal concave area that ends distinctly below the upper level of the eyes; by the slender body form; and by the slender ground setae on the interstriae of disc and declivity.

Male: Length 1.4–1.7 mm, 2.3 times as long as wide; color yellowish brown to light brown. Frons strongly, broadly concave from epistoma four-fifths of distance to upper level of eyes; surface reticulate, punctures very small, obscure; vestiture of stout hair, mostly on lateral margins, sparse in central area. Pronotum 0.95 times as long as wide; surface reticulate on anterior half, smooth, shining behind, punctures moderately small, rather deep, close, separated by half to full diameter of a puncture; vestiture short, of 2 kinds in about equal numbers, part hairlike, part stouter but very slender. Elytra 1.5 times as long as wide, 1.8 times as long as pronotum; costa on basal margins undulating; striae 1 feebly, others not impressed, punctures rather coarse, deep; interstriae about twice as wide as striae, surface smooth, shining, punctures minute, slightly confused. Declivity broadly convex, moderately arched, steep; striae more distinctly

impressed than on disc. Vestiture of ground cover of moderately abundant, fine, interstitial hair on basal half of disc, becoming slightly stouter near and on declivity and very obscurely plumose; and rows of erect setae, each almost twice as long as ground setae, each slender, about eight times as long as wide, equal in length to almost two-thirds distance between rows, spaced within a row by slightly more than length of a bristle.

Female: Similar to male except frons rather strongly convex, its vestiture reduced.

Distribution: Brazil (Bahia).

Type material: The male holotype, female allotype, and 32 paratypes were taken at Cepec, Bahia, Brazil, 11-III-1961, blacklight, Kaston. The holotype, allotype, and paratypes are in the USNM, Washington.

Pycnarthrum subcarinatum Wood

Plate XLVI

Pycnarthrum subcarinatum Wood, 1971:13. Holotype ♂; 8 km SW Bumbum, Barinas, Venezuela; USNM, Washington (References in Wood & Bright c1992:386)

Diagnosis: Distinguished from *carinatum* Wood by the less strongly concave male frons and the weaker epistomal carina; and by the more slender interstitial setae on the disc and declivity.

Male: Length 1.6–2.0 mm, 2.1 times as long as wide; color very dark brown, elytra lighter. Frons with upper half of concave area less strongly impressed than in *carinatum*; transverse epistomal carina shorter, weakly developed, not acutely produced. Setae of pronotum and elytra more slender than in *carinatum*, erect interstitial setae slightly longer, each at least six times as long as wide.

Female: Similar to male except frons convex; epistomal carina smaller; obscurely indicated.

Distribution: Venezuela: 8 km SW Bumbum, Barinas, 11-II-1970, 150 m, No. 327, Charo Blanco (*Brosimum*), SLW.

Biology: Specimens were taken from phloem of broken limbs.

Notes: The above treatment was based on the type-series of 12 specimens.

Pycnarthrum carinatum Wood

Pycnarthrum carinatum Wood, 1971:13. Holotype ♂; 800 m, near Leopampa, Dep. Huanuco, Peru; USNM, Washington (References in Wood & Bright c1992:384)

Diagnosis: Distinguished from *subcarinatum* Wood by the more strongly impressed male frons and more acutely elevated epistomal carina; and by the stouter erect interstitial setae on disc and declivity.

Male: Length 1.8–2.0 mm, 2.1 times as long as wide; color very dark brown. Frons broadly, deeply concave from epistoma to slightly below upper level of eyes; epistoma armed on median one-fifth by an acutely elevated transverse carina; eyes separated above by 1.2

times width of an eye. Pronotum 0.91 times as long as wide; surface smooth, shining, except reticulate on anterior one-fourth; punctures small, deep, close, spaced by half to full diameter of a puncture; vestiture rather short, of two kinds in about equal numbers, part slender, hairlike, part stout to very stout. Elytra 1.25 times as long as wide, about 1.9 times as long as pronotum; basal margins very weakly subcrenulate; striae feebly impressed, punctures rather small, deep, close; interstriae about three times as wide as striae, smooth, shining, punctures very small, almost uniseriate for erect setae, very minute, confused for ground setae. Declivity broadly convex, steep; about as on disc. Vestiture of very small, hairlike setae at base, becoming weakly plumose by base of declivity, more strongly plumose on declivity; and uniseriate rows of erect setae, each twice as long as ground setae, four to six times as long as wide, equal in length to half (disc) to two-thirds (declivity) distance between rows.

Distribution: Bolivia to Peru.

Bolivia: San Esteban, 49 km N Santa Cruz, Et., 7-XII-1959, 1120 ft., R. Cumming.

Peru: Near Leonpampa, Dep. Huanaco, 11-30-XII-1937, 800 m, jungle, No. 3811, F. Woytkowski.

Notes: The above treatment was based on the male holotype from Peru and on 1 male from Bolivia.

GENUS *GYMNOCHILUS* EICHHOFF

Gymnochilus Eichhoff, 1868:399. Type-species: *Gymnochilus zonatus* Eichhoff, monobasic (Synonymy and references in Wood & Bright c1992:386–387)

Problechilus Eichhoff, 1878:46, 167. Type-species: *Gymnochilus zonatus* Eichhoff, automatic

Meringopalpus Hagedorn, 1905:547. Type-species: *Meringopalpus fallax* Hagedorn = *Gymnochilus zonatus* Eichhoff, monobasic

Diagnosis: Distinguished from other genera of Ctenophorini by the 7-segmented antennal funicle; by the pronotum summit being on the posterior third of the pronotum, with coarse asperities on the anterior slope; by the very stout body; by the unique protibia; and by the elytra vestiture.

Description: Length 1.5–2.3 mm, 1.8–2.2 times as long as wide; color light brown or bicolored. Frons flattened to shallowly concave in male, convex in female; eye elongate, entire, finely faceted. Antennal scape elongate, funicle 7-segmented, club rather large, broad, sutures procurved to absent. Pronotum with summit on basal one-third, coarsely asperate on anterior slope; lateral margins costate, basal margin marked by a fine raised line. Scutellum present. Elytral bases with a fine costa or obscure, fine row of subcrenulation; weakly striate, ground vestiture of fine, abundant, short hair. Declivity steep, convex, unarmed. Protibiae with major spine at lateral apical angle small for this tribe and with a significant denticle between this spine and base of terminal mucro (not seen elsewhere in this tribe).

Biology: The species are monogynous, phloeophagous, and parental galleries are transverse and biramous.

Distribution: All species are restricted to tropical America. Although Wood & Bright (c1992:386–387) list 12 species in this genus as directed by literature citations, only *alni* (Mexico), *consocius* (Guatemala to Venezuela), *minor* (Mexico to Costa Rica), *reitteri* (Mexico to Costa Rica), and *zonatus* (Colombia to Venezuela) have been confirmed by me as members of this genus. The seven

remaining species: *alternatus* (Bolivia), *brevis* (Bolivia), *glaber* (Peru), *insularis* (Guadeloupe), *laevicollis* (Bolivia), *pilifer* (Bolivia), and *pilosulus* (Bolivia) all have the antennal funicle 6 segmented, the antennal club and pronotum of the *Scolytodes* type, and lack other essential characters. All 7 of these species are regarded by me as members of *Scolytodes* and are treated in that genus.

Key to the Species of *Gymnochilus*
(Adapted from Wood 1982:462–463)

- 1. Body stout, about 1.8 times as long as wide; antennal club with conspicuous, strongly bisinuate, procurved sutures marked by rows of setae; male frons flattened to below upper level of eyes; female frons more strongly convex; striae punctures usually rather coarse, clearly impressed (variable) elytral bristles very coarse, blunt; Mexico (Durango) to Panama; *Ficus*; 1.5–2.3 mm *reitteri* Eichhoff
- Body more slender, 2.0 times as long as wide; antennal club with sutures obscure or absent, not marked by rows of setae; male frons distinctly impressed to well above upper level of eyes, female frons weakly convex; erect interstitial bristles slender, usually pointed 2
- 2(1). Body more slender, 2.2 times as long as wide; male frons moderately concave to upper level of eyes, striae punctures minute, interstriae five or more times as wide as interstriae; Mexico (Mexico to Puebla); *Alnus*; 2.0–2.2 mm *alni* Wood
- Body stouter, 2.0 times as long as wide; male frons subconcave to well above upper level of eyes; striae punctures larger, interstriae about two to three times as wide as striae 3
- 3(2). Pronotum summit at or very slightly behind middle; asperate area of pronotum rather strongly reticulate on surface between asperities, punctures sparse or usually not evident; asperate area of pronotum occupying anterior two-thirds (67 percent), distance from base to asperities greater in lateral areas than behind summit 4
- Pronotum summit well behind middle of pronotum length; surface between pronotal asperities either reticulate or smooth, shining, with dense, very fine, deep punctures; asperate area of pronotum occupying anterior three-fourths (75 percent), distance from base to asperities equal in lateral and median areas; Guatemala to Venezuela 5
- 4(3). Pronotum anterior slope more distinctly arched, asperities smaller, more numerous; elytral declivity occupying slightly less than posterior half of elytral length, more narrowly convex, steeper; striae feebly or not impressed, punctures very shallow; interstriae about three to four times as wide as striae; erect interstitial setae slender, almost hairlike, spaced within a row by length of a seta or less; Peru; 2.6 mm *vestitus* (Eggers)
- Pronotum anterior slope less strongly arched, asperities coarser, less numerous; elytral declivity occupying distinctly more than posterior half of elytra length, more broadly convex, not as steep; striae distinctly impressed, punctures moderately large, rather deep; interstriae two to three times as wide as striae; erect setae much stouter, most spaced within a row by two to four times length of a seta; Mexico to Costa Rica; *Ficus*; 1.5–1.9 mm *minor* (Blandford)
- 5(3). Smaller; pronotum surface smooth and finely punctured between asperities and on basal areas, punctures on basal one-fourth distinctly smaller; male frons shallowly concave, more strongly impressed, 1.6–1.8 times as long as wide; Guatemala to Brazil (Santa Catarina); *Ficus*; 2.0–2.8 mm *consocius* (Blandford)
- Larger; pronotum surface reticulate, both in asperate and non-asperate areas, punctures on basal one-fourth distinctly larger; male frons 1.5 times as long as wide, much less strongly impressed; Colombia to Venezuela; presumably in *Ficus*; 3.2–3.3 mm *zonatus* Eichhoff

Gymnochilus vestitus (Eggers) n. comb.

Gymnochilus vestitus (Eggers), 1932:233 (Problechilus). Holotype ♂; Cochabamba, Bolivia; USNM, Washington (References in Wood & Bright c1992:400)

Diagnosis: This species is distinguished from *consocius* Blandford by the more strongly, more narrowly convex slopes of pronotum and elytral declivities; by the very slender, almost hairlike interstitial setae; and by the larger size.

Male: Length 2.6 mm, 2.0 times as long as wide; color dark reddish brown. Frons on lower two-thirds about as in *consocius*, upper third concealed by pronotum on type. Pronotum 0.82 times as long as wide; outline semicircular as seen from dorsal aspect; summit slightly behind middle, indefinite; asperities small and numerous (for this genus); basal area and between punctures strongly reticulate, punctures at base sparse, small, obscure to absent; vestiture partly abraded, ground cover of fine, short, moderately abundant hair, a few longer setae in anterior areas. Elytra 1.35 times as long as wide, 1.8 times as long as pronotum; striae not impressed, punctures small, shallow, smaller near base; interstriae three to four times as wide as striae, surface smooth, shining, with dense, confused, minute punctures, each interstriae near and on declivity with a row of minute granules. Declivity more narrowly convex and steeper than in other members of this genus; sculpture much as on disc. Vestiture of abundant, short, fine interstitial hair and rows of erect, slightly stouter interstitial hair; length of most erect setae half to two-thirds as long as distance between rows, spaced within a row by length of a seta or less.

Distribution: Bolivia: Cochabamba [Woytkowski], Eggers Collection 1948, type.

Notes: The above treatment was based on the male holotype from Bolivia.

Gymnochilus consocius (Blandford)

Plate XLVII

Gymnochilus consocius (Blandford), 1897:171 (Problechilus). Holotype ♂; Cerro Zunil, Guatemala; BMNH, London (Synonymy and references in Wood & Bright c1992:386)

Problechilus trimaculatus Schedl, 1935:91. Holotype ♀; Venezuela [probably Colonia Tovar]; NHMW, Wien

Problechilus novateutonicus Schedl, 1936:105. Holotype, sex?; Nova Teutonia [Santa Catarina], Brazil; NHMW, Wien

Diagnosis: Distinguished from *zonatus* Eichhoff by the absence of reticulation on the pronotum; by the smaller punctures on the basal one-fourth of the pronotum; by the more strongly impressed male frons; and by the smaller size.

Male: Length 2.0–2.8 mm, 1.9–2.0 times as long as wide; usually bicolored, pronotum black except basal fourth pale on elytra base, suture, lower sides, and lower declivity dark, remaining areas pale. Frons broadly, shallowly concave from epistoma to well above upper level of eyes; surface strongly reticulate, punctures small, sparse, obscure; vestiture of fine, short, inconspicuous

hair uniformly distributed; frontal rectangle 1.6–1.8 times as long as wide. Pronotum 0.76 times as long as wide; summit on basal third, coarsely asperate on anterior three-fourths, anterior margin armed by about 14 serrations; basic surface smooth, shining (no reticulation), with numerous very small punctures between crenulations; basal one-fourth densely, minutely punctured; vestiture of fine, short, rather abundant hair; basal margin marked by a fine, raised line. Elytra 1.2 times as long as wide, 1.6 times as long as pronotum; basal margins with obscure costa; striae very weakly impressed; interstriae about three times as wide as striae, surface smooth, shining, feebly convex, punctures minute, rather dense, confused. Declivity broadly convex, steep; striae more deeply impressed than on disc, interstriae narrower. Vestiture of uniformly rather dense, minute, fine hair in ground cover on disc and declivity; erect setae in uniseriate interstitial rows, each seta very slender (not entirely hairlike), those on odd-numbered interstriae longer, each almost as long as distance between rows, spaced within a row by more than length of a seta, those on even-numbered rows mostly half this long; ground setae about one-fifth as long as erect setae.

Female: Similar to male except frons convex.

Distribution: Guatemala to Venezuela and Brazil.

Brazil: Nova Teutonia, Santa Catarina, XII-1934, F. Plaumann.

Venezuela: La Carbonera Experimental Forest 50 km NW Merida, Merida, 16-IX-1969, 2500, No. 20, *Ficus*, SLW; Merida, Merida, 7-X-1969, 1700 m, No. 42, *Ficus*, SLW.

Habits: Broken or felled limbs and boles were attacked. Parental galleries were biramous, usually transverse (not always) and engraved the wood slightly. Egg niches were large and were placed alternately on the sides of the tunnel. Larval mines tended to be longitudinal and were entirely in the phloem.

Notes: The above treatment was based on 88 specimens from Venezuela, 2 males of which I compared directly to the male holotype of *Problechilus consocius* Blandford. The types of *Problechilus trimaculatus* Schedl and *P. novateutonicus* Schedl were also examined by me and compared to my specimens.

Gymnochilus zonatus Eichhoff

Gymnochilus zonatus Eichhoff, 1868:399. Holotype, presumably ♂; Colombia; Hamburg Museum, lost (Synonymy and references in Wood & Bright c1992:387)

Meringopalpus fallax Hagedorn, 1905:548. Holotype ♂; Colonia Tovar, Aragua, Venezuela; MNHN, Paris

Problechilus freyi Schedl, 1966:103. Holotype, sex? Venezuela, Rancho Grande, [near] Maracay, Aragua; Frey Museum, now NHMBS, Basel

Diagnosis: Distinguished from *consocius* (Blandford) by the larger size; by the reticulate pronotum; by the larger punctures on the basal fourth of the pronotum; and by the less strongly impressed male frons.

Male: Length 3.2–3.3 mm, about 1.9 times as long as wide; color similar to *consocius*. Frontal rectangle (Wood

1986:4) 1.5 times as long as wide; frons less strongly impressed than *consocius*. Pronotum reticulate between asperities on anterior slope and in posterior areas; punctures on surface of basal one-fourth distinctly larger than in *consocius*.

Distribution: Colombia to Venezuela.

Colombia: "Colombia" (type of *zonatus*).

Venezuela: Colonia Tovar, Aragua (type of *fallax*); Rancho Grande near Maracay, Aragua.

Notes: The holotype of *zonatus* Eichhoff was lost. The male holotype of *fallax* Hagedorn was examined (Wood 1982:466). This holotype was compared to the holotype of *zonatus*, prior to its loss, by Eggers (1936:226) and was declared by him to be synonymous.

GENUS SCOLYTODES FERRARI

Scolytodes Ferrari, 1867:77. Type-species: *Scolytodes laevigatus* Ferrari, monobasic (Synonymy and references in Wood & Bright c1992:387–388)

Hexacolus Eichhoff, 1868:399. Type-species: *Hexacolus glaber* Eichhoff, monobasic

Ctenophorus Chapuis, 1869:49. Type-species: *Ctenophorus laevigatus* Chapuis (preoccupied) = *Hexacolus levis* Blackman (preoccupied) = *Scolytodes chapuisii* Wood, monobasic

Prionosceles Blandford, 1897:177. Type-species: *Prionosceles atratus* Blandford, subsequent designation by Hopkins 1914:128

Epomadius Blandford, 1897:179. Type-species: *Epomadius culcitatus* Blandford, monobasic

Erineophilus Hopkins, 1902:34. Type-species: *Erineophilus schwarzi* Hopkins, original designation

Hylocurosoma Eggers, 1940:138. Type-species: *Hylocurosoma striatum* Eggers, monobasic

Hexacolinus Schedl, 1963:217. Type-species: *Scolytodes minutissimus* Schedl 1963 = *minutissimus* Schedl 1952, original designation

Diagnosis: Distinguished from *Gymnochilus* by the 6-segmented antennal funicle; by the pronotum that may be armed by asperities or not, the summit near the middle of pronotum length or indefinite; and by the basal margin of the elytra marked by a fine, raised line; and by the hairlike vestiture.

Description: Length 0.9–3.5 mm, 1.9–3.5 times as long as wide; color yellowish or reddish brown to black; vestiture hairlike. Frons sexually dimorphic, male usually convex, simple, usually without setal ornamentation, female concave to convex or variously grooved, carinate, or otherwise contoured, usually feebly to elaborately ornamented by hair. Eye elongate-oval, entire, finely to coarsely faceted. Antennal scape moderately long, ornamented by setae or not; funicle 6-segmented; club rather small, sutures absent to rather weakly marked, straight to moderately procurved when visible. Pronotum rather large, lateral margins acutely costate, basal margin sometimes with a less distinct, raised line; surface usually (not always) reticulate and variously punctured, either with or without asperities. Scutellum small, its surface even (flush) with basal surface of elytra. Elytral bases transversely straight or weakly sinuate, with a fine, raised basal margin; disc usually, weakly striate, punctures uniseriate or confused; declivity gradual to very steep, convex, sculpture conservative; vesti-

ture usually sparse to absent, abundant in some groups. Tibiae variable, essentially as described for tribe.

Distribution: Tropical America from Mexico and southern Florida to northern Argentina. Wood & Bright (c1992:388–400) list 176 species, 103 of these were recorded from South America.

Biology: The habits are unusually diverse. While most species are phloeophagous, some breed in *Cecropia* leaf petioles, a few are xylophagous, myelophagous, etc. Most species are monogynous, a few are polygynous. The brood gallery may be a simple cave in which the eggs are scattered in small clusters loose in the frass, or they may form elongate or radiate galleries in which the eggs may be placed individually in niches. Larvae may feed in congress as they extend the parent mine, or they may bore independent mines. In some species larval feeding may begin in the phloem, with later instars moving to the pith. In some species the life cycle is very short. It was observed by me that *phoebeae* Wood and *plumeriae* Wood passed from egg to egg in successive generations in as little as 10 days.

Notes: The protibia of the allies of *atratus* has lateral tooth 1 (at or near the apex) smaller than 2 and a series of 7–9 socketed denticles extending on the lateral margin from there toward the base. In the remainder of the genus tooth 1 is larger than 2 and the number of basal socketed denticles is reduced from none to as many as 6. In most of these latter species, tooth 1 is bent from a laterad direction to an apical direction. Jordal (MS thesis, University of Bergin, Bergin, Norway, 1998) has shown through a sequence of species, that tooth 1 originally had an enclosed socketed denticle that became imbedded within and that this enclosed denticle was gradually lost. My observations confirm Jordal's observations and suggest that through this loss and continued enlargement of lateral spine 1, a protibia like that of Scolytini (*Scolytus*, etc.) logically might be derived. Thus, it is now abundantly clear that the protibia of *Scolytus* was derived independently from that of Curculionidae, from socketed denticles (derived from setae) that were surrounded and reinforced in some groups by adjacent cuticle as the socketed element declined in size and importance and was eventually lost. This generic name has been treated in the past as masculine. A professor of Latin informed me that it is feminine and, for this reason, appropriate name changes in spelling are made below.

Scolytodes grandis (Schedl), rejected name

Scolytodes grandis (Schedl), 1978:122 (*Hexacolus*). Holotype a teratological composit of 3 species; Peru, Machu-Picchu, 2000 m; MHMW, Wien, preoccupied by Schedl 1962:100 (References in Wood & Bright c1992:392)

Scolytodes eximius Wood, 1981:122. A replacement name for *Hexacolus grandis* Schedl (1978) now in *Scolytodes*, type designation automatic

The "holotype" associated with the name *Hexacolus grandis* Schedl, a junior homonym, was examined and found to consist of parts of at least 3 different species of

South American *Scolytodes*. The head (of very dark brown color) is that of a female *S. laevigata* Ferrari, or a very closely allied species (*majus* Wood); the prothorax is of a reddish brown color and represents a smaller species (although attachment was done very cleverly, the larger head does not match the smaller anterior portion of the prothorax; neither the sex nor the species could be determined for the prothorax); the meso- and metathorax and abdomen are from a male specimen of a larger *Scolytodes* species that presently remains unknown to me.

Teratological specimens such as this, artificially united, whether done intentionally or not, fall outside the scope of Zoological Nomenclature and are rejected under the International Code on Zoological Nomenclature (Article 1, Paragraph B, Item 2).

On this particular specimen, the union of parts is so cleverly done that it appears to be a deliberate attempt to mislead Schedl, to whom it was sent. Although the glue joints are entirely hidden, the joined parts are of different sizes and do not match as they do in natural specimens.

Key to the Species of *Scolytodes*

- 1. Elytral interstriae 10 continued posteriorly well beyond level of metacoxae (usually, not always, subcarinate); posterior face of protibia near apex never armed by a small denticle mesad from lateral spines 1 and 2 2
- Elytral interstriae 10 almost never carinate (a few exceptions), ending near or anterior to level of metacoxa; posterior face of protibia armed by a small denticle (usually positioned mesad from bases of lateral spines 1 and 2) 59
- 2(1). Anterior slope of pronotum punctured to anterior margin (if host *Cecropia* then small asperities sometimes intermixed with punctures); protibia with two major denticles on lateral margin, denticle 1 usually smaller than 2 and directed more nearly laterad, lateral margin basad from 2 armed by two to nine denticles; mostly larger, stouter species, body less than 2 times as long as wide; elytral declivity steeper; base of female frontal vestiture never arising above upper level of eyes 3
- Anterior slope of pronotum either punctured or asperate; protibia with lateral denticle 1 usually larger than 2 and directed distad, lateral margin basad from denticle 2 armed by one to five (usually smaller) denticles; body usually more slender than 2.2 times as long as wide; base of some setae in female frontal vestiture above upper level of eyes in some species, not in others 12
- 3(2). Punctures on disc of interstriae 2 and 3 strongly confused; interstitial setae absent on disc, either absent or greatly shortened on declivity 4
- Interstitial punctures on disc usually uniseriate; erect interstitial setae usually present from base to apex 6
- 4(3). Punctures on discal interstriae confused only on 2 and 3, uniseriate on 4–9; erect interstitial setae absent on basal half or all of disc, on declivity much shorter than normal; male frons with a moderate, transverse impression at level of antennal insertion except at median line, female frons more broadly, more strongly impressed on a larger area; Venezuela (Aragua); *Cecropia* leaf petioles; 3.0–3.7 mm *jucunda* Wood
- Discal interstriae 2–9 with punctures confused; all discal interstriae glabrous; male frons uniformly convex from weak, transverse epistomal impression to vertex, female frons more narrowly, more weakly impressed on a smaller area 5
- 5(4). Punctures on pronotum disc small, of almost uniform size; elytral punctures on disc and declivity much smaller; declivital punctures on striae 1 and lower 2 distinctly impressed, in identifiable rows; elytra entirely glabrous; Costa Rica (Limon) to Colombia; *Cecropia* leaf petioles; 2.5–3.1 mm *glabrescens* Wood
- Punctures on pronotum disc moderately large, somewhat irregular in size; elytral punctures distinctly larger, striae 1 and 2 not identifiable on declivity; erect interstitial setae identifiable in rows on lower half of declivity; Bolivia (Cochabamba); probably in *Cecropia* leaf petioles; 4.3 mm *permagna* (Eggers)

- 6(3). Larger species; anterior one-fourth of pronotum armed by small asperities (except female *atratus*); male frons with a rather strong, transverse impression at or near epistoma 7
- Smaller species; anterior pronotum unmarked by asperities (obscure in some male *maurus*); male frons with impression on lower one-third weak, not conspicuous 9
- 7(6). Male frons modestly impressed to lateral margin (without a strong, transverse elevation below level of antennal insertion), female frons much more strongly impressed, a weak median elevation near epistoma; female pronotum without fine asperities; reticulation on pronotum weaker; Mexico (Veracruz) to Panama; *Cecropia* leaf petioles; 2.5–3.3 mm *atrata* (Blandford)
- Male frons abruptly impressed at level of antennal insertion, a subacute, transverse carina below this impression, female frons much less strongly impressed, without a median elevation near epistoma; small pronotal asperities present in both sexes; reticulation on pronotum stronger 8
- 8(7). Male transverse elevation above epistoma less strongly elevated, somewhat rounded, frons less closely punctured; granules on interstrial rows smaller, mostly confined to declivity; Colombia (Antioquia); *Cecropia* leaf petioles; 2.7–3.0 mm *fasta* Wood
- Male transverse elevation above epistoma more strongly elevated, subacute, frons much more closely punctured; granules on interstrial rows larger, more extensive; Venezuela (Caracas); *Cecropia* leaf petioles; 2.3–2.8 mm *suturalis* Wood
- 9(6). Pronotum almost smooth (reticulation obscure); female frons narrowly flattened on a small area; declivital interstriae each with a uniseriate row of granules; Guadeloupe and Venezuela to Peru and Bolivia; *Cecropia* leaf petioles; 1.6–2.0 mm *imitans* (Eggers)
- Pronotum moderately to strongly reticulate; female frons feebly to rather broadly, shallowly concave; declivital interstriae unarmed by granules or with very feeble granules 10
- 10(9). Anterior fourth of pronotum finely asperate, without any punctures between asperities; discal striae 1 and 2 impressed, punctures shallow, declivital striae 1–3 impressed, punctures much smaller, not as deep; body stouter; Brazil (Blumanau); probably in *Cecropia* petioles; 2.0 mm *brasiliensis* (Eggers)
- Anterior fourth of pronotum with crenulations fine to absent, with some punctures indicated to near anterior margin; elytral punctures deeper; body more slender 11
- 11(10). Striae 1 impressed on posterior half of disc and upper declivity, striae punctures larger, not as deep, interstriae on disc twice as wide as striae; male frons with an abrupt, transverse impression on median third just below upper level of eyes, this impression continued orad weaker and more widely expanded, irregular elevations in lateral areas slightly above level of antennal insertions; Brazil; *Cecropia* leaf petioles; 2.4 mm *brasiliana* Wood
- Striae 1 impressed from base of disc to declivity, striae punctures smaller, deeper, closer, interstriae on disc three times as wide as striae; male frons more evenly convex, without any abrupt elevations or impressions on lower two-thirds; Dominica, Mexico (Veracruz) and Panama to Bolivia, Colombia, and Venezuela (Caracas); *Cecropia* leaf petioles; 1.6–2.1 mm *maura* (Blandford)
- 12(2). Pronotum either punctured or asperate; striae setae obsolete; female frons bearing 1 or more conspicuous, longitudinal carinae (sometimes concealed by long hair) 13
- Pronotum either punctured or asperate; female frons never armed by longitudinal carinae (see also *gracilis*) 22
- 13(12). Female frons on median third from epistoma to slightly above antennal insertion with surface smooth, brightly shining, impunctate, broadly sulcate, its lateral margins distinctly elevated, crests of elevations somewhat narrowly rounded, shining; upper half of female frons flattened to upper level of eyes, shining, rather finely, closely, uniformly punctured and bearing fine, long

SCOLYTIDAE OF SOUTH AMERICA

- hair; hair also continued on lower half on lateral thirds to epistoma; anterior fourth of pronotum with punctures continued to anterior margin, a few weak, transverse wrinkles present; elytral surface partly to entirely reticulate; Brazil (Corcovado); 1.7–1.8 mm *gracilis* Schedl
- Pronotum and elytra reticulate; pair of longitudinal carinae on lower female frons acutely elevated 14
- 14(13). Female frons armed by a pair of longitudinal carinae, vestiture continued orad in lateral areas at least half distance from upper level of eyes to epistoma; pronotum smooth, punctured (except very finely asperate in *costabilis*, *obesa*, *minor*) 15
- Female frons with dense brush of hair confined to area above eyes, median area below with a longitudinal elevation, sometimes reduced to a median tubercle 20
- 15(14). Female frontal carinae extending from level of antennal insertions about half distance to upper level of eyes; anterior slope of pronotum armed by numerous, very small asperities; elytral interstriae with uniseriate, bristle-like setae from base to apex, each seta as long as distance between rows, spaced within a row by length of a seta (disc) to half length of a seta (declivity); Bolivia (Cochabamba); 1.7 mm *minor* (Eggers)
- Female frontal carinae extending from epistoma dorsad (either long or short) 16
- 16(15). Carinae on female frons long, extending from epistoma at least half distance to upper level of eyes; pronotum unarmed by asperities 17
- Carinae on female frons short, extending from epistoma to level of antennal insertion; anterior slope of pronotum finely, closely asperate 19
- 17(16). Carinae on female frons very close (subcontiguous), parallel; Costa Rica; *Cecropia* leaf petioles; 1.6–1.9 mm *blandfordi* (Schedl)
- Carinae on female frons rather widely spaced, parallel 18
- 18(17). Apex of elytra rather narrowly rounded, minute setae on lower half of declivity confused on striae and interstriae; Costa Rica; *Cecropia* leaf petioles; 1.5–1.8 mm *acuminata* Wood
- Apex of elytra more broadly rounded behind, minute setae on lower declivity restricted to interstitial rows, absent on striae; Costa Rica; *Cecropia* leaf petioles; 1.5–1.8 mm *cecropiavora* Wood
- 19(16). Body more slender, 2.3 times as long as wide; female frons sometimes flattened, with a large impunctate, median callus; Mexico (Veracruz); 2.2 mm *costabilis* Wood
- Body rather stout, 2.0 times as long as wide; female frons feebly concave, without a central callus; Panama (Canal Zone); at light; 1.9 mm *obesa* Wood
- 20(14). Female median frontal elevation low, double crested, not higher at lower end, dense tuft of hair above upper level of eyes very slightly narrower than distance between eyes; Costa Rica; *Cedrela mexicana*, *Vismia guianensis*; 1.3–1.5 mm *cedrelae* Wood
- Female median frontal elevation tuberculately elevated at its lower end, continuing upper subcarinate portion appearing granular and single crested, tuft of hair above eyes very slightly wider than distance between eyes (at bases of setae where these arise) 21
- 21(20). Female tubercle at lower end of median elevation without an acutely elevated crest continuing orad; Venezuela to Suriname and Brazil; *Swietenia*, *Carapa guianensis*; 1.4–1.7 mm *guyanaensis* (Schedl)

- Female median frontal elevation with an acutely elevated, very low carina continuing from base of tubercle to epistomal margin; Costa Rica; *Swietenia*, *Cedrela*; 1.7–1.9 mm *swieteniae* (Blackman)
- 22(12). Eyes separated above by less than one-third width of an eye, very coarsely faceted; female frons with an obtuse, subcarinate, transverse elevation above middle, surface reticulate, subglabrous; strial and interstitial setae restricted to sides and declivity; Colombia; *Clusia*; 1.9–2.2 mm *ommatea* Wood
- Eyes much more widely separated above; strial and interstitial pubescence usually much more numerous to base; female without a transverse elevation on frons 23
- 23(22). Female frons almost glabrous, setae very short, sparse, restricted to lower half on median one-third 24
- Female frons with pubescence more abundant, more widely distributed, a central glabrous area present in some species 30
- 24(22). Female frons transversely impressed on lower two-thirds (not at all concave), surface minutely, not clearly micropunctate from epistoma to upper level of eyes; impressed area on frons with very fine, uniformly distributed, sparse, inconspicuous hair of moderate length; body slender, 2.7 times as long as wide, pronotum 1.2 times as long as wide; anterior slope of pronotum asperate; interstitial setae on disc absent, on declivity small, uniseriate; Venezuela (Moritz, presumably at Colonia Tovar); 1.7 mm *parallela* (Schedl)
- Female frons more generally flattened, not conspicuously, transversely flattened or longitudinally concave 25
- 25(24). Female frons almost glabrous, median one-third on lower four-fifths distinctly impressed; body stouter, 1.8 times as long as wide; striae rather coarsely, deeply punctured, interstriae about twice as wide as striae, punctures uniseriate, rather coarse, almost as large as those of striae; Costa Rica; *Cecropia* twigs; 1.8–2.2 mm *cecropicolens* Wood
- Female frons subglabrous, shallowly, rather broadly impressed on lower half; body more slender, at least 2.3 times as long as wide; strial and interstitial punctures small, shallow, elytra glabrous 26
- 26(25). Female frons with epistoma feebly elevated, without a median callus; elytral declivity with strial punctures small to minute, interstitial punctures of equal or smaller size compared to those of striae and confused 27
- Female frons with a weakly elevated median callus above epistoma; declivital punctures on striae slightly larger, interstitial punctures larger, almost uniseriate 29
- 27(26). Pronotum mostly smooth, shining, weak reticulation on basal third, punctures very minute (diameter equal to thickness of a seta); discal interstriae at least six times as wide as striae, interstitial punctures about one-third as large as those of striae; Bolivia (Cochabamba); 2.1 mm *maja* Wood
- Pronotum moderately reticulate over entire surface, punctures small, diameter equal to at least three times thickness of a seta; discal interstriae about three to four times as wide as striae, interstitial punctures about half as large as those of striae; Panama; 2.5 mm 28
- 28(27). Color almost black; female frons feebly convex above level of antennal insertion, punctures below level of antennal insertion much smaller, less numerous; surface of elytral disc mostly smooth, shining, many irregular lines; Colombia (probably Venezuela) to Panama; 2.5 mm *laevigata* Ferrari

- Color dark reddish brown; female frons feebly concave above level of antennal insertion, punctures below level of antennal insertion larger, less numerous; surface of elytral disc partly smooth, shining, with many impressed irregular lines; punctures on lower half of declivity smaller, more completely confused; Costa Rica; *Agreratina* c.f. *ixiocladon*; 2.2–2.3 mm *ageratinae* Wood
- 29(26). Female frons planoconvex on lower seven-eighths to just below upper level of eyes, transverse epistomal callus with a narrow median extension to slightly above level of antennal insertion; Argentina; 2.1 mm *tucumani* Wood
- Frons shallowly, concavely impressed on middle one-third of median half, transverse epistomal callus obscure to obsolete, a shining impunctate callus on median one-fourth from epistoma to slightly above level of antennal insertion; Brazil; 2.5 mm *trispinosa* Eggers
- 30(23). Female frons more strongly convex, vestiture confined to lower two-thirds of area below upper level of eyes, smooth, impunctate, median shining area smaller, confined to less than lower one-third; pronotum disc moderately reticulate 31
- Female frons more extensively flattened, vestiture extending to or above upper level of eyes, smooth, impunctate, median shining area, when present, extending at least to middle of area below upper level of eyes; pronotum disc reticulate or sometimes smooth, shining 35
- 31(30). Interstriae 10 flat, not carinate (mesal margin abrupt on basal half), clearly extending well beyond level of base of declivity; distal half of scape ornamented by a large tuft of hair; female frons distinctly convex, uniformly pubescent except median one-fourth of lower area 32
- Interstriae 10 carinate from base at least to base of declivity; scape never with a conspicuous tuft of long hair; female frons more distinctly flattened (see also *similis* Eggers) 33
- 32(31). Declivital interstriae without sparse rows of erect setae; female frons on median one-fifth of lower half with a distinct elevation, surface of elevated area ornamented by large shallow punctures, without a median, smooth impunctate area, lateral and upper areas finely, closely punctured, vestiture short, more abundant, uniformly distributed except on ornamented area; Peru (Amazonas); at light; 2.6–3.1 mm *peruana* Wood
- Declivital interstriae with sparse rows of moderately long, erect interstitial setae; female frons rather weakly concave, median half of more than lower half smooth, shining, impunctate, lateral and upper areas sparsely punctured, vestiture sparse, rather long, dorsal fringe inconspicuous but present; Venezuela; *Clusia* sp.; 2.6–3.1 mm *canalicula* Wood
- 33(31). Pronotum very finely asperate on anterior fourth without any acute crests; female frons with small pubescent area flattened, without any granules, vestiture of fine hair of moderate length on central half of lower two-thirds; striae and interstitial punctures larger; elytra entirely glabrous; Guadeloupe and Panama to Venezuela; *Cecropia* twigs; 1.6–1.8 mm *ovalis* (Eggers)
- Pronotum without any asperities or acute, transverse wrinkles, punctured to anterior margin; striae punctures small, interstitial punctures minute 34
- 34(33). Body larger, more slender, 2.3 times as long as wide; pronotum disc weakly reticulate, subshining; elytral declivity steeper, occupying posterior third of elytra length, very minute interstitial hair on disc and declivity, their length about equal to diameter of a striae puncture; female frons evenly convex on lower two-thirds, surface shining, with rather abundant small, rounded tubercles, vestiture of fine, long hair of moderate length uniformly distributed; Mexico (Jalisco); *Plumeria rubra*; 1.5–1.6 mm *plumericolens* Wood
- Body smaller, stouter, 2.1 times as long as wide; pronotum disc almost smooth, shining, punctures minute; elytral declivity more gradual, occupying posterior 40 percent, elytral disc and declivity entirely glabrous; female frons basically convex, somewhat flattened on lower two-thirds, median one-fifth on middle half forming a weakly elevated, convex, impunctate, subshining callus, its lateral

	margin obscurely punctured half distance to antennal insertions, punctured area with fine, short hair (setae not extending dorsad above upper end of callus); Costa Rica; 1.2 mm	
	. . . . .	<i>minutissima</i> Schedl
35(30).	Female frons with pubescence extending only to near upper level of eyes; pronotum smooth, shining	36
—	Female frons with pubescence extending to or well above upper level of eyes (usually to vertex); pronotum reticulate, sometimes dull	41
36(35).	Female scape with a tuft of long hair; epistoma in one or both sexes armed by a small median tubercle; elytral declivity much steeper; setae on female frons more abundant in lateral and dorsal areas	37
—	Female scape without a tuft of long hair; epistoma without a median tubercle in either sex	39
37(36).	Female epistoma armed by a median, flattened, pyriform process on lower fourth, antennal insertions displaced dorsad; frontal impression broad, extending distinctly above upper level of eyes, vestiture of dense, short, fine setae, especially dense near glabrous, elevated process; tuft of hair on female scape only; Guatemala and Costa Rica to Peru; 2.2–2.5 mm	
	. . . . .	<i>unipunctata</i> (Blandford)
—	Epistoma armed by a small tubercle in both sexes	38
38(37).	Upper setae on female frontal tuft arising at or very slightly below upper level of eyes, tips of upper setae capable of extending about half distance toward level of antennal insertions; strial punctures smaller, not as deep, most spaced by diameter of a puncture or more; most interstitial punctures minute, less than one-third as large as those of striae; declivity more evenly convex, suture as high or higher than interstriae 2; Brazil (Corcovado); 2.0 mm	
	. . . . .	<i>perplexa</i> Schedl
—	Setae on female frons extending distinctly above upper level of eyes, tips of these upper setae capable of extending to level of antennal insertions; strial punctures on disc larger, deeper, closer; interstitial punctures larger, half to two-thirds as large as those of striae; declivity with striae 1 distinctly impressed, suture and interstriae 1 not as high as 2 or 3; Colombia; <i>Clusia</i> ; 2.4–2.9 mm	
	. . . . .	<i>praeceps</i> Wood
39(36).	Female frons flattened and finely punctured on a broad, subcircular area from epistoma to slightly above upper level of eyes, a distinct median, impunctate callus on lower half usually hidden by setae; pronotum feebly asperate on anterior slope, disc weakly reticulate; punctures on elytral disc small, somewhat confused; Costa Rica; <i>Ficus</i> ; 1.4–1.9 mm	
	. . . . .	<i>pseudopicea</i> Wood
—	Female frontal vestiture shorter; shining area less conspicuous; strial punctures on disc in definite rows, not confused with those of interstriae	40
40(39).	Female frons rather coarsely, closely punctured except smooth and shining on median one-sixth of lower two-thirds, vestiture at margins very long; strial punctures small, rather deep, interstitial punctures on 2 and 3 small, almost uniseriate; Guatemala to Costa Rica; <i>Plumeria rubra</i> , <i>Ficus</i> ; 1.4–1.8 mm	
	. . . . .	<i>venusta</i> Wood
—	Female frons rather finely, closely punctured except smooth and shining on triangular area on median one-third of lower two-thirds, vestiture of fine, long hair, longer on margins; strial punctures small, rather shallow; interstitial punctures on 2 and 3 small, confused; Guatemala to Costa Rica; <i>Plumeria rubra</i> ; 1.9–2.7 mm	
	. . . . .	<i>plumeriae</i> Wood
41(35).	Body stouter, less than 2.2 times as long as wide, declivity steeper; strial punctures on disc moderately large, interstitial punctures often equally large (punctures confused in <i>phoebeae</i>); female frons flattened on a subcircular area; pubescence extending to or only slightly above upper level of eyes (to vertex in <i>phoebeae</i>), circular central area either shining or with micropunctures; mostly smaller species	42

- Body more slender, at least 2.4 times as long as wide, declivity more gradual; striae punctures on disc small, rather shallow, interstriae punctures minute; female frons with pubescence extending to vertex, ornamented on dorsal and lateral margins by a fringe of long, yellow hair, epistomal margin largely without pubescence, large central area smooth, shining 50
- 42(41). Pronotum punctured on anterior slope to anterior margin, with no indication of asperities (obscure wrinkles in *puer*); female frontal vestiture sometimes extending above upper level of eyes 43
- Anterior slope of pronotum clearly asperate, either with or without punctures intermixed with asperities; female frontal vestiture attaining only upper level of eyes 47
- 43(42). Epistoma with a distinct median tubercle in both sexes; female frons with flattened area poorly defined, on lower half, vestiture of sparse, short, inconspicuous setae to upper level of eyes; Venezuela; *Chusia*; 2.2–2.5 mm *crinalis* Wood
- Epistoma without a median tubercle, flattened area more definite and more extensive 44
- 44(43). Striae punctures discernible, in rows, interstriae punctures smaller; female frontal vestiture attaining only upper level of eyes, pubescent area rather widely spaced from margin of eye; Bolivia (Cochabamba); 1.9 mm *nitida* (Eggers)
- Elytral punctures moderately coarse, moderately to strongly confused; female frons with abundant setae extending to vertex 45
- 45(44). Larger species; striae punctures confused with those of interstriae from base to apex, striae not discernible at base; female frontal pubescence extending to vertex, well above upper level of eyes; Costa Rica; *Phoebaea mexicana*; 2.3–2.5 mm (Plate LVI, figs.) *phoebaea* Wood
- Smaller species; striae punctures on 1–4 in distinct rows on basal half of disc, interstriae punctures confused on 2 and 4; female frontal pubescence (apparently) not extending above upper level of eyes 46
- 46(45). Punctures on discal interstriae 3 and 5 uniseriate; female frons finely, closely, uniformly punctured, except with a smooth, shining area on less than median half of lower half; pronotal punctures continue to anterior margin, asperities transversely elongate; Argentina; 2.1 mm *frontoglabrata* (Schedl)
- Punctures on discal interstriae 2–5 confused; female frons finely, closely, uniformly punctured over entire area; pronotal punctures continue to anterior margin, asperities transversely elongate; Paraguay; 1.8 mm *puer* (Schedl)
- 47(42). Female frons pubescent on a circular pattern to upper level of eyes, subcircular central area smooth, shining (no setae); anterior half of pronotum rather coarsely asperate, posterior half almost smooth, shining (reticulation obscure), punctures rather coarse, close 48
- Female frons with pubescence extending very slightly above upper level of eyes, central area within circular fringe densely micropunctate or granulate; pronotal asperities distinctly smaller, confined to less than anterior half 49
- 48(47). Impunctate central area on female frons smaller; asperities on anterior half of pronotum smaller; reticulation on pronotum disc much stronger, punctures much smaller; Brazil (Paraná); 1.4 mm *nitella* (Schedl)
- Impunctate central area on female frons much larger; asperities on anterior half of pronotum rather coarse; reticulation on pronotum disc rather obscure, punctures much larger; Bahama Islands and Florida to Mexico (Jalisco, Veracruz); *Ficus*; 1.3–1.6 mm *schwarzi* (Hopkins)

- 49(47). Female frons with setae in circular margin much longer; length of each almost as great as diameter of central area, central area flat to feebly concave, surface densely micropunctate becoming smooth at and near epistoma; disc of pronotum moderately reticulate; striae punctures moderately small, in rows, interstriae punctures uniseriate, somewhat variable in size; Panama; 1.7 mm
..... *panamensis* Wood
- Female frons with setae in circular margin shorter; equal in length to less than one-third diameter of central area, central area feebly concave, surface very minutely, densely granulate, an impunctate, transverse shining area just below middle on more than median half, a short extension of shining callus directed orad at median line; disc of pronotum rather weakly reticulate; interstriae punctures strongly confused on disc and declivity, striae punctures larger and uniseriate near base, smaller and confused with those of interstriae behind; Mexico (Jalisco, Tamaulipas); *Ficus*; 1.9–2.3 mm *amoena* Wood
- 50(41). Female frons broadly flattened, vestiture uniformly distributed (apparently distributed from epistomal lobe to vertex), without a smooth, shining area; oral fossa very broad, epistomal lobe large, punctured and pubescent, occupying median half; declivital striae impressed, interstriae convex, 2 and 4 ending at or slightly below middle of declivity; pronotum and elytra glabrous; Colombia; *Virola* log; 2.3–2.4 mm *declivistriata* Schedl
- Female frons with a smooth, glabrous area; declivital striae 2 and 4 continue to lower half of declivity 51
- 51(50). Pronotum and elytra moderately to strongly reticulate; female frons with smooth, shining area confined to median one-third on lower half, lateral and dorsal areas rather coarsely, deeply punctured, setae moderately abundant, rather long; eyes separated above by 2.0 times width of an eye; striae punctures small, shallow, interstriae punctures minute, uniseriate; Guatemala; *Ficus*; 1.4–1.6 mm *faceta* Wood
- Elytra almost smooth, shining (no reticulation); female frons with smooth, shining area extending at least three-fourths distance from epistoma toward upper level of eyes, lateral punctured areas finer, narrower, setae extending higher on vertex; eyes spaced above by about 2.0–4.0 times width of an eye 52
- 52(51). Interstriae 10 almost flat, present but only weakly convex on its distal half 53
- Interstriae 10 subacutely convex throughout its length 54
- 53(52). Larger species; mesothoracic tibia slender, armed by 9 socketed denticles; Costa Rica; *Miconia*; 3.3–3.5 mm *immana* Wood
- Smaller species; mesothoracic tibia distinctly wider, armed by 7 socketed denticles; Costa Rica to Panama; *Cecropia peltata*, *Phoebe mexicana*; 1.8–2.0 mm *picea* (Blandford)
- 54(52). Pronotum punctured to anterior margin, asperities absent 55
- Pronotum with anterior slope asperate, punctures eliminated before attaining anterior margin ... 58
- 55(54). Discal striae obsolete, not evident, area of interstriae 2 and 4 with numerous, small, confused punctures, area of 3 with punctures almost uniseriate; punctures on pronotum continue to anterior margin, with no wrinkles or asperities; area of female frons above upper level of eyes hidden by pronotum on available specimen, glabrous; shining area on median half extending at least half distance toward upper of eyes; Argentina; 2.2 mm *bruchi* (Hagedorn)
- Discal striae clearly indicated, punctures on interstriae 1–3 almost uniseriate 56
- 56(55). Anterior slope of pronotum reticulate to anterior margin, punctures not associated with transverse wrinkles; striae and interstriae punctures minute, interstriae more than five times as wide as striae (striae punctures as small as punctures on pronotum disc); setae on lateral margins of female frons less numerous; Venezuela; *Cecropia* leaf petioles; 1.8–2.2 mm *chapuisi* Wood

- Anterior slope of pronotum mostly shining to reticulate, punctures associated with transverse wrinkles (a pre-asperate condition); stria punctures larger, interstriae about three times as wide as striae (stria punctures about three times larger than those on pronotum disc; setae on lateral margins of female frons more abundant 57
- 57(56). Pronotum more weakly reticulate, some areas almost smooth, shining; punctures on pronotum disc rather small; peripheral fringe of hair on female frons continued on lateral margins to well below eye, tips of some setae on vertex attaining epistomal margin; body 2.7 times as long as wide; Venezuela (Merida); *Mariana*; 2.7–3.1 mm *serina* Wood
- Pronotum uniformly rather strongly reticulate; punctures on pronotum disc minute; peripheral fringe on female frons sparse to absent, tips of longest setae not attaining epistoma; Costa Rica; *Gunnera insignis*; 3.0–3.6 mm *gunnerae* Wood
- 58a(54). Pronotum 1.2 times as long as wide, a definite summit anterior to middle; body slender, 2.7 times as long as wide; stria punctures less strongly impressed, about equal in size to those of pronotum disc; dorsal margin of pubescent area on female frons rather narrowly arched, setae much less abundant on both dorsal and lateral margins; Costa Rica; *Alnus acuminatus*; 2.4–2.9 mm (Plate XLVIII, figs.) *alni* Wood
- Pronotum as wide or wider than long; body less slender, 2.3–2.5 times as long as wide; stria punctures more strongly impressed, distinctly larger than those on pronotum disc; dorsal margin of pubescent area on female frons ending at upper level of eyes or its upper margin, much more broadly arched 58b
- 58b(58a). Dorsal margin of female frontal pubescence extending to upper level of eyes, row of setae rather sparse, much shorter; body 2.5 times as long as wide; pronotum 1.0 times as long as wide; punctures on basal half of discal interstriae 2 uniseriate; Brazil (Sao Paulo); 1.6–1.7 mm *bicolor* (Eggers)
- Dorsal margin of female pubescence on frons extending well above upper level of eyes, its dorsal margin broadly arched, setae dense, more widely distributed; body 2.3 times as long as wide; pronotum 0.9 times as long as wide; punctures on basal half of disc on interstriae 2 confused; Panama (Canal Zone); 1.8–2.1 mm *perdita* Wood
- 59(1). Pronotum with punctures distributed from base to anterior margin (subconcentric long rugae present in *lepida* but with punctures conspicuously present to anterior margin, also with interstriae 10 present on posterior half) 60
- Anterior one-fourth of pronotum armed by asperities that entirely replace punctures; female frons essentially convex, with sparse vestiture, never extending to upper level of eyes; interstriae 10 almost never extending behind level of metacoxae 81
- 60(59). Strial setae obsolete, interstitial setae uniseriate, if present; interstriae 10 sometimes evident on posterior half (beyond level of metacoxae); female frons variously sculptured, frontal setae more abundant and longer than in male 61
- Strial setae conspicuously present (except absent in *radiata*), interstitial setae more numerous, often confused (sometimes with uniseriate, erect rows and also short, confused ground setae); female frons convex, setae sparse, not longer or more abundant than in male 71
- 61(60). Interstriae 10 extending to level of abdominal sternum 3 or beyond; female frontal vestiture extending up to very slightly above upper level of eyes 62
- Interstriae 10 not extending beyond level of metacoxae; female frontal vestiture extending well above upper level of eyes 63
- 62(61). Anterior third of pronotum asperate, asperities confused, transversely elongate, rugae, short and near summit when present; stria punctures clearly in rows, distinctly larger than confused interstitial

- punctures; female frons on median half of lower half with a large, obscurely quadrate impunctate, shining callus, a finely, densely punctured area on median two-thirds from callus to upper level of eyes, a fringe of long hair extending from above upper level of eyes down lateral areas to epistomal brush; Brazil (Sao Paulo); 2.5–2.7 mm *pseudoacuminata* (Schedl)
- Anterior one-third of pronotum armed by subconcentric rows of subacute crests or ridges, with moderately coarse punctures in intervening areas; elytral punctures rather coarse, moderately confused on posterior half; female frons with moderately long, rather abundant vestiture except for glabrous median callus at and slightly above level of antennal insertions on median one-fifth; Mexico (Jalisco); *Ficus*; 1.8–2.3 mm *lepida* Wood
- 63(61). Lower female frons convex, median one-sixth on lower half distinctly, longitudinally sulcate (surface of sulcus smooth, shining), lateral margins of sulcus distinctly elevated and bearing rows of fine, isolated, shining granules (apparently 4 longitudinal rows on each side), very long setae on vertex extending to level of antennal insertion, somewhat shorter laterally; Mexico (Chapias); *Quercus*; 1.4–1.7 mm *canalis* Wood
- Female frons at least shallowly concave (flat in *fulminea*) 64
- 64(63). Female frons punctured and pubescent to lateral margins, without lateral calluses 65
- Female frons with a pair of distinctly elevated, smooth, shining, longitudinal calluses near or on lateral margins 69
- 65(64). Female frons with median half smooth, shining, impunctate from epistoma almost to upper level of eyes, lateral areas finely, closely punctured to upper level of eyes, setae erect, short, length of longest equal to about one-sixth distance between eyes; interstitial punctures almost obsolete; Venezuela; *Clusia*; 1.6–1.9 mm *fulminea* Wood
- Female frons with shining areas obsolete to much smaller; interstitial punctures present, at least in part 66
- 66(65). Female frontal rectangle wider than long, vestiture more evenly distributed, little if any longer on dorsal margin, ending at upper level of eyes; very minute striae setae usually on declivity, occasionally on disc 67
- Female frontal vestiture extending well above eyes, setae on dorsal margin more abundant, much longer; striae setae obsolete 68
- 67(66). Female frons shining between abundant, uniformly distributed punctures, surface very weakly concave from level of antennal insertions to upper level of eyes, a smooth, shining, impunctate callus from epistoma to level of antennal insertion on median one fifth; Mexico (Veracruz) to Guatemala; *Clusia*; 1.3–1.6 mm *clusiavora* Wood
- Female frons reticulate between punctures, surface moderately, broadly concave on central two-thirds, without a shining callus; Costa Rica; *Clusia*; 1.7–1.9 mm *clusiae* Wood
- 68(66). Strial punctures on disc minute; female frontal impression on median two-thirds strongest on lower half, extending well below upper level of eyes, setae on lateral margins much more abundant; Costa Rica; *Cecropia* leaf petioles; 0.9–1.0 mm *acares* Wood
- Strial punctures on disc rather small; female impression on frons rather weak, strongest on upper two-thirds, surface uniformly, finely granulate-punctate, setae sparse below, moderately abundant above; Costa Rica; tree seedling; 1.2–1.3 mm *volcanus* Wood
- 69(64). Female frons with a pair of longitudinal, impunctate, smooth, shining calluses spaced by one-third width of frons extending from distinctly above upper level of antennal insertions to distinctly above level of eyes; striae punctures small, shallow, interstriae shining, punctures mostly obsolete, declivity without striae setae, interstriae 3, 5, and 7 each with one or two setae; E. Costa Rica; *Cecropia* leaf petioles; 0.9–1.0 mm *parvula* Wood

SCOLYTIDAE OF SOUTH AMERICA

- Female frons with a pair of longitudinal, smooth, shining calluses spaced by half width of frons, beginning at level of antennal insertions and extending to distinctly below upper level of eyes, fringe setae more definite, especially above 70
- 70(69). Strial and interstitial punctures rather coarse, deep, uniseriate, declivity with minute strial hair; impressed area of female frons finely punctured, rows of setae on lateral and upper margins well formed, rather short, not longer or of greater abundance above; Costa Rica; tree branches; 1.4–1.9 mm *irazuensis* Wood
- Strial setae very small, shallow, interstitial punctures minute to obsolete; strial setae on declivity very minute; impressed area of female frons finely punctured, row of setae on lower one-third of lateral areas obsolete, dense and much longer on dorsal margin; Colombia; *Cecropia* leaf petioles; 1.3–1.4 mm *anceps* Wood
- 71(60). Strial setae minute to absent, interstitial setae sparse to obsolete; mature body color black; frons strongly convex in both sexes, setae sparse to obsolete (see also *fulminea*, *clusiavora*, *clusiae*; host mostly *Clusia*) 72
- Pronotum and elytra with abundant pubescence, strial setae conspicuous, often as long as those of interstriae 75
- 72(71). Strial and interstitial setae absent; interstitial punctures on disc smaller, more widely spaced, most spaces equal in length to width of an interstriae; Costa Rica; *Quercus*; 1.7–2.0 mm *radiata* Wood
- Minute strial punctures present, interstitial punctures present to or near base 73
- 73(72). Interstitial punctures on disc very feebly granulate; setae on all interstriae of about equal length; posterior half of pronotum with minute, hairlike setae; Mexico (Michoacan) to Honduras; *Clusia*; 1.8–2.9 mm *clusiacolens* Wood
- Interstitial punctures on disc not at all granulate; interstitial setae on 2, 4, and 6 minute, part of those on 1, 3, and 5 much longer; posterior half of pronotum glabrous 74
- 74(73). Body rather stout, 2.0 times as long as wide; strial punctures moderately large, more than half as wide as an interstriae; interstitial punctures minute; strial and interstitial setae minute, except sparse long setae on odd-numbered interstriae; Panama (Canal Zone); at light; 1.0 mm *crassa* Wood
- Body slender, 2.4 times as long as wide; strial punctures smaller, deeper, less than half as wide as an interstriae; strial and interstitial punctures minute, setae short except a moderate number of long setae on odd-numbered interstriae; Panama (Chiriqui); *Oreopanax xalapense* seedling; 1.3–1.5 mm *venustula* Wood
- 75(71). Setae on elytral declivity recumbent or semirecumbent, confused, none in discernible rows 76
- Declivital setae with at least longest setae erect, interstitial setae in definite rows 77
- 76(75). Body 2.1 times as long as wide; strial and interstitial punctures in uniseriate rows on anterior two-thirds of disc, on declivity interstitial punctures much more numerous, strongly confused; elytral setae much less abundant on basal half, some setae erect; Venezuela; tree bole; 1.7–2.0 mm *semipunctata* Wood
- Body 2.4 times as long as wide; strial and interstitial punctures rather small, strongly confused from base; elytral vestiture more numerous from base, recumbent; Venezuela; *Croton*; 1.5–1.7 mm *habilis* Wood
- 77(75). Strial and interstitial punctures on disc in identifiable rows, strial and interstitial setae in rows 78

CTENOPHORINI

—	Elytral punctures confused, interstitial setae confused except for central row on each conspicuously longer than most ground setae	79
78(77).	Strial setae on declivity about half as long as distance between rows, interstitial setae as long as distance between rows, erect, slightly stouter; declivital punctures in recognizable rows; Venezuela; <i>Nectandra</i> ; 1.4–1.6 mm	<i>decora</i> Wood
—	Strial setae on declivity about as long as distance between rows, interstitial setae one and one-half times as long as distance between rows, very fine, mostly curved; declivital punctures confused; Ecuador to Bolivia; 1.9 mm	<i>punctata</i> (Eggers)
79(77).	All punctures on elytral disc and declivity small, confused (striae 1 sometimes discernible); Costa Rica; liana; 1.7 mm	<i>hirsuta</i> Wood
—	Strial punctures on disc slightly larger, in discernible rows	80
80(79).	Strial punctures on disc slightly larger, deeper than those of interstriae, as large as those of pronotum; Costa Rica; <i>Oreopanax nubigenus</i> ; 1.5 mm	<i>punctifera</i> Wood
—	Strial punctures much smaller, little larger than those of interstriae, pronotal punctures small, shallow; rows of erect interstitial setae on declivity in addition to ground cover; Colombia; <i>Croton guianensis</i> ; 1.4–1.5 mm	<i>vescula</i> Wood
81(59).	Interstriae 10 continued to level of base of declivity; female frons flattened and ornamented by a fringe of long setae; elytral setae (or interstitial punctures) sometimes confused, small to very minute	82
—	Interstriae 10 ending at or before level of hind coxae (except longer in <i>morulus</i>); frons convex and with sparse pubescence	95
82(81).	Female frontal pubescence not attaining upper level of eyes (upper half of pubescent area with a weak pair of smooth, shining calluses in 1 species)	83
—	Female frontal pubescence clearly extending above upper level of eyes	90
83(82).	Female frons punctured to center	84
—	Female frons with a large, impunctate shining area	87
84(83).	Female frons with a low, acute median carina on lower half, vestiture long, rather abundant, longest at margins; strial and interstitial punctures on disc moderately coarse, in rows except confused on 2; elytra glabrous; Brazil; 1.5–1.8 mm	<i>glabrella</i> (Schedl)
—	Female frons without a median carina, vestiture slightly shorter, less abundant; strial punctures on disc smaller; interstitial punctures on disc small to absent, setae present or not	85
85(84).	Strial punctures very large, deep, striae wider than interstriae; punctures on pronotum coarse, deep, very close; Bolivia (Cochabamba); 1.2 mm	<i>pusilla</i> (Eggers)
—	Strial punctures rather small, shallow, striae less than half as wide as an interstriae; punctures on pronotum very small, shallow, rather widely spaced	86
86(85).	Female frontal setae sparse, uniformly distributed below a low, weak, short transverse carina, without setae above carina; elytral declivity with sparse, erect setae on odd numbered interstriae; Argentina; 1.9–2.0 mm	<i>sparsepilosa</i> Wood
—	Female frons with a pair of obscure, longitudinal, shining, impunctate areas on median one-third on upper half of pubescent area; elytra glabrous; Venezuela; <i>Clusia</i> ; 1.3–1.7 mm . . .	<i>naevia</i> Wood

- 87(83). Elytra with strial and interstitial setae present on disc and declivity, declivity also with rows of erect interstitial setae; female frons with impunctate area as wide as distance between eyes, occupying lower two-thirds of distance from epistoma to upper level of eyes, setae at margins sparse, not forming a definite row at margin, weak above; Costa Rica; *Ficus*, *Rheedia edulis*; 1.3–1.7 mm
 *erineophila* Wood
- Strial and interstitial setae absent, sparse (if present) behind; female frontal setae more conspicuous 88
- 88(87). Elytral disc clearly reticulate; declivity with very minute strial and interstitial setae (length of each less than diameter of a puncture), occasional erect setae sometimes present on odd-numbered interstriae on posterior half; smooth, impunctate shining area on female frons occupying median one-third of lower one-half, marginal fringe subcircular; setae rather long; Mexico (Puebla to Michoacan); *Ficus*; 1.5–2.0 mm *reticulata* (Wood)
- Elytral disc smooth (not reticulate), strial setae absent 89
- 89(84). Female frontal smooth, impunctate area beginning at epistoma, longer than wide, occupying slightly more than lower half; elytral punctures distinctly larger, deeper, glabrous; Guatemala; 1.5–1.7 mm *ficivora* Wood
- Female frons with central, smooth, shining, impunctate area circular in outline, beginning at level of antennal insertion and ending distinctly below upper level of eyes, pubescent margin circular, as wide as long; odd-numbered interstriae each with about one to four erect setae on declivity; Venezuela; *Cecropia* leaf petioles; 1.3–1.9 mm *pilifrons* (Schedl)
- 90(82). Female frons with a pair of longitudinal carinae near lateral margins on middle half, central area very weakly concave, pubescent area mostly at margins, about equally distributed above and below; Venezuela; *Ficus*; 1.7–1.9 mm *ficicolens* Wood
- Female frons without a pair of carinae in lateral areas 91
- 91(90). Female frons with a large, median, glabrous area on lower half (without a median crest) 92
- Female frons with a weak median crest, surface at center somewhat granulate, not smooth 94
- 92(91). Female frons rather strongly concave on central two-thirds, impressed area smooth, shining, most setae on margin or less than upper one-third, sparse on margins below, glabrous in concave area; elytral surface smooth, shining, punctures rather coarse, those of interstriae confused, strial and interstitial setae conspicuous, rather abundant, moderately short, and with rows of erect interstitial setae on more than posterior half, erect setae equal in length to two-thirds distance between rows; Colombia to Venezuela; *Croton guianensis*; 2.1–2.4 mm *subcribrosa* (Eggers)
- Female frons flat to feebly concave, median half on lower two-thirds glabrous, very finely reticulate, lateral and upper margins bearing a fringe of long hair to epistoma; interstitial punctures rather small, shallow, most uniseriate; sparse setae on odd-numbered interstriae 93
- 93(92). Smaller, more slender, body 2.6 times as long as wide; elytral surface smooth, shining; female frons weakly convex, glabrous area strongly reticulate, almost rugose-reticulate, tips of longest setae on upper margin capable of extending one-half to two-thirds distance to epistomal margin; Brazil (Santa Catarina); 1.4–1.6 mm *glabrata* (Schedl)
- Larger, stouter, 2.3 times as long as wide; elytral surface moderately reticulate; female frons flat, glabrous area weakly reticulate, tips of longest setae on upper margin capable of extending less than one-third distance to epistomal margin; Mexico (Morelos); *Ceiba*; 1.8–2.2 mm *retifer* Wood
- 94(91). Striae not impressed, punctures small, shallow, strial and interstitial setae short and rather abundant on posterior half, sparse, erect setae on some odd-numbered interstriae; female frons almost

CTENOPHORINI

	flat, a weak median elevation on lower half, setae restricted to dorsal fringe above upper level of eyes; Costa Rica; tree branch; 1.5–1.7 mm	<i>costaricae</i> Wood
—	Discal striae distinctly impressed, punctures rather coarse, deep; erect interstitial setae fine, rather long, rows extending to base; female frons with subcircular central half minutely granular and glabrous, median line weakly elevated, shining, higher and wider toward epistoma, row of long setae on lateral and upper margins surround granular area; Mexico (Chiapas) to Costa Rica; tree branch; 1.5–1.8 mm	<i>marginata</i> Wood
95(81).	Elytra either subglabrous or with erect rows of interstitial setae, strial and ground setae absent; small species	96
—	Strial setae present, interstitial setae abundant; some species large, pubescent	102
96(95).	Female frons ornamented by long hair, male frons convex and sparsely pubescent; erect interstitial setae in sparse rows on odd-numbered interstriae	97
—	Frons convex and sparsely pubescent in both sexes; erect rows of setae on all interstriae	99
97(96).	Elytral declivity more gradual, modestly impressed near suture, rather narrowly rounded behind; anterior half of pronotum more coarsely asperate (female not seen); Puerto Rico; 2.1 mm (Bright study in progress)	(*Puerto Rico sp.)
—	Elytral declivity steeper, evenly convex (not impressed near suture), more broadly rounded behind; pronotum more finely asperate; female frons flat to weakly concave, ornamented by long hair	98
98(97).	Female frons shallowly concave on lower half, margin on upper half ornamented by long hair; lower half of impressed area closely punctured; strial punctures rather small, interstitial punctures almost obsolete, sparse on odd-numbered interstriae; Costa Rica; <i>Ochroma</i> ; 1.2–1.3 mm	<i>ochromae</i> Wood
—	Female frons with median one-fifth just above level of antennal insertion with an oval, smooth, shining area, remaining area finely, closely punctured and ornamented by abundant hair; strial punctures moderately coarse, deep, interstitial punctures small, deep, close, uniseriate; Cuba, Dominica, Guadeloupe, Puerto Rico; 1.3–1.6 mm	<i>notata</i> (Eggers)
99(96).	Larger species; carina of interstriae 10 continued to base of declivity; minute strial setae present, interstitial setae in uniseriate rows; pronotum asperate on anterior third; Brazil (Santa Catarina); 1.5 mm	<i>morula</i> (Schedl)
—	Mostly smaller species; carina of interstriae 10 ending at level of hind coxae; strial setae obsolete	100
100(99).	Mature color black; pronotum reticulate; striae 1 not impressed, interstitial punctures sparse, setae restricted to posterior half, at least one on each interstriae, sparse; Venezuela; <i>Clusia</i> ; 1.4–1.7 mm	<i>comitabilis</i> Wood
—	Mature color brown; pronotum smooth, shining; striae 1 distinctly impressed, interstitial punctures regularly spaced, with erect setae on all interstriae to base	101
101(100).	Pronotum 1.0 times as long as wide; striae 1 on disc rather weakly impressed, punctures smaller; erect interstitial setae stout, apex blunt, shorter, each about two-thirds as long as distance between rows; Brazil (Santa Catarina); 0.9–1.0 mm	<i>minuta</i> Wood
—	Pronotum slender, 1.15 times as long as wide; striae 1 on disc distinctly impressed, punctures larger; erect interstitial setae very slender, longer, each slightly longer than distance between rows; Colombia; Leguminosae tree branch; 1.0–1.3 mm	<i>pusillima</i> Wood

SCOLYTIDAE OF SOUTH AMERICA

102(95).	Body more slender, at least 2.3 times as long as wide; striae punctures on disc in definite, identifiable rows; elytral declivity rather steep, occupying slightly less than posterior half of elytra	103
—	Body stout, less than 2.1 times as long as wide; striae punctures either in definite rows or confused with those of interstriae; elytral declivity more gradual, occupying posterior half of elytral length	117
103(102).	Pronotum widest at or behind middle; setae on pronotum and elytra shorter, longest rarely equal to more than width of one interstriae; interstitial punctures either uniseriate or confused, almost as large as those of striae; smaller species than 2.8 mm	104
—	Pronotum conspicuously wider well in front of middle; setae on pronotum and elytra unusually long, longest setae equal in length to distance from suture to striae 3; interstitial punctures uniseriate, conspicuously smaller than those of striae; larger species, more than 2.5 mm	113
104(103).	Species smaller, 1.2–1.5 mm; discal interstriae 2 and 3 with punctures uniseriate from base to base of declivity; lower frons about evenly convex, without a median carina	105
—	Species larger, 1.7–2.4 mm; discal interstriae 2 and 3 with punctures confused at least on posterior half; lower frons (or vertex in <i>limbata</i>) with a weak to moderate median carina	109
105(104).	Summit of pronotum distinctly anterior to middle, asperities on anterior slope coarser, more numerous, profile from summit to base almost straight, basal margin with a fine, raised line; elytral setae all short, without erect interstitial rows; Mexico (Nayarit); <i>Ficus</i> ; 1.2 mm	<i>nayaritensis</i> Wood
—	Summit of pronotum indefinite, at or behind middle, profile of basal half distinctly convex, basal margin poorly defined, raised line obscure; asperities small, limited area; interstitial setae with erect rows	106
106(105).	Pronotum longer than wide, with basal half mostly smooth, shining, reticulation obscure; interstriae twice as wide as striae, punctures larger; Ecuador; 2.0 mm	<i>hagedorni</i> (Schedl)
—	Pronotum as wide or wider than long, posterior half rather strongly reticulate; striae punctures smaller; interstriae three or more times as wide as a striae; smaller species	107
107(106).	Body very slender, 2.6 times as long as wide; striae punctures on disc rather coarse, each almost half as wide as interstriae; interstitial punctures almost as large as those of striae; Bolivia (Cochabamba); 1.6 mm	<i>parva</i> (Eggers)
—	Body less than 2.3 times as long as wide; striae punctures smaller, each about one-third as wide as an interstriae; interstitial punctures mostly less than half as large as those of striae; smaller species	108
108(107).	Punctures on disc of pronotum smaller; striae and interstitial ground setae short, equal in length to less than twice diameter of a striae puncture; setae on lower female frons almost obsolete; Venezuela; tree branch; 1.0–1.4 mm	<i>perpusilla</i> Wood
—	Punctures on disc of pronotum distinctly larger; striae and interstitial ground setae much longer, equal in length to more than three times diameter of a striae puncture; setae on lower female frons rather short and sparse but conspicuously present; Venezuela; Leguminosae liana; 1.3–1.5 mm	<i>crinita</i> Wood
109(104).	Frons either without an elevation or with a median elevation above upper level of eyes; discal punctures on pronotum rather coarse, deep, close, margin of punctures without a shining spot, striae punctures smaller, closer, interstitial punctures small to minute, uniseriate on basal half of disc	110

- Frons with subcarinate elevation on lower half; discal punctures on pronotum smaller, not as close, reticulation in spaces between punctures conspicuous, margin of at least some punctures with a shining spot; striae punctures on disc larger, not as close, interstriae punctures on disc almost half as large as those of striae 111
- 110(109). Frons without a median elevation; pronotum disc partly shining, reticulation reduced to almost absent; striae punctures on disc small, not as close, interstriae punctures uniseriate to declivity; Bolivia (Cochabamba); 1.7 mm *adusta* (Eggers)
- Frons with a median elevation near upper level of eyes; pronotum disc strongly reticulate; striae punctures on disc small, very close, interstriae punctures uniseriate on basal half of disc, slightly to moderately confused behind; Bolivia (Cochabamba); 1.8 mm *limbata* (Eggers)
- 111(105). Discal striae with punctures small, interstriae only slightly smaller, those on 1–4 abundant and strongly confused from base to declivity; punctures on pronotum disc smaller, closer, most with a tiny shining spot on rim; Bolivia (Cochabamba); 2.1 mm *confusa* (Eggers)
- Discal striae with punctures distinctly larger, interstriae punctures less numerous, uniseriate on at least basal half of disc 112
- 112(111). Punctures on posterior half of pronotum disc with shining spot on margins rarely visible behind summit; elytral surface near and on declivity brightly shining, punctures slightly larger, less abundant; declivital setae distinctly longer, less abundant, their length more irregular; Bolivia; 2.1 mm *ater* Eggers
- Shining spot at margin of punctures behind summit of pronotum present on almost all punctures; elytral surface near and on declivity shagreened, subshining, punctures on declivity much smaller, more abundant; declivital setae much shorter, more abundant; Venezuela; Cucurbitaceae vine, *Ficus*, *Podocarpus*; 1.9–2.4 mm *gennaea* Wood
- 113(103). Asperities larger, extending almost to middle of pronotum, punctures not extending into asperate area, lateral shining spot not consistently present, punctures slightly larger and closer near base in median area; upper declivity more uniformly convex, striae 1 and 2 reduced but recognizable; frontal carina smooth, shining; Venezuela; Cucurbitaceae vine; 1.7–1.9 mm *libida* Wood
- Asperities smaller, restricted to less than anterior one-third of pronotum length, punctures smaller, extending slightly into asperate area, each puncture with a shining spot on lateral margin, punctures not larger or closer at base near median line; upper declivity slightly flattened, punctures more uniformly small, confused, striae 1 and 2 not recognizable; frontal carina reticulate to summit 114
- 114(113). Posterior half of pronotum with sides only slightly narrower near base; discal interstriae 2 and 3 with punctures confused from base to base of declivity; longest interstitial setae about 1.5 times as long as width of a discal interstriae; Colombia, 4000 m; 2.8 mm *tolimana* (Schedl)
- Posterior half of pronotum with sides conspicuously narrower than anterior areas; discal interstriae 2 and 3 with punctures uniseriate from base to apex; interstitial setae often much longer 115
- 115(114). Pronotal asperities on anterior slope smaller, not reaching summit; punctures on disc of pronotum and disc of elytra much smaller, less numerous on pronotum, those on discal striae at least three times as wide as those of interstriae; punctures on declivity very small, in rows, striae not impressed; Colombia; "*Baccharus*" sp.; 2.4–2.8 mm *constricta* Wood
- Pronotal asperities coarser, closer, extending to summit; punctures on pronotum and elytra much larger, discal interstriae twice as wide as striae 116
- 116(115). Female frons more distinctly convex, punctured over a greater area, median, smooth, shining area smaller to obsolete, without a median fovea near center, vestiture on female frons much shorter,

- none longer than distance equal to width of an eye; mature color with basal half of pronotum and all of elytra light brown, anterior half of pronotum dark; Venezuela; liana; 2.6–3.0 mm
 *contracta* Wood
- Female frons more distinctly flattened, a distinct fovea near center; smooth, shining area much larger; conspicuous, vestiture on female frons more numerous, much longer, some setae two or three times longer than width of an eye; mature color with all of pronotum, elytral suture and sides dark, striae 1 to about 5–7 light brown; Venezuela; *Croton*; 2.7–3.2 mm *varia* Wood
- 117(102). Elytral disc occupying basal half of elytra length, punctures from base to apex abundant, close, confused, setae uniformly short, without discernible rows of longer, erect setae; pronotum with anterior two-thirds armed by numerous asperities, summit indefinite, on basal third; Bolivia; 2.3 mm *atrotibialis* (Eggers)
- Elytral disc occupying 30–60 percent of elytra length, striae punctures either in rows or obsolete and replaced by tubercles, never with dense, confused punctures 118
- 118(117). Elytral disc occupying 40–60 percent of elytra length; striae punctures larger, in discernible rows; elytra ground setae more abundant, erect setae mostly shorter 119
- Elytral disc occupying less than 30 percent of elytra length; elytral punctures either confused and striae not recognizable or striae punctures obsolete and replaced by tubercles 122
- 119(118). Strial punctures small, shallow, in definite rows from base to apex; interstriae without any tubercles, punctures small, deep, dense, confused from base to apex; elytral vestiture of abundant, short, hairlike ground cover from base to apex, at least on odd-numbered interstriae on disc with a uniseriate row of long erect setae, each seta about equal in length to combined width of two interstriae 120
- Elytral punctures either partly or entirely replaced by tubercles; striae punctures either lost or confused with those of interstriae on most of elytra length 123
- 120(119). All elytral interstriae with a row of erect bristles of about equal length; most of erect interstitial bristles slightly shorter than distance equal to width of an interstriae; Bolivia (Cochabamba); 2.3 mm (*pilifer* Plate LVI figs., Mexico) *pilosula* (Eggers)
- Erect bristles on interstriae unequal, either those on even-numbered interstriae absent or conspicuously shorter than those on odd-numbered interstriae 121
- 121(120). Odd-numbered interstriae (at least 1 and 3) each with a row of very long setae, even numbered interstriae with a row of shorter setae, each about equal in length to width of one interstriae or less; Peru; 2.6 mm *schoenmanni* Wood
- Odd-numbered interstriae each with a row of long setae, even-numbered interstriae without a row of setae 122
- 122(121). Asperities on anterior slope of pronotum extending from side to side, anterior margin feebly serrate, about 8 small serrations; ground setae on basal fourth of disc very slender, each at least 6–8 times as long as wide, those on declivity much shorter, stouter; erect interstitial bristles very sparse on all interstriae except 2; Bolivia (Cochabamba); 3.3 mm *laevicollis* (Eggers)
- Asperities on anterior slope of pronotum on median half of pronotum width, anterior margin more coarsely serrate, 12 serrations present; sparse rows of erect setae on odd numbered interstriae; Bolivia (Cochabamba); 3.3 mm *brevis* (Eggers)
- 123(119). Elytral punctures strongly confused only on basal one-fourth and sides of disc, punctures on interstriae 1–3 then become moderately tuberculate, striae punctures minutely tuberculate and mostly in rows; frons rugose-reticulate from vertex to well below upper level of eyes, rather strongly reticulate below; Venezuela; tree bole, liana; 2.7–3.5 mm *opaca* Wood

- Elytral punctures small, rather deep, strongly confused from base to apex, without any tubercles on disc or declivity, vestiture rather short, recumbent, abundant; area above eyes moderately rugose-reticulate, becoming finely reticulate below 124
- 124(123). Pronotum strongly reticulate from base to anterior margin (in areas between asperities on anterior half), asperities on anterior slope distinctly larger; striae 1–3 obscurely discernible near base of elytra; declivital setae very fine, equal in diameter to those on disc, punctures on declivity minute (diameter of each puncture equal in diameter of its seta) 125
- Pronotum more weakly reticulate on posterior half, almost smooth and shining on anterior slope, asperities on anterior slope distinctly smaller; striae 1–3 not discernible near base, punctures entirely confused 126
- 125(124). Strial punctures on discal interstriae 1–3 more distinctly indicated, continued on 1 to declivity, striae 1 deeply impressed on declivity, striae 2 more weakly impressed on lower half of declivity, punctures small, shallowly impressed; punctures on discal interstriae distinctly larger, especially near base of declivity; Brazil (Rio de Janeiro); 2.9–3.2 mm *vicina* (Eggers)
- Strial punctures on discal interstriae 1–3 obsolete before base of declivity, 1 more weakly impressed on declivity, 2 not impressed on declivity (punctures obsolete); punctures on discal interstriae near base of declivity minute; Argentina; 3.1 mm *argentinensis* (Eggers)
- 126(124). Frons more strongly, evenly convex, without a median impression or fovea; summit of pronotum only slightly behind middle, asperities on anterior slope very small, poorly formed; elytral declivity more uniformly arched, punctures on declivity about half as large as those near base of disc; Panama (Chiriqui) to Bolivia and Argentina; at light; 2.4–2.8 mm *similis* (Eggers)
- Frons more broadly convex, a weak median impression and fovea present; summit of pronotum well behind middle, asperities on anterior slope much larger, more numerous; elytral declivity somewhat flattened on its basal half, punctures near and on declivity minute, considerably smaller than those on base of disc; Argentina to Bolivia (Cochabamba); 2.9–4.0 mm *major* (Eggers)

Scolytodes jucunda Wood

Scolytodes jucundus Wood, 1977:519. Holotype ♀; Rancho Grande, Aragua, Venezuela; USNM, Washington (References in Wood & Bright c1992:394)

Diagnosis: Punctures on discal interstriae confused only on 2 and 3; rows of short interstitial setae usually absent on disc, present on declivity; lower frons of male with a moderate, transverse impression except on median line, female more broadly, more strongly impressed, larger.

Male: Length 3.0–3.7 mm, 2.2 times as long as wide; mature color black. Frons similar to male *glabrescens* Wood except transverse impression on lower one-third stronger, a weak transverse elevation above this elevation and on median line; upper area as in *glabrescens*, except punctures slightly larger; glabrous except sparse setae on epistoma. Pronotum about as in *glabrescens*, except punctures reduced in size and obsolete by anterior one-fourth, replaced on anterior one-fourth by rather fine asperities. Elytra similar to *glabrescens*, except strial punctures slightly larger, in almost uniseriate rows to base of declivity; interstitial punctures uniseriate except confused on 2 and 3, uniseriate rows of rather short, erect setae on lower half of declivity.

Female: Similar to male except lower two-thirds of frons broadly, subconvexly impressed to epistoma; punctures fine, close, impressed area ornamented by rather abundant, uniformly distributed, moderately long hair; pronotum without asperities, fine punctures extend to anterior margin; interstriae each with a sparse, uniseriate row of fine tubercles, setae extend to middle of disc from declivity.

Distribution: Venezuela: Rancho Grande, Aragua, 9-IV-1970, 1100 m, No. 403, fallen *Cecropia* leaf petioles, SLW.

Biology: As in *glabrescens*.

Notes: The above treatment was based on the type series of 11 specimens.

Scolytodes glabrescens Wood

Plate LI

Prionosceles glaber Wood, 1961:102. Holotype ♂; Summit, Canal Zone, Panama; USNM, Washington, preoccupied by Eichhoff 1868 (Synonymy and references in Wood & Bright c1992:393)

Scolytodes glabrescens Wood, 1972:152. Holotype ♂; Summit, Canal Zone, Panama; USNM, Washington, replacement name

Diagnosis: Discal interstriae 2–9 with punctures confused; male frons uniformly convex from just above

epistoma to vertex, female frons narrowly, weakly impressed on a small area; pronotum and elytra glabrous.

Male: Length 2.5–3.1 mm, 2.0 times as long as wide; color black, glabrous. Frons with area below level of antennal insertions transversely impressed, almost flat, upper area convex to vertex; surface reticulate, finely, rather closely, deeply, uniformly punctured; glabrous except for an epistomal brush of rather long, yellow hair on median two-thirds. Pronotum 1.06 times as long as wide; surface weakly reticulate, subshining, punctures small, deep, uniformly distributed, anterior one-fifth with anterior margin of punctures weakly wrinkled (subasperate); glabrous. Elytra 1.15 times as long as wide, 1.3 times as long as pronotum; striae indicated only near base, punctures very small, moderately impressed, confused with similar punctures of interstriae on 2–9; surface smooth, shining, glabrous; declivity convex, very steep.

Female: Similar to male except lower two-thirds of frons flattened to shallowly impressed, small punctures dense, vestiture on impressed area moderately abundant, rather long.

Distribution: Costa Rica to Colombia.

Colombia: 24 km E Barbosa, Antioquia, 18-VII-1970, 1200 m, No. 701, fallen *Cecropia* leaf petioles, SLW.

Biology: Parental tunnels in the basal half of fallen leaf petioles were of the cave type. The larvae expanded the parent gallery.

Notes: The Venezuelan record (Wood 1982:474) actually refers to *jucundus*. The above treatment was based on 10 specimens from Panama and 1 from Colombia. The 2 specimens from Turrialba, Costa Rica, have disappeared from my collection.

Scolytodes permagna (Eggers)

Scolytodes permagnus (Eggers), 1943:364 (*Prionosceles*). Holotype ♂; Cochabamba, Bolivia; NHMW, Wien (References in Wood & Bright c1992:397)

Diagnosis: Distinguished from *glabrescens* Wood by the much larger size; by the distinctly larger punctures on both the pronotum disc and elytral disc; and by the presence of erect interstitial setae in rows on the lower half of the declivity.

Male: Length 4.3 mm, 2.1 times as long as wide; color black. Frons similar to male *glabrescens* except punctures somewhat larger. Pronotum 1.03 times as long as wide, widest near middle; similar to *glabrescens* except asperities on anterior fourth slightly larger, punctures on disc distinctly larger. Pronotum 1.2 times as long as wide, 1.3 times as long as pronotum; elytral punctures confused from 1 to 9 except striae 1 to 3 with punctures in identifiable rows on less than basal third of disc; a few short, erect interstitial setae present on lower half of declivity from suture to interstriae 9.

Distribution: Bolivia: Cochabamba [F. Woytkowski].

Hosts: Probably *Cecropia* leaf petioles.

Notes: The above treatment was based on the male holotype from Bolivia.

Scolytodes atrata (Blandford)

Scolytodes atratus (Blandford), 1897:178 (*Prionosceles*). Lectotype ♂; Senahu, Vera Paz, Guatemala; BMNH, London, designated by Wood 1982:475 (Synonymy and references in Wood & Bright c1992:379–380)

Prionosceles atratus panamensis Wood, 1961:103. Holotype ♂; Summit, Canal Zone, Panama; USNM, Washington

Diagnosis: Allied to *glabrescens* Wood, asperities on anterior slope of pronotum definite in male, absent in female; male lower frons with a strong, transverse impression, female frons more strongly impressed; interstitial rows of setae extend to base.

Male: Length 2.5–3.3 mm, 2.1 times as long as wide; mature color very dark brown to black. Frons smooth, shining and coarsely, deeply, rather closely punctured from middle to upper level of eyes, becoming reticulate and less coarsely punctured to vertex; lower area with a broadly U-shaped impression beginning in lateral area slightly above level of antennal insertion and extending orad and across epistomal margin (obscure in Costa Rica to Panama specimens), area between arms convex (strongly protuberant in southern part of range); vestiture limited to epistomal area, conspicuous on median half. Pronotum resembling *glabrescens*, weakly reticulate, subshining, finely punctured on basal two-thirds, declivous and finely asperate on anterior one-third, punctures reduced and becoming obsolete well before anterior margin; glabrous. Elytra resembling *glabrescens*, striae 1 distinctly, others weakly impressed, punctures small, close, distinct; interstriae three to four times as wide as striae, smooth, shining, punctures minute, in uniseriate rows, replaced by fine tubercles near declivity. Declivity broadly convex, steep; sculpture as on disc except tubercles extend to apex. Vestiture of rows of fine, erect hair from middle of disc to apex, each seta equal in length to half distance between rows.

Female: Similar to male except frons broadly, rather strongly impressed on lower two-thirds to epistoma, subconcave area closely, moderately, uniformly punctured and with fine, rather short hair; elevated subcarinate callus on median line from epistoma to level of antennal insertion (this callus flattened and expanded into a shining, impunctate area in specimens from Costa Rica to Panama).

Distribution: Mexico (Veracruz) to Panama. Not seen from South America, but almost certainly will be found in Colombia and Venezuela.

Hosts: *Cecropia peltata* (etc.?) leaf petioles (fallen).

Biology: As described for *glabrescens*.

Notes: Specimens from Mexico to Honduras are noticeably larger and anatomically distinct; those from Costa Rica and Panama are smaller. Specimens from Nicaragua were not seen but probably exhibit intergradation between the races.

Scolytodes festa Wood

Scolytodes festus Wood, 1977:519. Holotype ♀; Piedras Blancas 11 km W Medellin, Antioquia, Colombia; USNM, Washington (References in Wood & Bright c1992:392)

Diagnosis: Distinguished from *atratus* (Blandford) by the abruptly impressed lower male frons, a subacute transverse carina below (orad) this impression; female with weak asperities on anterior slope of pronotum; and female interstitial setiferous punctures granulate on declivity.

Male: Length 2.7–3.0 mm, 2.1 times as long as wide; mature color very dark brown to black. Upper frons similar to *atratus*; a subcarinate, straight, transverse elevation ending laterally in an indefinite tubercle, a moderate, transverse impression above elevation, slope below elevation almost flat to epistomal margin, a tuft of long hair on median half of epistoma. Pronotum about as in *atratus* except punctures slightly larger, a few fine setae in anterolateral areas. Elytra resembling *atratus* except striae obscurely impressed, interstitial punctures slightly larger, granules on and near declivity reduced to obscure, erect setae equal in length to distance between rows, setae on some lateral rows attain base.

Female: Similar to male except frons rather narrowly flattened to feebly concave on lower two-thirds, punctures fine, moderately close, setae moderately long, less numerous than in *atratus*; anterior slope of pronotum with asperities reduced to obsolete, punctures attain anterior margin; most rows of interstitial setae attain base.

Distribution: Colombia: Piedras Blancas 11 km W Medellin, Antioquia, 17-VII-1970, 2300 m, No. 691, fallen *Cecropia* leaf petioles, SLW.

Biology: As described for *glabrescens*.

Notes: The above treatment was based on the type series of 7 specimens.

Scolytodes suturalis Wood

Scolytodes suturalis Wood, 1977:521. Holotype ♂; El Laurel Experimental Farm 12 km SW Caracas, Venezuela; USNM, Washington (References in Wood & Bright c1992:399)

Diagnosis: Distinguished from *festus* Wood by the more strongly elevated male transverse epistomal elevation; and by the larger, more extensively distributed interstitial tubercles.

Male: Length 2.3–2.8 mm, 2.1 times as long as wide; mature color very dark brown to black. Frons as in *festus* except transverse carina on lower frons more narrowly (on longitudinal body axis), much more strongly elevated, frons more closely punctured. Pronotum as in *festus* except punctures distinctly smaller. Elytra resembling *festus* except striae punctures smaller (rows irregular), interstitial punctures at least partly granulate to base, granules slightly larger, setae slightly shorter.

Female: Similar to female *festus* except frons much more extensively impressed and punctured; anterior slope of pronotum finely asperate (almost equal to male).

Distribution: Venezuela: El Laurel Experimental Farm 12 km SW Caracas, 1-V-1970, 1300 m, No. 461, fallen *Cecropia* leaf petioles, SLW.

Biology: As in *glabrescens*.

Notes: The above treatment was based on the type series of 5 specimens.

Scolytodes imitans (Eggers)

Plate LII

Scolytodes imitans (Eggers), 1940:136 (*Prionosceles*). Holotype ♀; Guadeloupe (Trois-Rivieres); MNHN, Paris (References in Wood & Bright c1992:393)

Diagnosis: Distinguished from *maura* (Blandford) by the almost smooth pronotum (reticulation very obscure); by the more narrowly flattened female frons; and by the presence of setiferous interstitial granules.

Male: Length 1.6–2.0 mm, 2.2 times as long as wide; mature color dark brown. Frons rather broadly evenly convex from vertex to a weak, transverse impression at level of antennal insertion, epistomal area simple; surface reticulate, setae fine, sparse, moderately long on lower half. Pronotum 1.0 times as long as wide, surface almost smooth, shining, punctures very small, except anterior one fourth finely, obscurely asperate, punctures attaining anterior margin; glabrous except for about 4–8 setae near lateral and anterior margins. Elytra 1.2 times as long as wide, 1.4 times as long as pronotum; striae 1 distinctly, others feebly impressed, punctures rather small, distinct; interstriae three times as wide as striae, surface smooth, shining, each with a uniseriate row of fine, setiferous granules from base to apex. Declivity broadly convex, steep; sculpture similar to disc. Vestiture of uniseriate rows of moderately stout, erect setae from base to apex on all interstriae, each very slightly longer than distance between rows.

Female: Similar to male except lower half of frons broadly flattened, finely, closely punctured, and ornamented by moderately abundant, long hair; pronotal asperities reduced to rather obscure; some (to most) granules on discal interstriae obsolete, replaced by small punctures. Female from Peru with frontal impression slightly less extensive, punctures not as close, setae less abundant, almost certainly same species.

Distribution: Guadeloupe Island and Venezuela to Peru and Bolivia.

Bolivia: "Bolivia."

Peru: Pucallpa, 2-X-1954, E.I. Schlinger, E.S. Ross.

Venezuela: Baranchas, Barinas, 1-X-1970, 150 m, No. 22, *Cecropia*, SLW; Campamento Rio Grande, 30 km E Palmar, Bolivar, 12-VI-1970, 200 m, *Cecropia* leaf petioles, No. 526, SLW; 40 km SE Socopo, Barinas, 26-I-1970, 150 m, No. 251, *Cecropia* leaf petioles, SLW.

Hosts: *Cecropia* leaf petioles (fallen).

Biology: The basal 5 cm of a petiole was infested; habits resemble those of *glabrescens* Wood.

Notes: The above treatment was based on 1 female homotype from Peru and 39 specimens from Venezuela.

Scolytodes brasiliensis (Eggers)

Plate XLIX

Scolytodes brasiliensis (Eggers), 1929:89 (*Prionosceles*). Holotype ♂; Blumenau, [Santa Catarina] Brazil; USNM, Washington; nec *braziliensis* Schedl 1935:274 (References in Wood & Bright c1992:389)

Diagnosis: Distinguished from *maura* (Blandford) by the stouter body form; by the more strongly developed asperities on the anterior third of the pronotum; and by the less strongly impressed striae and interstitial punctures on both disc and declivity.

Male: Length 2.0 mm, 1.9 times as long as wide; color black. Frons not clearly visible on type, very similar to *maura*. Pronotum 0.97 times as long as wide; similar to *maura* except asperities on anterior third of pronotum length distinctly larger, punctures on posterior areas not attaining anterior margin; punctures on disc larger; glabrous except sparse setae near anterior margin. Elytra 1.2 times as long as wide, 1.6 times as long as pronotum; disc occupying basal half of elytra length; striae not impressed, punctures small, very shallow; interstriae three times as wide as striae, smooth, shining, punctures smaller than those of striae, regularly placed. Declivity broadly convex, steep; sculpture about as on disc, punctures very small, very shallow, most interstitial punctures replaced by a very minute granule. Vestiture of rows of minute strial hair, and rows of erect interstitial setae, each seta very slender, almost hairlike, longest equal in length to distance between rows (very slightly longer than in *maura*).

Distribution: Brazil: Blumenau [Santa Catarina].

Hosts: The resemblance of *maura* is such that the host of this species should be fallen *Cecropia* leaf petioles.

Notes: The above treatment was based on the male holotype of *Prionosceles brasiliensis* Eggers.

Scolytodes brasiliana Wood

Scolytodes brasilianus Wood, 1988:32. Holotype ♂; Brazil; NHMW, Wien, replacement name, automatic (References in Wood & Bright c1992:389)

Hexacolus brasiliensis Schedl, 1935:274. Holotype ♂; Brazil; NHMW, Wien, preoccupied by Eggers 1928:89

Diagnosis: Distinguished from *maura* (Blandford) by the larger punctures on the discal striae, with striae 1 impressed on less than the posterior half of the disc; by the radically different male frons, as described below; and by the larger size.

Male: Length 2.4 mm, 2.1 times as long as wide; color very dark brown. Frons with a transverse impression on median half one-third distance from epistoma to upper level of eyes, impression fading and expanding slightly orad, lateral area from end of impression to below antennal insertion rather coarsely rugose; lower area rather coarsely irregularly, somewhat rugose punctate; area above impression convex, strongly reticulate, punctures coarse, close, deep; vestiture hairlike, sparse, short, except longer near epistoma. Pronotum 1.0 times as long as wide; declivous on anterior third, with small isolated asperities; entire surface rather strongly reticulate, including between asperities, punctures on posterior half small, rather shallow, moderately close; glabrous except for a few, short setae at anterior margin. Elytra 1.3 times as long as wide, 1.5 times as long as pronotum;

striae 1 moderately impressed on posterior half of disc and upper declivity, others not impressed, punctures moderately coarse, deep, spaced within a row by diameter of a puncture; interstriae about twice as wide as striae, surface smooth, shining, punctures uniseriate, about half as large as those of striae, a few near declivity very slightly granulate. Declivity broadly convex, steep; striae 1 distinctly impressed on basal half; interstriae narrower than on disc, punctures replaced by uniseriate rows of very small granules. Vestiture consisting of uniseriate rows of erect interstitial setae on and near declivity, each seta equal in length to two-thirds distance between rows, spaced within a row by length of a seta.

Distribution: Brazil.

Brazil: Camborea, Parque Unipaias, Santa Catarina, Atlantic Forest, 31-XII-2001, *Cecropia* petiole, C.A.H. Flechtmann; Jaragua do Sul, Malwee Park, Santa Catarina, 7-I-1999, *Cecropia* petioles, C.A.H. Flechtmann; Tres Lagoas, MS, International Paper, Horto Barra de Moreda, 9-XII 2000, riparian forest, fallen *Cecropia* forest, C.A.H. Flechtmann;

Hosts: *Cecropia* leaf petiole.

Notes: The above treatment was based on the male holotype and 6 other specimens from Brazil.

Scolytodes maura (Blandford)

Plate LIV

Scolytodes maurus (Blandford), 1897:178 (*Prionosceles*). Lectotype ♂; Pantaleon, Guatemala; BMNH, London, designated by Wood 1982: 474 (Synonymy and references in Wood & Bright c1992:394–395)

Prionosceles medius Eggers, 1928:89. Lectotype ♀; E Bolivia; USNM, Washington, designated by Anderson & Anderson 1971:19 (References in Wood & Bright c1992:395). *New synonymy*

Hexacolus ellipticus Eggers, 1934:80. Holotype ♂; Turrialba, Costa Rica; DEI, Munchenberg

Prionosceles ingae Blackman, 1943:383. Holotype ♀; La Esperanza, Colombia; USNM, Washington (References in Wood & Bright c1992:393). *New synonymy*

Diagnosis: Distinguished from *imitans* (Eggers) by the moderately reticulate pronotum, with asperities almost obsolete; by the more broadly, shallowly concave female frons; and by the absence of interstitial granules.

Male: Length 1.6–2.1 mm, 2.0 times as long as wide; mature color very dark brown to almost black. Resembling *imitans* except frons more strongly convex, punctures much smaller; pronotum finely reticulate, asperities greatly reduced, almost obsolete; interstitial punctures uniseriate, never replaced by a granule; interstitial setae slightly shorter than distance between rows.

Female: Resembling female *imitans* except frons broadly, shallowly concave, pronotum reticulate to anterior margin (no suggestion of asperities), otherwise as in male.

Distribution: Dominica and Mexico (Veracruz) to Bolivia, Colombia, and Venezuela (Caracas).

Bolivia: Ostbolivia [F. Woytkowski].

Colombia: La Esperanza.

Venezuela: El Laurel Experimental Farm 12 km SW Caracas, 1-V-1970, 1300 m, No. 510, fallen *Cecropia* leaf petioles, SLW.

Biology: As in *imitans*.

Notes: The above treatment was based on 5 specimens from Venezuela and on 97 from Mexico to Panama. The male lectotype of *maurus* was examined; also the female holotype of *Prionosceles medius* from Bolivia. The female holotype and allotype of *ingae* from Colombia were examined; they are clearly of the southern variant of *maurus*, with moderately large punctures on the pronotum disc.

Scolytodes gracilis Schedl

Scolytodes gracilis Schedl, 1976:61. Holotype ♀; Corcovado, Guanabara, Brazil; NHMW, Wien (References in Wood & Bright c1992:393)

Hexacolus laevigatus Schedl, 1962:98. Holotype ♀; Santa Maria, Misiones, Dep. Concept., Argentina; NHMW, Wien, preoccupied by Ferrari 1867:77 (References in Wood & Bright c1992:394).

New synonymy

Scolytodes laevigatulus Wood, 1988:33. Holotype ♀; Santa Maria, Misiones, Dept. Concept., Argentina; NHMW, Wien, replacement name (References in Wood & Bright c1992:394). *New synonymy*

Diagnosis: Distinguished by the reticulate pronotum and elytra; and by the pair of longitudinal carinae on the female frons, with crests of carinae narrowly rounded, shining, not acute.

Female: Length 1.7 mm, 2.6 times as long as wide; color dark reddish brown. Frons with median third on lower half smooth, brightly shining, impunctate, lateral margins of this area distinctly elevated, shining crests narrowly rounded (not acute); upper half and sides lateral to carinae flattened, shining, closely, rather finely, uniformly punctured and ornamented by rather abundant, fine, long hair, longest setae at dorsal margin capable of extending about two-thirds distance toward epistoma. Pronotum 1.06 times as long as wide; surface reticulate, punctures fine, rather close, extending to anterior margin; moderately declivous on anterior third, with a few very low, transverse wrinkles; glabrous except 2 setae on anteriolateral angles. Elytra 1.5 times as long as wide, 1.6 times as long as pronotum; striae not impressed, punctures rather small, interstriae three times as wide as striae, uniformly reticulate, punctures small, about two-thirds as large as those of striae, uniseriate. Declivity broadly convex, steep; about as on disc. Glabrous.

Distribution: Argentina to southern Brazil.

Argentina: Misiones; Santa Maria, Concepcion, X-1946, M.J. Viana.

Brazil: Corcovado, Guanabara (R. de J.), VIII-1962 to IX-1969, Alvarenga & Seabra; Nova Teutonia, Santa Catarina, 27°11'B, 52°23'L, 300–500 m, VIII-1965, F. Plaumann.

Notes: The above treatment was based on the female holotype of *Scolytodes gracilis* Schedl from Brazil and on the female holotype (from Argentina) of *Hexacolus laevigatus* Schedl. The elytral reticulation on the type and paratypes of *laevigatus* is less obvious but is clearly evident on the posterior disc near the suture. These 2 names are objective synonyms of one another.

Scolytodes minor (Eggers)

Scolytodes minor (Eggers), 1928:89 (*Prionosceles*). Lectotype ♀; E Bolivia; USNM, Washington, designated by Anderson & Anderson 1971:20 (References in Wood & Bright c1992:395)

Diagnosis: Female frontal carinae widely separated, extending from level of antennal insertions dorsad half distance to upper level of eyes; interstitial bristles also distinctive.

Female: Length 1.7 mm, 2.1 times as long as wide; color dark reddish brown. Frons with a pair of widely separated, strong carinae extending from level of antennal insertions dorsad about two thirds distance toward upper level of eyes, surface smooth, shining, sparsely, finely punctured; vestiture very sparse above, mostly below level of antennal insertions, inconspicuous. Pronotum 0.93 times as long as wide; summit indefinite, about one-third pronotum length from base; basal third finely reticulate, very finely, moderately punctured; more than anterior half very finely, rather closely asperate, subreticulate between asperities; vestiture of very fine, short, moderately abundant hair (mostly abraded on posterior half of type). Elytra 1.3 times as long as wide, 1.5 times as long as pronotum; striae not impressed, punctures small, distinct, shallow; interstriae about four times as wide as striae, almost smooth, shining, punctures very shallow, almost as large as those of striae, uniseriate. Declivity broadly convex, steep; sculpture about as on disc. Vestiture of rows of erect, rather stout, interstitial bristles in uniseriate rows from base to apex, each blunt bristle as long as distance between rows, spaced within a row on disc by length of a bristle, by one-half length of a bristle on declivity.

Distribution: Bolivia: Cochabamba [F. Woytkowski].

Notes: The above treatment was based on the female holotype from Bolivia.

Scolytodes guyanaensis (Schedl)

Plate LII

Scolytodes guyanaensis (Schedl), 1937:13 (*Erineophilus*). Syntypes ♀ ♂; NW District, Guiana; BMNH, London, and NHMW, Wien (References in Wood & Bright c1992:393)

Hexacolus nardus Schedl, 1976:62. Holotype ♂; "Brazil" [probably French Guyane]; NHMW, Wien (References in Wood & Bright c1992:395). *New synonymy*

Diagnosis: Distinguished from *swieteniae* (Blackman) by the absence of an oral continuation of the crest of the female frontal elevation; by the yellowish brown color; and by the presence of rows of erect interstitial setae on odd-numbered declivital interstriae, each seta about equal in length to one half width of an interstriae.

Male: Similar to female except frons convex, without a median elevation or a conspicuous brush of hairlike setae.

Female: Length 1.4–1.7 mm, 2.2 times as long as wide; color yellowish brown or pale reddish brown, except anterior one-fourth of pronotum dark. Frons somewhat flattened to vertex, median line of flattened area with a

low, double-crested median elevation ending in a sub-tuberculate, low elevation just above epistomal margin, subconcave lateral areas smooth, shining, a few small punctures occasionally present; area above upper level of eyes flattened and ornamented by a dense brush of long hair, tips of some setae attain level of antennal insertions, median one-third of epistomal margin with a small brush of hair. Pronotum 1.0 times as long as wide; anterior half closely, moderately asperate, asperities much wider than normal, a few small granules continuing in median area to base; posterior areas strongly reticulate, punctures mostly replaced by minute, shining spots or by minute granules; subglabrous. Elytra 1.2 times as long as wide, 1.2 times as large as pronotum; striae feebly impressed, punctures very minute, distinctly impressed, uniseriate; interstriae about five times as wide as striae, smooth, brightly shining, punctures minute (about one-half as large as those of striae), uniseriate. Declivity convex, rather steep; interstriae 1 moderately impressed, others as on disc; glabrous.

Distribution: Venezuela to Suriname and Brazil.

Brazil: Brazil, 30-VI-1971, Andiroba lumber, lot 71-10393, T. Tinkham.

Guiana: NW District, III-1934, *Swietenia* bark, F.A. Squire.

Suriname: Suriname 1961, No. 895.

Venezuela: Campamento Rio Grande 35 km E Palmar, Bolivar, 12-VI-1970, 1200 m, *Carapa guianensis*, SLW.

Hosts: *Carapa guianensis*, *Swietenia* sp.

Biology: Breeds in phloem of bole.

Notes: The above treatment was based on 1 specimen from Brazil, 2 from Guiana, 1 from Suriname, and 101 from Venezuela, 1 of which I compared to the original Schedl series. The male holotype of *Hexacolus nardus* Schedl was examined and was compared to my series, and is of this species.

Scolytodes ommatea Wood

Plate LIV

Scolytodes ommateus Wood, 1971:15. Holotype ♀; Carton de Colombia forest 8 km S Colonia (near Buenaventura), Valle de Cauca, Colombia; USNM, Washington (References in Wood & Bright c1992:396)

Diagnosis: Eyes separated above by less than one-third width of an eye; female frons subglabrous, a transverse carina above middle.

Male: Similar to female except transverse carina on frons absent.

Female: Length 1.9–2.2 mm, 2.6 times as long as wide; color reddish brown. Frons with eyes separated above by less than one-third width of an eye, a short transverse carina slightly above middle, a rather strong, transverse impression from carina to epistomal margin, surface strongly reticulate to vertex, punctures small, shallow, not close, a few inconspicuous hairs on lower half. Pronotum 1.1 times as long as wide; surface reticulate, punctures rather small, moderately close, deep;

anterior one third moderately declivous, punctures extend to anterior margin, no indication of asperities. Elytra 1.7 times as long as wide, 1.6 times as long as pronotum; striae 1 weakly impressed, others not impressed, punctures moderately coarse, rather deep; interstriae twice as wide as striae, punctures rather coarse, deep, slightly smaller than those of striae. Declivity shallowly subsulcate between left and right interstriae 3; striae 1 much more strongly impressed, punctures reduced, obscure, punctures on 2 and 3 greatly reduced in size; interstitial punctures on 2 and 3 replaced by small tubercles. Vestiture restricted to declivity in lateral areas, to middle of disc near suture, consisting of striae hair (length up to twice as great as diameter of a striae puncture) and interstitial hair of size of that of striae, plus erect, longer rows, longest setae slightly shorter than distance between rows.

Distribution: Colombia: Carton de Colombia forest 8 km S Colonia (near Buena Ventura), Valle de Cauca, 9-VII-1970, 30 m, No. 624, *Clusia*, SLW.

Biology: Boring in phloem of a broken branch.

Notes: The above treatment was based on the type series of 97 specimens.

Scolytodes parallela (Schedl)

Scolytodes parallelus (Schedl), 1962:99 (*Hexacolus*). Holotype ♀; Venezuela; NHMW, Wien (References in Wood & Bright c1992:397)

Diagnosis: Female frons transversely impressed on lower two-thirds, surface from epistoma to upper level of eyes somewhat obscurely micropunctate, vestiture sparse, fine, uniformly distributed; body very slender, 2.7 times as long as wide, pronotum 1.2 times as long as wide; pronotum and elytra glabrous.

Female: Length 1.7 mm, 2.7 times as long as wide; color black. Frons rather strongly, transversely impressed from epistoma about two-thirds distance to upper level of eyes (longitudinally, moderately concave, transversely almost flat), surface closely, rather obscurely micropunctured from epistoma to upper level of eyes; vestiture in impressed area of uniformly distributed, very fine, long hair of moderate abundance. Pronotum 1.2 times as long as wide; declivous and moderately asperate on anterior 40 percent, summit indefinite, anterior to middle; posterior areas finely, strongly reticulate, punctures minute, very shallow, moderately close; glabrous. Elytra 1.8 times as long as wide; striae not impressed, punctures very small, most distinctly impressed; interstriae four or more times as wide as striae, almost smooth (some minute wrinkling), punctures very small (most smaller than those of striae), uniseriate. Declivity rather narrowly convex, steep; sculpture about as on disc, all punctures slightly smaller and deeper than on disc. Vestiture absent on disc; declivity with a few very minute striae and interstitial hairlike setae.

Distribution: Venezuela: "Venezuela, Moritz," presumably taken at Colonia Tovar, Aragua, near the Moritz home.

Notes: The above treatment was based on the female holotype from Venezuela.

Scolytodes majula Wood, n.n.

Scolytodes majula Wood: Holotype ♀; Cochabamba, Bolivia; USNM, Washington, replacement name, automatic, for *Scolytodes maja* Wood 1988:33, present designation

Scolytodes major Wood, 1988:33. Holotype ♀; Cochabamba, Bolivia; USNM, Washington, replacement name, automatic, preoccupied by Eggers, 1928:86 (References in Wood & Bright c1992: 394)

Scolytodes major Eggers, 1943:361. Holotype ♀; Cochabamba, Bolivia; USNM, Washington, preoccupied by Eggers 1928:86

Diagnosis: Distinguished from *laevigata* Ferrari by the larger size; by the smooth, shining pronotum, with smaller punctures; and by the smaller strial and interstitial punctures on both striae and interstriae on disc and declivity.

Female: Length 3.1 mm, 2.3 times as long as wide; color black. Frons similar to *laevigata* except very slightly more strongly, more broadly impressed from epistoma to upper level of eyes, punctures in impressed area much smaller and more numerous, almost glabrous. Pronotum 1.06 times as long as wide; surface smooth, shining, weakly reticulate on basal third, punctures minute, rather sparse, continued to anterior margin; glabrous except for two bristles near anterior margin in sublateral areas. Elytra 1.5 times as long as wide, 1.7 times as long as pronotum; surface smooth, shining, striae not impressed, punctures very small, distinct, shallow; interstriae six or more times as wide as striae, punctures minute, about one-third as large as those of striae, uniseriate on basal half of disc, moderately confused on posterior half of 2-4. Declivity broadly convex, steep; strial punctures slightly larger and deeper than on disc, interstitial punctures slightly confused.

Distribution: Bolivia: Cochabamba (Germain), H. Donickier, 1907.

Notes: The above treatment was based on the female holotype that is part of the Eggers material in the USNM, Washington.

Scolytodes laevigata Ferrari

Scolytodes laevigatus Ferrari, 1867:77. Syntypes 2 ♂♂; Colombia; NHMW, Wien (References in Wood & Bright c1992:394)

Diagnosis: Distinguished from *trispinosa* Eggers by the feebly elevated epistoma that lacks a median callus; punctures on elytral declivity smaller; those on interstriae confused.

Female: Length 2.5 mm, 2.3 times as long as wide; color very dark brown. Frons on median two-thirds flattened to upper level of eyes, epistoma weakly elevated (without a median callus); surface reticulate, very sparsely, finely punctured, most punctures near epistoma; subglabrous, very sparse setae, minute above, longer near epistoma. Pronotum 1.0 times as long as wide; surface reticulate, punctures very small, not close, punctures

extend to anterior margin (no indication of asperities); glabrous. Elytra 1.5 times as long as wide, 1.8 times as long as pronotum; striae not impressed, punctures small, in rows; interstriae four or more times as wide as striae, punctures slightly smaller than those of striae, uniseriate except confused on 3. Declivity convex, steep; punctures smaller than those on disc, strial punctures uniseriate, interstitial punctures confused. Vestiture restricted to declivity, of minute, sparse interstitial hair.

Distribution: Colombia to Panama.

Panama: Boquette, 11-12-XI-1967, 4000 ft., G. Small. Colombia: "Colombie."

Notes: The male syntypes were examined. The above treatment was based on 1 female from Panama. In 1867 when this species was named, Panama was part of Colombia. It is entirely possible that the type locality is now part of Panama.

Scolytodes ageratinae Wood, n. sp.

Scolytodes ageratinae Wood: Holotype ♀; Cerro de la Muerte, Cartago, Costa Rica; USNM, Washington, designated below

Diagnosis: Distinguished from *laevigata* Ferrari by the slightly smaller size; by the black color and more slender body form; by the feebly convex area on the female frons above the level of antennal insertion, and fewer punctures below; by the more numerous impressed irregular lines on the elytral disc; and by other features described below.

Male: Similar to female except frons more strongly, evenly convex from epistoma to vertex, with fewer, shorter setae at epistomal margin; abdominal tergum 8 dark, pubescent, separated from 7 by a distinct suture.

Female: Length 2.3 mm, 2.4 times as long as wide; color black. Frons flat to feebly concave from epistoma to level of antennal insertion, area above level of antennal insertion more narrowly flat to upper level of eyes; surface reticulate, punctures sparse, minute above level of antennal insertion, half of those below slightly larger; epistomal lobe slightly larger and with setae slightly longer, confused; antennal club small, somewhat oval, sutures indicated. Pronotum 1.02 times as long as wide; widest slightly behind middle, sides moderately arcuate, rather broadly rounded on unarmed anterior margin; anterior slope gradual; surface rather strongly reticulate, punctures very sparse, not close; glabrous, sparse short setae on lateral margins. Elytra 1.6 times as long as wide, 2.0 times as long as pronotum; striae not impressed, punctures small, shallow, in rows from base to near base of declivity; surface mostly smooth, shining with many irregular impressed lines, interstitial punctures about half as large as those of striae, mostly in rows to base of declivity. Declivity moderately steep, convex; sculpture similar to disc, punctures more uniformly very small, most confused. Glabrous.

Distribution: Costa Rica (Cartago).

Type material: The female holotype, male allotype, and 38 paratypes were taken at Cerro de la Muerte,

Cartago, Costa Rica, 6-IV-2002, 2800 m, *Ageratina* cf. *ixiocladon* (Asteraceae), K. Nishida. The holotype, allotype and paratypes are in the U.S. National Museum, Washington.

Scolytodes tucumani Wood, n. sp.

Scolytodes tucumani Wood: Holotype ♀; 21 km W Tucuman, Tucuman Prov., Argentina; USNM, Washington, designated below

Diagnosis: Distinguished from *laevigata* Ferrari by the smaller size; by the narrower median callus on the lower frons; and by the larger strial punctures.

Female: Length 2.1 mm, 2.6 times as long as wide; mature color probably dark brown. Frons resembling *laevigata*, flattened on a slightly smaller area, epistoma more weakly elevated closer to margin, a narrow, median callus extending dorsad from epistomal elevation to slightly above level of antennal insertion; surface reticulate, sparse punctures near margins of median callus, setae sparse, short on punctured area. Pronotum 1.0 times as long as wide; surfaces more shining, otherwise about as in *laevigata*. Elytra 1.6 times as long as wide, 1.6 times as long as pronotum; striae not impressed, punctures moderately large, rather shallow; interstriae about three times as wide as striae, smooth, shining, punctures small, uniseriate, about one-third as large as those of striae, uniseriate. Declivity rather narrowly convex, steep; punctures smaller than on disc, uniseriate; glabrous.

Distribution: Argentina (Tucuman).

Type material: The female holotype was taken 21 km W Tucuman, P. Tucuman, 18-X-1968. The holotype is in the U.S. National Museum, Washington.

Scolytodes trispinosa Eggers

Scolytodes trispinosa Eggers, 1934:80. Holotype ♀; Amatan, Brazil; USNM, Washington (Synonymy and references in Wood & Bright c1992:400)

Scolytodes elongatus Schedl, 1935:273. Holotype ♀?; Brazil; NHMW, Wien (Synonymy and references in Wood & Bright c1992:400)

Diagnosis: Distinguished from *laevigata* Ferrari by the very different female frons as described below; and by the larger, almost uniseriate elytral punctures.

Female: Length 2.5 mm, 2.3 times as long as wide; color very dark brown. Frons shallowly impressed on lower two-thirds of median half (very shallowly concave near middle); a shining, weakly elevated, impunctate callus on median one-third from epistomal margin to level of antennal insertions; a few fine punctures in impressed area; sparse, short, inconspicuous hairlike setae in punctured area. Pronotum 1.0 times as long wide; punctures distinctly larger than in *laevigatus*; anterior slope with no hint of asperities. Elytra 1.5 times as long as wide, 1.8 times as long as pronotum; striae not impressed, punctures very small, shallow, in rows (slightly larger than in *laevigatus*); interstriae up to six times as wide as striae, punctures minute, shallow, mostly uniseriate (slight confusion on 2 and 3). Declivity rather

broadly convex, steep; strial punctures very small, in distinguishable rows, interstrial punctures on 1–3 very slightly confused; glabrous.

Distribution: Brazil: “Brasilien”; Nova Teutonia, Santa Catarina, 4-V-1950, F. Plaumann.

Notes: The above treatment was based on 1 female from Brazil that had been identified by Schedl as his *elongatus* and which I compared in 1980 to his series of that species and to his specimens of *trispinosus* Eggers (named from Mexico). On the basis of these comparisons *elongatus* was placed in synonymy (Wood 1979:136). It now appears that this proposal was premature and that a complex of very closely related species exists that is in need of review. The cotype of *medius* Eggers appears to be a male in this complex and, might be conspecific with my female from Brazil that was identified by Schedl as *elongatus*.

Scolytodes spp.

In a loan of type material received from MNHN, Paris, were the holotypes of *Scolytodes discedens* Eggers = *discriminata* Wood (♂), *S. glaber* Eggers = *glaberimus* Wood (♂), and *S. media* Eggers = *medialis* Wood (♀), all of about the same size (2.0 mm), form (2.2 times as long as wide), color and other details. Three males in my collection are of the same locality. All six specimens exhibit minor variations in details of surface sculpture but could all be the same species. More material containing both sexes is needed to determine whether 1 or 3 species are represented.

Two distinctly different members of this *laevigata* complex, represented by their unique holotypes are: (1) *S. longipennis* Eggers (♂), 2.4 mm, 2.7 times as long as wide, punctures on pronotum and elytra minute to obsolete, and glabrous; and (2) *S. aequipunctata* Eggers (♂), 2.9 mm, 2.16 times as long as wide.

All of the 8 specimens mentioned above were taken at Cochabamba, Bolivia.

Scolytodes peruana Wood, n. sp.

Scolytodes peruana Wood: Holotype ♀; Chachapoyas, Dep. Amazonas, Peru; USNM, Washington, designated below

Diagnosis: Remotely allied to *canalicula* Wood, antennal scape ornamented by a conspicuous tuft of long hair; female frons with an elevated callus on median one-fifth of lower half, its surface ornamented by large, shallow punctures.

Male: Similar to female except reticulate, subglabrous frons evenly convex.

Female: Length 2.6–3.1 mm, 2.3 times as long as wide; mature color dark brown. Frons moderately convex from epistoma to vertex, reticulate above, finely, very closely punctured from level of antennal insertions almost to upper level of eyes except median one-fifth of lower half with a distinct, low elevation, elevation ornamented by large, shallow, shining punctures (in a honeycomb

hexagonal pattern); vestiture of fine, rather abundant hair almost to upper level of eyes except glabrous on central elevation; scape ornamented by a tuft of long yellow hair. Pronotum 1.0 times as long as wide; surface reticulate, punctures moderately large, rather close, extending to anterior margin (without any indication of asperities). Elytra 1.5 times as long as wide; striae 1 feebly, others not impressed, punctures moderately coarse, rather deep; interstriae twice as wide as striae, surface obscurely reticulate, punctures small, rather close, moderately confused except uniseriate on and near declivity. Declivity broadly convex, steep; punctures similar to but smaller than on disc. Vestiture obsolete, except lower declivity with minute, sparse interstitial hair.

Distribution: Peru (Amazonas).

Type material: The female holotype, male allotype, and 4 female paratypes were taken at Chachapoyas, Dep. Amazonas, 10-VIII-1938, 2000 m, F. Woytkowski. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Scolytodes boliviana Eggers

Scolytodes bolivianus Eggers, 1928:86. Lectotype ♂; Cochabamba, Bolivia; USNM, Washington, designated by Anderson & Anderson 1971:7 (References in Wood & Bright c1992:389)

Diagnosis: This species is not in the above key. It was based on 3 specimens from Cochabamba, Bolivia, 1 of which was deposited in that part of the Eggers Collection that reached the USNM, Washington, and 1 from Amatan (Mexico), the latter a probable error in designation of the country of origin. The male at the USNM, Washington, appears allied to *canaliculus* Wood, but it is not closely related. The elytral sculpture, described below, distinguishes *boliviana* from all other known species.

Male: Length about 2.7 mm, about 2.2 times as long as wide; color yellowish brown (callow[?]). Frons moderately convex, an obscure callus on lower third; surface reticulate on lower two thirds, almost smooth, shining above upper level of eyes (damaged), punctures fine, rather close on lower half, glabrous above, sparse setae near epistoma. Pronotum wider than long (perhaps 0.95 times as long as wide; much of anterior third missing); surface finely reticulate, finely, moderately punctured from base apparently to anterior margin; glabrous. Elytra 1.5 times as long as wide, 1.8 times as long as pronotum; striae not impressed, punctures small, shallow, obscurely indicated on basal third of disc, a few visible almost to base of declivity; interstriae more than four times as wide as striae, surface with numerous impressed lines, almost subrugose, punctures minute, confused, obscure. Declivity broadly convex, steep; striae punctures more distinctly impressed than on disc. Glabrous.

Distribution: Bolivia: Cochabamba (F. Woytkowski).

Notes: The above treatment was based on the male lectotype from Bolivia. It is presumed that the other 2 syntypes were lost with the Hamburg Museum.

Scolytodes rugulosa Eggers

Scolytodes rugulosus Eggers, 1943:362. Holotype ♂; Cochabamba, Bolivia; USNM, Washington (References in Wood & Bright c1992:399)

Diagnosis: This species is not in the above key. The type is a male that probably fits in the key somewhere between *plumericolens* Wood and *plumeriae* Wood but represents an unrelated species. Its proper placement must await discovery of the female. The carina of interstriae 10 extends beyond the level of the hind coxae, the prothoracic tibia lacks a small spine on the posterior face near the apex; and striae and interstitial setae are absent.

Male: Length 1.8 mm, 2.3 times as long as wide; color brown, anterior half of pronotum and area near suture on elytra a darker brown. Frons convex, surface reticulate, punctures small, shallow, not close; vestiture mostly restricted to lower half, sparse, fine, hairlike. Pronotum 0.95 times as long as wide; widest near base, sides on basal half almost parallel; summit near middle, anterior slope rather coarsely asperate, reticulate between asperities, serrations on anterior margin obscurely indicated; posterior half strongly reticulate, punctures rather fine, moderately close; glabrous. Elytra 1.4 times as long as wide, 1.6 times as long as pronotum; striae not impressed, punctures very small; interstriae smooth, shining, at least four times as wide as striae, punctures minute, mostly uniseriate on basal half of disc, weakly confused behind. Declivity rather broadly convex, steep; striae and interstitial punctures small, of equal size, mostly in rows. Glabrous.

Distribution: Bolivia: Cochabamba (Germain), H. Donickier, 1907.

Notes: The above treatment was based on the male holotype from Bolivia.

Scolytodes canalicula Wood

Plate XLIX

Scolytodes canaliculus Wood, 1977:517. Holotype ♀; La Carbonera Experimental Forest 50 km NW Merida, Merida, Venezuela; USNM, Washington (References in Wood & Bright c1992:389)

Diagnosis: A comparatively large species with the antennal scape ornamented by a conspicuous tuft of long, yellow hair; female frons moderately convex, with a large, shining, impunctate area, frontal setae sparse, long.

Male: Similar to female except frons more strongly convex, central area reticulate and punctured, setae shorter, sparse; tuft of hair on scape much smaller.

Female: Length 2.6–3.1 mm, 2.4 times as long as wide; color moderately reddish brown. Frons with upper fourth to vertex reticulate, some reticulation continuing on lateral areas to level of antennal insertions; median area on lower two-thirds (occupying median half below, median one-fourth above) smooth, shining, impunctate, sparse, rather coarse punctures above almost to upper

level of eyes, continued laterally almost to epistoma; vestiture restricted to punctured area, sparse, long. Pronotum 1.0 times as long as wide; surface reticulate, rather coarsely, somewhat closely punctured to anterior margin; no indication of asperities on anterior slope; glabrous except sparse hair near lateral margins. Elytra 1.6 times as long as wide, 1.9 times as long as pronotum; striae 1 not impressed on basal one-fourth of disc, becoming strongly, subsulcately impressed by base of declivity, others not impressed, punctures rather coarse, deep; interstriae two to three times as wide as striae, smooth, shining, punctures half as large as those of striae, uniseriate except weakly confused on 2, 4, and 6. Declivity steep, broadly convex, shallowly sulcate at striae 1 to near apex; punctures smaller than on disc. Vestiture mostly restricted to declivital interstriae; a few minute strial and interstitial setae on sides and declivity, and sparse rows of long, erect, interstitial setae on 2–9, mostly on declivity, occasionally to middle of elytra on disc or sides.

Distribution: Venezuela: La Carbonera Experimental Forest 50 km airline NW Merida, Merida, 9-XII-1969, 2500 m, No. 177, *Clusia*, SLW.

Biology: Boring in phloem of broken branches.

Notes: The above treatment was based on the type series of 142 specimens.

Scolytodes ovalis (Eggers)

Scolytodes ovalis (Eggers), 1940:132 (*Hexacolus*). Holotype ♀?; Guadeloupe; Fleutiaux Collection, presumably now in MNHN, Paris (References in Wood & Bright c1992:396)

Diagnosis: A stout species with preasperate wrinkles on the anterior slope of the pronotum, with punctures extending to the anterior margin; the female frons is flattened on a limited area and has sparse pubescence (easily mistaken for a male). Males of *perdita* Wood are easily confused with this species.

Male: Similar to female except frons more evenly convex, setae absent, a median crest on frons from epistoma to level of antennal insertion (also visible in female).

Female: Length 1.6–1.8 mm, 2.1 times as long as wide; color brown. Frons convex, except median two-thirds of lower two-thirds flattened and densely, rather finely, uniformly punctured, fine, moderately abundant, uniformly distributed, rather long setae ornamenting punctured area; lateral and upper areas uniformly, sparsely, rather coarsely punctured. Pronotum 1.0 times as long as wide; posterior half reticulate, rather coarsely, closely, deeply punctured; anterior half transversely, subasperately wrinkled (their crest transversely rather broad), punctures of reduced size extending to anterior margin; glabrous. Elytra 1.27 times as long as wide, 1.4 times as long as pronotum; striae not impressed, punctures in rows except 1 obscure on basal half of disc, punctures rather small, distinct; interstriae about three times as wide as striae, punctures two-thirds as large as those of striae, those on basal half of disc confused with those of

striae 1. Declivity rather narrowly convex, all punctures uniseriate, smaller than those on disc.

Distribution: Guadeloupe Island and Panama to Venezuela.

Venezuela: 13 km SW El Vigia, Merida, 22-X-1969, 100 m, No. 80, *Cecropia*, SLW.

Biology: Boring in phloem of *Cecropia* twig terminals.

Notes: The above treatment was based on 11 specimens from Venezuela, 1 of which I compared to the holotype of *Hexacolus ovalis* Eggers. One male and 4 female paratypes of *perditus* Wood, from Panama, are actually of this species (males of these species are easily confused with one another).

Scolytodes opacicollis (Eggers)

Scolytodes opacicollis (Eggers), 1928:90 (*Prionosceles*). Holotype ♂; E Bolivien; NHMW, Wien (References in Wood & Bright c1992:396)

Diagnosis: This species is not in the above key, but probably fits near *ovalis* (Eggers). In the absence of the female, one can only guess where this species should be placed in classification. The crest of interstriae 10 continues well beyond the level of the hind coxae; there is no small denticle near the apex of the posterior face on the protibia; strial setae are in definite rows, interstitial setae on 2 and 4 are moderately confused; pronotal asperities are small and isolated.

Male: Length 2.7 mm, 1.9 times as long as wide; color dark reddish brown. Frons broadly convex, reticulate, punctures very small, obscure. Pronotum 1.0 times as long as wide; dorsal profile rather strongly arched from base, summit indefinite; surface strongly reticulate, almost rugose reticulate, punctures on basal half very small, rather abundant, on anterior half punctures associated with minute asperities, then punctures obsolete before anterior margin; asperities all minute, isolated from one another. Elytra 1.2 times as long as wide, 1.5 times as long as pronotum; striae not impressed, punctures small, shallow, distinct; interstriae about four times as wide as striae, almost smooth, subshining, punctures small, shallow, confused on 2–4. Declivity very broadly convex, steep; interstriae narrower than on disc, punctures confused (and non-setiferous) and also each with a uniseriate row of minute, setiferous granules, some granules on disc near declivity. Vestiture mostly abraded, of erect, short bristles, apparently arising only from granules (on and near declivity).

Distribution: Bolivia: Cochabamba [F. Woytkowski].

Notes: The above treatment was based on the male holotype of *Prionosceles opacicollis* Eggers from Bolivia.

Scolytodes unipunctata (Blandford)

Scolytodes unipunctatus (Blandford), 1897:182 (*Hexacolus*). Lectotype ♀; Cubilguitz, Alta Verapaz, Guatemala; BMNH, London (References in Wood & Bright c1992:400)

Scolytodes cylindricus Schedl, 1978:297. Holotype ♀; 2000 m, Machu Picchu, Peru; NHMW, Wien (References in Wood & Bright c1992:391). *New synonymy*

Diagnosis: The female is easily distinguished by the presence of a rather large, glabrous, pyriform, median elevation on the epistoma; and by the tuft of hair on the female scape.

Male: Similar to the female except frons convex, smooth, shining, glabrous; scape without a tuft of hair.

Female: Length 2.2–2.5 mm, 2.7 times as long as wide; color very dark brown, light brown areas on pronotum and elytral declivity. Frons elongate, broadly, shallowly concave from epistoma to slightly above upper level of eyes, surface smooth, shining, densely micropunctate, bearing dense, short setae (more abundant on lower half), lower one-fifth with a median pyriform, somewhat flattened, glabrous elevation; antennal insertions displaced dorsad, slightly above middle of distance from epistoma to upper level of eyes; scape ornamented by a small tuft of long, yellow hair. Pronotum 1.1 times as long as wide; surface very finely reticulate; moderately declivous on anterior third, punctures on posterior half rather fine, of moderate abundance, slightly larger on anterior half, continued to anterior margin (no asperities or wrinkles). Elytra 1.6 times as long as wide, 1.4 times as long as pronotum; striae not impressed, punctures moderately large, rather deep; interstriae three times as wide as striae, surface smooth, shining, punctures uniseriate, each less than half as large as those of striae. Declivity broadly convex, steep; sculpture about as on disc except striae and interstriae slightly narrower, interstitial punctures distinctly larger and deeper than on disc. Glabrous, except declivital interstriae with uniseriate rows of minute setae, their length less than diameter of a puncture at the their base.

Distribution: Guatemala and Costa Rica to Peru.

Peru: Machu Picchu (type of *cylindricus*).

Notes: The above treatment was based on the female holotype of *Hexacolus unipunctatus* (Blandford), from Guatemala, on the female holotype of *Scolytodes cylindricus* Schedl, from Peru, and on 1 male and 1 female from Costa Rica.

Scolytodes perplexa Schedl

Scolytodes perplexus Schedl, 1972:56. Holotype ♀; Corcovado, Guanabara, Brazil; NHMW, Wien (References in Wood & Bright c1992:397)

Diagnosis: Distinguished from the very closely allied *praeceps* Wood by the smaller size; by the shorter upper setae on the female frons that arise at or below the upper level of the eyes; by the much smaller striae and interstitial punctures; and by the more evenly convex elytral declivity.

Female: Length 2.0 mm, 2.3 times as long as wide; dark brown, much of elytral disc light brown. Frons similar to *praeceps* except setae on upper female frons not extending above upper level of eyes, their length shorter; tips capable of attaining half distance to level of antennal insertion; epistomal tubercle as in *praeceps*. Pronotum as in *praeceps* except punctures on disc slightly smaller. Elytra similar to *praeceps* except striae

punctures on disc smaller, more widely spaced (most by diameter of a puncture), interstitial punctures minute, about one-third as large as those of striae. Declivity more evenly convex than in *praeceps*, striae 1 and interstriae 1 not impressed below transverse level of interstriae 2.

Distribution: Brazil: Corcovado, Guanabara, Rio de Janeiro, X-1970, Alvarenga & Seabra.

Notes: The above treatment was based on the female holotype of *perplexa* Schedl from Brazil.

Scolytodes dissimilis Schedl

Scolytodes dissimilis Schedl, 1967:5. Holotype ♂; Ibicare, Brazil, 27°09', 51°18', 600 m; NHMW, Wien (References in Wood & Bright c1992:391)

Diagnosis: This species is not in the above key. The holotype is a male. Its position in phylogeny is uncertain because key features are concealed by glue, etc. It is placed near *perplexa* Wood because of a small, median tubercle on the epistoma; the anterior pronotum is devoid of asperities and punctures continue to the anterior margin of the pronotum; stout, erect interstitial setae occur from the middle of the declivity to the apex, each seta is as long as the distance between rows, setae are spaced slightly closer within a row (striae setae are obsolete).

Male: Length 1.3 mm, 2.2 times as long as wide; color dark reddish brown, pronotum slightly lighter. Frons convex, reticulate, punctures small, sparse; a very small, median tubercle on epistoma; a slight transverse impression on lower fourth; vestiture sparse, restricted to lower fourth, rather long. Pronotum 0.90 times as long as wide; surface reticulate, punctures rather coarse, moderately close, extending to anterior margin; glabrous, except for a few setae at margins. Elytra 1.3 times as long as wide, 1.7 times as long as pronotum; striae not impressed, punctures moderately coarse, spaced in row by diameter of a puncture; interstriae twice as wide as striae, surface smooth, shining, punctures small, uniseriate. Declivity rather broadly convex, steep; sculpture about as on declivity. Vestiture of stout, erect interstitial setae on declivity and posterior half of disc, each seta as long as distance between rows, spacing slightly closer within a row.

Distribution: Brazil: Ibicare, 27°09', 51°18' [Santa Catarina], 600 m, IX-1960, F. Plaumann.

Notes: The above treatment was based on the male holotype of *dissimilis* Schedl from Brazil.

Scolytodes praeceps Wood

Scolytodes praeceps Wood, 1977:521. Holotype ♀; Piedras Blancas 10 km E Medellin, Antioquia, Colombia; USNM, Washington (References in Wood & Bright c1992:397)

Scolytodes tardus Wood, 1981:127. Holotype ♀; Piedras Blancas 10 km E Medellin, Antioquia, Colombia; USNM, Washington (References in Wood & Bright c1992:399). *New synonymy*

Diagnosis: Epistomal margin armed by a small, median, pointed tubercle; female scape ornamented by

a conspicuous tuft of long, yellow hair; female frons broadly, somewhat irregularly flattened from epistoma to upper level of eyes, dorsal margin with a dense brush of long, yellow hair, continuing as lateral margins on diminishing basis almost to epistoma.

Male: Similar to female except frons convex on upper half, more shallowly, less extensively impressed on lower half, setae sparse, short, inconspicuous, epistomal tubercle present.

Female: Length 2.4–2.9 mm, 2.3 times as long as wide; color dark reddish brown. Frons broadly flattened from epistoma to upper level of eyes, median area below slightly inflated, epistomal margin with a small, pointed median tubercle; vestiture on upper margin to vertex dense, long, continued on lateral margins almost to epistoma but shorter, less abundant; female scape ornamented by a conspicuous tuft of long, yellow hair. Pronotum 1.0 times as long as wide; surface reticulate, rather coarsely, closely punctured to anterior margin, anterior third declivity, with no indication of asperities; almost glabrous, a few setae on anterior and lateral margins. Elytra 1.4 times as long as wide, 1.4 times as long as pronotum; striae not impressed except 1 on posterior half of disc and on declivity, punctures moderately coarse, deep, in rows to base; interstriae almost smooth, about three times as wide as striae, punctures only slightly smaller than those of striae, confused on basal half of disc on 2 and 3. Declivity broadly convex, steep; striae 1 on upper half weakly impressed; punctures on all interstriae uniseriate. Vestiture of erect interstitial setae to base longer and finer on basal half of disc (each slightly longer than distance between rows, on declivity slightly stouter, slightly shorter than distance between rows).

Distribution: Colombia: Piedras Blancas 10 km E Medellin, Antioquia, 15-VII-1970, 2500 m, Nos. 660, 684, *Clusia*, SLW.

Biology: Boring in phloem of broken branches.

Notes: The above treatment was based on the type series of 13 specimens of *praeceps* Wood and on the holotype and 1 paratype of the smaller, abraded *tarda* Wood.

Scolytodes crinalis Wood

Scolytodes crinalis Wood, 1978:402. Holotype ♀; La Carbonera Experimental Forest 50 km airline NW Merida, Merida, Venezuela; USNM, Washington (References in Wood & Bright c1992:391)

Diagnosis: Epistoma with a conspicuous, rounded, median tubercle; scape without a tuft of long hair; pronotum punctured to anterior margin (no indication of asperities); striae and interstitial setae conspicuously present to base, erect interstitial setae restricted to declivity, not regular. Probably allied to *clusiae* complex of species.

Male: Similar to female except median area on lower half more distinctly convex (externally sexed with confidence only by means of abdominal terga 7 and 8).

Female: Length 2.2–2.5 mm, 2.3 times as long as wide; color very dark reddish brown. Frons transversely, rather

shallowly impressed on lower half, deepest at level of antennal insertion (without a weak, median, inflated crest as in male); surface reticulate, rather finely, obscurely punctured, vestiture sparse, short, inconspicuous (as in male). Pronotum 1.0 times as long as wide; dorsal profile almost uniformly convex from base, uniformly punctured, with no indication of asperities; vestiture of moderately abundant, fine, rather long hair about uniformly distributed. Elytra 1.5 times as long as wide, 1.9 times as long as pronotum; striae not impressed, punctures small, rather deep; interstriae about four times as wide as striae, punctures slightly smaller than those of striae, confused on all interstriae from base to apex. Declivity rather narrowly convex, steep; striae 1 and 2 obscure, others confused with those of interstriae; all punctures slightly smaller than on disc. Vestiture rather abundant from base to apex on striae and interstriae; striae setae about two-thirds as long as distance between striae rows, of fine, semirecumbent hair, interstitial setae on disc about equal to those of striae, on declivity some up to twice as long and occasionally suberect.

Distribution: Venezuela: La Carbonera Experimental Forest 50 km NW Merida, Merida, 14 X-1969, 2500 m, Nos. 50-C, 177, *Clusia*, SLW.

Biology: Boring in phloem of broken branches.

Notes: The above treatment was based on the type series of 11 specimens.

Scolytodes nitida (Eggers)

Scolytodes nitidus (Eggers), 1928:88 (*Prionosceles*). Holotype ♀; E Bolivia; NHMW, Wien (References in Wood & Bright c1992:396)

Diagnosis: Distinguished from *phoebeae* Wood by the female pubescence ending at upper level of eyes, margin of pubescence somewhat remote from margin of eye; and by the striae and interstitial punctures being organized into identifiable rows.

Female: Length 1.9 mm, 2.1 times as long as wide; color black. Frons flattened on median two-thirds from epistoma to upper level of eyes; central area mostly glabrous (punctured, not densely), lateral areas and above ornamented by long, yellow hair; pubescent area separated from margin of eye by distance equal to about width of an eye. Pronotum 1.0 times as long as wide; summit indefinite, at middle; surface obscurely reticulate, punctures moderately coarse, close, slightly smaller anteriorly and extending to anterior margin; glabrous. Elytra 1.3 times as long as wide, 1.4 times as long as pronotum; striae not impressed, punctures rather small, deep, in definite rows; interstriae about three times as wide as striae, smooth, brightly shining, punctures three-fourths as large as those of striae, in definite rows. Declivity broadly convex, steep; sculpture similar to disc except all punctures slightly smaller. Glabrous.

Distribution: Bolivia: Cochabamba [F. Woytkowski].

Notes: The above treatment was based on the female holotype from Bolivia.

Scolytodes boliviae (Schedl)

Scolytodes boliviae (Schedl), 1951:80 (*Hexacolus*). Holotype ♀; Cochabamba, Bolivia; NHMW, Wien (References in Wood & Bright c1992:389)

Diagnosis: This species, known only from the female, is not in the key. It fits somewhere between *plumeriae* Wood (Plate LVII figs) and *serena* Wood. Its exact position cannot be determined without more and better material. Distinguishing features include (1) the eyes are rather narrowly separated above; (2) the small size, slender body form, minute strial and interstitial punctures (all uniseriate) are useful in phylogenetic placement.

Female: Length 1.2 mm, 2.7 times as long as wide; color yellowish brown (callow?). Frons convex on upper half of area below upper level of eyes, flattened on median half of lower area (less than lower half), surface smooth, shining above and below, a few rather coarse punctures above, more finely, closely punctured and with fine, sparse, rather short pubescence below. Pronotum 1.0 times as long as wide; anterior third declivous, finely asperate; dorsal profile of posterior two-thirds straight (horizontal), reticulate, finely, moderately punctured; glabrous, except for four setae at anterolateral corners. Elytra 1.7 times as long as wide, 1.7 times as long as pronotum; striae not impressed, punctures minute, shallow, in rows; interstriae about three times as wide as striae, punctures minute, uniseriate, each less than half as large as a strial puncture. Declivity rather narrowly convex; surface about as on disc. Glabrous.

Distribution: Bolivia: Cochabamba [F. Woytkowski].

Notes: The above treatment was based on the female holotype from Bolivia.

Scolytodes grandis (Schedl)

Scolytodes grandis (Schedl), 1962:100 (*Hexacolus*). Holotype ♂; Cochabamba, Bolivia; NHMW, Wien (References in Wood & Bright c1992:393)

Diagnosis: This species is not in the above key. The holotype is a male; until the female is found, accurate placement in classification is not possible. It is allied to *frontoglabrata* (Schedl) in form, color, and shape, but it is much larger.

Male: Length 2.8 mm, 2.3 times as long as wide; color dark brown. Frons broadly convex from level of antennal insertions to vertex; surface reticulate, punctures minute, sparse, subglabrous; median third of epistomal area smooth, shining, extending half distance to level of antennal insertions, a pair of small pits at level of antennal insertion contain a pair of long setae. Pronotum 1.0 times as long as wide; surface finely reticulate, punctures very small, not deep, extending to anterior margin, some of those on anterior slope with a very slight wrinkle at puncture; glabrous, except for four setae at angles. Elytra 1.3 times as long as wide, 1.5 times as long as pronotum; striae not impressed, punctures small, shallow; interstriae about four times as wide as striae, punctures

minute, about one third as large as strial punctures, punctures uniseriate on 1 and 3 from base to near declivity, confused on 2 and 4. Declivity broadly convex, steep; sculpture similar to disc except strial punctures reduced almost to size of those on interstriae; glabrous.

Distribution: Bolivia: Cochabamba [label written on green paper in ink by Schedl].

Notes: The above treatment was based on the male holotype from Bolivia.

Scolytodes frontoglabrata (Schedl)

Scolytodes frontoglabratus (Schedl), 1935:274 (*Hexacolus*). Holotype ♀; San Ignacio, Argentina; NHMW, Wien (References in Wood & Bright c1992:392)

Diagnosis: Distinguished from *puer* (Schedl) by the presence of a large, smooth, impunctate shining area on less than median half of the lower half of the female frons; and by the uniseriate punctures on discal interstriae 3 and 5.

Female: Length 2.1 mm, 2.2 times as long as wide; color dark reddish brown. Frons broadly flattened to distinctly above upper level of eyes, finely, densely punctured, except slightly less than median half on lower half smooth, shining, impunctate; punctured area with fine, abundant, rather long hair, longest setae on upper margin capable of extending less than half distance to epistoma. Pronotum 1.0 times as long as wide; rather strongly declivous on less than anterior half; strongly reticulate, punctures rather small, close, continued to anterior margin; low asperities transversely elongate; glabrous. Elytra 1.3 times as long as wide, 1.5 times as long as pronotum; striae not impressed, punctures rather small, in rows; interstriae about three times as wide as striae, punctures about half as large as those of striae, those on 1, 3, and 5 in uniseriate rows to declivity, those on 2 and 4 strongly confused. Declivity broadly convex, steep; striae 1–3 distinct, interstriae 1–3 with punctures uniseriate at least on lower half. Glabrous, except for a few minute interstitial setae on sides of declivity.

Distribution: Argentina: San Ignacio, 1979, No. 342, Louis Dade.

Notes: The above treatment was based on the female holotype from Argentina.

Scolytodes puer (Schedl)

Scolytodes puer (Schedl), 1952:359 (*Hexacolus*). Holotype ♀; Paraguay; NHMW, Wien (References in Wood & Bright c1992:398)

Diagnosis: Distinguished from *phoebeae* Wood by the smaller size; by the strial punctures 1–4 being in distinguishable rows on the basal half of the disc; and by the female frons (described below).

Female: Length 1.8 mm, 2.2 times as long as wide; color dark reddish brown, basal third of pronotum and posterior half of elytra lighter brown. Frons on type largely concealed by pronotum, apparently broadly flattened from epistoma to upper level of eyes, a smooth

shining area on median fourth from epistoma to level of antennal insertions, uniformly punctured and pubescent over remaining area, punctures fine, rather dense, setae very fine, of moderate length. Pronotum 0.91 times as long as wide; dorsal profile strongly arched from base to anterior margin; anterior half with transversely long, subcarinate wrinkles, small punctures among wrinkles extend to anterior margin; posterior areas reticulate, punctures slightly larger, rather close; glabrous. Elytra 1.3 times as long as wide, 1.4 times as long as pronotum; striae not impressed, punctures in discernible rows at least on basal third of disc, confused with those of interstriae before declivity; interstriae, on basal half of disc, about four times as wide as striae, punctures mostly smaller than those of striae, confused on 1–9 from base to apex. Declivity broadly convex, steep; striae 1 and 2 with discernible rows of punctures on upper half, confused elsewhere. Glabrous.

Distribution: Paraguay: "Paraguay."

Notes: The above treatment was based on the female holotype from Paraguay.

Scolytodes nitella (Schedl)

Scolytodes nitellus (Schedl), 1954:22 (*Hexacolus*). Lectotype ♀; 500 m, Rondon, Parana, Brazil; NHMW, Wien, present designation (References in Wood & Bright c1992:395)

Diagnosis: Distinguished from *schwarzi* (Hopkins) from Florida by the smaller, shining, impunctate area on the female frons; by the smaller asperities on the anterior half of the pronotum; and by the more strongly reticulate pronotal disc and the much finer discal punctures.

Male: Similar to female except frons convex, frontal vestiture minute, sparse, inconspicuous.

Female: Length 1.4 mm, 2.2 times as long as wide; color dark reddish brown. Frons flattened on median three-fourths from epistomal area to slightly above upper level of eyes; apparently closely, finely punctured on most of flattened area except almost impunctate on median area on lower third (seen on type only at a strong angle, not clearly visible); vestiture of long, yellow hair, gradually becoming shorter toward central area. Pronotum 1.0 times as long as wide; asperities on anterior third distinctly smaller than in *schwarzi*; summit indefinite, anterior to middle of pronotum length; posterior areas strongly reticulate, punctures rather fine, moderately abundant; glabrous. Elytra 1.3 times as long as wide, 1.4 times as long as pronotum; striae not impressed, punctures rather small (smaller than in *schwarzi*), in definite rows on posterior two-thirds of disc, slightly confused on 1 and 2 near base; interstriae about twice as wide as striae, smooth, shining, punctures uniseriate, each two-thirds as large as those of striae. Declivity rather broadly convex, steep; punctures distinctly smaller than on disc. Glabrous.

Distribution: Brazil: Rondon, Parana, 24°38' B, 54°07' L, 500 m, F. Plaumann.

Notes: The above treatment was based on the male and female syntypes that were incorrectly cited by Schedl (1979:168) as the holotype and allotype. I here designate as the lectotype of *Hexacolus nitellus* Schedl the female cited by Schedl (1979:168) as an allotype; this reversal is because the diagnostic characters in this genus are best seen in the female. The Schedl male, subsequently cited as the "holotype" by him, is here designated as the lectoallotype of this species. Both specimens are from the type locality cited above.

Scolytodes bruchi (Hagedorn), n. comb.

Scolytodes bruchi (Hagedorn), 1909:743 (*Hexacolus*). Lectotype ♀; Argentina; SMTD, Dresden, present designation (References in Wood & Bright c1992:389)

Diagnosis: Distinguished from *chapuisi* Wood by the absence of discernible discal striae, the area of interstriae 2 with numerous, very small, confused punctures, almost uniseriate on 3; a very slender species.

Female: Length 2.2 mm (2.5–3.0 mm in Hagedorn 1909:743), 2.6 times as long as wide; color light brown, glabrous. Frons rather broadly flattened on lower two-thirds, upper area on type concealed by pronotum; median half of visible area smooth, shining, glabrous, lateral areas very closely, rather finely punctured to epistoma. Pronotum 1.1 times as long as wide; surface uniformly, strongly reticulate, punctures very small, rather numerous, slope on anterior third entirely without wrinkles, asperities, or other irregularities; glabrous except at anterior and lateral margins. Elytra 1.7 times as long as wide, 1.8 times as long as pronotum; striae and striae punctures not indicated; discal punctures very small, numerous, strongly confused in areas of interstriae 2 and 4, less numerous and almost uniseriate in areas of 3 and 5. Declivity restricted to less than posterior half, rather steep, convex; striae 1–3 on lower two-thirds indicated by rows of small punctures, interstitial punctures very small, uniseriate.

Distribution: Argentina: [La Plata], Prov. Buen Air; C. Bruch leg., Coll. Hagedorn 1915 (Hagedorn 1909:743).

Notes: This species was named from a series of unknown length and deposited in the Hamburg Museum, which was destroyed by WWII in 1944. One female cotype was found in the Dresden Museum. That female is here designated as the lectotype of *Hexacolus bruchi* Hagedorn, as indicated above. The species is also transferred to the genus *Scolytodes*.

Scolytodes declivistriata Schedl

Scolytodes declivistriatus Schedl, 1967:126. Holotype ♂?; Buenaventura, Colombia, intercepted at Tokyo, Japan; Tokyo Plant Protection Station (References in Wood & Bright c1992:391), see below

Diagnosis: Distinguished from *faceta* Wood by the broad female frons, with uniformly distributed setae from epistoma to vertex; by the reticulate pronotum,

with no asperities; by the smooth elytra with stria and interstitial punctures minute; and by the unique declivity as described below.

Male: Similar to female except frons more strongly convex, subglabrous.

Female: Length 2.3–2.4 mm, 2.3 times as long as wide; color very dark brown, almost black. Frons broadly flattened from epistoma to margin of eye (concealed on female paratype at hand by pronotum above); premandibular epistomal lobe large, broad, occupying median half; surface smooth, shining, finely, rather closely punctured and uniformly ornamented by rather long hair from lobe to upper level of eyes (without a smooth impunctate area on visible area); antennae missing except simple scape. Pronotum 1.0 times as long as wide; surface reticulate, punctures very minute, on anterior fifth punctures associated with a weak transverse line; glabrous. Elytra 1.4 times as long as wide, 1.5 times as long as pronotum; surface smooth, shining, striae not impressed (weakly near declivity), punctures minute (slightly larger near declivity), in definite rows; interstriae about eight to ten times as wide as striae, punctures confused, minute, equal in size to those of striae. Declivity rather narrowly convex, moderately steep; striae moderately impressed, punctures twice as large as those on disc; interstriae moderately convex, 2 and 4 narrowed and eliminated just below base of declivity, others end at junction with 9. Glabrous except for about one to three setae on lower declivity on mesal side of 3, 7, and 9.

Distribution: Colombia: Log 121 shipped from Buenaventura, intercepted at Tokyo, Japan, 22-III-1960, *Virola* sp., A. Koasa.

Biology: Specimens were removed from the bole of the host.

Notes: The above treatment was based on 1 female and 3 male paratypes in the Schedl Collection (NHMW, Wien). A male was described by Schedl and designated as the holotype and then returned to the Tokyo Plant Protection Station. However, records of the Tokyo Plant Protection Station indicate that this holotype was never returned to them by Schedl. The first specimen in the Schedl series, a male in reasonably good condition, is probably the missing holotype (see Wood in Wood & Bright c1992:3). The second specimen is the female that was described above. Specimens three and four are damaged males.

Scolytodes chapuisi Wood

Plate L

Scolytodes chapuisi Wood, 1977:210. Syntypes 2 ♂♂; Colombia; IRSNB, Brussels, automatic (Synonymy and references in Wood & Bright c1992:390)

Ctenophorus laevigatus Chapuis, 1869:49. Syntypes 2 ♂♂; IRSNB, Brussels, preoccupied by Ferrari 1867:77

Hexacolus levis Blackman, 1943:382. Holotype ♀; Paraiso, Canal Zone, Panama; USNM, Washington, preoccupied by *laevis* Eggers 1928 [Code, Article 58(2)]

Diagnosis: Distinguished from *serena* Wood by the smaller size, by the total absence of preasperate irregu-

larities on the anterior slope of the pronotum; and by the much smaller, less deeply impressed elytral punctures.

Male: Similar to female except frons convex, subglabrous.

Female: Length 1.8–2.2 mm, 2.4 times as long as wide; color dark reddish brown. Frons weakly convex, lower two-thirds of median half smooth, shining, glabrous; lateral areas from level of antennal insertions to vertex finely, closely punctured, punctured area bearing a brush of long, yellow hair; dorsal margin of pubescent area narrowly arched above (less than 90 degrees). Pronotum 1.0 times as long as wide; surface reticulate, minutely, rather closely punctured from base to anterior margin, anterior slope with no indication of preasperate wrinkles; about four setae at lateral and anterior margins. Elytra 1.2 times as long as wide, 1.3 times as long as pronotum; striae not impressed, punctures minute, weakly impressed; interstriae at least four times as wide as striae, punctures minute, half as large as those of striae, uniseriate. Declivity rather narrowly convex, steep; punctures more distinctly impressed than on disc, confused. Glabrous.

Distribution: Panama to Colombia and Venezuela.

Colombia: “Colombie.”

Venezuela: Colonia Tovar, Aragua, 4-V-1970, 1700 m, Nos. 50-C, 509, *Cecropia* leaf petioles, SLW; El Laurel Experimental Farm 12 km SW Caracas, 1-V-1970, 1300 m, No. 475, *Cecropia* leaf petioles, SLW; Rancho Grande, Aragua, 9-IV-1979, 1700 m, No. 425, *Cecropia* leaf petioles, SLW.

Biology: Boring in fallen leaf petioles just beneath outer epidermis.

Notes: The above treatment was based on the 2 male syntypes of *Ctenophorus laevigatus* Chapuis from Colombia, and on 94 specimens from Venezuela. It is possible the Chapuis syntypes were taken before Venezuela and Panama were separated from Colombia; if so, the “Colombie” record could have come from Venezuela or Panama.

Scolytodes nitens (Schedl)

Scolytodes nitens (Schedl), 1954:23 (*Hexacolus*). Lectotype ♂; 500 m, Rondon, Parana, Brazil; NHMW, Wien, present designation (References in Wood & Bright c1992:396)

Diagnosis: This species is not in the above key. The 2 Schedl syntypes examined are both males; it is presumed they fit somewhere near *serena* Wood; however, without a female, their exact placement in classification cannot be ascertained. The carina of interstriae 10 extends well behind the level of the hind coxae; there is no small denticle on the posterior face near the apex of the protibia, and (on 1 syntype) erect interstitial setae occur only on odd-numbered interstriae.

Male: Length 1.4 mm, 2.4 times as long as wide; color dark reddish brown. Frons rather strongly convex from epistoma to vertex, strongly reticulate; sparse punctures very minute; glabrous above, sparse hair on lower fourth.

Pronotum 1.0 times as long as wide; summit near middle; posterior half (and between asperities anteriorly) strongly reticulate, punctures very minute, moderately close. Elytra 1.5 times as long as wide, 1.6 times as long as pronotum; striae not impressed; interstriae three times as wide as striae, surface smooth, shining, punctures minute (about one-third as large as those of striae), uniseriate. Declivity rather broadly convex, steep; sculpture about as on disc. Vestiture of very sparse rows of moderately long, erect setae on odd-numbered interstriae on and near declivity (not more than four setae in a row).

Distribution: Brazil: Nova Teutonia, Santa Catarina, 19-XI-1949, F. Plaumann.

Notes: This species was based on a syntypic series. Schedl (1979:168) later invalidly labeled and cited 1 of these syntypes as the holotype. In order to clarify the status of this species, I here designate that male 'holotype' as the lectotype of *Hexacolus nitens* Schedl. Although both syntypes were labeled by Schedl as females, both are actually males.

Scolytodes serena Wood

Scolytodes serenus Wood, 1977:521. Holotype ♀; La Mucuy 20 km W Merida, Merida, Venezuela; USNM, Washington (References in Wood & Bright c1992:399)

Diagnosis: Distinguished from *chapuisi* Wood by the larger size; by the presence of preasperate wrinkles on the anterior slope of the pronotum; and by larger, deeper elytral punctures.

Male: Similar to female except frons convex, almost glabrous.

Female: Length 2.7–3.1 mm, 2.4 times as long as wide; color moderately dark yellowish brown. Frons resembling *chapuisi* except dorsal margin of pubescent area more broadly arched (but less than 90 degrees), setae on lateral margins end distinctly above level of antennal insertions. Pronotum 1.0 times as long as wide; surface reticulate, punctures small, moderately close; anterior one-fourth with feeble preasperate wrinkles associated with punctures (none acute); glabrous except for 4 strong setae (2 at anterior margin, 2 at lateral base). Elytra 1.7 times as long as wide, 1.9 times as long as pronotum; striae not impressed, punctures rather small, deep; interstriae slightly more than twice as wide as striae, smooth, shining, punctures two-thirds as large as those of striae, uniseriate, except moderately confused on 3 and weakly on 2 on basal half of disc. Declivity rather narrowly convex, steep; striae 1 feebly impressed; all punctures slightly deeper than on disc. Elytra glabrous.

Distribution: Venezuela: La Mucuy, 20 km W Merida, Merida, 10-X-1969, 2500 m, No. 46, *Meriana*, SLW.

Biology: Boring in phloem of broken branches.

Notes: The above treatment was based on the type series of 40 specimens.

Scolytodes gunnerae Wood, n. sp.

Scolytodes gunnerae Wood: Holotype ♀; 6 km ENE Vara Blanca, Heredia, Costa Rica; USNM, Washington, designated below

Diagnosis: Distinguished from *serena* Wood by the larger size; by the more nearly flat median shining area on the lower frons, the vestiture on the dorsal and lateral areas much less abundant; pronotum with subasperate irregularities on the anterior third smaller and less numerous; and by the smaller elytral punctures.

Male: Similar to female except frons more narrowly, less strongly impressed to upper level of eyes, setae absent, punctures very sparse.

Female: Length 3.0–3.6 mm, 2.5 times as long as wide; color yellowish brown. Frons flattened on median three-fourths to above upper level of eyes, a feeble median impression at upper level of eyes; upper half finely, closely punctured, punctured area continuing ventrad to epistoma, median third smooth, shining, impunctate and feebly convex. Pronotum 1.02 times as long as wide; punctures on anterior third with their anterior margin shining, feebly elevated (much less than in *serena*); posterior areas reticulate, punctures minute, rather numerous; sparse setae at lateral margins and a few near anterior margin. Elytra 1.6 times as long as wide, 1.9 times as long as pronotum; surface smooth, shining, striae punctures small, distinctly impressed in rows, interstitial punctures slightly smaller than those of striae, numerous, strongly confused. Declivity moderately steep, convex, similar to disc except punctures on striae 1 minute, discernible to near apex, 2 confused with interstitial punctures.

Distribution: Costa Rica (Heredia).

Type material: The female holotype, male allotype, and 27 paratypes were taken 6 km ENE Vara Blanca, Heredia, Costa Rica, 10°11'N, 84°7'W, 27-III-2002, *Gunnera insignis* leaf petioles and veins, K. Nishida. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Scolytodes bicolor (Eggers)

Scolytodes bicolor (Eggers), 1931:33 (*Hexacolus*). Holotype ♂; Sao Paulo, Brazil; NMPC, Prague (References in Wood & Bright c1992:389)

Diagnosis: Distinguished from *perdita* Wood by the smaller size; by the more slender body and pronotum; by the punctures on discal interstriae 2 being uniseriate to the base; and by the very different female frons, with sparse, short setae as described below.

Female: Length 1.6–1.7 mm, 2.5 times as long as wide; color of pronotum disc and elytra light brown, pronotum anterior third and sides and basal third of elytral disc from suture to striae 2 or 3 very dark brown. Frons flattened, smooth, glabrous on median third from near epistoma to upper level of eyes, lateral and upper margins of glabrous area with a row of long setae from epistomal margin to upper margin, two to four setae at

median line above short (one-fourth as long as adjacent setae); antennal club small, subacutely pointed at apex, sutures 1 and 2 obscure. Pronotum 1.0 times as long as wide; sides on basal half almost straight and parallel, rather broadly rounded on subcostate anterior margin; summit indefinite, near middle of pronotum length; anterior slope rather steep, asperities rather large, close, broad, spaces between asperities reticulate, with no punctures except near summit; posterior areas reticulate, punctures distinctly impressed, rather close, almost as large as those of striae; glabrous. Elytra 1.35 times as long as wide, 1.35 times as long as pronotum; disc occupying basal 70 percent of elytra length; striae not impressed, punctures moderately large, deep, in definite rows; interstriae smooth, shining, punctures about two-thirds as large as those of striae, in definite rows. Declivity steep, strongly convex, profile of suture moderately convex; striae 1 feebly impressed, 2 and 3 not impressed, punctures on upper half about as on disc, decreasing in size on lower half; interstriae with punctures half as large as those of interstriae, slightly confused. Glabrous.

Distribution: Brazil: Sao Paulo.

Notes: The above treatment is based on 2 female cotypes in the USNM, Washington.

Scolytodes perditata Wood

Scolytodes perditus Wood, 1967:123. Holotype ♀; Fort Clayton, Canal Zone, Panama; USNM, Washington (References in Wood & Bright c1992:397)

Diagnosis: Female distinguished from female *ovalis* (Eggers), from Guadeloupe Island and Panama, by radically more extensively flattened and much more abundantly pubescent frons. Male distinguished from both male and female *ovalis* with extreme difficulty; male *perditata* with anterolateral asperities on pronotum smaller, transverse ridges shorter, more confused, confined to less than anterior half near lateral margin, in *ovalis* asperate ridges higher, much longer, occupying anterior half to two-thirds of area near lateral margin; male *ovalis* with anterior margin of most discal punctures on posterior half of pronotum with a smooth, shining spot, in *perditata* this spot not present (occasionally present on anterior half).

Male: Similar to female except frons convex, smooth, shining, punctured, almost glabrous.

Female: Length 1.8–2.1 mm, 2.1 times as long as wide; color yellowish brown. Frons broadly, rather strongly flattened from epistoma to well above upper level of eyes, central area from epistoma to at least half distance to upper level of eyes glabrous; dorsal and lateral margins almost to level of antennal insertions with a dense brush of long, yellow hair, tips of longest setae on vertex almost attain level of antennal insertion. Pronotum 1.0 times as long as wide; reticulate, dorsal profile less strongly arched than in *ovalis*, asperities on anterior third smaller, transversely shorter, more strongly confused, punctures extend to anterior margin; punctures

on posterior half of disc rather small, anterior margin on each puncture reticulate, without a smooth, shining spot; glabrous except a few hairs on anterior margin. Elytra 1.3 times as long as wide, 1.3 times as long as pronotum; striae not impressed, punctures rather small, distinctly impressed, in rows; interstriae about four times as wide as striae, smooth, shining, punctures half as large as those of striae, moderately confused on 1 to 5 on at least basal half of disc. Declivity broadly convex, steep; punctures uniseriate. Glabrous, except interstriae 5, 7, and 9 each with one to five short, erect, interstitial setae.

Distribution: Panama: Fort Clayton, Canal Zone, 22-XII-1963, 50 m, No. 321, *Cecropia* twigs, SLW.

Biology: Boring in phloem of twig terminals of a broken branch. Both *perditus* and *ovalis* were mixed together in this sample (No. 321) before it was realized that 2 species were represented.

Notes: The above treatment was based on the female holotype, male allotype, and 3 male paratypes of *Scolytodes perditata* Wood. Although not recorded from South America, *perditata* is included here because its identification will present a problem if, and when, it is found there.

Scolytodes eggersi (Schedl)

Scolytodes bicolor Eggers, 1943:363. Holotype ♀; Cochabamba, Bolivia; MNHN, Paris, lost, preoccupied by Eggers 1931:33 (References in Wood & Bright c1992:391)

Hexacolus eggersi Schedl, 1952:346. Holotype ♀; Cochabamba, Bolivia; MNHN, Paris, lost, automatic

When a loan of the female holotype of *Scolytodes bicolor* Eggers (1943:363) was received by me; this holotype was dangling from its cardboard paper point by a single metatarsus. As I was looking at it through the microscope it fell from the mount. I immediately remounted the specimen, using jellied shellac glue. Thirty minutes later I made superficial comparisons of this holotype to related species in my collection and then placed it on a pinning block near the microscope while I replaced the 3 unit trays of my specimens in the drawer where they belonged. I was always more than 30 cm from the type. When I then reached for the type it was gone from its pin. The curator of the MLBM Museum collection of insects and I began an hours-long search for the type but could not find it. Something must have touched the pin thereby causing it to flip the specimen to an unknown location. My brief notes taken from the type before it was lost follow:

Scolytodes bicolor Eggers = *Hexacolus eggersi* Schedl, female holotype, estimated as 2.5 mm, body color dark reddish brown, label "Museum Paris; Bolivia, Cochabamba (Germain), H. Donickier, 1907." Most of frons concealed by prothorax, 2 bundles of 5–6 setae were projecting from the upper frons orad as is typical of some *Scolytodes* (similar to type of female *S. medius* Eggers = *S. maurus* Blandford). The body was estimated to be 2.6–2.7 times as long as wide; the pronotum was reticulate, the anterior slope of the pronotum was

asperate, with no punctures between the asperities. The elytra had very few short setae, punctures on the elytral disc were small and inconspicuous. It superficially resembled *S. alni* Wood but was definitely not that species.

Scolytodes pseudoacuminata (Schedl)

Scolytodes pseudoacuminatus (Schedl), 1935:51 (*Hexacolus*). Syntypes, ♂ ♀; Saude bei Sao Paulo, Brazil; DEI, Munchenberg; NHMW, Wien (References in Wood & Bright c1992:398)

Diagnosis: Distinguished from *lepida* Wood by the larger size; by the more numerous, confused pronotal asperities; and by the very different female frons as described below.

Male: Similar to female except frons convex from epistoma to vertex, surface reticulate, punctures obscure, vestiture short, sparse.

Female: Length 2.5–2.7 mm, 2.2 times as long as wide; color dark reddish brown. Frons broadly flattened from epistoma to well above upper level of eyes; slightly more than median half on lower 60 percent (of area below upper level of eyes) forming a smooth, shining, impunctate, subquadrate, slightly elevated callus; area above callus densely, finely punctured on median three fourths from callus to vertex; margin of punctured area ornamented by long, reddish yellow hair across dorsal margin and down sides to epistoma. Pronotum 1.0 times as long as wide; anterior third armed by numerous, small, confused asperities; summit indefinite; posterior areas reticulate, punctures rather coarse, close, moderately deep; glabrous except for four setae on anterior and posterior angles. Elytra 1.2 times as long as wide, 1.2 times as long as pronotum; striae not impressed, punctures moderately large, shallow, in uniseriate rows; interstriae three to four times as wide as striae, smooth, subshining, punctures half to two-thirds as large as those of striae, shallow, confused on 1 to 9. Declivity broadly convex, steep; striae 1 weakly impressed; interstriae 2 narrower than on disc, its punctures uniseriate, punctures confused on 1 and lateral areas (3 to 9). Glabrous.

Distribution: Brazil: Saude bei Sao Paulo, 27-IX-1921, J. Melzer.

Notes: The above treatment was based on 2 male and 2 female syntypes from Brazil in the NHMW, Wien. This species was based on a syntypic series of unknown extent in which the sexes were reversed in the original description. Schedl later corrected the sex labels in his collection.

Scolytodes fulminea Wood

Scolytodes fulmineus Wood, 1977:217. Holotype ♀; La Carbonera Experimental Forest 50 km airline NW Merida, Merida, Venezuela; USNM, Washington (References in Wood & Bright c1992:392)

Diagnosis: This is a member of the *clusiae* Wood complex of species in which the pronotum varies from unarmed to finely, sparsely asperate, interstitial punctures

are sparse and widely separated to obsolete, interstitial setae are sparse and only on odd-numbered interstriae, interstriae may have the carina of 10 end at the level of the hind coxae or continue (with or without a carina), and female frontal vestiture does not extend above the upper level of the eyes and is of about uniform length. One may distinguish *fulminea* from allied species by the female frons having the median third from epistoma to upper level of eyes smooth, shining, impunctate, lateral thirds densely, minutely punctate and bearing uniformly distributed, fine hair of rather short, uniform length.

Male: Similar to female except frons rather strongly convex, surface smooth, shining below, weakly reticulate above, punctures sparse, small.

Female: Length 1.6–1.9 mm, 2.6 times as long as wide; mature color black. Frons broadly flattened from epistoma to upper level of eyes, median third (above) to almost half (below) smooth, shining, impunctate from epistoma almost to upper level of eyes; lateral thirds finely, densely punctured, punctured area with moderately abundant fine, rather short hair of uniform length, not longer at margins. Pronotum 1.1 times as long as wide; surface strongly reticulate, rather coarsely, sparsely punctured on basal two-thirds, anterior one-fourth more strongly declivous, punctures reduced in size, attain anterior margin in lateral areas, median area with a few sparse, very fine asperities; glabrous except a few short setae near anterior margin. Elytra 1.6 times as long as wide, 1.8 times as long as pronotum; striae 1 feebly, others not impressed, punctures rather coarse, close, deep; interstriae slightly more than twice as wide as striae, smooth, shining, punctures often obsolete on even-numbered interstriae, sparse, minute on odd-numbered rows, uniseriate when present. Declivity rather narrowly convex, steep; similar to disc except interstriae narrower, 2 very narrow. Vestiture of very sparse, erect hair present on odd-numbered interstriae, a seta occasionally attaining base.

Distribution: Venezuela: La Carbonera Experimental Forest 50 km NW Merida, Merida, 14 X-1969, 2500 m, Nos. 50-B, 50-C, *Clusia*, SLW.

Biology: Boring in phloem of broken branches.

Notes: The above treatment was based on the type series of 13 specimens and on 33 other specimens.

Scolytodes anceps Wood

Scolytodes anceps Wood, 1981:126. Holotype ♀; Piedras Blancas 11 km W Medellin, Antioquia, Colombia; USNM, Washington (References in Wood & Bright c1992:388)

Diagnosis: Distinguished from *irazuensis* Wood (Costa Rica) by the less strongly impressed female frons, with the lateral calluses less conspicuous and the dorsal setae more abundant; and by the much larger elytral punctures.

Male: Similar to female except frons convex, reticulate, sparsely punctured, subglabrous.

Female: Length 1.3–1.4 mm, 2.4 times as long as wide; mature color very dark brown. Frons with median half

shallowly impressed, lateral areas weakly elevated as calluses from level of antennal insertions at least half distance to upper level of eyes; median area dull, rather coarsely, closely, deeply punctured; dorsal margin and upper lateral margins ornamented by a dense row of moderately long hair. Pronotum 1.0 times as long as wide; surface reticulate, punctures moderately coarse, shallow, smaller and extending to anterior margin on anterior third; glabrous except for four setae, one at each anterior and posterior angle. Elytra 1.6 times as long as wide, 1.5 times as long as pronotum; striae 1 weakly, others not impressed, punctures minute, in rows, some obscure; interstriae about three times as wide as striae, punctures minute to obsolete, uniseriate. Declivity narrowly convex, steep; sculpture about as on disc. Vestiture of sparse, erect, moderately long hair on odd-numbered interstriae; most specimens with at least some very minute strial and interstitial setae.

Distribution: Colombia: Piedras Blancas 11 km W Medellin, Antioquia, 17-VII-1970, 2300 m, No. 691, fallen *Cecropia* leaf petioles, SLW.

Biology: Boring in fallen petioles just below the outer epidermis.

Notes: The above treatment was based on the type series of 39 specimens.

Scolytodes semipunctata Wood

Scolytodes semipunctatus Wood, 1978:405. Holotype ♀; Merida, Merida, Venezuela; USNM, Washington (References in Wood & Bright c1992:399)

Diagnosis: A pubescent species that is distinguished from *habilis* Wood by the stouter body, with elytral punctures on anterior disc in uniseriate rows.

Male: Similar to female except upper frons with median crest weakly, distinctly elevated.

Female: Length 1.7–2.0 mm, 2.1 times as long as wide; color very dark brown. Frons convex from epistoma to vertex, surface reticulate, sparsely, rather coarsely punctured; vestiture very sparse, inconspicuous. Pronotum 1.0 times as long as wide; surface reticulate, punctures small, rather close, attaining anterior margin, with no indication of asperities; vestiture of abundant, fine, moderately long hair uniformly distributed. Elytra 1.5 times as long as wide, 2.0 times as long as pronotum; striae not impressed, punctures moderately coarse, deep, smaller toward base and declivity; interstriae slightly more than twice as wide as striae, surface smooth, shining, punctures about half as large as those of striae, confused near declivity. Declivity broadly convex, steep; striae discontinuing before middle of declivity, all punctures much smaller than on disc, confused. Vestiture of fine, moderately long hair, shorter and much more abundant on declivity.

Distribution: Venezuela: Merida (between stops 2 and 3 on Pico Bolivar Teleferico), Merida, 27-II-1970, 2500 m, No. 331, tree bole, SLW.

Biology: Boring in phloem of bole.

Notes: The above treatment was based on the type series of 12 specimens.

Scolytodes banosa (Hagedorn)

Scolytodes banosus (Hagedorn), 1909:743 (*Hexacolus*). Holotype ♀; Banos, Ecuador; MNHN, Paris (References in Wood & Bright c1992:389)

Diagnosis: Distinguished from *semipunctata* Wood by the larger size; by the mostly smooth, shining pronotum; by the much longer, more abundant elytral setae; and by the discal striae that were not impressed.

Female (?): Length 2.7 mm, 2.2 times as long as wide; color dark reddish brown. Frons weakly convex, smooth, shining on lower half, feebly subreticulate above, punctures rather coarse, deep, sparse; setae sparse, inconspicuous; antennal club small, suture 1 obscure. Pronotum 1.0 times as long as wide; sides and anterior margin moderately arcuate; surface smooth, shining on central half, weak reticulation on all margins; punctures rather small, distinct, rather widely spaced; vestiture of moderately abundant, rather long, fine setae. Elytra 1.6 times as long as wide, 1.8 times as long as pronotum; disc occupying 70 percent of elytra length; elytral surface smooth, shining, punctures small, close, distinct, mostly confused, those on striae 2–4 in obscure rows. Declivity rather steep, moderately convex, apical margin rather narrowly rounded from dorsal aspect; sculpture about as on disc except punctures slightly smaller, closer, more strongly confused. Vestiture of rather abundant, fine, long setae from base to apex, slightly longer and more abundant on declivity.

Distribution: Ecuador: Banos, R. Haensch S.

Notes: The above treatment was based on the female holotype of *Hexacolus banosus* Hagedorn.

Scolytodes aterrima Wood

Scolytodes aterrimus Wood, 1988:32 (*Hylocurosoma*). Holotype ♂; Cochabamba, Bolivia; MNHN, Paris, replacement name, automatic (Synonymy and references in Wood & Bright c1992:388)

Hylocurosoma ater Eggers, 1943:371. Holotype ♂; Cochabamba, Bolivia; MNHN, Paris, preoccupied by Eggers 1943:365

Diagnosis: Distinguished from *habilis* Wood by the smaller size; by the smooth, shining pronotum; by the recumbent strial setae and erect interstitial setae; and by the larger, less dense elytral punctures.

Male: Length 1.5 mm, 2.7 times as long as wide; color very dark reddish brown. Frons on lower half smooth, shining, convex, punctures rather small, not close (concealed on upper half of type by pronotum). Pronotum 1.1 times as long as wide; sides weakly arcuate, anterior margin rather broadly arcuate; surface mostly smooth, shining, punctures rather coarse, close; vestiture of rather fine, abundant, moderately long setae. Elytra 1.6 times as long as wide, 1.6 times as long as pronotum; disc occupying 67 percent of elytra length; disc smooth, shining between punctures, punctures rather large, confused.

Declivity rather steep, strongly convex; sculpture about as on disc, punctures slightly smaller. Vestiture of moderately long, mostly recumbent, fine setae, and erect longer interstitial setae, setae moderately abundant from base to apex of elytra.

Distribution: Bolivia: Cochabamba (Germain), 1907, Donckier.

Notes: The above treatment was based on the male (?) holotype of *Hylocurosoma ater* Eggers.

Scolytodes habilis Wood

Scolytodes habilis Wood, 1978:403. Holotype ♀; 30 km E Merida, Merida, Venezuela; USNM, Washington (References in Wood & Bright c1992:393)

Diagnosis: Distinguished from *semipunctata* Wood by the smaller size; by the more slender body form; by the strongly confused interstitial punctures to the base; and by the more abundant vestiture on the basal half of the elytra.

Male: Similar to female, distinguished with confidence only by abdominal terga 7 and 8.

Female: Length 1.5–1.7 mm, 2.4 times as long as wide; color black. Frons convex from epistoma to vertex; surface reticulate, punctures small, shallow, rather sparse; vestiture of fine, very sparse, inconspicuous hair. Pronotum 1.0 times as long as wide; surface reticulate; punctures on basal half coarse, close, deep, of reduced size on anterior half, almost obsolete by anterior margin; vestiture of fine, rather short, abundant, semirecumbent hair, a few much longer, erect setae near margins. Elytra 1.5 times as long as wide, 1.7 times as long as pronotum; striae not impressed, punctures in rows, small, rather deep; interstriae about four times as wide as striae, surface smooth, shining, punctures slightly smaller than those of striae, strongly confused to base. Declivity broadly convex, steep; striae 1 and 2 recognizable on basal two-thirds, punctures greatly reduced in size, obsolete below and laterally; interstitial punctures very small, confused. Vestiture of fine, abundant, rather short, semirecumbent hair, more abundant on declivity.

Distribution: Venezuela: 30 km E Merida, 8-I-1970, 2500 m, No. 220, *Croton*, SLW.

Biology: Boring in phloem of broken branches.

Notes: The above treatment was based on the type series of 17 specimens.

Scolytodes decora Wood

Scolytodes decorus Wood, 1978:402. Holotype ♂; 40 km E Canton, Barinas, Venezuela; USNM, Washington (References in Wood & Bright c1992:391)

Diagnosis: Distinguished from *punctata* (Eggers) by the much shorter setae on the declivital striae and interstriae; and by the declivital punctures being organized into recognizable rows.

Male: Similar to female; distinguished by abdominal terga 7 and 8.

Female: Length 1.4–1.6 mm, 2.3 times as long as wide; color almost black. Frons convex above level of antennal insertions, reticulate and finely, sparsely punctured above; area from epistoma to level of antennal insertions slightly elevated into a callus, a pair of small, impressed, subcircular punctured areas in lateral areas within this callus; vestiture very sparse, short, inconspicuous. Pronotum 1.0 times as long as wide; surface reticulate, punctures rather coarse, moderately close, attaining anterior margin; vestiture very fine, short, rather sparse, generally distributed (abraded on holotype). Elytra 1.5 times as long as wide, 1.7 times as long as pronotum; surface smooth, shining, punctures of striae and interstriae coarse, deep, confused. Declivity convex, steep; similar to disc except punctures slightly smaller. Vestiture hairlike, almost erect, in distinguishable striae and interstitial rows, striae hairlike setae about half as long as distance between striae rows, interstitial setae about equal in length to distance between interstitial rows.

Distribution: Venezuela: 40 km E Canton, Barinas, 8-III-1970, 70 m, No. 332, *Nectandra*, SLW.

Biology: Boring in the phloem of broken branches.

Notes: The above treatment was based on the type series of 4 specimens.

Scolytodes punctata (Eggers)

Scolytodes punctatus (Eggers), 1943:368 (*Hylocurosoma*). Holotype, sex?; Cochabamba, Bolivia; MNHN, Paris (References in Wood & Bright c1992:398)

Diagnosis: Distinguished from *decora* Wood by the much longer striae and interstitial setae; those on the declivity are longer and most are curved; and by the confused punctures on the elytral declivity.

Female: Length 1.9 mm, 2.2 times as long as wide; color dark reddish brown. Frons as in *decora*. Pronotum 1.1 times as long as wide; similar to *decora* except punctures on basal half distinctly larger, those on anterior third smaller, setae finer, much longer, at least some semirecumbent. Elytra 1.5 times as long as wide, 1.7 times as long as pronotum; striae not impressed, punctures rather coarse, deep; interstriae twice as wide as striae, smooth, shining, punctures uniseriate, deep, at base two-thirds as large as those of striae, about equal to those of striae at base of declivity. Declivity broadly convex, steep; surface smooth, shining, punctures of striae and interstriae smaller than on declivity, confused. Vestiture of fine, long hair to base; striae setae on disc almost as long as distance between striae rows (slightly longer on declivity), interstitial setae on disc slightly longer than distance between rows, on declivity twice as long; most setae on declivity curved.

Distribution: Ecuador to Bolivia.

Bolivia: Cochabamba [collected by Woytkowski].

Ecuador: 8 km E Savilla de Oro, Azuay, 2400 m, 17-III-1955, E.I. Schlinger, E.S. Ross.

Notes: The above treatment was based on 1 specimen, presumably a female, from Ecuador, that was compared

by me in 1965 to a female cotype in the Schedl Collection at NHMW, Wien.

Scolytodes vescula Wood

Scolytodes vesculus Wood, 1981:128. Holotype ♂; Piedras Blancas 10 km E Medellin, Antioquia, Colombia; USNM, Washington (References in Wood & Bright c1992:400)

Diagnosis: Distinguished from *punctifer* Wood (near *cecropiavora* Wood) by the much more extensive, more numerous fine pronotal asperities; by the finer, confused punctures on the elytral disc; and by the uniseriate, erect interstitial setae on the posterior half of the elytra.

Male: Length 1.4–1.5 mm, 2.3 times as long as wide; color black. Frons convex from epistoma to vertex; surface reticulate, punctures sparse, rather coarse, shallow; vestiture fine, sparse, inconspicuous. Pronotum 1.0 times as long as wide; anterior half with rather numerous, small, sometimes indefinite asperities; surface reticulate, punctures small on posterior half; vestiture of fine, semirecumbent, moderately abundant hair. Elytra 1.4 times as long as wide, 1.6 times as long as pronotum; striae 1 obscurely indicated, others with punctures confused with those of interstriae, all punctures small, close. Declivity rather narrowly convex, steep; surface shining, all punctures very small, confused. Vestiture of fine, moderately long, semirecumbent hair, on and near declivity with uniseriate rows of moderately coarse, erect interstitial setae (on 1–8), each erect seta as long as distance between rows, spaced within a row somewhat more closely.

Distribution: Colombia: Piedras Blancas 10 km E Medellin, Antioquia, 15-VII-1970, 2500 m, No. 678, *Croton guianensis*, SLW.

Biology: Boring in the phloem of broken branches.

Notes: The above treatment was based on the male holotype and on 2 male paratypes from Colombia.

Scolytodes glabrella (Schedl)

Scolytodes glabrellus (Schedl), 1954:21 (*Hexacolus*). Syntypes ♂ ♀; Rondon, Parana, Brazil; NHMW, Wien (References in Wood & Bright c1992:393)

Diagnosis: Distinguished by the presence of 1 small denticle on the posterior face near the protibia apex, a carinate posterior half of interstriae 10, and asperities on the anterior third of the pronotum; by the female frontal setae not extending above the upper level of the eyes; and by the presence of a median, subcarinate callus on the lower two-thirds of the female frons.

Male: Similar to female except frons convex, lower third coarsely, very closely punctured, very sparsely, inconspicuously pubescent.

Female: Length 1.5–1.8 mm, 2.3 times as long as wide, color very dark reddish brown. Frons convexly flattened from epistoma to upper level of eyes, this area densely, finely punctured except a shining, subacute

median carina on lower half; vestiture on lateral and dorsal margins longer, more numerous, shorter in central area, epistomal area with a conspicuous brush of hair. Pronotum 1.04 times as long as wide; surface reticulate and rather finely, moderately punctured on slightly more than posterior half, more strongly declivous and finely, closely asperate in front; glabrous except for very few setae near anterior margin. Elytra 1.3 times as long as wide, 1.3 times as long as pronotum; striae not impressed, punctures small, rather deep, in rows; interstriae twice as wide as striae, smooth, shining, punctures about half as large as those of striae, uniseriate except confused on anterior half of 2. Declivity broadly convex, steep; punctures slightly smaller than on disc, in rows. Glabrous (abraded?) in most specimens, very minute striae and interstitial setae on declivity in a few specimens.

Distribution: Brazil: Rondon, Parana, 24°38'B, 54°07'W, X-1952, 500 m, F. Plaumann.

Notes: The above treatment was based on 1 male and 1 female paratype, and on 2 other males from the same locality (Rondon).

Scolytodes pusilla (Eggers)

Scolytodes pusillus (Eggers), 1943:367 (*Hylocurosoma*). Holotype ♂?; Cochabamba, Bolivia; USNM, Washington (References in Wood & Bright c1992:398).

Diagnosis: This species is not in the above key. The male is distinguished from the male of *naevius* Wood by the smaller size; by the very coarse, deep, close punctures on the pronotum disc; and by the much larger, deeper striae punctures, with the striae distinctly wider than the interstriae.

Male: Length 1.2 mm, 2.2 times as long as wide; color dark reddish brown. Frons broadly convex, surface reticulate above, punctures moderately coarse; vestiture sparse, hairlike, short. Pronotum 1.0 times as long as wide; summit indefinite, near middle, anterior slope moderately, closely asperate; posterior areas very coarsely, deeply punctured, punctures spaced by less than half diameter of a puncture, reticulation obscure, but present; vestiture of fine, rather short, recumbent hair. Elytra 1.4 times as long as wide, 1.6 times as long as pronotum; striae not impressed, punctures coarse, deep, close; interstriae slightly narrower than striae, smooth, shining, interstitial punctures minute, uniseriate. Declivity broadly convex, steep; as on disc except striae slightly narrower. Vestiture on declivity of a few erect, blunt setae on odd-numbered interstriae, sparse, short, ground cover present on some interstriae (partly abraded?).

Notes: The above treatment was based on the holotype from Bolivia, presumably a male.

Scolytodes sparsepilosa Wood, n. sp.

Scolytodes sparsepilosa Wood: Holotype ♀; 21 km W Tucuman, Tucuman, Argentina; USNM, Washington, designated below

Diagnosis: Distinguished from *glabrella* Schedl by the absence of a longitudinal median carina on the female frons; by the presence of a short, weak transverse carina on the female frons; and by the uniseriate, smaller to obsolete punctures on discal interstriae 2.

Male: Similar to female except frons rather strongly convex, reticulate, subglabrous.

Female: Length 1.9–2.0 mm, 2.7 times as long as wide; color yellowish brown, anterior half of pronotum darker (mature color?). Frons with a transverse callus (or weak carina) on median one fourth at one-third of length of frons below upper level of eyes; epistomal margin slightly elevated, smooth, shining, a slight dorsal extension at median line; area from epistomal callus to carina shallowly, subconcavely impressed, impressed area closely, rather finely punctured on median two thirds; lateral and dorsal areas reticulate; vestiture on impressed area hairlike, very fine, erect, moderately long. Pronotum 1.0 times as long as wide; surface reticulate, posterior half finely, moderately punctured, anterior half declivous and armed by low, transversely long, subasperate wrinkles, some punctures continue to anterior margin; glabrous except four setae near anterior margin. Elytra 1.4 times as long as wide, 1.6 times as long as pronotum; striae not impressed, punctures small, rather shallow; interstriae shining, almost smooth, punctures minute to obsolete, one fourth as large as those of striae, uniseriate. Declivity broadly convex, steep; sculpture about as on disc. Vestiture restricted to declivity, consisting of one to three short, hairlike setae on each of interstriae 7 and 9.

Distribution: Argentina (Tucuman).

Type material: The female holotype and male allotype were taken 21 km W Tucuman, Tucuman, Argentina, 18-VIII-1969, C.W. & L. O'Brien. The holotype and allotype are in the U.S. National Museum, Washington.

Scolytodes naevia Wood

Scolytodes naevius Wood, 1981:127. Holotype ♀; 40 km SE Socopo, Barinas, Venezuela; USNM, Washington (References in Wood & Bright c1992:395)

Diagnosis: Distinguished from *glabrella* (Schedl) by the more extensively punctured female frons, which bears on the median one-third on the upper half a pair of smooth, shining, weakly elevated calluses; by the elytral punctures bearing extremely minute striae and interstitial setae (each shorter than diameter of a puncture); and by the larger pronotal asperities.

Male: Similar to female except frons strongly convex, reticulate, subglabrous.

Female: Length 1.3–1.7 mm, 2.7 times as long as wide; color yellowish brown. Frons flattened on lower two-thirds of area below upper level of eyes and closely, finely punctured except for a pair of smooth, shining, longitudinal calluses on median third of upper third of punctured area; upper and lateral areas reticulate; vestiture of a marginal fringe around punctured area of fine, long, yellow hair; setae in central area inconspicuous,

conspicuous on epistoma. Pronotum 1.1 times as long as wide; posterior half reticulate, finely punctured; anterior half declivous, asperities rather coarse, extending well behind summit; minute setae (shorter than diameter of a puncture) moderately abundant over entire surface. Elytra 1.5 times as long as wide, 1.5 times as long as pronotum, striae not impressed, punctures small, shallow; interstriae three times as wide as striae, surface smooth, shining, punctures less than half as large as those of striae, uniseriate. Declivity broadly concave, steep; punctures minute, much smaller than on disc, in rows. Vestiture of very minute striae and interstitial hair (each seta shorter than diameter of a puncture).

Distribution: Venezuela: 40 km SE Socopo, Barinas, 25-I-1970, 150 m, No. 277, *Clusia*, SLW.

Biology: Boring in the phloem of broken twigs.

Notes: The above treatment was based on the type series of 32 specimens.

Scolytodes pilifrons (Schedl)

Scolytodes pilifrons (Schedl), 1962:100 (Hexacolus). Holotype "♂"; Rancho Grande, Maracay, Venezuela; Frey Museum, NHMBS, Basel (References in Wood & Bright c1992:397)

Diagnosis: Median half of middle half of female longitudinal middle half of frons flattened and bearing a marginal (subcircular) fringe of hair, the central area smooth, impunctate; anterior pronotum asperate, interstriae 10 carinate on posterior half, a few setae on odd-numbered interstriae.

Male: Similar to female except frons convex, reticulate, with punctures sparse, coarse.

Female: Length 1.3–1.9 mm, 2.4 times as long as wide, color very dark reddish brown. Frons mostly convex, narrowly flattened on median half of (longitudinal) middle half, flattened area bearing a circular fringe of long hair, its central area smooth, impunctate, glabrous; lateral areas reticulate, with sparse, fine punctures. Pronotum 1.0 times as long as wide; anterior third more steeply declivous, rather coarsely, closely asperate; summit indefinite, some rugae extending to middle of pronotum length; posterior areas reticulate, punctures fine, moderately close. Elytra 1.4 times as long as wide, 1.5 times as long as pronotum; striae not impressed, punctures in rows, of moderate size near base, becoming much smaller toward base of declivity; interstriae almost smooth, shining, punctures minute, uniseriate. Declivity convex, steep; punctures of striae and interstriae very small, shallow, in rows. Vestiture of sparse rows of erect setae on odd-numbered interstriae, mostly on posterior half; minute rudiments of striae and interstitial setae sometimes evident on and near declivity.

Distribution: Venezuela: 20 km SW El Vigia, Merida, 21-IX-1969, 50 m, No. 144, *Cecropia*, SLW; Rancho Grande, Maracay.

Hosts: Fallen *Cecropia* leaf petioles.

Biology: Tunnels were bored immediately beneath the outer epidermis.

Notes: The above treatment was based on 25 specimens from Venezuela, 2 of which had been compared by me at NHMW, Wien to the female "holotype." According to my notes, the "holotype" in NHMW is a female and, consequently, must be (1) the paratype cited in the original description or (2) the holotype, which had not been returned to the Frey Museum by 1983 and was labeled a male, when in reality it is a female. The problem here is not with the identification of the species but with a determination of which specimen is the holotype and to which sex it belongs.

Scolytodes ficicolens Wood

Scolytodes ficicolens Wood, 1981:126. Holotype ♀; Merida, Merida, Venezuela; USNM, Washington (References in Wood & Bright c1992:392)

Diagnosis: Female frons with a pair of conspicuous longitudinal carinae very near lateral margin on lower two-thirds of area below upper level of eyes, tuft of hair extending from epistoma to well above upper level of eyes, central area between carinae with minute punctures and fine, short setae.

Male: Similar to female except frons convex, rugose-reticulate, punctures obsolete, subglabrous.

Female: Length 1.7–1.9 mm, 2.7 times as long as wide; color reddish brown. Frons somewhat flattened from epistoma to above upper level of eyes, median two-thirds on slightly more than lower half smooth, shining, very finely punctured, its lateral margins marked by a pair of acute longitudinal carinae; lateral and upper margins closely, finely punctured; vestiture on lateral and dorsal margins of fine, rather long, moderately abundant, yellow hair; central area with very fine, short, sparse hair. Pronotum 1.0 times as long as wide; anterior half declivous, finely, closely asperate, very small rugae extending behind middle; posterior half reticulate, punctures rather small, shallow, close; almost glabrous. Elytra 1.7 times as long as wide, 1.7 times as long as pronotum; striae not impressed, punctures moderately small, rather shallow; interstriae almost smooth, shining, punctures shallow, almost as large as those of striae, uniseriate except confused on 2. Declivity convex, steep; as on disc except punctures much smaller. Erect setae on odd-numbered interstriae on declivity, very minute strial and interstitial hair from base to apex (each seta about as long as diameter of a puncture).

Distribution: Venezuela: Merida, Merida, 22-IX-1969, 1700 m, No. 8, *Ficus*, SLW.

Biology: Boring in phloem of branches of a large, uprooted strangler fig.

Notes: The above treatment was based on the type series of 41 specimens.

Scolytodes subcribrosa (Eggers)

Scolytodes subcribrosus (Eggers), 1933:17 (*Hexacolus*). Holotype, sex?; Colonia Tovar, Aragua, Venezuela; MNHN, Paris (References in Wood & Bright c1992:399)

Diagnosis: Female frons moderately concave, without longitudinal carinae; elytra with abundant ground vestiture and with rows of erect setae; pronotum with anterior slope asperate.

Male: Similar to female except frons convex, reticulate, subglabrous.

Female: Length 2.1–2.4 mm, 2.3 times as long as wide; color dark reddish brown. Frons moderately concave on median two-thirds from near epistoma almost to upper level of eyes, concave area almost smooth, impunctate, glabrous; area above concavity to well above upper level of eyes densely, rather finely punctured, a narrow band of punctures extending down lateral margins then transversely across epistoma; punctured area finely pubescent, setae rather short below, very long on dorsal margin. Pronotum 1.0 times as long as wide; anterior half declivous and rather finely, closely asperate, some crenulations extending to one-fourth pronotum length from base; reticulate, punctures on basal third small, moderately close; vestiture of fine, short, moderately abundant hair; much of it abraded on specimens at hand. Elytra 1.5 times as long as wide, 1.6 times as long as pronotum; striae not impressed, punctures small, close, rather deep; interstriae almost smooth, shining, punctures rather shallow, slightly smaller than those of striae, confused. Declivity broadly convex, steep; sculpture similar to disc except all punctures smaller. Vestiture of rather abundant, short ground strial and interstitial setae (each one to three times as long as diameter of a strial puncture), and rows of erect interstitial bristles (each two-thirds as long as distance between rows), a few extending to base.

Distribution: Colombia: Piedras Blancas 10 km E Medellin, Antioquia, 15-VII-1970, 2500 m, No. 679, *Croton guianensis*, SLW.

Biology: New tunnels were entering phloem of a broken branch 7 cm in diameter.

Notes: The above treatment was based on 2 females, both of which I compared to the female holotype, and on 1 male, all from the same branch in Colombia.

Scolytodes glabrata (Schedl)

Scolytodes glabratus (Schedl), 1954:23 (*Hexacolus*). Lectotype ♀; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien, present designation (References in Wood & Bright c1992:393)

Diagnosis: Distinguished from *subcribrosa* (Eggers) by the smaller, more slender body form; by the uniseriate interstitial punctures on the disc; and by the strongly reticulate female frons, with setae on the upper and lateral margins much longer.

Male: Similar to female except frons strongly convex, setae restricted to epistomal area.

Female: Length 1.4–1.6 mm, 2.6 times as long as wide; color brown. Frons rather weakly convex from epistoma to slightly above upper level of eyes; surface strongly reticulate on large glabrous area on median two-thirds of lower three-fourths of area below upper

level of eyes, lateral and dorsal margins with a fringe of long, yellow hair, tips of longest setae on dorsal margin capable of extending two-thirds distance to epistomal margin. Pronotum about 1.0 times as long as wide; surface reticulate, anterior third rather strongly declivity and armed by numerous small asperities, some small transverse rugae on disc extending to a point one-third pronotum length from base; punctures on posterior half small, shallow, moderately close; glabrous except several hairlike setae on and near anterior margin. Elytra 1.5 times as long as wide, 1.6 times as long as pronotum; striae not impressed, punctures small, shallow; interstriae about three times as wide as striae, punctures minute, half as large as those of striae, mostly uniseriate (slight confusion near base in some specimens). Declivity broadly convex, steep; sculpture similar to disc except striae and interstriae narrower, punctures smaller, deeper. Vestiture of sparse rows of erect setae on odd-numbered interstriae (mostly on declivity).

Distribution: Brazil: Nova Teutonia, Santa Catarina, 27°11'B, 52°23'L, 4-XI-1949, 300–600 m, F. Plaumann.

Notes: The above treatment was based on a syntypic series, 4 females (all labeled by Schedl as males) and 5 males (all labeled by Schedl as females) from the Schedl collection at NHMW, Wien. The first specimen in that series, a female (bearing a male label) incorrectly labeled by Schedl as the "type," is here designated as the lectotype of *Hexacolus glabratus* Schedl and is transferred to the genus *Scolytodes*. The specimen in that series, a male (bearing a female label) incorrectly labeled by Schedl as the "type," is here designated as the lectoallotype of *Hexacolus glabratus* Schedl.

Scolytodes morula (Schedl)

Scolytodes morulus (Schedl), 1952:356 (*Hexacolus*). Holotype ♀?; Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:395)

Diagnosis: With the material at hand, this species defies placement in classification. The protibia has a small denticle on the posterior face near the apex, and there are only two denticles between spine 2 and the base; the crest of interstriae 10 continues beyond the level of the hind coxae to the base of the declivity; minute strial setae are present on both disc and declivity; and uniseriate rows of erect interstitial setae are present on both disc and declivity. The holotype is presumed to be a female; if it is not, the position of this species could change radically.

Female (?): Length 1.5 mm, 2.2 times as long as wide; color black. Frons strongly convex on upper half, surface smooth, shining, sparsely, rather finely punctured; flattened on less than lower half, punctures fine, of moderate abundance, vestiture of sparse, fine, short hair. Pronotum 0.91 times as long as wide; dorsal profile rather strongly arched, summit indefinite, at middle; anterior half closely, moderately asperate, punctures obsolete; posterior half almost smooth, shining (feeble

reticulation obscurely indicated in some areas), punctures fine, distinctly impressed, moderately close. Elytra 1.4 times as long as wide, 1.6 times as long as pronotum; striae not impressed, punctures rather small, moderately impressed, most of those near and on declivity bearing a minute, hairlike seta; interstriae almost twice as wide as striae, surface smooth, shining, punctures small (about one-third as large as those of striae), uniseriate. Declivity broadly convex, steep; striae 1 and 2 weakly impressed. Vestiture of minute strial hair near and on declivity; interstitial setae erect, in uniseriate rows, restricted to declivity and extending cephalad to middle of disc on 1 and 2; each seta slender, length very slightly shorter than distance between rows.

Distribution: Brazil: Nova Teutonia, Santa Catarina, 25-IV-1949, F. Plaumann.

Notes: The above treatment was based on the holotype, presumably a female.

Scolytodes comitabilis Wood

Scolytodes comitabilis Wood, 1978:401. Holotype ♀; Merida, Merida, Venezuela; USNM, Washington (References in Wood & Bright c1992:390)

Diagnosis: Distinguished from *pusillima* Wood by the darker color; by the strongly reticulate pronotum; by the less distinctly impressed striae 1; and by the sparse interstitial punctures.

Male: Similar to female, distinguished by abdominal terga 7 and 8.

Female: Length 1.4–1.7 mm, 2.7 times as long as wide; mature color almost black. Frons similar to *pusillima* except sparse, short setae always present. Pronotum 1.0 times as long as wide; asperities on anterior slope less numerous, disc strongly reticulate. Elytra about as in *pusillima* except interstitial punctures slightly larger, more widely spaced; strial punctures on declivity distinctly larger; interstitial setae slightly longer, usually absent on anterior half of elytra.

Distribution: Venezuela: Merida, Merida, 22-IX-1969, 1700 m, No. 9, *Clusia*, SLW.

Biology: Boring in phloem of broken branches.

Notes: The above treatment was based on the type series of 17 specimens.

Scolytodes minuta Wood

Scolytodes minutus Wood, 1981:122. Holotype ♂; Nova Teutonia, Santa Catarina, Brazil, 300–500 m, 27°11'B, 52°23'L; NHMW, Wien, replacement name, automatic (Synonymy and references in Wood & Bright c1992:395)

Hexacolus minutissimus Schedl, 1978:297. Holotype ♂; Nova Teutonia, Santa Catarina, Brazil, 300–500 m, 27°11'B, 52°23'L; NHMW, Wien, preoccupied by Schedl 1952:355

Diagnosis: Distinguished from *pusillima* Wood by the smaller size; by the stouter pronotum; by the less strongly impressed discal striae 1; and by the longer, much more slender interstitial setae.

Male: Similar to female, distinguished by abdominal terga 7 and 8.

Female: Length 0.9–1.0 mm, 2.4 times as long as wide; color yellowish brown. Frons similar to *pusillima* except surface weakly, clearly reticulate. Pronotum 1.0 times as long as wide; similar to *pusillima* except much stouter, summit at middle. Elytra 1.5 times as long as wide, 1.7 times as long as pronotum; about as in *pusillima* except not as slender, striae 1 feebly impressed on disc, not at all impressed on declivity, erect interstitial setae much stouter, blunt, shorter, length of a seta equal to about two-thirds distance between rows.

Distribution: Brazil: Nova Teutonia, Santa Catarina, VIII-1955, F. Plaumann.

Notes: The above treatment was based on the male holotype and on 7 paratypes of *Hexacolus minutissimus* Schedl (1978:297), preoccupied, that has since been renamed *minuta* Wood.

Scolytodes pusillima Wood

Scolytodes pusillimus Wood, 1981:127. Holotype ♀; Campo Capote 27 km NE Montoya, Santander, Colombia; USNM, Washington (References in Wood & Bright c1992:398)

Diagnosis: Frons convex, subglabrous in both sexes; pronotum smooth, shining; all interstriae with a row of erect setae.

Male: Similar to female, distinguished by abdominal terga 7 and 8.

Female: Length 1.0–1.3 mm, 2.7 times as long as wide; color brown. Frons rather strongly convex from epistoma to vertex; surface reticulate above upper level of eyes, mostly smooth and shining below, punctures small, sparse; subglabrous except fine, sparse setae below level of antennal insertions. Pronotum 1.15 times as long as wide; anterior one-fourth rather strongly declivous, asperate, some indications of reticulation in asperate area; smooth, shining on more than basal half, punctures coarse, deep, close, spaced by diameter of a puncture; glabrous except sparse setae near anterior and lateral margins. Elytra 1.5 times as long as wide, 1.4 times as long as pronotum; striae 1 distinctly, others not impressed, punctures rather coarse, deep, close; interstriae about as wide as striae, surface smooth, shining, punctures minute, distinct, uniseriate. Declivity broadly convex, steep; striae 1 rather deeply impressed, striae punctures much smaller, about one-third as large as those on disc. Interstitial setae very slender, each slightly longer than distance between rows.

Distribution: Colombia: Campo Capote 27 km NE Montoya, Santander, 2-VII-1970, 150 m, No. 590, Leguminosae tree, SLW.

Biology: Boring in phloem of branches.

Notes: The above treatment was based on the type series of 84 specimens.

Scolytodes nayaritensis Wood, n. sp.

Scolytodes nayaritensis Wood: Holotype ♂; Laguna Santa Maria, Nayarit, Mexico; USNM, Washington, designated below

Diagnosis: Distinguished from *hagedorni* (Schedl) by having the pronotum summit distinctly anterior to the middle of the pronotum length; by the shorter elytral setae, almost without erect interstitial rows; and by the smaller size. This species is superficially similar to *S. schwarzi* (Hopkins) and may be more closely related to that species; the female is needed to place it accurately.

Male: Length 1.2 mm, 2.5 times as long as wide; color very dark brown, posterior half of elytra light brown. Frons broadly, moderately convex, a weak, transverse impression above epistoma; epistomal margin smooth, shining, upper areas strongly reticulate, punctures small, sparse, mostly obscure; antennal club small, longer than wide, sutures not evident. Pronotum 1.3 times as long as wide; sides straight and parallel on basal two-thirds, rather narrowly rounded in front; anterior margin weakly serrate on median third; summit distinctly anterior to middle of pronotum length; asperities rather coarse, close, confused; posterior areas smooth, shining, punctures rather coarse, deep, close; glabrous. Elytra 1.35 times as long as wide, 1.4 times as long as pronotum; disc occupying basal 70 percent of elytra length; disc smooth, shining, punctures small, distinct, in rows; interstriae twice as wide as striae, punctures half as large as those of striae, mostly in rows. Declivity steep, broadly convex; similar to disc except striae punctures smaller, equal to those of interstriae, rows obscure. Vestiture of abundant short slender setae, mostly of uniform length on declivity and posterior half of disc, setae arising from both striae and interstitial punctures; two or three setae at base of declivity on interstriae 5 and 7 twice as long as ground setae.

Distribution: Mexico (Nayarit).

Type material: The male holotype and 1 male paratype were taken at Laguna Santa Maria, Nayarit, Mexico, 6-VII-1965, 1000 m, No. 198, *Ficus*, SLW. The holotype and paratype are in the U.S. National Museum, Washington.

Scolytodes hagedorni (Schedl)

Scolytodes hagedorni (Schedl), 1962:101 (*Prionosceles*). Holotype ♀; Mirador, Ecuador, 3800 m; NHMW, Wien (References in Wood & Bright c1992:393)

Diagnosis: Distinguished from *perpusilla* Wood and *parva* (Eggers) by the slightly larger size; by the pronotum being slightly longer than wide, and the near absence of reticulation on the basal half; and by the distinctly larger striae punctures.

Male: Similar to female except median crest on upper frons to vertex slightly more definite; punctures on declivity larger.

Female: Length 1.7–2.0 mm, 2.3–2.4 times as long as wide; color very dark brown. Frons rather strongly convex, reticulate, punctures rather fine, moderately close, median line impunctate on upper half, slightly elevated at epistoma (not carinate); vestiture of fine, sparse hair, mostly at and near epistoma. Pronotum 1.0 times as long

as wide; summit definite, apparently behind middle; surface mostly smooth, shining, reticulation obscure, irregular; anterior slope on anterior third, with small, isolated asperities replacing punctures; punctures on basal half small, rather close; vestiture apparently abraded, paratype with rather abundant setae of moderate length. Elytra 1.5 times as long as wide, 1.6 times as long as pronotum; striae not impressed, punctures rather coarse, in rows; interstriae slightly more than twice as wide as striae, punctures half as large as those of striae, uniseriate. Declivity broadly convex, steep; striae 1–3 in identifiable rows on upper half, punctures greatly reduced in size; all punctures confused on lower half and laterally. Vestiture mostly abraded on type, on paratype both striae and interstitial setae present from base to apex, striae hair rather short, interstitial setae longer, equal in length to half to two-thirds width of an interstriae, very slightly longer on declivity.

Distribution: Ecuador: Mirador, 3800 m, 1903, P. Rivet (type); Chiles, 4150 m, 1903, P. Rivet (paratype); El Angel, Carchi, 13-IX-1973, 3400 m, *Espeletia hartwegiana* leaves and flowers.

Notes: The above treatment was based on the female holotype and on 1 female paratype, both from Ecuador, and on a long series of non-type specimens from Ecuador.

Scolytodes parva (Eggers)

Scolytodes parvus (Eggers), 1943:371 (*Hylocurosoma*). Holotype ♀?; Cochabamba; USNM, Washington (References in Wood & Bright c1992:397)

Diagnosis: Distinguished from *perpusilla* Wood by the much more slender body form; by the larger striae and interstitial punctures; and by the much longer elytral setae.

Female (?): Length 1.6 mm, 2.6 times as long as wide; color yellowish brown (callow?). Frons convex, without a carina, vestiture sparse (not fully visible on type due to strong angle of observation); median crest from upper level of eyes to vertex weakly elevated. Pronotum 1.0 times as long as wide; summit indefinite, near middle, anterior slope weakly asperate, asperities very small, isolated, serrations on anterior margin feeble; posterior areas weakly reticulate, punctures moderately coarse, close; vestiture of fine rather long, abundant hair. Elytra 1.6 times as long as wide, 1.7 times as long as pronotum; striae not impressed, punctures in rows, rather coarse, deep, each slightly more than half as wide as an interstriae; interstriae less than twice as wide as striae, smooth, shining, punctures almost as large as those of striae, rather deep, uniseriate. Declivity broadly convex, steep; striae and interstitial punctures slightly smaller than on disc, in rows. Vestiture of moderately long striae hair and long to very long interstitial hair, rather abundant, some interstitial setae twice as long as distance between rows.

Distribution: Bolivia: Cochabamba [F. Woytkowski].

Notes: The above treatment was based on the holotype from Bolivia, presumably a female.

Scolytodes perpusilla Wood

Scolytodes perpusillus Wood, 1978:404. Holotype ♀; Rancho Grande, Pittier National Park, Aragua, Venezuela; USNM, Washington (References in Wood & Bright c1992:397)

Diagnosis: Frons similar in male and female; interstriae 10 obsolete on posterior half; distinguished from *crinita* Wood by the smaller punctures on the pronotum disc and by the shorter elytral hair.

Male: Similar to female, distinguished by abdominal terga 7 and 8.

Female: Length 1.0–1.4 mm, 2.3 times as long as wide; color very dark brown. Frons convex from level of antennal insertions to vertex; surface mostly reticulate, weak on lower half, punctures rather fine, deep, not close; vestiture confined to lower half, sparse, fine; median line above eyes with special sculpture. Pronotum 1.0 times as long as wide; anterior third declivous, asperities minute, isolated; surface reticulate, moderately close, coarse, deep, a few punctures of reduced size almost attaining anterior margin; vestiture rather short, moderately abundant, covering entire surface. Elytra 1.4 times as long as wide, 1.5 times as long as pronotum; striae not impressed, punctures in rows, moderately large near base, small at base of declivity; interstriae twice as wide as striae, surface smooth, shining; punctures half as large as those of striae, uniseriate. Declivity broadly convex, steep; punctures small, confused, striae not discernible. Vestiture of fine striae and interstitial hair, striae setae one-third as long as distance between rows, semi-recumbent, interstitial setae partly semirecumbent, partly of erect interstitial rows, each seta about two-thirds as long as distance between rows.

Distribution: Venezuela: El Laurel Experimental Farm 12 km SW Caracas, 1-V-1970, 1300 m, No. 443, in tree branch (1 specimen), No. 464 in Leguminosae vine, SLW.

Hosts: Tree branch (accidental?), Leguminosae vine.

Biology: Boring in phloem of a broken branch and of a cut vine.

Notes: The above treatment was based on the type series of 98 specimens.

Scolytodes crinita Wood

Scolytodes crinitus Wood, 1978:402. Holotype ♀; El Laurel Experimental Farm 12 km SW Caracas, Venezuela; USNM, Washington (References in Wood & Bright c1992:391)

Diagnosis: Distinguished from *perpusilla* Wood by the larger punctures on the pronotum disc; by the larger striae and interstitial setae; and by the larger setae on the female frons.

Male: Similar to female, distinguished by abdominal terga 7 and 8.

Female: Length 1.3–1.5 mm, 2.3 times as long as wide; color very dark reddish brown. Frons convex,

reticulate, finely, shallowly, sparsely punctured from slightly above level of antennal insertions to vertex; weakly, narrowly flattened on and near epistoma; vestiture of sparse, fine hair on less than lower half of frons. Pronotum about 1.0–1.06 times as long as wide; anterior third moderately declivous, asperities small, mostly isolated; surface reticulate, subshining, punctures small, shallow, moderately close; vestiture short, fine, inconspicuous, about uniformly distributed. Elytra 1.5 times as long as wide, 1.7 times as long as pronotum; striae not impressed, punctures fine on basal third of disc, minute near declivity; interstriae about three times as wide as striae near base, about five times as wide at base of declivity, surface smooth, subshining, punctures distinctly smaller than those of striae. Declivity broadly convex, steep; punctures abundant, somewhat obscure, strongly confused. Vestiture of moderately abundant, very short striae and interstitial hair (each about one to three times as long as diameter of a striae puncture), and uniseriate rows of erect setae almost to base on all interstriae, those on declivity almost as long as distance between rows, mostly shorter on disc.

Distribution: Venezuela: Rancho Grande, Aragua, 9-IV-1970, 100 m, No. 443, tree branch, SLW; El Laurel Experimental Farm 12 km SW Caracas, 1-V-1970, 1300 m, No. 464, Leguminosae vine, SLW.

Hosts: Unidentified tree, and Leguminosae vine.

Biology: Boring in phloem tissues of small stems.

Notes: The above treatment was based on the type series of 71 specimens.

Scolytodes adusta (Eggers)

Scolytodes adustus (Eggers), 1943:368 (*Hylocurosoma*). Holotype ♀?; Cochabamba, Bolivia; USNM, Washington (References in Wood & Bright c1992:388)

Diagnosis: Distinguished from *limbata* (Eggers) by the absence of a median frontal elevation; by the strongly reticulate pronotum disc; and by the uniseriate interstitial punctures from the base to the base of the declivity.

Female (?): Length 1.7 mm, 2.4 times as long as wide; color very dark reddish brown. Frons very broadly convex (without a median carina), surface rugose-reticulate, somewhat longitudinally etched below, punctures small, irregularly distributed; a weak, broadly U-shaped, subcarinate elevation extending from antennal insertions obliquely to epistoma; vestiture minute, very short, sparse. Pronotum 1.0 times as long as wide, widest on basal half; anterior half finely asperate, asperities small, isolated, anterior margin not serrate; summit indefinite; posterior half strongly reticulate, punctures rather coarse, deep. Elytra 1.5 times as long as wide, 1.7 times as long as pronotum; striae not impressed, punctures rather small, deep, spaced within a row by diameter of a puncture; interstriae slightly more than twice as wide as striae, punctures small, uniseriate from base to apex of declivity. Declivity broadly convex, steep; striae punctures

smaller than on disc, in rows, interstitial punctures about as large as on disc, uniseriate.

Distribution: Bolivia: Cochabamba [F. Woytkowski].

Notes: The above treatment was based on the holotype from Bolivia, presumed to be a female.

Scolytodes limbata (Eggers)

Scolytodes limbatus (Eggers), 1943:370 (*Hylocurosoma*). Holotype ♂?; Cochabamba, Bolivia; USNM, Washington (References in Wood & Bright c1992:394)

Diagnosis: Distinguished from *libida* Wood by the absence of a carina on the lower frons; by reduced reticulation on the pronotum disc, with the punctures larger, closer; by the smaller, closer striae punctures; and by the minute interstitial punctures.

Male (?): Length 1.8 mm, 2.4 times as long as wide; color very dark brown, parts of elytra medium brown. Frons convex, somewhat flattened on lower two-thirds, upper area almost smooth, shining, rather coarsely, closely, deeply punctured, median line distinctly elevated to upper level of eyes; lower areas smooth, shining, punctures rather fine near epistoma; vestiture fine, sparse above, more abundant on and near epistoma. Pronotum 1.0 times as long as wide, widest on basal third; anterior half rather coarsely, closely asperate, anterior margin obscurely subserrate; posterior half irregularly, weakly reticulate, punctures rather coarse, deep, close; vestiture of fine, rather short, moderately abundant hair. Elytra 1.5 times as long as wide; striae 1 feebly, others not impressed, punctures rather small, moderately deep, close; interstriae slightly more than twice as wide as striae, smooth, shining, punctures minute, uniseriate on more than anterior half of disc, weakly to moderately confused near base of declivity. Declivity broadly convex, steep; striae punctures smaller than on disc, distinctly impressed, in rows; interstitial punctures minute, weakly to strongly confused. Vestiture partly abraded on type; short striae setae present (at least on declivity), interstitial hair fine, rather short on disc, longer on declivity (longest setae slightly shorter than distance between striae rows), somewhat irregular.

Distribution: Bolivia: Cochabamba [F. Woytkowski].

Notes: The above treatment was based on the holotype from Bolivia, presumably a male.

Scolytodes confusa (Eggers)

Scolytodes confusus (Eggers), 1943:370 (*Hylocurosoma*). Holotype ♀?; Cochabamba, Bolivia; USNM, Washington (References in Wood & Bright c1992:390)

Diagnosis: Distinguished from *ater* (Eggers) by the smaller punctures on the pronotum disc; and by the smaller striae punctures on the disc, the interstitial punctures almost as large, much more numerous and very strongly confused from base to base of declivity.

Female (?): Length 2.1 mm, 2.4 times as long as wide; color medium brown, obviously callow. Frons similar to

gennaea Wood except carina much longer, from epistoma to upper level of eyes (seen with difficulty on type from a strong angle of observation). Pronotum 1.0 times as long as wide, surface reticulate, asperities on anterior half very small, isolated; punctures on disc small, close, most with a minute shining spot on rim; vestiture of very fine, rather long hair of moderate abundance. Elytra 1.5 times as long as wide, 1.7 times as long as pronotum; striae not impressed, punctures small, in scarcely discernible rows on basal half only; interstriae about three or four times as wide as striae, surface smooth shining, punctures small, half as large as those of striae near base (about equal in size toward declivity), rather numerous, very strongly confused from base to base of declivity. Declivity broadly convex, steep; surface almost smooth, shining, punctures very small, numerous, confused. Vestiture of abundant, fine strial and interstitial setae of moderate length on disc and declivity.

Distribution: Bolivia: Cochabamba [F. Woytkowski].

Notes: The above treatment was based on the holotype from Bolivia, presumably a female.

Scolytodes ater (Eggers)

Scolytodes ater (Eggers), 1943:365 (*Prionosceles*). Holotype ♀?; Cochabamba, Bolivia; USNM, Washington (References in Wood & Bright c1992:389)

Hylocurosoma elongatum Eggers, 1943:369. Lectotype ♀; Cochabamba, Bolivia; USNM, Washington, designated by Anderson & Anderson 1971:12, preoccupied by Schedl 1935:273

Scolytodes elongatissimus Wood, 1988:32. Lectotype ♀; Cochabamba, Bolivia; USNM, Washington, designated by Anderson & Anderson 1971:12, replacement name, automatic (References in Wood & Bright c1992:391). *New synonymy*

Diagnosis: Distinguished from *gennaea* Wood by the smooth, shining surfaces near and on the declivity (not shagreened); by the slightly larger, less abundant declivital punctures; and by the less abundant vestiture of irregular length.

Female (?): Length 2.1 mm, 2.5 times as long as wide; color almost black. Frons as in *gennaea* except median elevation slightly shorter. Pronotum as in *gennaea* except only a few punctures on posterior half behind summit with a shining spot on their rim (almost all punctures in *gennaea* with this spot). Elytra about as in *gennaea*, except surface near and on declivity smooth and shining as on anterior disc (shagreened or rather dull in *gennaea*); punctures on declivity slightly larger, less regular in size, and less abundant than in *gennaea*. Declivital setae longer and less regular in length.

Distribution: Bolivia: Cochabamba [F. Woytkowski].

Notes: The above treatment was based on the lectotype of *Prionosceles ater* Eggers, an apparent female, and on the female lectotype and 2 female cotypes of *Hylocurosoma elongatus* Eggers. This species is very close to *libida* Wood; future collecting could eventually result in the placement of the junior name in synonymy.

Scolytodes gennaea Wood

Plate LI

Scolytodes gennaeus Wood, 1988:33. Holotype ♀; 30 km N Merida, Merida, Venezuela; USNM, Washington, replacement name, automatic (References in Wood & Bright c1992:392)

Scolytodes genialis Wood, 1978:403. Holotype ♀; 30 km N Merida, Merida, Venezuela; USNM, Washington, preoccupied by Wood 1975:27 (References in Wood & Bright c1992:392)

Diagnosis: Distinguished from *libida* Wood by the smaller and more restricted pronotal asperities; by the slightly flattened upper elytral declivity; and by the presence of reticulation on the frontal carina to its summit.

Male: Similar to female, distinguished by abdominal terga 7 and 8.

Female: Length 1.9–2.4 mm, 2.3 times as long as wide; mature color almost black. Frons rather strongly convex from epistoma to vertex; surface strongly reticulate, punctures very small, rather shallow, moderately close; median line from epistoma to slightly above level of antennal insertions rather strongly, subacutely carinate, its crest smooth, shining; vestiture confined to lower half, of fine, sparse, inconspicuous hair. Pronotum 1.15 times as long as wide; moderately declivous in front, anterior half with small, subasperate, isolated granules, decreasing posteriorly, shining margins of punctures continue to base; punctures small, shallow, moderately close, clearly evident on posterior half, becoming obsolete slightly anterior to middle; vestiture of moderately abundant, fine, short hair, about uniformly distributed. Elytra 1.3 times as long as wide, 1.5 times as long as pronotum; striae not impressed, punctures small, shallow, in rows; interstriae about three times as wide as striae, surface smooth, shining, punctures about half as wide as those of striae, some uniseriate near base, all confused by middle of disc. Declivity broadly convex, steep; striae 1 and 2 with reduced punctures in rows near base, all strial and interstitial punctures small and confused elsewhere. Vestiture of fine, semirecumbent, rather long hair, erect rows of interstitial setae obscurely indicated, not clearly evident.

Distribution: Venezuela: 30 km N Merida, Merida, 8-I-1970, 2200 m, No. 224, Cucurbitaceae vine, SLW.

Biology: Boring in cut vines 1–4 cm in diameter.

Notes: The above treatment was based on the type series of 113 specimens from Venezuela.

Scolytodes libida Wood

Scolytodes libidus Wood, 1978:404. Holotype ♀; Rancho Grande, Pittier National Park, Aragua, Venezuela; USNM, Washington (References in Wood & Bright c1992:394)

Diagnosis: Distinguished from *gennaea* Wood by the larger, more extensive pronotal asperities; by the more uniformly confused punctures on upper declivity; and by the smooth, shining frontal carina.

Male: Similar to female, distinguished by abdominal terga 7 and 8.

Female: Length 1.7–1.9 mm, 2.4 times as long as wide; mature color almost black. Frons as in *gemmaea* except punctures distinctly larger, carina reticulate to summit, resembling *gemmaea* except asperities on anterior slope slightly larger, confined to anterior half, punctures not extending into asperate area; punctures on posterior area devoid of shining spot on margins. Elytra as in *gemmaea* except striae 1 and 2 reduced, not clearly evident on declivity, all punctures confused.

Distribution: Venezuela: Rancho Grande, Aragua, 9-IV-1970, 1100 m, No. 407, Cucurbitaceae vine, SLW.

Biology: Boring in stems of cut vines.

Notes: The above treatment was based on the type series of 57 specimens.

Scolytodes tolimana (Schedl)

Scolytodes tolimanus (Schedl), 1962:102 (*Prionosceles*). Holotype ♂; Nevado del Tolima, Colombia; NHMW, Wien (References in Wood & Bright c1992:400)

Diagnosis: Distinguished from *constricta* Wood by the confused punctures on discal interstriae 2 and 3; by the less strongly narrowed basal half of the pronotum; and by the distinctly shorter elytral setae.

Male: Length 2.8 mm, 2.8 times as long as wide; color black. Frons rather broadly convex; a low, acute median carina from epistoma almost half distance to upper level of eyes; surface strongly reticulate, punctures rather coarse, close, moderately deep; vestiture of sparse, fine, rather short hair above, longer on lower fourth. Pronotum 1.0 times as long as wide; widest at middle, slightly narrower toward base; asperities on anterior half very small, isolated, some weakly subvulcanate near summit; posterior areas clearly, rather weakly reticulate, punctures rather small, close, a few with a small, shining spot on margin; vestiture of fine, long, moderately abundant hair. Elytra about 1.8 times as long as wide, 1.8 times as long as pronotum (elytra of type spread, 1 elytron broken); striae 1 weakly impressed, 2 and 5 not impressed, 1–5 with punctures in rows, rather small, impressed (others mostly confused with interstriae); interstriae about three times as wide as striae, mostly smooth, shining, punctures on 1–3 fine, deep, confused, each about one-third as large as those of striae. Declivity broadly convex, steep; striae obsolete, all punctures very small, confused. Vestiture of moderately long strial hair; interstitial hair moderately abundant, some equal in length to 1.5 times width of an interstriae, apparently shorter on declivity.

Distribution: Colombia: [Nevado del] Tolima, 4000 m [Dep. Tolima].

Notes: The above treatment was based on the male holotype from Colombia.

Scolytodes constricta Wood

Plate L

Scolytodes constrictus Wood, 1977:518. Holotype ♀; Piedras Blancas 11 km W Medellin, Antioquia, Colombia; USNM, Washington (References in Wood & Bright c1992:391)

Diagnosis: Pronotum conspicuously longer than wide, distinctly wider on anterior third, the asperities on the anterior slope much smaller, not attaining summit; setae on pronotum and elytra of very fine, unusually long hair; body very slender; pronotum constricted on posterior half.

Male: Similar to female, distinguished by abdominal terga 7 and 8.

Female: Length 2.4–2.8 mm, 3.0 times as long as wide; color very dark brown, vestiture very long. Frons moderately convex from epistoma to upper level of eyes, more strongly convex above eyes, surface reticulate, punctures fine, moderately close, shallow, a feeble median elevation extending dorsad from center of frontal rectangle, becoming lower and broader by vertex; vestiture sparse, about uniformly distributed from epistoma to slightly below upper level of eyes, of fine, very long hair. Pronotum 1.2 times as long as wide, conspicuously wider on anterior third, posterior half with sides distinctly (concavely) constricted before base; asperities small, isolated, moderately numerous, decreasing in size and numbers then obsolete before summit; surface reticulate; punctures on posterior half small, deep, moderately close; vestiture of fine, very long hair of moderate abundance. Elytra 1.6 times as long as wide, 1.6 times as long as pronotum; striae not impressed, punctures very small; interstriae smooth, shining, punctures smaller than those of striae, almost all uniseriate. Declivity broadly convex, steep; punctures as on disc except smaller. Vestiture of very fine, long hair on striae and interstriae, those on disc equal in length to width of an interstriae, up to three times as long on declivity.

Distribution: Colombia: Piedras Blancas 11 km W Medellin, Antioquia, 17-VII-1970, 2300 m, No. 688, “*Baccharus*,” SLW.

Biology: Boring in the phloem of broken branches.

Notes: The above treatment was based on the type series of 29 specimens. The host shrub name was given by a local botanist as “*Baccharus*”; this name is apparently incorrect but superficially does resemble that genus.

Scolytodes contracta Wood

Scolytodes contractus Wood, 1977:518. Holotype ♀; 13 km SE El Vigia, Merida, Venezuela; USNM, Washington (References in Wood & Bright c1992:391)

Diagnosis: Distinguished from *constricta* Wood by the larger pronotal asperities and punctures; by the much coarser, deeper strial punctures; and by the minute interstitial punctures.

Male: Similar to female, distinguished by abdominal terga 7 and 8.

Female: Length 2.6–3.0 mm, 2.8 times as long as wide; color reddish brown, anterior half of pronotum and elytral declivity sometimes much darker. Frons about as in *constricta* except punctures much coarser. Pronotum about as in *constricta* except asperities distinctly larger,

posterior areas mostly smooth, shining, reticulation restricted, punctures on disc much larger, closer, deeper. Elytra similar to *constricta* except striae punctures much larger, deeper, interstriae twice as wide as striae, punctures minute, uniseriate, vestiture almost as long, slightly less abundant.

Distribution: Venezuela: 13 km SW El Vigia, Merida, 22-X-1969, 100 m, No. 95, unidentified liana, SLW.

Biology: Boring in phloem of a cut liana.

Notes: The above treatment was based on the type series of 36 specimens.

Scolytodes varia Wood

Plate LVIII

Scolytodes varius Wood, 1977:522. Holotype ♀; La Mucuy, 20 km W Merida, Merida, Venezuela; USNM, Washington (References in Wood & Bright c1992:400)

Diagnosis: Distinguished from *contracta* Wood by the more strongly flattened, more closely punctured frons with a rather large, smooth, impunctate, median area on lower half; by the more strongly reticulate pronotal disc; and by the much longer elytral setae.

Male: Similar to female, distinguished by abdominal terga 7 and 8.

Female: Length 2.7–3.2 mm, 2.5 times as long as wide; color very dark brown (almost black), except pale brown from elytral striae 1 to about 5 or 7 from base to apex. Frons broadly flat to almost planoconcave from epistoma to upper level of eyes, a central fovea usually present, very closely, rather coarsely, deeply punctured, median fourth from fovea to epistoma smooth, shining, impunctate; surface of dorsal half reticulate; vestiture of moderately abundant, very long hair. Pronotum 1.2 times as long as wide; similar to *contracta* except surface of disc reticulate. Elytra 1.7 times as long as wide, 1.5 times as long as pronotum; striae not impressed, punctures rather small, deep; interstriae four times as wide as striae, smooth, shining, punctures two-thirds as large as those of striae, rather deep. Declivity broadly convex, steep; punctures slightly smaller than those on disc. Vestiture of very long, fine striae and interstitial hair; some setae equal in length to combined width of three interstriae.

Distribution: Venezuela: 30 km E Merida, Merida, 8-I-1970, 2500 m, No. 220, *Croton*, SLW; La Mucuy 20 km W Merida, Merida, 12-XI-1969, 2500 m, No. 129, tree branch, SLW; Merida, Merida, 20-I-1987, T. Weslein.

Hosts: *Croton* sp., etc.

Biology: Boring in phloem of broken branches.

Notes: The above treatment was based on the type series of 120 specimens and on 1 other specimen, all from Venezuela.

Scolytodes atrotibialis (Eggers)

Scolytoes atrotibialis (Eggers), 1943:365 (*Prionosceles*). Holotype ♂; Cochabamba, Bolivia; MNHN, Paris (References in Wood & Bright c1992:389)

Diagnosis: Elytral interstriae 10 not elevated or marked by rows of adjacent striae punctures, elytral punctures dense, confused from base to apex, vestiture abundant, recumbent, of uniform length (without rows of longer interstitial setae); pronotum with numerous small asperities on anterior two thirds.

Male: Length 2.3 mm, 2.2 times as long as wide color of pronotum reddish brown, elytra reddish brown (mature?). Frons weakly convex from vertex to near level of antennal insertion, then almost flat to epistoma; surface reticulate, punctures small, rather numerous, uniformly distributed; vestiture of fine moderately long setae from epistoma to upper level of eyes (concealed above on type by pronotum); antennal club small, oval, suture 1 obscure. Pronotum 1.0 times as long as wide; sides and anterior margin about equally arcuate; summit indefinite, on basal fourth of pronotum length, surface reticulate, armed on anterior three-fourths from side to side by numerous, confused, very small asperities, with small, close punctures on basal fourth; vestiture of abundant short recumbent setae uniformly distributed. Elytra 1.4 times as long as wide, 1.5 times as long as pronotum; disc occupying 55 percent of elytra length; surface from base to apex smooth, shining, with numerous, close, confused punctures. Declivity convex, moderately steep, a weak narrowly impressed groove in position of striae 1 from base to near apex of declivity. Vestiture of uniformly short, recumbent, confused setae.

Distribution: Bolivia: Cochabamba, Germain, 1907, Donckier.

Notes: The above treatment was based on the male holotype.

Scolytodes pilosula (Eggers), n. comb.

Plate LVII

Scolytodes pilosulus (Eggers), 1932:234 (*Problechilus*). Holotype, sex?; Cochabamba, Bolivia; USNM, Washington (Wood & Bright c1992:387)

Diagnosis: Allied to *pilifer* Wood and *schoenmanni* Wood, but smaller and with shorter erect setae on interstriae 1–9; by having the pronotum summit on the basal third of the pronotum length, the anterior slope gradual; and by the elytral disc occupying the basal 60 percent of the elytra length, the ground vestiture abundant, hairlike, rather long.

Male: Length 2.2 mm, 2.1 times as long as wide; color reddish brown. Frons shallowly concave on upper half to upper level of eyes, surface partly rugose-reticulate, lower half broadly flattened, surface subreticulate, minute punctures obscure. Pronotum 0.84 times as long as wide; widest on basal third, sides moderately arcuate, rather broadly rounded in front; anterior margin armed by about 8 coarse, irregular serrations; summit two-thirds pronotum length from anterior margin, anterior slope rather coarsely asperate on median 80 percent; basal fourth very closely, finely punctured, almost granulate in some areas, vestiture of short hair on asperate area.

Elytra 1.3 times as long as wide; disc occupying basal 50–60 percent of elytra length (gradual transition); striae not impressed, punctures small, shallow; interstriae four times as wide as striae, surface almost smooth, punctures minute, dense, confused. Declivity broadly convex, moderately steep; sculpture resembling disc, except striae 1–3 weakly impressed, punctures conspicuously larger; interstriae 1–3 weakly convex, one to two times as wide as striae, without any tubercles. Vestiture of (1) abundant, short, hairlike ground cover (longest setae equal in length to half width of an interstriae), and (2) uniseriate rows of erect interstitial bristles on all interstriae, their positioning not regular, most setae slightly shorter than width of an interstriae.

Distribution: Bolivia: Cochabamba [Woytkowski].

Note: The above treatment was based on the male holotype from Bolivia.

Scolytodes schoenmanni Wood, n. n.

Plate LVIII

Scolytodes schoenmanni Wood: Holotype ♂; Marcapata, Peru; NHMW, Wien, automatic, replacement name for *Problechilus glaber* Schedl *Problechilus glaber* Schedl, 1951:87. Holotype ♂; Marcapata, Peru; NHMW, Wien, preoccupied by *Hexacolus glaber* Eichhoff 1868:400 (References in Wood & Bright c1992:386)

Diagnosis: Allied to *varia* Wood and *opaca* Wood, distinguished by the stout body form; by the presence of striae punctures in rows from base to apex; and by the dense, small, deep interstitial punctures with no tubercles on either disc or declivity.

Male: Length 2.6 mm, 2.0 times as long as wide; color almost black except basal fourth of pronotum dark reddish brown. Frons broadly, shallowly concave from epistoma to well above upper level of eyes, apparently reticulate, with sparse, shallow, obscure punctures; vestiture of fine, short, rather sparse hair. Antennal funicle 6-segmented, club about as in allied species. Pronotum 0.82 times as long as wide; widest at middle of pronotum length, sides strongly arcuate to rather broadly rounded anterior margin; anterior margin armed by 6 weak serrations; summit indefinite, three eighths of pronotum length from base, anterior slope closely, rather coarsely asperate, basal area densely, finely, rugosely punctured with some reticulation; vestiture of short, hairlike setae on asperate area. Elytra 1.2 times as long as wide, 1.6 times as long as pronotum; disc occupying slightly less than basal two-thirds of elytra length; striae 1 and part of 2 weakly impressed on disc and more densely impressed on declivity, punctures very small, shallow; interstriae on disc about six times as wide as striae, shining, punctures small, dense, deep, confused, distinctly narrower on declivity; setiferous punctures on discal interstriae mostly larger, occasionally feebly granulate. Vestiture of abundant ground cover of fine, short hair of uniform length, and uniseriate, irregular interstitial rows on disc of long, slender bristles, those on odd-numbered interstriae equal in length to combined width of one or two interstriae, those on even-numbered interstriae less numerous and about half as long.

Distribution: Peru: Marcapata.

Notes: This species is here transferred from *Problechilus* to *Scolytodes* to which it clearly belongs. Because the name *glaber* is preoccupied by Eichhoff (1868:400), a new replacement name, *schoenmanni*, is presented above for *Hexacolus glaber* Schedl. The above treatment is based on the male holotype.

Scolytodes laevicollis (Eggers), n. comb.

Plate LIII

Scolytodes laevicollis (Eggers), 1932:230 (*Problechilus*). Holotype ♂; Cochabamba, Bolivia; USNM, Washington (References in Wood & Bright c1991:386)

Diagnosis: Distinguished from *brevis* (Eggers) by the weakly serrate anterior margin of the declivity; by the much more widely distributed asperities on the pronotum (100 percent of pronotum width); and by having long, erect bristles on interstriae 1 and 3 to 9.

Male: Length 3.3 mm, 1.9 times as long as wide; color dark reddish brown. Frons rather narrow above eyes, separated by 2.5 times width of an eye, weakly convex, lower half irregularly convex and with lateral margins weakly, subacutely elevated, surface weakly reticulate, with sparse punctures; almost glabrous. Pronotum 0.80 times as long as wide; widest at middle, sides strongly arcuate, broadly rounded in front; anterior margin armed by six feeble serrations; summit indefinite, on basal half; anterior two-thirds finely, closely asperate over 100 percent of pronotum width; basal fourth obscurely reticulate, densely, finely punctured (almost granulate); vestiture of short, stout recumbent hair on asperate area. Elytra 1.16 times as long as wide, 1.5 times as long as pronotum; disc occupying posterior half of elytra length; striae distinctly impressed, punctures in rows, rather large, deep; interstriae weakly convex, two to three times as wide as striae, surface with dense, confused, very small punctures that bear ground setae, sparse punctures bear erect bristles. Declivity broadly convex, moderately steep; sculpture as on disc. Vestiture of abundant ground setae, those at base of elytra slender, rather long, those on and near declivity much shorter, each about six times as long as wide; and long erect interstitial bristles on disc and sides, two or more bristles present on 1 and 3–9, each bristle equal in length to 1.0–1.5 times width of an interstriae; erect bristles on declivity either broken or in process of being lost (occasional remnants present).

Distribution: Bolivia: Cochabamba (type, det. Eggers 1932).

Notes: The above treatment was based on the male holotype.

Scolytodes brevis (Eggers), n. comb.

Plate XLVIII

Scolytodes brevis (Eggers), 1932:231 (*Problechilus*). Holotype ♂; Cochabamba, Bolivia; USNM, Washington (References in Wood & Bright c1992:386)

Diagnosis: Distinguished from *schoenmanni* Wood by the absence of a row of long setae on odd-numbered interstriae; by the larger size; and by other features described below.

Male: 3.3 mm, 1.8 times as long as wide; very dark brown. Frons convex, a weak impression on median third at upper level of eyes; lower half of frons almost flat; surface reticulate, minute punctures obscure, vestiture sparse. Pronotum 0.77 times as long as wide; widest on basal third, sides arcuately converging toward rather narrowly rounded anterior margin; anterior margin armed by 12 coarse serrations; summit 60 percent of pronotum length from anterior margin, anterior slope rather coarsely, closely asperate on median half; most areas covered by a dense ground cover of confused, minute setae, a few longer bristles near lateral and anterior margins. Elytra 1.04 times as long as wide, 1.4 times as long as pronotum; disc occupying basal 40 percent of elytra length; striae weakly impressed, punctures small, shallow, in definite rows; interstriae about five times as wide as striae, punctures of two kinds: (1) dense micropunctures bearing small ground setae; and (2) larger, bristle bearing punctures on odd-numbered interstriae. Declivity very broadly convex, gradual; sculpture about as on disc. Vestiture of dense microsetae, each about four times as long as wide and length about equal to one-tenth width of an interstriae, and erect bristles on odd-numbered interstriae in sparse rows, longest bristles slightly longer than width of an interstriae, even-numbered interstriae without any erect bristles.

Distribution: Bolivia: Cochabamba (type).

Notes: The above treatment was based on the male holotype.

Scolytodes opaca Wood

Plate LV

Scolytodes opacus Wood, 1977:520. Holotype ♀; Merida, Merida, Venezuela; USNM, Washington (References in Wood & Bright c1992:396)

Scolytodes opimus Wood, 1977:520. Holotype ♀; La Carbonera Experimental Forest 50 km airline NW Merida, Merida, Venezuela; USNM, Washington (References in Wood & Bright c1992:396). *New synonymy*

Diagnosis: Distinguished by the broadly impressed, gradual declivity that occupies more than half of the elytra length; by striae 1 and 3 to about 7 indicated, 2 obsolete in male, almost so in female, punctures between 1 and 3 confused, finely tuberculate; body size very large for this genus.

Male: Similar to female, except striae 2 obsolete, tubercles on elytral disc larger.

Female: Length 2.7–3.5 mm, 2.1 times as long as wide; color rather dark reddish brown. Frons moderately convex from epistoma to upper level of eyes, small fovea below center, reticulate below fovea, rugose-reticulate from fovea to vertex, punctures very small, rather sparse; vestiture of fine hair, very sparse from epistoma to above upper level of eyes, slightly more numerous near

epistoma. Pronotum 1.0 times as long as wide; anterior half rather coarsely, closely asperate, small crenulations of decreasing height continue almost to base; surface strongly reticulate, punctures small, close, deep; vestiture of rather abundant, moderately long, recumbent, fine hair. Elytra 1.3 times as long as wide, 1.5 times as long as pronotum; striae 1–3 usually visible on basal third of disc, punctures minute, confused behind with those of interstriae, some interstitial punctures tuberculate; surface smooth, shining. Declivity occupying at least posterior half, rather gradual, very broadly convex, striae 1 less strongly impressed, median half feebly flattened; punctures minute to obsolete. Vestiture of abundant striae and interstitial setae, most setae shorter than distance equal to width of an interstriae, a few on lateral area of basal half of declivity much longer and rather coarse.

Distribution: Venezuela: La Carbonera Experimental Forest 50 km NW Merida, Merida, 9 XII-1969, 2500 m, No. 172, large liana, SLW; Merida, Merida, between Teleferico stops 2 and 3, 27 II-1970, 2500 m, No. 331, tree bole, SLW.

Hosts: Large liana; bole of tree with very large leaves.

Biology: Boring in phloem tissues.

Notes: The above treatment was based on the type series of *opimus* of 30 specimens, and on the type series of 96 specimens of *opacus*.

Scolytodes vicina (Eggers)

Scolytodes vicinus (Eggers), 1928:87 (*Prionosceles*). Holotype ♀; Petropolis, Rio de Janeiro, Brazil; SMTD, Dresden (References in Wood & Bright c1992:400)

Prionosceles dubiosus Schedl, 1972:55. Holotype ♀; S. Bocaina, Brazil, S.J. Berreira, 1650 m; NHMW, Wien (References in Wood & Bright c1992:391). *New synonymy*

Diagnosis: Distinguished from *argentinensis* (Eggers) by the continuation of striae 1–3 to base of declivity, 1 very strongly, 2 weakly impressed, their punctures indicated; and by the slightly larger interstitial punctures on the posterior disc.

Female: Length 3.0–3.2 mm, 2.1 times as long as wide; color black. Very similar to *argentinensis* except striae 1–3 indicated on posterior two-thirds of disc, 1 very strongly impressed, 2 feebly impressed, 3 obscurely impressed, punctures very small, distinctly impressed; interstitial punctures on posterior half of disc distinctly larger than in *argentinensis*. Frons with a median callus extending from upper level of eyes to vertex (a very short callus well above eyes in *argentinensis*), significance of this character cannot be ascertained until more specimens are available for study.

Distribution: Brazil: Petropolis, Rio de Janeiro, 1, 1907, Dr. Ohaus; S. Bocaina, S.J. Barreiro, S.P., XI-1969, Seabra & Alvarenga.

Notes: The above treatment was based on the female holotype of *Prionosceles vicinus* Eggers from Petropolis, and on the female holotype of *Prionosceles dubiosus* Schedl from S. Bocaina, S.J., in Brazil. Additional material

must be studied to determine whether this species is distinct from the very closely allied *argentinensis* (Eggers).

Scolytodes argentinensis (Eggers)

Scolytodes argentinensis (Eggers), 1928:87 (*Prionosceles*). Lectotype ♀?; Argentina; USNM, Washington, designated by Anderson & Anderson 1971:4 (References in Wood & Bright c1992:388)

Diagnosis: Distinguished from *opaca* Wood by the absence of elytral tubercles on both disc and declivity; elytra uniformly rather short, semirecumbent, without any long setae.

Female (?): Length 3.1 mm, 2.0 times as long as wide; color almost black. Frons moderately convex, strongly reticulate above eyes, more finely reticulate below; punctures small, shallow; a median fovea present; vestiture very fine, short, uniformly distributed, obscure. Pronotum 0.94 times as long as wide; surface strongly reticulate from base to anterior margin, less than basal half rather finely, moderately punctured, more than anterior half moderately, closely asperate (each cusp shining, not reticulate), decreasing behind and gradually replaced by punctures; vestiture fine, short, apparently, moderately abundant (abraded). Elytra 1.1 times as long as wide, 1.3 times as long as pronotum; striae 1–3 obscurely indicated on basal fourth, because punctures slightly larger and in indistinct rows; surface smooth, shining (no tubercles), punctures fine to moderately coarse, confused, rather abundant, becoming minute one-fourth elytral length from base. Declivity occupying posterior half of elytral length, broadly convex, gradual; striae 1 rather strongly impressed (its punctures not evident); surface smooth, shining, punctures minute, each about equal in diameter to diameter of a seta; vestiture abundant, confused from apex to base, setae equally very slender on disc and declivity; all setae rather short, semirecumbent, without any long bristles.

Distribution: Argentina: "Argentina."

Notes: The above treatment was based on the lectotype from Argentina, presumably a female.

Scolytodes similis (Eggers)

Scolytodes similis (Eggers), 1928:87 (*Prionosceles*). Lectotype ♀; Argentina; USNM, Washington, designated by Anderson & Anderson 1971:30 (References in Wood & Bright c1992:399)

Scolytodes boliviensis Wood, 1988:32. Lectotype ♂; Cochabamba, Bolivia; USNM, Washington, designated by Anderson & Anderson 1971:7, replacement name, automatic (Synonymy and references in Wood & Bright c1992:389). *New synonymy*

Prionosceles bolivianus Eggers, 1928:88. Lectotype ♂; Cochabamba, Bolivia; USNM, Washington, designated by Anderson & Anderson 1971:7, preoccupied by Eggers 1928:86. *New synonymy*

Diagnosis: Distinguished from *opaca* Wood by the confused elytral punctures from base to apex, without any tubercles on the disc; and by other characters cited below.

Male: Distinguished from female by abdominal terga 7 and 8.

Female: Length 2.4–2.8 mm, about 2.2 times as long as wide; color very dark reddish brown. Frons moderately convex from epistoma to vertex, weakly impressed near central fovea; surface reticulate from epistoma to upper level of eyes, much more strongly reticulate (almost rugose reticulate) above eyes; punctures small, rather close below fovea, larger and more widely spaced above to well above upper level of eyes; subglabrous, a few short setae on lower half, longer and more conspicuous on and near epistoma. Pronotum 1.0 times as long as wide; dorsal profile rather evenly arched from base, slightly steeper on anterior slope, anterior half very finely, closely asperate, asperities isolated; posterior half reticulate, punctures fine, close, deep; vestiture of very fine, rather abundant, moderately long hair. Elytra 1.3 times as long as wide, 1.5 times as long as pronotum; striae 1 and 2 obsolete, 3 very obscure, numerous small interstitial punctures strongly confused from base to apex. Declivity broadly convex, gradual, weakly impressed between interstriae 3, position of striae 1 more strongly impressed (strial punctures obsolete); punctures minute, confused; surface smooth, shining. Vestiture of rather short, abundant, recumbent hair from base to apex.

Distribution: Panama to Bolivia.

Panama: Guadeloupe arriba Chiriqui, 1-VIII-4-IX-1984, H. Wolda.

Bolivia: Cochabamba [F. Woytkowski].

Biology: Attracted to light.

Notes: The above treatment was based on the female lectotype of *Prionosceles similis* Eggers, on the male holotype of *Prionosceles bolivianus* Eggers (1928:88), and on 1 female from Panama. The lectotype of *similis* was compared directly to my Panama specimen, and the Panama specimen I compared directly to the holotype of *bolivianus* Eggers.

Scolytodes maja (Eggers)

Scolytodes major (Eggers), 1928:86 (*Prionosceles*). Holotype ♂?; Bolivia; USNM, Washington (References in Wood & Bright c1992:394)

Diagnosis: Distinguished from *similis* (Eggers) by the larger size; by the more gradual elytral declivity, with declivital punctures much smaller; and by the presence of a weak, median impression of the frons.

Male (?): Length 4.0 mm, 2.1 times as long as wide; color almost black. Frons very broadly convex, surface rugose-reticulate above middle, almost smooth and shining in some areas below; a weak median sulcus on middle third, ending just above level of antennal insertion in an obscure fovea; lateral areas with a few small, subcrenulate tubercles; vestiture of sparse, fine, rather short hair. Pronotum 1.0 times as long as wide; anterior margin rather narrowly rounded, unarmed; summit indefinite, well behind middle; surface reticulate on posterior half, fading to obscurity on anterior areas, asperities rather small, isolated, reduced to small subcrenulate granules at summit; posterior third closely, deeply, finely punctured; vestiture of fine, short, moderately abundant hair.

Elytra 1.2 times as long as wide, 1.3 times as long as pronotum; striae not indicated, punctures on basal half of disc rather small, deep, confused, becoming very minute behind and on declivity, each puncture about equal in diameter to thickness of an adjacent seta, sparse on declivity; surface smooth, shining; vestiture of fine, rather short, moderately abundant hair.

Distribution: Bolivia: "Bolivia, collected 1948."

Notes: The above treatment was based on the holotype from Bolivia, presumably a male.

Species Not Seen

Scolytodes columbiana (Schedl)

Scolytodes columbianus (Schedl), 1967:160 (*Hexacolus*). Holotype ♂; Sierra S. Lorenzo, Colombia; NHMB, Budapest (References in Wood & Bright c1992:390). Not at Budapest Museum

Scolytodes interpunctata (Eggers)

Scolytodes interpunctatus (Eggers), 1943:366 (*Prionosceles*). Holotype, sex?; Cochabamba, Bolivia; MNHN, Paris (References in Wood & Bright c1992:393)

Scolytodes laevicorpa Wood

Scolytodes laevicorpus Wood, 1988:33. Holotype, sex?; Cochabamba, Bolivia; MNHN, Paris, automatic (References in Wood & Bright c1992:394)

Hylocurosoma laevae Eggers, 1943:367. Holotype, sex?; Cochabamba, Bolivia; MNHN, Paris, preoccupied by 1928:88 (References in Wood & Bright c1992:394)

Scolytodes laevis (Eggers) *laevae*

Scolytodes laevis (Eggers), 1928:88 (*Prionosceles*). Holotype, sex?; E Bolivia; NHMW, Wien (References in Wood & Bright 1992:394)

TRIBE MICRACINI

Description: Frons usually dimorphic, either sex may be variously impressed, sculptured, or ornamented by setae, female frons often concave, male frons rarely concave; eye oval to elongate, entire to sinuate on anterior margin; scape very short to elongate, slender to strongly flattened or expanded, often ornamented by setae; funicle 6-segmented, club with or without sutures. Pronotum asperate on anterior area, lateral margins rounded; protibia usually with sides parallel, socketed denticles usually confined to apical margin; procoxae distinctly separated. Subplumose setae almost always present somewhere on body.

Biology: All genera are bigynous except for the monogynous *Micracisella*. *Pseudothymanoes* are mostly phloeophagous; a few are xylophagous. All *Hylocurus* and *Micracis* are xylophagous. *Micracisella* are myelophagous in small stems. Details of the life cycle are very poorly known. The larvae bore independent mines that often are unusually long and tortuous. Members of this tribe occur in South America, southern North America, South Africa, and 1 species occurs in Asia (northern China).

Key to the Genera of Micracini

(Adapted from Wood 1986:62–63)

1. Elytra broadly rounded behind; protibia much more slender, less strongly flattened; lateral margins of antennal club constricted at procurved sutures (except almost obsolete in all known South American *Pseudothymanoes*) ***Pseudothymanoes***
- Elytral apices acuminate to mucronate (partly lost in some *Micracisella*); protibia more strongly flattened, at least apically; antennal club without constrictions at sutures, sutures always indicated on anterior face 2
- 2(1). Eye short, oval, not more than 1.5 times as long as wide, finely faceted; sutures on antennal club straight to strongly procurved; posterior face of protibia tuberculate; protibia rather slender, wider apically ***Hylocurus***
- Eye elongate, 2.0 or more times as long as wide, coarsely faceted; antennal club rather large, sutures strongly procurved; protibia strongly flattened, sides usually parallel, its posterior face not tuberculate 3
- 3(2). Eye shallowly emarginate, often approximate below; protibia less strongly flattened, at least 1 of 5 apical teeth on outer (lateral) margin; scape usually less strongly expanded; antennal club rather broad, sutures more broadly procurved; monogynous, myelophagous ***Micracisella***
- Eye entire, always widely separated below; protibia more strongly flattened, all 5 teeth on apical margin; scape usually very strongly expanded (especially in female); antennal club more elongate, sutures usually much more strongly, narrowly arcuate; bigynous, xylophagous ***Micracis***

GENUS *PSEUDOTHYSANOES* BLACKMAN

Pseudothymanoes Blackman, 1920:46. Type-species: *Pseudothymanoes drakei* Blackman = *Cryphalus rigidus* LeConte, original designation (Synonymy and references in Wood & Bright c1992:411)

Cryptocleptes Blackman, 1920:51. Type-species: *Cryptocleptes dislocatus* Blackman, original designation, preoccupied by Simon 1884

Chalcohyus Blackman, 1943:363. Type-species: *Chalcohyus securigerus* Blackman, original designation

Bostrichips Schedl, 1951:21. Type-species: *Bostrichips spinatus* Schedl, monobasic

Gretschkinia Sokanovskii, 1959:276. Type-species: *Gretschkinia mongolica* Sokanovskii, monobasic

Aphanocleptus Wood, 1960:63. Type-species: *Aphanocleptus coniferae* Wood, original designation

Cryptulocleptus Wood, 1962:76. Type-species: *Cryptocleptes dislocatus* Blackman, automatic

Neoglostatus Schedl, 1978:300. Type-species: *Neoglostatus squamosus* Schedl, monobasic

Diagnosis: Allied to the North American *Thysanoes*; elytral apex broadly rounded (not mucronate); antennal club constricted at suture 1 and sometimes at 2, sutures straight, procurved, or obsolete; protibia more slender,

less distinctly flattened; most species phloeophagous (xylophagous in a few North American species).

Description: Small species (0.7–1.4 mm), stout to rather slender (2.0–2.8 times as long as wide), males often smaller than females; frons usually dimorphic, varying from convex to rather deeply concave in either sex; antennal scape very short to elongate, with or without a tuft of setae, club small to very large, with sutures straight to procurved to obsolete (all South American species). Pronotum often wider than long; asperities rather

coarse. Elytra usually sexually dimorphic in sculpture and/or vestiture.

Distribution: Wood & Bright (c1992:411–419) list 89 species, 12 of which have been reported from South America. The species are small and breed in small stems, where they are of minor economic importance.

Biology: Most species are phloeophagous; about 6 North American species are xylophagous, a habit not yet known from South America.

Key to the Species of *Pseudothysanoes*

- 1. Posterior margin of visible abdominal sternum 5 rather broadly rounded, without a median, spine-like process (or short carina) at apex in either sex; male interstriae on disc near base of declivity each usually armed by several rounded nodules 2
- Posterior margin of visible abdominal sternum 5 narrow, in female forming a small spine, male with a slightly wider (somewhat carinate) process; male interstriae on disc near declivity not armed by nodules 6
- 2(1). Body stout, 2.2–2.3 times as long as wide, very small; 1 or both sutures obsolete on antennal club 3
- Body very slender, 2.7 or more times as long as wide; rudiments of sutures present on antennal club 4
- 3(2). Male declivity very broadly rounded, none of interstriae at or near its base armed by pointed denticles, interstitial nodules restricted to posterior one-fourth of disc, smaller but indicated on upper declivity; female similar to male except all declivital setae hairlike, scales not present as in male; frons strongly convex, scape without a tuft of hair; Venezuela; *Theobroma cacao*; 0.7–0.9 mm *atomus* Wood
- Male declivity less broadly convex, interstriae 2, 3, 6, 7, and 8 each armed at base of declivity by a small, sharply pointed denticle, nodules small, less clearly evident on disc and declivity; similar to male except denticles absent, frons rather shallowly concave, scape with a conspicuous tuft of hair; Brazil (Santa Catarina); 1.2–1.4 mm *bellus* (Schedl)
- 4(3). Elytral declivity flattened to distinctly concave on lower half; declivital interstriae 3 armed near middle of declivity length by a small spine; Chile; 1.7–2.0 mm *spinatus* (Schedl)
- Elytral declivity strongly convex from base to apex, without spines 5
- 5(4). Posterolateral areas of pronotum mostly smooth, shining; striae punctures on declivity as large and as deep as on disc; erect interstitial scales on declivity each almost three to four times as long as wide; female frons very shallowly, narrowly impressed; body not as slender; Argentina; 1.5–1.6 mm *argentiniae* (Schedl)
- Posterolateral areas of pronotum rugose-reticulate, dull; striae punctures on declivity reduced in size and depth to less than half size of those on disc; erect interstitial scales on declivity stouter, each about two to three times as long as wide; female frons more strongly, more broadly impressed; body more slender; Chile; 1.7–1.8 mm *guevinae* (Schedl)
- 6(1). Smaller species (1.0–1.1 mm); female frons convex (concave in *murilloi*?), scape simple (club-shaped), either without setae or with a very large tuft of setae (female of *murilloi*?) 7
- Larger species (1.1–1.3 mm); female frons partly to extensively concave, scape variable, with a moderate to large tuft of hair 9

- 7(6). Declivity very steep, very broadly convex, interstitial scales densely placed, those on basal half of 1 and 2 moderately confused; male body stouter, 2.2 times as long as wide; Colombia; 1.0 mm
 *colombianus* (Blackman)
- Declivity rather gradual, narrowly convex, interstitial scales always uniseriate, not as close 8
- 8(7). Male frons more uniformly, more strongly convex; elytral declivity more broadly convex, striae 1 and 2 with punctures distinctly impressed, more obscure on 3; Brazil (Mato Grosso); 1.1 mm . . .
 *unimodus* (Schedl)
- Male frons much less strongly convex, somewhat flattened laterally; elytral declivity more narrowly convex, punctures on striae 2 and 3 distinct, obscure on 1; Colombia; 1.1 mm
 *murilloi* (Blackman)
- 9(6). Female frons strongly sulcate on median one-fourth from near epistoma to upper level of eyes, concave area smooth, shining, glabrous, scape slender, club-shaped, with rather numerous, long setae uniformly distributed; female interstitial setae three to four times as long as wide, male setae almost as wide as long; Brazil (Santa Catarina); 1.2–1.3 mm *plaumanni* (Schedl)
- Female frons concave eye to eye from epistoma to upper level of eyes 10a
- 10a(9). Female frons very strongly concave from epistoma to vertex, upper margin strongly, subacutely elevated to narrowly rounded, concave area reticulate, impunctate, glabrous; female declivity strongly convex, unarmed by tubercles or spines; male declivity somewhat truncate, with a circumdeclivital ring of small, sharply pointed spines from suture above to interstriae 8, ventrolateral margin costate from suture apex to interstriae 9; Brazil (MS); *Anadenanthera peregrina*; 1.3–1.5 mm *multispinosus* Wood
- Female frons less deeply concave from epistoma to vertex, upper margin rounded, much less strongly elevated, concave area with at least a few setae and/or minute punctures; male declivity convex, not at all subtruncate, unarmed 10b
- 10b(10a). Female frons rather strongly concave from epistoma to well above upper level of eyes, surface smooth, brightly shining, punctures minute, very sparse; female scape slender, club-shaped, without a tuft of hair; female interstitial setae shorter, each equal in length to about half distance between rows, each about three to four times as long as wide; Brazil (Parana); 1.1–1.2 mm
 *dimorphus* (Schedl)
- Female frons rather strongly concave from epistoma to well above upper level of eyes, surface subshining, densely covered by fine punctures; female scape greatly expanded, area beyond flagellum insertion as large as remainder of scape, ornamented by a large, conspicuous tuft of long hair; Brazil (Parana to Santa Catarina); 1.2–1.3 mm *abbreviatus* (Schedl)

Pseudothysanoes atomus Wood

Pseudothysanoes atomus Wood, 1980:355. Holotype: ♂; Finca Monasterios, Caucauga, Miranda, Venezuela; USNM, Washington (References in Wood & Bright c1992:412)

Diagnosis: Posterior margin of visible abdominal sternum 5 broadly rounded (not at all mucronate in either sex); male interstriae near base of declivity each armed by several rounded nodules; male declivity broadly rounded, without any pointed denticles near its base.

Male: Length 0.7–0.9 mm, 2.24 times as long as wide; color yellowish to reddish brown. Frons convex, shining below, reticulate above, somewhat irregularly, rather closely punctured; vestiture rather short, sparse, inconspicuous. Pronotum 1.0 times as long as wide; anterior

half declivous, rather closely asperate, most asperities isolated, confused, anterior margin armed by two closely set denticles at median line; posterior half shining, subreticulate, with small, isolated granules behind summit to base, posterolateral areas with sparse, minute punctures; vestiture of moderately abundant, short hair, about uniformly distributed. Elytra 1.3 times as long as wide, 1.4 times as long as pronotum; striae not impressed, punctures small, shallow anteriorly, some spaces between striae punctures slightly to strongly enlarged into rounded nodules; interstriae as wide as striae, smooth, shining, impunctate, near base of declivity of most interstriae with two or three rounded nodules similar to those of striae. Declivity very steep, broadly convex; most striae indicated by a few punctures interspersed with small,

rounded granules, interstriae 1, 3, and lateral areas with similar rounded granules. Vestiture near and on declivity, consisting of short erect interstitial hair; and on base of declivity and interstriae 1, 4, and lateral areas with a few erect, rather broad scales, all setae equal in length to about two-thirds distance between rows.

Female: Body 2.5 times as long as wide; similar to male except anterior margin of pronotum unarmed; elytra with strial and interstitial nodules similar but smaller; declivity more distinctly convex, all setae hairlike, no scales present.

Distribution: Venezuela: Finca Monasterios, Cacagua, Miranda, 1971, *Theobroma cacao*, J.L. Saunders.

Biology: Boring in phloem of twigs.

Notes: The above treatment was based on the type series of 13 specimens.

Pseudothysanoes bellus (Schedl)

Pseudothysanoes bellus (Schedl), 1954:28 (*Cryptocleptes*). Lectotype ♂; Rondon, Parana, Brazil, 500 m; NHMW, Wien, designated by Schedl 1979:36 (References in Wood & Bright c1992:412)

Diagnosis: Distinguished from *atomus* Wood by the less strongly convex declivity, armed at base by small, pointed denticles on interstriae 2, 3, 6, 7, and 8; by the male frons being shallowly concave, scape with a tuft of hair.

Male: Length 1.2–1.4 mm, 2.3 times as long as wide; color very dark brown, vestiture pale. Frons convex above, lower half transversely somewhat flattened, a small epistomal callus on median one-fourth; surface reticulate-granulate, upper areas with small, sparse granules; vestiture sparse, short, inconspicuous, longer, more abundant along epistoma; antennal scape with about 8–10 moderately long setae, club oval, smooth, shining, sutures obsolete, lateral and apical margins with a rather dense fringe of short hair. Pronotum 0.9 times as long as wide; summit at middle, distinct; anterior slope rather coarsely, closely asperate, some obscurely subconcentric; posterior and lateral areas rugose-reticulate, with sparse, fine, irregularly shaped granules; vestiture moderately abundant, a mixture of short hair and suberect scales in both asperate and posterior areas, each scale about two to three times as long as wide. Elytra 1.4 times as long as wide, 1.6 times as long as pronotum; striae not impressed, punctures rather coarse, moderately deep; interstriae as wide as striae, shining, punctures about one-third as wide as those of striae, uniseriate, their anterior margin weakly elevated, rather strongly elevated and tuberculate near base of declivity. Declivity very steep, very broadly convex; interstriae 2, 3, 6, 7, and 8 each armed by a small denticle at base, strial punctures on 1 and 2 mostly uniseriate, lateral punctures confused. Vestiture of short strial hair and erect, uniseriate interstitial scales from base to apex, each slightly longer than wide, those at base of declivity slightly larger, those on declivity smaller.

Female: Body 2.6 times as long as wide; similar to male except frons subconcavely impressed to upper level

of eyes; strial and interstitial punctures smaller, without interstitial tubercles, declivity more strongly convex, without denticles at base; declivital strial punctures in recognizable rows, declivital interstriae each with 1 uniseriate row of small tubercles, scales similar on disc and declivity.

Distribution: Brazil: Rondon, Parana, 24°38'B, 54°07'L, 1951, 500 m, F. Plaumann.

Notes: The above treatment was based on 13 specimens from Brazil, 1 of which was compared by me to the male lectotype.

Pseudothysanoes spinatus (Schedl)

Pseudothysanoes spinatus (Schedl), 1951:21 (*Bostrichips*). Lectotype ♂; Chile; NHMW, Wien, present designation (References in Wood & Bright c1992:417)

Diagnosis: Distinguished from all other species in this genus by the distinctive elytral declivity, described below; and by other features described here.

Male: Length 1.7–2.0 mm, 2.97–3.0 times as long as wide; color very dark brown, summit of pronotum reddish brown. Frons strongly convex above upper level of eyes, lower half rather abruptly, strongly impressed on lower half; lower fourth almost flat from margin to margin, lower fourth almost smooth, obscure punctures sparse, minute; closely, somewhat rugosely punctured on upper half. Antennal scape almost as long as club, triangularly flattened (as wide as long), ornamented by a small tuft of hair; club longer than wide, 2 sutures weakly recurved. Pronotum 1.04 times as long as wide; summit slightly anterior to middle of pronotum length; anterior slope rather coarsely asperate on median half, anterior margin unarmed (1 denticle on type, none on other male); posterior half smooth, shining, punctures rather coarse, deep, very close; vestiture of short, stout bristles in asperate area, sparse, fine behind. Elytra 1.8 times as long as wide, 1.9 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed, punctures deep, rather small, smaller on basal fourth; interstriae as wide as striae, almost smooth, shining, punctures uniseriate, smooth to obsolete. Declivity very steep, shallowly, broadly sulcate; strial punctures on 1 and 3 confused; interstriae 3 armed slightly above middle by a moderately coarse, pointed spine; lateral margin on lower fourth moderately elevated, its dorsal end forming a small spine. Vestiture mostly abraded, apparently consisting of interstitial rows of stout, erect setae, each seta about as long as distance between rows.

Distribution: Chile: "Chile, Fairm.," male; "Holotype, *Bostrichips spinatus*"; "Chile, leg. Kuschel"; "Chili, F. Sohlb.," *Bostrichips spinatus* n. sp., type Eggers det., female; (?) Julir. Coll'd. Chev. Chili, L. Guillolot (apparently, very difficult to read and interpret).

Notes: Of the 5 specimens in the Schedl material at NHMW, Wien, are "2 males" and "2 females," and 1 with sex not indicated. The first "male" was labeled type (and subsequently) "holotype," the fourth, "female" as "type."

This species was named from a syntypic series of males and females. Subsequently, Schedl (1979:234) designated the first male as the "holotype," contrary to the International Code on Zoological Nomenclature. I here designate that specimen as the male lectotype of *Bostrichips spinatus* Schedl. All 5 specimens appear to be female.

Pseudothysanoes argentinae (Schedl)

Pseudothysanoes argentinae (Schedl), 1958:43 (*Bostrichips*). Lectotype ♀; Cordoba, Dep. Pumilla, Argentina; NHMW, Wien, designated by Schedl 1979:25 (References in Wood & Bright c1992:412)

Diagnosis: Distinguished from *spinatus* (Schedl) by the weakly elevated declivital interstriae 1 and 3, interstriae 3 with a row of about 4 minute tubercles, major spines absent, ventrolateral margin rather weakly elevated; striae punctures on disc much smaller than on *spinatus*, etc.

Female: Length 1.5 mm, 2.8 times as long as wide; color very dark brown. Frons mostly convex, weakly, shallowly impressed on median half of upper half; sculpture apparently rather finely punctate-rugose in lateral and upper areas, finer toward center (not clearly visible from angle available); vestiture short, sparse. Both antennae missing from type. Pronotum 0.96 times as long as wide; about as in *spinatus* except posterolateral areas weakly subrugose-reticulate, punctures much smaller, more widely separated; anterior submargin armed by an irregular row of 6 serrations; vestiture in asperate area more nearly scalelike, on posterior half of sparse, short scales, each scale about twice as long as wide. Elytra 1.8 times as long as wide, 1.9 times as long as pronotum; disc occupying basal 80 percent of elytral length; striae not impressed, punctures small, shallow; interstriae twice as wide as striae, irregular punctures largely replaced by small tubercles on their anterior margin. Declivity steep, convex; interstriae 1 and 2 weakly elevated and finely serrate, a weak, transverse, subapical elevation extending from 1 to 7. Vestiture of erect interstitial scales, each scale two to three times as long as wide and about as long as distance between rows; most setae on declivity absent (due to abrasion?).

Distribution: Argentina: Cordoba, Dep. Punilla, Villa Hermosa, H.J. Viana, type, *Bostrichips argentinae* Schedl.

Notes: This species was based on a syntypic series. Schedl (1979:25) designated the first specimen in his series as the lectotype for this species. The second specimen is of a different species. The above treatment was based on the male lectotype.

Pseudothysanoes guevinae (Schedl)

Pseudothysanoes guevinae (Schedl), 1966:45 (*Bostrichips*). Holotype ♀; Termas, S Chile; Manzanar; NHMW, Wien (References in Wood & Bright c1992:414)

Diagnosis: Distinguished from other South American members of this genus by the slender body form; by the

strongly reticulate pronotum; and by the evenly convex elytral declivity.

Male: Similar to female except frons strongly convex above eyes, strongly impressed (feebly concave) below; interstitial setae on declivity mostly twice as long as wide and continued to apex.

Female: Length 1.7–1.8 mm, 3.3 times as long as wide; color dark brown, vestiture pale. Frons broadly convex (transversely) to above upper level of eyes, feebly convex to straight longitudinally; median half smooth, brightly shining from epistomal margin to above eyes; lateral areas minutely punctate-granulate and ornamented by sparse, modestly long hair. Antennal scape ornamented by rather numerous long setae; club slightly longer than wide, two sutures rather strongly procurved. Pronotum 1.1 times as long as wide; summit slightly in front of middle of pronotum length, anterior slope rather coarsely asperate, anterior margin armed by four median serrations; surface strongly reticulate from anterior to posterior margin, a few scattered granules on disc, punctures sparse, minute, obscure; vestiture of sparse, short, fine hair. Elytra 2.1 times as long as wide, 1.9 times as long as pronotum; striae not impressed, punctures rather small, shallow; interstriae slightly wider than striae, almost smooth, punctures very small, obscure, uniseriate. Declivity steep, strongly convex; striae 1–3 obscure; interstriae 1–3 equally, weakly convex, each with a row of punctures distinctly larger than on disc. Vestiture of rows of erect interstitial setae, those on disc hairlike to very slender, becoming scalelike near base of declivity (each seta four to six times as long as wide, length equal to two-thirds distance between rows), small to obsolete on lower half of declivity.

Distribution: Chile: Sudchile, Termas Manzanar, 5-X-1963, *Guevina avallana*, W. Ruehm (type).

Notes: The above treatment was based on the female holotype, 2 males, and 3 other females, all bearing identical data.

Pseudothysanoes colombianus (Blackman)

Pseudothysanoes colombianus Blackman, 1943:361 (*Cryptocleptes*). Holotype ♂; San Vicente, Santander, Colombia; USNM, Washington (References in Wood & Bright c1992:412).

Diagnosis: Posterior margin of visible sternum 5 very narrowly rounded to submucronate; female frons convex, scape slender, without a tuft of long hair; declivity very steep, interstitial scales closely placed.

Male: Length 1.0 mm, 2.3 times as long as wide; color very dark brown, vestiture pale. Frons apparently convex on upper half (concealed on my specimen), lower area somewhat flattened, lateral thirds very finely, rather closely punctured, median third smooth, shining, almost impunctate; scape slender, without a tuft of hair; club with one weakly procurved suture near middle indicated by a row of hair, several setae on margins. Pronotum 0.88 times as long as wide; summit definite, anterior slope coarsely, closely asperate, anterior margin armed by six low serrations; posterior areas rugose-

reticulate, minute punctures obscure; vestiture moderately abundant, stout, rather short, suberect. Elytra 1.5 times as long as wide, 1.7 times as long as pronotum; striae not impressed except near declivity, punctures small, distinctly impressed; interstriae about twice as wide as striae, punctures not clearly evident, 1 and 2 finely subcrenulate to base, others only near declivity. Declivity very steep, broadly convex; striae feebly impressed, punctures irregularly impressed, obscure on 1. Vestiture of short, stout, interstitial scales, each very slightly longer than wide, those on declivital interstriae 1 and 2 slightly confused near base, others uniseriate.

Distribution: Colombia: Dep. Santander, 29-VII-1935, 700-1300 m, *Inga laurina*, R.P. Roba; Vincente, Santander, VI-1935, 692 m, Calopo, L.M. Murillo.

Notes: The above treatment was based on 1 male that was compared by me to the male holotype. The holotype has the declivital scales on interstriae 1 and 2 uniseriate, not confused.

Pseudothysanoes unimodus (Schedl)

Pseudothysanoes unimodus (Schedl), 1959:549 (*Cryptocleptes*). Holotype ♂; Rio Caraguata, Mato Grosso, Brazil; NHMW, Wien (References in Wood & Bright c1992:418)

Diagnosis: Distinguished from *murilloi* (Blackman) by the less strongly convex male frons, punctures on striae 1 distinctly impressed.

Male: Length 1.1 mm, 2.4 times as long as wide; color very dark reddish brown. Frons rather strongly convex; rugose-reticulate on more than upper half, apparently more finely sculptured below; vestiture of sparse, fine hair; scape elongate, without a tuft of hair. Pronotum 0.90 times as long as wide; summit distinctly elevated, anterior slope rather coarsely asperate, anterior margin armed by one small lateral and four moderately large serrations; lateral areas behind mostly smooth, shining, partly, weakly rugose-reticulate to disc; vestiture sparse, semirecumbent, moderately coarse, rather short hair. Elytra 1.5 times as long as wide, 1.6 times as long as pronotum; striae not impressed, punctures small, distinctly impressed; interstriae slightly wider than striae, almost smooth, small, uniseriate punctures weakly granulate. Declivity rather narrowly convex, steep; striae punctures slightly larger and deeper than on disc, interstitial punctures much closer within a row. Vestiture of minute striae hair (at least on declivity), interstitial scales erect, uniseriate, each up to three times as long as wide on disc, only slightly longer than wide on declivity, scales much more closely spaced on declivity than on disc.

Female: Similar to male except scape ornamented by a dozen or more moderately long setae uniformly distributed; anterior margin of pronotum armed by 4 serrations; elytra 1.7 times as long as wide; striae and interstitial punctures much smaller; granules absent; interstitial scales on disc about six times as long as wide, four times as long as wide on declivity.

Distribution: Brazil: Rio Caraguata, Mato Grosso, III-1953, F. Plaumann.

Notes: The above treatment was based on 1 male paratype and 1 female paratype that were received through exchange from Schedl.

Pseudothysanoes murilloi (Blackman)

Pseudothysanoes murilloi (Blackman), 1943:360 (*Cryptocleptes*). Holotype ♀; San Vicente, Sant., Colombia, 692 m; USNM, Washington (References in Wood & Bright c1992:415)

Diagnosis: Distinguished from *unimodus* (Schedl) by the less strongly convex male frons; and by the more narrowly convex elytral declivity, with punctures on striae 1 obscure.

Male: Length 1.1 mm, 2.7 times as long as wide; color very dark reddish brown, vestiture pale. Similar to *unimodus* except lower frons more nearly flattened over a larger area; posterior area of pronotum more nearly smooth; elytra 1.7 times as long as wide, declivity more narrowly convex, declivital striae more weakly impressed, punctures smaller, somewhat obscure on 1.

Female: Length 1.19 mm, 2.9 times as long as wide; frons broadly concave, a small fovea at center; scape flattened, wider distally, fringed with long hair; anterior margin of pronotum unarmed by serrations; elytra 1.9 times as long as wide, striae punctures small, in rows (after Blackman 1943:360–361, not seen).

Distribution: Colombia: San Vicente, Santander, VI-1935, 692 m, No. 159, Calapo, L.M. Murillo.

Hosts: *Albizzia macrocarpa*.

Biology: In a branch of the host.

Notes: The above treatment was based on a male paratype.

Pseudothysanoes plaumanni (Schedl)

Pseudothysanoes plaumanni (Schedl), 1951:106 (*Cryptocleptes*). Syn-types, sex?; Nova Teutoni, Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:416)

Diagnosis: Female frons concavely sulcate on median one-fourth, concave area smooth, glabrous.

Male: Length 1.2-1.3 mm, 2.3 times as long as wide; color very dark reddish brown, vestiture pale. Frons strongly convex, a weak impression at median line on middle half; vestiture of sparse, short hair on lower half. Pronotum 0.80 times as long as wide; summit distinctly elevated, anterior slope coarsely asperate, anterior margin armed by 8 coarse serrations; vestiture sparse, of short, coarse hair. Elytra 1.4 times as long as wide, 1.6 times as long as pronotum; striae 1 weakly, others not impressed, punctures rather small; interstriae about as wide as striae, almost smooth, punctures smaller than those of striae, those near suture granulate. Declivity broadly convex, steep; striae more distinctly impressed, punctures slightly larger, deeper; tubercles on 1 and 2 distinct, obscure elsewhere. Vestiture of minute, fine striae hair (at least on declivity) and erect interstitial scales in uniseriate rows, each scale on disc about three times as long as wide, less than twice as long as wide on

declivity (declivital rows 2 and 3 usually very slightly confused).

Female: Frons concave on median one-third from near epistoma to upper level of eyes, concavity smooth, brightly shining; scape club-shaped, ornamented by about 20 long, uniformly distributed setae; serrations on anterior margin of pronotum obscure to obsolete; elytra 1.6 times as long as wide; striae on disc not impressed, punctures small to minute, interstriae shining, transversely wrinkled, granules absent, punctures minute, uniseriate; interstitial scales on disc about six times as long as wide, on declivity about four times as long as wide.

Distribution: Brazil: Nova Teutonia, Santa Catarina, XI-1956, 300–500 m, 27°11B, 52°23L, F. Plaumann.

Notes: The above treatment was based on 12 specimens from Brazil; 1 male was compared to the male holotype, and 1 female was compared by me to the female allotype.

Pseudothysanoes multispinosus, n. sp.

Pseudothysanoes multispinosus Wood: Holotype ♂; UNESP Farm, Selviria, Mato Grosso do Sul, Brazil; MZUSP, Sao Paulo, designated below

Diagnosis: Distinguished from *abbreviatus* (Schedl) by the slightly larger size; by the more strongly concave female frons, with upper margin subacutely elevated, and with the concave area reticulate and glabrous; by the strongly convex female declivity that lacks tubercles or spines and male that has a circumdeclivital ring of small sharply pointed spines.

Male: Length 1.2–1.3 (female 1.4–1.5) mm, 2.0 (female 2.2) times as long as wide. Frons broadly convex, surface rugose-reticulate, epistomal brush with many setae; antennal club small, oval, margins of suture 1 marked by a row of setae. Pronotum 0.76 times as long as wide; widest near middle of pronotum length, sides strongly arcuate on basal half, broadly rounded in front; anterior margin armed by four serrations on median area; summit well behind middle of pronotum length; anterior slope on median half armed by coarse asperities forming obscure concentric rows on and near summit; posterior areas reticulate, punctures very small, moderately numerous; vestiture of numerous scales, each slightly longer than wide, and on basal and lateral areas scales intermixed with very short, slender setae. Elytra 1.3 times as long as wide, 1.7 times as long as pronotum; disc occupying 80 percent of elytra length; striae not impressed, punctures large, strongly impressed, close; interstriae half as wide as striae, punctures uniseriate, almost as wide as interstriae. Declivity very steep, moderately, broadly convex; discal apex of interstriae 1–8 armed by a sharply pointed spine (very small on 1); ventrolateral margin subacutely costate from suture to about level of interstriae 3, then continued by a row of tubercles to junction with interstriae 8; interstriae 1 and 2 on face of declivity each with a dense row of closely set broad

scales (each about as long as wide on lower two-thirds of declivity length); interstriae 3 near base (below spine on circumdeclivital row) with one rather large, sharply pointed spine; area laterad from striae 2 with large, confused punctures; short slender setae mostly abraded. Vestiture of interstitial rows of broad scales on disc and on interstriae 1 and 2 on declivity.

Female: Body 2.2 times as long as wide. Frons strongly, transversely impressed from epistoma to vertex; surface rugose-reticulate; many small setae on impressed area above upper level of eyes, epistomal brush with many setae. Pronotum similar to male, except serrations absent on anterior margin. Elytral disc with striae punctures smaller, interstriae slightly wider than striae; declivity without spines; punctures on lateral areas similar to disc, rows of interstitial scales continue to end of interstriae.

Distribution: Brazil (Mato Grosso do Sul).

Type material: The male holotype, female allotype, and 6 male and 5 female paratypes were taken at the UNESP Farm, Selviria, Mato Grosso do Sul, Brazil, 2-VIII-1998, *Anadenanthera peregrina* branch, C.A.H. Flechtmann. The holotype, allotype, and 9 paratypes are in the Museu de Zoologia, Universidade de Sao Paulo, Sao Paulo. Two paratypes are in the U.S. National Museum, Washington.

Pseudothysanoes dimorphus (Schedl)

Pseudothysanoes dimorphus (Schedl), 1954:25 (*Cryptocleptes*). Lectotype ♂; Rondon, Parana, Brazil, 500 m; NHMW, Wien, designated by Schedl 1979:81 (References in Wood & Bright c1992:413)

Diagnosis: Distinguished from *plaumanni* (Schedl) by the broadly concave, smooth, shining female frons from epistoma to vertex.

Male: Length 1.1–1.2 mm, 2.1 times as long as wide; color dark reddish brown. Frons strongly, broadly convex; rugose-reticulate on its dorsal two-thirds, becoming reticulate below; vestiture of sparse, fine, inconspicuous hair; scape small, flattened, with a small tuft of long hair. Pronotum 0.82 times as long as wide; summit distinctly elevated, anterior slope coarsely asperate (asperities near summit subconcentric), anterior margin armed by 6 serrations; surface behind summit rugose-reticulate, becoming reticulate toward lateral areas; vestiture of two kinds, slender, short hair over most of surface, in asperate area with scales intermixed, scales varying from 2–6 times as long as wide. Elytra 1.3 times as long as wide; striae weakly impressed, punctures small, deep; interstriae slightly wider than striae, smooth, shining, small rounded, uniseriate, setiferous granules closely set from base to elytral apex. Declivity broadly convex, steep; sculpture about as on disc. Vestiture of rows of recumbent striae hair and erect, uniseriate rows of interstitial scales, each scale one to two times as long as wide (spaced within a row by length of a scale), scales on declivity slightly smaller.

Female: Similar to male except frons transversely impressed to shallowly concave eye to eye from epistoma

to upper level of eyes, vestiture more abundant, longer above; scape strongly flattened and extended beyond insertion of flagellum; anterior margin of pronotum unarmed; elytra 1.4 times as long as wide, striae not impressed, punctures much smaller; interstitial tubercles greatly reduced to obsolete, interstitial scales up to six times as long as wide on disc, about four times as long as wide on declivity.

Distribution: Brazil: Rio Caraguata, Mato Grosso, III-1953, F. Plaumann; Rondon, Parana, 24°38'B, 54°07'L, IV-1960s, 500 m, F. Plaumann.

Notes: The above treatment was based on 2 male paratypes and 2 female paratypes from Brazil.

Pseudothysanoes abbreviatus (Schedl)

Pseudothysanoes abbreviatus (Schedl), 1954:26 (*Cryptocleptes*).
Lectotype ♂; Rondon, Parana, Brazil, 500 m; NHMW, Wien, designated by Schedl 1979:8 (References in Wood & Bright c1992:411)

Neoglostatus squamosus Schedl, 1978:300. Holotype ♂; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:417). *New synonymy*

Diagnosis: Distinguished from *dimorphus* (Schedl) by the minutely, closely punctured female frons; and by the strongly expanded female scape that is ornamented by a large tuft of hair.

Male: Length 1.2–1.3 mm, 2.2 times as long as wide; color almost black, vestiture pale. Frons rather weakly convex, central one-fifth weakly impressed, surface reticulate; scape slender, without long setae. Pronotum similar to *dimorphus* except anterior margin armed by four serrations, vestiture mostly abraded, apparently similar. Elytra 1.4 times as long as wide; similar to *dimorphus* except discal interstriae obscurely tuberculate (tubercles minute to irregularly obsolete) on disc and declivity. Interstitial scales shorter, always uniseriate, those on disc up to twice as long as wide, those on declivity very short, some half as long as wide.

Female: Body 2.7 times as long as wide; frons rather strongly concave from epistoma to vertex, surface smooth, shining, glabrous, sparse, very minute punctures present; scape slender, a small tuft of long hair present; serrations on anterior margin of pronotum almost obsolete;

striae not impressed, punctures minute, interstriae finely wrinkled, punctures minute, obscure, erect scales at base of disc about six times as long as wide, those on declivity about three times as long as wide.

Distribution: Brazil: Rondon, Parana, 24°38'B, 54°07'L, 1969s, 600 m, F. Plaumann.

Notes: The above treatment was based on 1 male paratype and 1 female paratype of *abbreviatus*, on the male holotype of *Neoglostatus squamosus*, and on 37 other specimens, all from Brazil.

GENUS *HYLOCURUS* EICHHOFF

Hylocurus Eichhoff, 1872:133. Type-species: *Hylocurus elegans* Eichhoff, monobasic (Synonymy and references in Wood & Bright c1992:422)
Micracisoides Blackman, 1920:19. Type-species: *Micracis rudis* LeConte, subsequent designation by Wood 1982:608 (Synonymy and references in Wood & Bright c1992:422)

Diagnosis: Closely allied to *Micracis* except distinguished by the tuberculate posterior face of the protibia; by the shorter, oval eye; usually by the bisinuate sutures of the antennal club (strongly procurved in a few species); and by the more slender protibia.

Description: Species small to medium size (1.3–3.5 mm), body stout to rather slender (2.2–3.3 times as long as wide); sexes of about equal size; frons mostly convex in male, occasionally in female, a transverse, subcarinate elevation sometimes present, female often flat to variously concave, with or without ornamental vestiture; antennal club usually short, slender to expanded, sometimes with tufts of long hair, funicle 6-segmented, club subcircular to elongate, sutures bisinuate to very strongly procurved. Pronotum usually longer than wide, anterior slope declivous, asperate. Elytra usually sexually dimorphic, more elaborately sculptured in male, sometimes bearing nodules, spines, or variously truncate. Protibia usually wider near its apex, posterior surface armed by tubercles.

Biology: All observed species are bigynous and xylophagous.

Distribution: Wood & Bright (c1992:422–429) record 75 species in this genus from North and South America and the Antilles Islands; 29 species were listed from South America.

Key to the Species of *Hylocurus*

- 1. Crest of declivital interstriae 9 separated from costal margin by an impressed groove of striae 9, tubercles or nodules of interstriae 1–8 precede base of declivity, sometimes extending to middle of disc 2
- Elevated crest of declivital interstriae 9 continuing to and joining costal margin, not interrupted by striae 9 (except a very narrow interruption in *retusipennis*, couplet 27); tubercles usually absent on disc anterior to base of declivity 22
- 2(1). Tubercles of declivital interstriae 9 continuing almost to interstriae 3 (2, 4–6 continued to their apices), 3 not elevated, its tubercles about equal to those of 4 and 5; costal margin at declivity either smooth or moderately to strongly nodulate; declivital surface mostly rugose-reticulate 3

- Tubercles of declivital interstriae 9 often ending remote from 3, with 3 often a significant elevation, costal margin at declivity weakly or never nodulate; interstriae 3 usually elevated on basal half of declivity, its tubercles often conspicuous, those on 4–6 usually reduced in size and number to absent 11
- 3(2). Discal striae with punctures rather small, shallowly impressed, interstriae as wide or wider than striae, punctures smaller than those of striae, not at all granulate on disc, sometimes very weakly granulate at base of declivity, small granules continue on declivity to apices on interstriae 1–9, granules narrow, not as high as wide, subacutely pointed; declivity much steeper than usual 4
- Discal striae with punctures moderately to very coarse, deep, interstriae conspicuously narrower than striae, those on disc near declivity sometimes armed by moderately coarse nodules, reduced granules or tubercles continue to declivity; declivity rather steep, mucro longer, more acutely pointed; declivity mostly reticulate from base to apex 5
- 4(3). Larger species; discal interstriae on basal third twice as wide as striae, only slightly wider at base of declivity; frons punctured; anterior margin of pronotum serrate; male declivital interstriae 9 on basal half with setae uniseriate; Brazil; 2.4–2.5 mm *errans* Blandford
- Smaller species; discal interstriae on basal third of disc as wide as striae, narrower than striae at base of declivity; frons with punctures obscure to obsolete, replaced by rather coarse tubercles; anterior margin of male pronotum not serrate, submargin with 4 serrations, strongly reticulate on posterior half; declivital setae rather slender, each 6–10 times as long as wide; male declivital interstriae 9 with setae on basal half more numerous and confused (uniseriate in female); Argentina; 1.9–2.2 mm (see also *vagabundus* Blandford, *longulus* Nunberg) *vianai* Schedl
- 5(3). Declivital interstriae 2, 4, and 6 each with a row of tubercles to their apex (in male brasiliensis reduced on 2 and 6 of female) 6
- Female scape (sometimes male also) flattened and ornamented by conspicuous hair; declivital interstriae 2, 4, and 6 either devoid of tubercles or these visible only on basal half or less 8
- 6(5). Body size smaller; color reddish brown; interstitial nodules on disc at base of declivity small, poorly formed in male, absent in female; interstitial scales at base of declivity each two to four times as long as wide in male, slender in female (more than 10 times as long as wide); Brazil (Mato Grosso); 1.9–2.0 mm *brasiliensis* Nunberg
- Body size larger; color darker; interstitial nodules on disc near declivity usually present in male 7
- 7(6). Strial punctures on posterior half of disc only slightly larger near base of declivity; interstitial tubercles on lower half of declivity of about equal size from 1 and 3–9 reduced to absent on 2; female scape triangularly flattened and ornamented by long hair; female frons from epistoma to vertex with abundant pubescence; longest interstitial setae on declivity equal in length to distance between rows; Brazil (Sao Paulo); ETOH trap; 2.5–2.7 mm *subgranulatus* Schedl
- Strial punctures on anterior half of disc of normal size, those on posterior half greatly enlarged, more than twice as large as those near base; interstitial tubercles on lower half of declivity on 3–9 distinctly larger than on 1 and 2; longest interstitial setae on declivity distinctly longer than distance between rows; Brazil (Sao Paulo?); 2.2–2.3 mm *flechtmanni* Wood
- 8(5). Discal interstriae wider than striae, most punctures two-thirds as large as those of striae; interstitial granules at base of declivity very small, rounded; declivital interstriae 1 and 3 each with a row of small tubercles from base almost to apex, 4–8 with a few tubercles only at base of declivity; erect interstitial setae strongly flattened; color reddish brown; Brazil (Sao Paulo); 1.7–1.8 mm *obtusipennis* Schedl
- Discal interstriae narrower than striae, strial punctures larger, deeper, interstitial punctures smaller; interstitial tubercles at base of declivity rather coarse 9

- 9(8). Elytral declivity rugose-reticulate, dull; discal interstriae twice as wide as striae; male frons with a transverse carina, female frons pubescent; female scape strongly flattened, male weakly, pubescence elaborate in female, moderate in male; Brazil (Santa Catarina); 3.2–3.5 mm *giganteus* (Schedl)
- Elytral declivity smooth, brightly shining, 2 armed by a row of fine tubercles on basal half; discal interstriae as wide as striae; male frons without a transverse carina; female scape slightly flattened, ornamented by fewer setae 10
- 10(9). Body larger, stouter, 2.9 times as long as wide; interstitial setae much longer, hairlike; strial punctures on disc coarse, deep; discal interstriae on basal two-thirds about as wide as striae; interstitial nodules near base of declivity moderately coarse in female, very coarse in male; Brazil (Santa Catarina); 2.7–2.9 mm *impar* Schedl
- Body smaller, more slender, 3.1 times as long as wide; interstitial setae rather short, strongly flattened, each scale about three times as long as wide; strial punctures on disc small, shallow; discal interstriae on basal two-thirds about as wide as striae; interstitial nodules near base of declivity moderately coarse in female, very coarse in male; Brazil (Bahia); 2.3 mm *interpositus* Schedl
- 11(2). Elytral declivity reticulate to rugose-reticulate in both sexes (dull) 12
- Elytral declivity with surfaces mostly, smooth, shining in both sexes (some reticulation on interstriae 1 in two species) 15
- 12(11). Frons in both sexes armed by about 20 small to moderately large, confused tubercles from middle to upper level of eyes, no indication of a transverse carina; tubercles at apex of declivital interstriae 9 smaller, obsolete before apex, tubercles on 3 obsolete on lower half, setae on 2 uniseriate to apex 13
- Frons more finely granular in both sexes, a transverse carina sometimes present on less than median fourth; apex of declivital interstriae 9 ending in an acutely pointed spine, 3 with a small spine near middle, setae on 2 obsolete on lower half 14
- 13(12). Costal margin of elytra feebly descending near apex then gradually ascending to terminal mucro, mucro larger, more acutely pointed; interstitial nodules at base of declivity smaller, most more nearly resembling tubercles; Brazil (Santa Catarina); 2.4–2.5 mm *pilosus* Schedl
- Costal margin of elytra descending moderately near apex then rather abruptly ascending to point in line with striae 2, terminal mucro smaller, more obtuse, angle from costal margin to mucro rather abrupt; interstitial nodules at base of declivity larger, more broadly rounded; some setae at base of male declivity much more slender and longer than others; Brazil (Santa Catarina); 2.8–3.1 mm *robustus* Schedl
- 14(12). Frontal transverse carina usually on less than median fourth; interstitial tubercles near declivity on male disc narrow, higher than wide; setae on declivital interstriae 1 slender, hairlike; Venezuela; *Inga*; 1.4–1.9 mm *verrucosus* Wood
- Transverse carina on frons about half as wide as frons; interstitial tubercles near declivity of male wider than high, setae on declivital interstriae 1 stout, almost scalelike; some males lack declivital reticulation; Brazil (Rondon); 2.1–2.4 mm *plaumanni* Wood
- 15(11). Discal predeclivital interstriae smooth (with uniseriate punctures); male base of declivity abrupt, interstriae 1, 3, 5, 7 each ending in a spine (forming a circumdeclivital ring); female frons without a transverse carina, male frons with a weak transverse carina 16
- Predeclivital interstriae armed by granules or conspicuous nodules (small in female, larger in male); frons with a transverse carina in both sexes 18
- 16(15). Interstitial spines in male circumdeclivital ring at base of declivity on 1–8 of equal length, projecting slightly; male and female frons flattened to feebly concave, densely, broadly pubescent

- from level of antennal insertion almost to vertex; female scape slightly flattened and pubescent in both sexes (club longer than wide, suture 1 almost straight, not attaining middle of club length); upper half of declivital interstriae 3 armed by one to three tubercles; Venezuela to Brazil (Santa Catarina); 1.8–2.0 mm *discifer* Eichhoff
- Interstitial spines in circumdeclivital ring conspicuously longer on odd-numbered interstriae (1, 3, 5, etc.) 17
- 17(16). Male terminal mucro at elytral apex wider, profile from dorsal aspect forming a 90 degree angle; apex of declivital interstriae 9 more obtuse, shorter (less than one-fourth as long as mucro); odd-numbered spines in circumdeclivital ring obtusely, sharply pointed; female frons rather sparsely pubescent; Mexico (Colima) to Costa Rica; 1.5–2.3 mm *inaequalis* Wood
- Male terminal mucro more slender, forming a 60 degree angle from dorsal aspect; apex of declivital interstriae 9 longer, projecting more than one-fourth length of mucro; spines in circumdeclivital ring blunt, tips rounded; female not seen; Venezuela; 1.7–1.9 mm *alternatus* Eggers
- 18(15). Antennal club subcircular, with suture 1 obsolete on more than central two-thirds, a few setae present at margins, 2 rather strongly procurved, almost attaining apex; stria punctures rather strongly impressed, discal striae near declivity distinctly wider than interstriae; interstitial nodules confined to posterior fourth of disc, rather small, wider than high 19
- Antennal club with suture 1 obsolete on central third, visible at sides, 2 attaining two thirds club length from base; striae less strongly impressed, those near base of declivity narrower than interstriae; interstitial nodules confined to posterior third of disc, nodules each higher than wide 20
- 19(18). Declivital interstriae 1 armed on basal half by a row of six or more small, pointed tubercles, spine on 3 at middle of declivity much smaller, not higher than wide; interstitial nodules on male disc near declivity small, each about twice as wide as high; erect setae at base of declivity slender, sharply pointed; Colombia; 2.0–2.3 mm *colombianus* Wood
- Declivital interstriae 1 armed near base by one small tubercle, spine on 3 at middle of declivity large, at least twice as long as its basal width; interstitial nodules on male disc near declivity large, about as wide as high; erect setae at base of declivity stout, blunt; Brazil (Bahia); 2.7 mm *acutedentatus* Schedl
- 20(18). Interstriae 9 near base of declivity ending in a large, rather bluntly pointed, somewhat projecting spine; interstriae on posterior third of disc each armed by about four to five coarse, acutely rounded nodules, each slightly higher than wide; face of declivity with one small, pointed tubercle near apex of interstriae 3; male transverse frontal carina occupying median three-fourths; Brazil (Santa Catarina); 2.0 mm *trispinatus* Schedl
- Apex of declivital interstriae 9 only weakly elevated, not projecting into a major denticle, 3 and 9 each with several small denticles on basal half 21
- 21(20). Strial punctures on disc very small, interstriae almost smooth on basal half, nodules on posterior third very small, not strongly elevated; setae on and near declivity moderately long, of rather slender hair (female?); transverse frontal carina very short, on median one fifth; Colombia; 1.8 mm ? female *nodifer* Wood
- Strial punctures on disc of small to moderate size, interstitial nodules as wide as an interstriae, rather coarse, 2–4 nodules on each interstriae at or near base of declivity; setae on and near declivity moderately long, rather stout, blunt (male); transverse frontal carina occupying more than median half; Colombia; 2.0 mm male of *nodifer* Wood
- 22(1). Antennal club as wide or wider than long, sutures moderately, somewhat broadly procurved, female scape short, simple, ornamented by several setae randomly distributed; elytral declivity more nearly convex, sometimes with spines either of unequal length or on alternate interstriae at base of declivity, some odd-numbered declivital interstriae armed by rows of granules 23

- Antennal club conspicuously as long to longer than wide, sutures broadly to very strongly, narrowly procurved, female scape sometimes unusually configured and elaborately ornamented by small tufts of long setae; male declivity with a circumdeclivital ring of tubercles usually of equal length on interstriae 1–7 and a lateral costa to sutural apex, with no tubercles or granules on face of declivity 26
- 23(22). Male elytral declivity with at least two or three granules present on basal half of declivital interstriae 1–7; male without a broken circumdeclivital ring of enlarged tubercles on odd numbered interstriae at base of declivity; female frons ornamented by a dense brush of long hair 24
- Male declivity usually with even-numbered interstriae unarmed by granules, base of declivity on even-numbered interstriae with a large tubercle or spine (forming a circumdeclivital ring), odd-numbered interstriae usually with a series of much smaller tubercles; females not seen 25
- 24(23). Male frons with a conspicuous transverse carina on median half at upper level of eyes; female frons shallowly concave from epistoma to vertex and uniformly ornamented by a rather dense brush of hair of uniform length; elytral declivity rugose-reticulate from its base to apex, even-numbered interstriae with tubercles obsolete on lower half; declivital setae slender, all in uniseriate rows, each seta more than eight times as long as wide; Venezuela (Barinas); 2.1–2.5 mm *singularis* Wood
- Male frons without a transverse carina; female frons flattened from epistoma to vertex, ornamented by a dense brush of hair; setae on upper margin conspicuously longer; elytral declivity mostly shining, obscurely rugose-reticulate only on and near apex, all interstriae with tubercles continuing to their apex; declivital setae stout, mostly four to six times as long as wide, much more abundant, confused; Venezuela (Aragua); tree branch; 2.1–2.5 mm *villifrons* Wood
- 25(23). Declivity rugose-reticulate from base to apex; at base of male declivity interstriae 2, 4, and 6 strongly elevated into a blunt spine, spines projecting feebly, small tubercles continuing down face of declivity on 1, 3, 5, and 7, short, stout setae continuing on face on interstriae 1–7; antennal insertion in usual position near eye; Peru; 2.6 mm *woytkowskii* Wood
- Declivity mostly shining; circumdeclivital spines on 2, 4, and 5 moderately coarse, projecting, 3 with a very large, laterally compressed, pointed spine projecting and curving ventrad, 8 with a small spine, 9 with a coarse spine (equal to 7), costal margin with a small spine in line with interstriae 4; antennal insertion strongly displaced dorsad and mesad (to midway between epistoma and upper level of eyes); Brazil; 2.0 mm *spinifex* Blandford
- 26(22). Antennal club small, as wide as long, sutures broadly to moderately procurved, not attaining middle of club; male frons with a short, distinct transverse carina equal in length to one fourth distance between eyes; male declivity with tubercles on interstriae 3 on face 27
- Antennal club conspicuously longer than wide, sutures very strongly, narrowly procurved, 1 attaining middle of club or beyond; declivital face of male without any tubercles inside of circumdeclivital ring (minute tubercles on sutural interstriae in 1 species) 28
- 27(26). Crest at apex of declivital interstriae 9 narrowly separated from costal margin by striae 9, crest of 9 ending abruptly; face of male declivity convex, including immediately inside of circumdeclivital spines; female frons broadly convex, shining, minutely punctured, sparse setae uniformly distributed; Brazil (Santa Catarina); 1.9–2.1 mm *retusipennis* Blandford
- Crest of declivital interstriae 9 attaining and joining costal margin; face of male declivity concavely impressed immediately inside of circumdeclivital ring of spines; female frons somewhat flattened, marginal areas rugose, margins on upper half bearing a dense brush of moderately long, subplumose setae, setae sparse, inconspicuous on lower half; Mexico (Nayarit) to Colombia; *Acacia* and other Leguminosae; 1.3–1.5 mm *elegans* Eichhoff
- 28(26). Peripheral third of declivital face (immediately inside of circumdeclivital ring) not subconcavely impressed, striae punctures clearly in rows on peripheral third, setae on declivital face moderately abundant, short, stout (not scalelike) or absent; sutural interstriae on declivity with several small tubercles 29

- Marginal third of declivital face subconcavely impressed, striae punctures confused (2 punctures in a row on many); setae on elytral declivity either all hairlike or all scalelike; female scape remarkably sculptured (with flattening or lateral extensions and tufts of setae) 31
- 29(28). Interstitial circumdeclivital spines on male declivity of unequal size, those on interstriae 1, 2, 4, 6, and 8 comparatively small, those on 3 very large, 5 and 7 moderately large; declivital face glabrous; sutural interstriae on face of declivity armed by about two to five minute tubercles; female not seen; Brazil (Parana); 3.0 mm *inaequidens* Wood
- Interstitial spines on circumdeclivital ring of male small, of about equal length (most projecting little or not at all); declivital face with setae; female not seen 30
- 30(29). Interstitial spines on circumdeclivital ring in male very small to no more than a callus; declivital face with setae short, rather stout; male frons closely, coarsely punctured on central half, without tubercles; color reddish brown; Venezuela (Aragua); 2.8–3.1 mm *declivis* Wood
- Interstitial spines on male declivital ring small, all projecting slightly; setae on declivity very slender, longer; color very dark reddish brown; Brazil (Rio Grande do Sul); 2.3–2.6 mm *aequalis* Wood
- 31(28). Setae on elytral declivity of slender hair; female frons almost flat, densely, finely punctured, a strong transverse carina at vertex, vestiture sparse, moderately long, uniformly distributed; scape with one reddish amber and two pale yellow tufts of long hair; anterior margin of female pronotum normal; Brazil (Santa Catarina); 2.4–2.8 mm *dimorphus* (Schedl)
- Setae on elytral declivity of abundant, short scales, each about two to three times as long as wide; female frons deeply, broadly, longitudinally sulcate (concave), vertex bearing a large tuft of long reddish amber hair; scape with two small tufts of reddish amber setae and a broader tuft of yellow hair; anterior margin of female pronotum conspicuously emarginate on median area; Venezuela (Aragua); *Nectandra* branches; 1.9–2.5 mm *flagellatus* Wood

Hylocurus errans Blandford

Hylocurus errans Blandford, 1898:224. Lectotype ♂; “Mexican” [actually Brazilian] tobacco refuse intercepted at Paris; BMNH, London, designated by Wood 1982:625 (References in Wood & Bright c1992:424)

Hylocurus denticollis Schedl, 1976:71. Holotype ♂; Encruzilhada 980 m, Bahia, Brazil; NHMW, Wien (References in Wood & Bright c1992:423). *New synonymy*

Diagnosis: Distinguished by the rather large male antennal club, with suture 1 strongly procurved, attaining middle of club length; by the pronotum being punctured on posterior half of area behind summit; and by the comparatively simple elytral declivity, as described below. Originally reported from “Mexican” tobacco refuse intercepted at Paris; however, all specimens so labeled and reported by Blandford (1898) are now known to have originated in Brazil.

Male: Length 2.4–2.5 mm, 2.9 times as long as wide; color very dark reddish brown. Frons broadly convex from epistoma to vertex; surface coarsely, somewhat rugosely punctured; vestiture not evident. Antennal club slightly longer than wide (1.5 times), distinctly longer than scape; scape simple, club-shaped; club suture 1 rather broadly arched, attaining middle of club length, suture 2 clearly visible. Pronotum 1.5 times as long as wide; summit distinctly in front of middle of pronotum length; anterior

slope strongly declivous, closely, rather strongly asperate; anterior margin irregularly serrate, about six serrations; surface behind summit reticulate, rounded granules extending from summit half distance toward posterior margin, posterior half mostly punctured, a few minute granules evident; vestiture apparently restricted to asperate area, short, recumbent. Elytra 1.8 times as long as wide, 1.5 times as long as pronotum; striae not impressed at base, moderately impressed by base of declivity, punctures small at base, almost twice as large at base of declivity; interstriae twice as wide as striae at base, slightly narrower than striae at base of declivity, surface dull, punctures much smaller than those of striae, uniseriate. Declivity occupying about one-fourth of elytra length, steep, convex, terminal mucro acute, moderately produced; striae 1–3 less distinctly impressed, most of their punctures containing a tubercular elevation (giving them a subocular appearance), interstriae not elevated, each bearing a uniseriate row of small tubercles, most obsolete before apex; surface weakly reticulate.

Distribution: Brazil: Labeled “Mexican tobacco,” recovered from tobacco crate refuse at Paris that was thought to have originated in Mexico; however, the species so labeled are known to have come from Brazil (Wood 1982: 399); Encruzilhada, Bahia, XI-1972, 980 m, M. Alverenga.

Notes: The above treatment was based on the male lectotype of *errans*, presumably from Brazil, and on the male holotype of *denticulatus* from Brazil.

Hylocurus vianai Schedl

Hylocurus vianai Schedl, 1952:457. Lectotype ♂; Tigre, Buenos Aires, Argentina; NHMW, Wien, present designation (References in Wood & Bright c1992:428)

Hylocurus intermedius Schedl, 1952:458. Lectotype ♀; Pilar, Argentina; NHMW, Wien, present designation (References in Wood & Bright c1992:426). *New synonymy*

Diagnosis: Distinguished from *obtusipennis* Schedl by the slightly larger body size; by the strongly reticulate (not rugose-reticulate) pronotum; by the more widely spaced, more slender interstitial setae; by the larger tubercles on the frons; and by the slightly larger interstitial tubercles on the declivity.

Male: Similar to female except frons shallowly impressed on area below upper level of eyes, with tubercles much smaller; interstitial setae on and near declivity longer and more slender.

Female: Length 1.9–2.2 mm, 2.8 times as long as wide; color dark reddish brown, vestiture pale. Frons convex almost to epistoma; surface reticulate and with several randomly placed, coarse tubercles; vestiture sparse, inconspicuous. Scape with many scattered setae (more than on male); club small, sutures 1 and 2 distinct, moderately procurved. Pronotum 1.0 times as long as wide; sides on basal half almost straight, feebly converging toward broadly rounded anterior margin, about four submarginal crenulations evident; surface strongly reticulate to feebly rugose-reticulate, anterior area asperate, a few scattered granules on disc; vestiture a mixture of slender and stout setae of moderate abundance. Elytra 1.75 times as long as wide, 1.75 times as long as pronotum; striae not impressed, punctures moderately large, shallow, distinct; interstriae slightly wider than striae, almost smooth, shining, somewhat irregular, punctures uniseriate, each about a fourth as large as those of striae, margins of punctures near declivity feebly tuberculate. Declivity steep, strongly convex; striae punctures slightly smaller than on disc; interstitial punctures replaced by small, pointed tubercles to apex (slightly smaller in male). Vestiture of slender, rather short striae hair; and interstitial rows of erect, stout bristles, each as long as distance between rows on declivity, slightly shorter on disc, each about 6 times as long as wide on disc, about 8 times on declivity (slightly longer on male).

Distribution: Argentina: Buenos Aires, X-1939, 46, M.J. Viana (type of *intermedius*); Buenos Aires, Tigre, X-1939, M.J. Viana (non-type of *intermedius* and lectotype, lectoallotype, and 1 paratype of *vianai*), same except VII-1948, 42 (1 paratype; 3 female and 1 male mounted together on separate paper points on one pin), same data except IV-1950, *Acacia negra* (1 male det. Schedl).

Hosts: *Acacia negra*.

Notes: The above treatment was based on the male “holotype,” on 1 male paratype, and on 2 other males of

vianai Schedl det. Schedl; on the female holotype of *intermedius* Schedl, on the allotype (also a female, not a male as labeled), on 2 female paratypes (one erroneously labeled as a male), and on 1 male and 3 females on 1 pin identified by Schedl. Schedl (1979:126–127) subsequent to the original description designated a “female holotype” and a “male allotype” (also a female, not a male), contrary to procedure specified in the International Code on Zoological Nomenclature. I here designate his “female holotype” as the lectotype of *Hylocurus intermedius* Schedl. The only male seen by me is the non-type specimen, cited above, from the type locality but taken on a subsequent date. I also designate the male syntype (Schedl’s “holotype”) as the lectotype of *Hylocurus vianai* Schedl, as indicated above. Because only 1 species is represented, I exercise the first revisor option and select *vianai* as the valid name for this species.

Hylocurus vagabundus Blandford

Hylocurus vagabundus Blandford, 1898:224. Holotype ♀; “Mexican” [actually Brazilian] tobacco refuse, intercepted at Paris; BMNH, London (References in Wood & Bright c1992:428)

Diagnosis: This species is not in the above key, although it keys to *vianai* Schedl. It is allied to *nodulus* Wood (1956:141), from Mexico to Costa Rica. The female lectotype was examined during this study, but unfortunately the females have poorly formed characters and cannot be distinguished. Several requests for paratype males, for lectoallotype selection, were not answered. A description of the holotype is presented here.

Male: Not available for comparison.

Female: Length 1.8 mm, 2.9 times as long as wide; color almost black. Frons convex and weakly rugose-reticulate above, transversely impressed, almost flat and smooth below upper level of eyes; vestiture on upper area very sparse, minute. Pronotum 1.16 times as long as wide; sides on basal two-thirds almost straight and converging very slightly toward rather narrowly rounded anterior margin; summit slightly anterior to middle of pronotum length; asperities rather coarse, close, confused, transverse rugae mark summit; disc weakly rugose-reticulate, median third with small laterally compressed tubercles to base, punctures obsolete; lateral areas obscurely punctured; vestiture not evident (abraded?). Elytra 1.7 times as long as wide, 1.5 times as long as pronotum; disc occupying basal 68 percent of elytra length; discal striae not impressed, punctures in rows, rather strongly impressed; interstriae as wide as striae, punctures mostly obsolete except near declivity, most weakly subtuberculate. Declivity very steep, strongly convex; declivital interstriae 1 and 3 feebly elevated, each armed by a row of 6–8 small, pointed tubercles to their apex, 2 feebly impressed, unarmed except for about three small tubercles at base; interstriae 4–9 each armed by two or more small tubercles on or near base. Vestiture restricted to declivital interstriae, sparse, very short, each as long as

wide on 1–3, about four to six times as long as wide on 4 and 5.

Distribution: Intercepted at Paris in tobacco refuse from Brazil.

Notes: The above treatment was based on the female holotype. In 1983, Blandford's entire series was examined. Males differ from females in having interstitial nodules on the posterior half of the elytral disc. My memory, after 21 years, is that the nodules on male *vagabundus* are smaller and more regular in distribution than in *nodulus*. This observation requires confirmation.

Hylocurus longulus (Nunberg), n. comb.

Hylocurus longulus (Nunberg), 1956:135 (*Micracis*); Badenfurt, Brazil; IZW, Warsaw (References in Wood & Bright c1992:433)

Diagnosis: Apparently allied to *vianai* Schedl, but larger, except female pronotum 1.4 times as long as wide. Elytra more slender (1.9 times as long as wide). The short, oval eye and the tuberculate posterior face of the protibia require that this species must be transferred from *Micracis* to *Hylocurus*.

Female: Length 3.0 mm, 2.8 times as long as wide; color very dark reddish brown. Frons rather strongly convex; median third smooth, shining to slightly above upper level of eyes, lateral areas with numerous, close, rounded granules; glabrous above, with many short to moderately long setae on lower half. Pronotum 1.14 times as long as wide; sides almost straight and parallel on basal half, rather narrowly rounded in front; anterior margin armed by 6 very weak serrations; summit anterior to middle of pronotum length; anterior slope steep, with numerous small, confused asperities; posterior areas subshining, with many small rounded granules on median third, becoming obscurely reticulate on lateral areas; vestiture mostly abraded, of rather abundant, short, hairlike setae. Elytra 1.9 times as long as wide, 1.7 times as long as pronotum; striae not impressed, punctures rather small, close, moderately deep, interior of some punctures obscurely reticulate; interstriae about as wide as striae, shining, not smooth, punctures small, about one-third as large as those of striae, anterior margin of most punctures weakly elevated. Declivity occupying 22 percent of elytra length; steep, convex, apical mucro moderately acute; surface obscurely reticulate, about as on disc except interstitial punctures replaced by closely spaced small tubercles, their height equal to less than their basal width, about one-third of tubercles on 1–8 mostly obsolete. Vestiture mostly restricted to posterior half of elytra length (abraded on anterior half?), consisting of minute strial hair, and interstitial rows of erect, stout, blunt setae spaced between rows by length of a seta and within a row by less than length of a seta.

Distribution: Brazil: Badenfurt, 1946, P. Kessel.

Notes: The above treatment was based on the female holotype.

Hylocurus brasiliensis Nunberg

Hylocurus brasiliensis Nunberg, 1956:208. Lectotype ♂; Rio Caraguata, Mato Grosso, Brazil; NHMW, Wien, replacement name, automatic (Synonymy and references in Wood & Bright c1992:423)

Hylocurus simplex Schedl, 1954:33. Lectotype ♂; Rio Caraguata, Mato Grosso, Brazil; NHMW, Wien, present designation, name preoccupied by Blandford 1898:222

Hylocurus rectus Schedl, 1958:144. Lectotype ♂, automatic; Rio Caraguata, Mato Grosso, Brazil; NHMW, Wien, unneeded replacement name

Diagnosis: Distinguished from *subgranulosus* Schedl by the smaller strial punctures in both sexes; by the reduced size and extent of nodules on male interstriae near the declivity; and by the much broader male interstitial scales near the base of the declivity.

Male: Length 1.9–2.0 mm, 2.8 times as long as wide; color reddish brown, vestiture pale. Frons of type not visible, concealed by pronotum. Antennal scape slender, slightly shorter than club, ornamented by a small tuft of about six long setae, club with sutures 1 and 2 clearly marked, strongly procurved, suture 1 attaining middle of club length. Pronotum 1.1 times as long as wide; summit slightly anterior to middle of pronotum length; sides weakly arcuate on posterior half then converging to broadly rounded anterior margin; anterior margin armed by six subcontiguous median serrations; surface finely rugose-reticulate; anterior slope rather coarsely asperate, several small granules on disc, posterolateral areas with a few shallow punctures; vestiture of stout bristles on asperate area, mostly abraded behind. Elytra 1.7 times as long as wide, 1.5 times as long as pronotum; striae not impressed, punctures rather large, deep; interstriae very slightly narrower than striae, shining, punctures uniseriate, each about half as wide as those of striae on basal three-fourths of disc, replaced near base of declivity by small tubercles. Declivity strongly convex, steep; surface finely rugose-reticulate, 1 to 8 each armed by a row of small, pointed tubercles, those on 1, 3, and 7 extending to apex, those on 2, 4, and 6 mostly obsolete below middle. Vestiture mostly abraded on disc of type, on and near declivity consisting of minute strial hair and interstitial rows of erect scales, each scale about two to four times as long as wide, at base about two-thirds as long as distance between rows, smaller below to obsolete on lower half.

Female: Similar to male except frons convex above, impressed and shallowly concave on lower half; surface of frons rugose-reticulate, sparsely pubescent; anterior margin of pronotum unarmed by serrations; tubercles on disc near base of declivity smaller, less numerous; interstitial tubercles on declivity larger, usually continuing to apex on interstriae 2, 4, and 6; vestiture on declivity interstriae consisting of slender bristles.

Brazil: Mato Grosso, Rio Caraguata, 2-III-1953, F. Plaumann.

Notes: The above treatment was based on the 2 syntypes in the Schedl series at NHMW, Wien. Schedl

(1979:230) designated these syntypes as the “male holotype” and “female allotype” for this species subsequent to the original description. I here designate Schedl’s “holotype” as the male lectotype and his “allotype” as the female lectoallotype of *Hylocurus simplex* Schedl, a preoccupied name, as indicated above.

Hylocurus subgranulatus Schedl

Hylocurus subgranulatus Schedl, 1954:31. Lectotype ♀ Rio Caraguato, Mato Grosso, Brazil; NHMW, Wien, present designation (References in Wood & Bright c1992:428)

Diagnosis: Discal interstriae of male as wide as striae, nodules at and near base of declivity moderately coarse, rather narrowly rounded, variable; declivital striae 1–3 with punctures equally coarse, rather strongly impressed; similar to but larger than *flechtmanni* Wood; female scape triangularly flattened and pubescent, frons pubescent.

Male: Length 2.5–2.7 mm, 2.7 times as long as wide; color rather dark reddish brown, vestiture pale. Frons transversely impressed on median half of lower half, median fourth of impressed area impunctate, smooth, shining, remaining area weakly rugose-reticulate except for numerous shining, rounded tubercles randomly placed on upper two-thirds, vestiture rather coarse, moderately abundant, of medium length, more abundant on epistoma; a small tuft of hair on scape. Pronotum 1.0 times as long as wide, summit at middle, asperate to well behind summit, a few punctures near base; vestiture a mixture of fine and moderately coarse, suberect setae of medium length. Elytra 1.8 times as long as wide, 1.7 times as long as pronotum; striae moderately impressed, punctures rather coarse, deep, except very near base punctures increase in size only slightly from anterior half to base of declivity, deep; interstriae smooth, shining about as wide as striae, punctures deep, less than half as wide as those of striae, anterior margin of their base slightly elevated (not tuberculate). Declivity convex, steep, moderately abrupt, mucro rather short; surface reticulate; striae slightly impressed, punctures moderately large, rather deep; interstriae as wide as striae, each (usually obsolete on 2) with a row of subacutely pointed tubercles, slightly smaller than at base, continued on all interstriae to near base of mucro, 9 slightly elevated to junction with 3. Vestiture of fine, short, obscure strial hair and uniseriate rows of erect, flattened interstitial scales; each scale on disc and on lower declivity as long as distance between rows, some of those near base of declivity 1.5 times as long, longest setae about eight times as long as wide.

Female: Similar to male, except frons densely, broadly pubescent from epistoma to vertex; scape strongly, triangularly flattened, a conspicuous tuft of long hair near apex; discal interstitial nodules near declivity absent; declivital interstitial tubercles on 1 and 2 usually absent.

Distribution: Brazil: Rio Caraguata, Mato Grosso, 2-V-1953, F. Plaumann.

Notes: The above treatment was based on the 5 male and 5 female syntypes in the Schedl series at NHMW, Wien. Schedl (1979:241) subsequent to the original description designated a “female holotype” and a “male allotype” from this series, contrary to the International Code on Zoological Nomenclature. I here designate that “holotype” (syntype) as the female lectotype and the “allotype” as the male lectoallotype for *Hylocurus subgranulatus* Schedl, as indicated above.

Hylocurus flechtmanni Wood, n. sp.

Hylocurus flechtmanni Wood: Holotype ♂; Agudos, Duraflora, Sao Paulo, Brazil; MZUSP, Sao Paulo, designated below

Diagnosis: Distinguished from *subgranulatus* Schedl by the smaller size, by the much larger strial punctures at the base of the male declivity; by the larger interstitial nodules at the base of the male declivity; and by the much smaller, shallow punctures on striae 1 and 2 of the male declivity.

Male: Length 2.2–2.3 mm, 2.5 times as long as wide; color dark reddish brown. Frons transversely impressed from epistoma three-fourths distance toward upper level of eyes, surface of impressed area transversely etched and with sparse, minute granules, upper margin of impression broadly (transversely) subcarinate, upper area above carina closely, rather coarsely granulate to vertex; vestiture in impressed area rather abundant, coarse, moderately long, shorter and less abundant above carina. Pronotum 1.1 times as long as wide; as in *subgranulatus*. Elytra 1.5 times as long as wide, 1.5 times as long as pronotum; striae weakly impressed, punctures on basal one-fifth small, larger behind (up to twice as large at base of declivity); interstriae smooth, shining, as wide as striae on basal one-fifth, about half as wide at base of declivity, each with two or three nodules (each about as high as wide) at base of declivity, anterior area undulating on interstitial crest as nodules decrease in size (cephalad). Declivity convex, steep, mucro short; surface mostly reticulate, striae more distinctly impressed than on disc, punctures on 1 and 2 of reduced size to apex; interstriae 1–9 each armed by a row of moderately coarse, pointed tubercles to their apices, decreasing gradually in size below nodules. Vestiture of short, fine, uniseriate strial hair, and rows of erect interstitial scales, each scale at base equal in length to two-thirds distance between rows, as long or slightly longer than distance between rows at base of declivity, decreasing to half this length on lower declivity, each scale almost six (base) to eight times as long as wide.

Distribution: Brazil (Sao Paulo).

Type material: The male holotype and 3 male paratypes were taken at Agudos, Duraflora, Sao Paulo, Brazil, 7-VII-1984, 23-XII-1986, ETOH trap in *Pinus oocarpa* stand (AG-T, C.A.H. Fletchmann). The holotype and 1 paratype are in MZUSP, Sao Paulo, 2 paratypes are in the U.S. National Museum, Washington.

Hylocurus obtusipennis Schedl

Hylocurus obtusipennis Schedl, 1976:72. Holotype ♀; Encruzilhada, 980 m, Bahia, Brazil; NHMW, Wien (References in Wood & Bright c1992:426)

Diagnosis: Distinguished from other South American *Hylocurus* by the small size; by the obscure sexual dimorphism, female frons with transverse pair of tubercles at center of frons; and by the simple elytral sculpture.

Male: Length 1.8–1.9 mm, 2.6 times as long as wide; color almost black, vestiture pale. Frons essentially convex from epistoma to upper level of eyes except median half somewhat flattened; surface rugose-reticulate, punctures not evident, sparse, fine granules uniformly distributed; setae coarse, rather sparse, uniformly distributed; antennal club small, subcircular; sutures moderately procurved, 1 extending one-third, 2 two-thirds club length from base. Pronotum 1.0 times as long as wide; summit at middle; surface rugose-reticulate, anterior half also asperate; granules behind summit small; anterior margin unarmed; vestiture a mixture of slender and slightly stout, moderately long setae about uniformly distributed. Elytra 1.5 times as long as wide, 1.6 times as long as pronotum; striae not impressed, punctures moderately impressed, those near base rather small, gradually increasing in size by one-third at base of declivity; some striae punctures at base of declivity with a small internal elevation giving an obscure occulate appearance; interstriae at base slightly wider than striae, slightly narrower than striae at base of declivity, surface smooth, punctures small, close, their anterior margin slightly elevated (not granulate). Declivity convex, steep; weakly rugose-reticulate on lower third; mucro short; all striae extend to their usual apex; interstriae narrower than striae, each with a row of small, blunt tubercles on basal two-thirds, 9 only slightly elevated (as in female). Vestiture of uniseriate rows of fine, short striae hair, and erect scales, each scale two-thirds as long as distance between rows and almost four times as long as wide, distinctly shorter on basal one-third of disc, confused on 9 at base of declivity.

Female: Length 1.7–1.8 mm, 2.5 times as long as wide. Frons broadly convex; a transverse pair of moderately coarse tubercles at middle; largely concealed by pronotum in specimens at hand, apparently rugose-reticulate, vestiture sparse, short. Elytra 1.5 times as long as wide, 1.5 times as long as pronotum; striae not impressed, punctures rather small, clearly impressed; interstriae slightly wider than striae, shining, irregular, punctures about two-thirds as large as those of striae, impressed, not tuberculate toward declivity. Declivity convex, steep, rugose-reticulate on lower two-thirds; striae 1 and 2 with punctures small, distinct; interstriae 1 and 2 weakly elevated and armed by a row of pointed tubercles, tubercles on 1 slightly smaller, becoming obsolete before apex, one to three tubercles near apex of 4 to 9, 9 weakly elevated to junction with 3. Vestiture of uniseriate rows of minute striae hair and erect inter-

striae scales, each scale about two-thirds as long as distance between rows, each about six times as long as wide on declivity.

Distribution: Brazil: Encruzilhada, Bahia, XI-1972, 980 m, M. Alvarenga (type); Pedra Azul, M. Gerais, 700 m, XI-1972, Seabra & Oliveira; Sao Paulo, Botucatu, Duratex SA, ETOH trap at patio de serraria (sawmill), *Pinus-Eucalyptus*, C. Fletchmann; “AG-DC, AG-DF” (presumably Sao Paulo state).

Notes: The above treatment was based on the female holotype of *obtusipennis* Schedl from M. Gerais, Brazil, and on 2 males and 6 females from Brazil (Sao Paulo).

Hylocurus giganteus (Schedl)

Plate LXII

Hylocurus giganteus (Schedl), 1950:152 (*Micracis*). Syntypes, sex?; Nova Teutonia, Santa Catarina; NHMW, Wien, and Plaumann Collection (References in Wood & Bright c1992:425)

Hylocurus pseudoimpar Schedl, 1954:30. Lectotype ♀; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien, present designation (References in Wood & Bright c1992:427). *New synonymy*

Hylocurus interruptus Schedl, 1959:548. Holotype ♂; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:426). *New synonymy*

Diagnosis: Distinguished from *impar* Schedl by the dull, rugose-reticulate elytral declivity; by the wider discal interstriae; and by the transverse male frontal carina.

Male: Length 3.2–3.5 mm, 2.8 times as long as wide; color reddish brown. Lower third of frons moderately, transversely impressed, impressed area more finely sculptured, with moderately abundant hair; upper margin of impression forming a transverse carina on median fifth; area above carina broadly convex, surface rugose-reticulate, moderately, uniformly granulate, low granules obscurely subvulcanate; vestiture on convex area erect, rather short, moderately abundant, most rather coarse; antennal scape short, slightly flattened, with moderately abundant hair, suture 1 attaining middle of club, narrowly, strongly procurved. Pronotum 1.06 times as long as wide; about as in preceding species; anterior margin armed by six serrations. Elytra 1.7 times as long as wide, 1.5 times as long as pronotum; striae weakly impressed at base, moderately toward base of declivity, punctures rather small, deep; interstriae twice as wide as striae at base, about 1.5 times as wide at base of declivity, surface smooth, shining, punctures at least half as large as those of striae, their anterior margins slightly to strongly elevated, forming about three moderately large nodules on each on interstriae 1–6 at base of declivity. Declivity broadly convex, steep, mucro projecting moderately; surface rugose-reticulate; interstriae 2, 4, and 6 unarmed from base to their apex, 1 with a row of small tubercles decreasing in size from base, minute by base of mucro, 3 and 7 each with a sparse row of four moderately coarse tubercles, crest of 9 moderately elevated, ending gradually before level of 3. Vestiture restricted to less than posterior fourth, consisting of uniseriate rows of

minute strial hair and erect interstitial bristles, longest bristles at base of declivity, up to 1.5 times as long as distance between rows.

Female: Similar to male except frons without a carina, central half weakly subconcave and densely pubescent to well above upper level of eyes; scape with dorsal apical angle greatly extended (process longer than remainder of scape), tuft of hair greatly increased and extended; elytral nodules half as large, declivital tubercles smaller.

Distribution: Brazil: Nova Teutonia, Santa Catarina, IV-1941, F. Plaumann.

Notes: The above treatment was based on 1 female and 2 male paratypes of *Micracis giganteus* Schedl, on 1 female paratype of *interruptus* Schedl, and on 10 syntypes of *pseudoimpar* Schedl from Brazil. The syntypic series of *pseudoimpar* in NHMW, Wien, consists of 5 males of *robustus*, the first of which was, subsequent to the original description, labeled (Schedl 1979:201) as the "allotype" of *pseudoimpar*; the second and third specimens were labeled as "paratypes," the fourth and fifth (mounted on 1 pin) are non-types of *giganteus*; the 5 females in this series include 2 female syntypes of *giganteus*, the first was labeled "holotype," the second "paratype," the third and fourth specimens are female non-types of *giganteus*, the fifth is a male non-type. I here designate Schedl's "holotype" (syntype) as the female lectotype of *Hylocurus pseudoimpar* Schedl. Schedl's "allotype" was misidentified and has no status as a type. The species is, quite clearly, a *Hylocurus*, not a *Micracis*, where Schedl originally placed it.

Hylocurus impar Schedl

Plate LXII

Hylocurus impar Schedl, 1939:723. Holotype ♂; Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:425)

Diagnosis: Distinguished by the smooth, shining elytral declivity; by the narrower discal interstriae; and by the absence of a transverse male frontal carina.

Male: Length 2.7–2.9 mm, 2.6 times as long as wide; color dark reddish brown. Frons broadly, evenly convex, central area reticulate, impunctate and without tubercles, lateral and dorsal areas with small, rather numerous tubercles (no carina); vestiture short, sparse, confined to lateral and dorsal areas; antennal scape not flattened, setae sparse, club with suture 1 rather broadly procurved, not attaining middle of club length. Pronotum about as in *giganteus* Schedl. Elytra about as in *giganteus* except strial punctures much larger, deeper, discal interstriae as wide as striae, nodules narrower, higher. Declivity convex, steep, basic sculpture as in *giganteus* except surface smooth, punctures deeper, tubercles on 1–3 smaller, those on 4–9 much larger (rounded nodules), crest of costal margin at declivity undulating. Vestiture as in *giganteus* except interstitial setae more slender, almost hairlike, conspicuously longer.

Female: Similar to male except scape slightly flattened; tubercles on frons smaller, less numerous; nod-

ules on and near base of declivity and on declivity much smaller; undulation on costal margin on declivity obscure; pronotum 1.12 times as long as wide.

Distribution: Brazil: Rondon, Parana, 24°38'B, 54°07'L, 1950s, F. Plaumann; Nova Teutonia, Santa Catarina, X-1956, VII-1957, F. Plaumann.

Notes: The above treatment was based on 6 males and 2 females from Brazil. I compared 1 male directly to the male holotype.

Hylocurus interpositus Schedl

Hylocurus interpositus Schedl, 1976:71. Holotype ♂?; Encruzilhada, 930 m, Bahia, Brazil; NHMW, Wien (References in Wood & Bright c1992:426)

Diagnosis: Distinguished from *impar* Schedl by the smaller, more slender body; by the scalelike interstitial setae; by the much smaller, shallow punctures on the discal striae; and by other characters cited below.

Male (?): Length 2.3 mm, 3.1 times as long as wide; color very dark brown, vestiture pale. Frons not visible on type, concealed by pronotum. Scape triangularly flattened, almost as wide apically as long, a tuft of long hair (about 10 setae) at dorsal apical angle, another tuft of shorter setae (about 10) on dorsal margin of basal half; club as long as scape and funicle combined, elongate-oval; sutures obscure, almost obsolete, 1 strongly procurved, attaining a point slightly beyond middle. Pronotum 1.2 times as long as wide; sides on basal half almost straight, parallel, unarmed anterior margin broadly rounded; summit distinctly in front of middle, anterior slope rather coarsely, closely asperate; surface strongly reticulate, several rounded tubercles on disc from summit to base, punctures not evident in lateral areas; vestiture of sparse short bristles in asperate area, a few stout setae on posterior half. Elytra 2.0 times as long as wide, 1.7 times as long as pronotum; striae not impressed, punctures small, shallow; interstriae twice as wide as striae on basal two-thirds of disc, slightly wider than striae behind, surface shining, minutely irregular (not smooth), punctures uniseriate, smaller than those of striae, except replaced near declivity by a row of six or more small, rounded nodules on 1–5. Declivity steep, convex; interstriae 1–9 each with a uniseriate row of small, rounded tubercles to near apex, 9 rather weakly elevated to junction with 3; mucro rather short. Vestiture of minute strial hair on declivity, and of uniseriate rows of erect interstitial scales from base to apex, each scale about two to four times as long as wide, spaced within a row by length of a scale, and between rows by two-thirds length of a scale.

Female (?): Not seen. Scape of holotype suggests it may be a female, not a male.

Distribution: Brazil: Encruzilhada, Bahia, XI-1972, 980 m, M. Alvarenga.

Notes: The above treatment was based on the holotype, from Brazil, that is presumed to be a male.

Hylocurus pilosus Schedl

Hylocurus pilosus Schedl, 1950:151. Lectotype ♂; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien, designated by Schedl 1979:194 (References in Wood & Bright c1992:426)

Diagnosis: Distinguished from *robustus* Schedl by the smaller body size; by the normal, acute terminal mucro of the elytra; by the smaller, less numerous interstitial nodules at the base of the declivity; and by the more uniformly short pubescence of the elytral declivity.

Male: Length 2.4–2.5 mm, 2.5 times as long as wide; color very dark brown, vestiture pale. Frons broadly convex on upper half to vertex, surface rugose-reticulate and armed by more than 20 coarse, confused tubercles; lower half rather strongly, transversely impressed; sculpture fine, almost smooth in median area; vestiture sparse, mostly abraded on type. Antennal scape club-shaped, not flattened, setae sparse, short. Pronotum 0.90 times as long as wide; sides moderately arcuate, converging toward broadly rounded anterior margin; anterior margin armed by six coarse serrations; surface rugose-reticulate; summit at middle, anterior slope rather coarsely asperate, several granules behind summit, sparse, shallow punctures on lateral areas. Elytra 1.8 times as long as wide, 1.9 times as long as pronotum; striae not impressed, punctures rather coarse, deep; interstriae as wide as striae at base, slightly narrower near declivity, shining, irregular, punctures obscurely uniseriate on basal half (each about half as wide as a striae puncture), replaced by rounded nodules on posterior third of disc, about six moderate nodules each on 1–3. Declivity steep, broadly convex; surface rugose reticulate; striae punctures small, obscure on lower half, interstriae 1–3 feebly elevated, a row of very small granules on upper two-thirds of 3, a few at base of 1; terminal mucro more acutely pointed, regular (obscurely resembling *robustus*). Vestiture of uniseriate interstitial setae, short and sparse on disc; longer, slender on base of declivity, of almost uniform length, longest setae almost equal in length to distance between rows.

Female: Similar to male except frons more finely sculptured; sparse tubercles small, impression not as abrupt or as deep; striae punctures smaller, interstriae without nodules, sparse tubercles usually present near base of declivity.

Distribution: Brazil: Nova Teutonia, Santa Catarina, VIII-1941, F. Plaumann.

Notes: The above treatment was based on the male lectotype, the female lectoallotype, and 1 male and 1 female paratype in NHMW, Wien.

Hylocurus robustus Schedl

Hylocurus robustus Schedl, 1952:456. Lectotype ♂; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien, present designation (References in Wood & Bright c1992:427)

Diagnosis: Distinguished from *impar* Schedl by the coarse tubercles on the upper frons; by the smaller

punctures on the discal striae; by the much smaller interstitial nodules near the base of the declivity; and by the rugose-reticulate elytral declivity.

Male: Length 2.8–3.0 mm, 2.5 times as long as wide; color almost black, vestiture pale. Median half of lower half of frons transversely impressed, transversely etched, granules minute or absent; upper half to well above upper level of eyes coarsely, closely granulate; vestiture mostly erect, rather coarse above, finer below; scape not flattened, club with suture 1 rather broadly procurved, not attaining middle of club. Pronotum similar to *impar*. Elytra 1.6 times as long as wide, 1.6 times as long as pronotum; striae not impressed except near declivity, punctures rather small, distinct; interstriae twice as wide as striae, except 1.5 times as wide at base of declivity, punctures rather small, each with about three or four rather small nodules at base of declivity. Declivity broadly convex, steep; surface rugose-reticulate; striae 1–4 with punctures small, rather obscure; interstriae 1, 2, and 4 each with a row of granules, granules minute to obsolete, 3 with small tubercles on upper two-thirds moderately confused, pointed, small tubercles on 4–8 at least near base, 9 weakly elevated and unarmed by tubercles. Vestiture near and on declivity erect, rather coarse, blunt, longest setae at base 1.5 times as long as distance between rows, shorter on basal half (1.0 times as long as distance between rows).

Female: Similar to male except tubercles on upper frons half as large, nodules at base of declivity less than half as large; tubercles on declivity smaller; elytral vestiture more slender, extending to near base of disc.

Distribution: Argentina to Brazil.

Argentina: Misiones.

Brazil: Nova Teutonia, Santa Catarina, VIII-1941, F. Plaumann.

Notes: The above treatment was based on 7 male and 5 female syntypes from Brazil. Schedl (1979:212), subsequent to the original description, designated a “female holotype” and a “male allotype” from these syntypes, contrary to procedure designated by the International Code on Zoological Nomenclature. I here designate Schedl’s “allotype” as the male lectotype and his “holotype” as the female lectoallotype of *Hylocurus robustus* Schedl. The sexes were changed because the most diagnostic characters are on the male. The type series of *H. pseudoimpar* is composit and contains specimens of *robustus* (see above under *H. giganteus*).

Hylocurus verrucosus Wood

Plate LXIII

Hylocurus verrucosus Wood, 1971:28. Holotype ♂; 9 km S Barrancas, Barinas, Venezuela; USNM, Washington (References in Wood & Bright c1992:428)

Diagnosis: Distinguished by the small size; by the short transverse carina in both sexes; and by the elevation of declivital interstriae 9 ending in a pointed spine.

Male: Length 1.4–1.9 mm, 2.6 times as long as wide; color dark reddish brown, vestiture pale. Frons broadly

convex from epistoma to vertex; surface rugose-reticulate, with small granules mostly on upper half; a short transverse carina on median one-fifth to one-tenth slightly below upper level of eyes; vestiture of sparse hair; scape not flattened, club small, sutures broadly procurved, 1 and 2 dividing club into about equal thirds. Pronotum 1.1 times as long as wide; sculpture as in preceding species. Elytra 1.5 times as long as wide, 1.3 times as long as pronotum; striae not impressed on disc except weakly near base of declivity, punctures small on basal half, distinctly larger at base of declivity (1.5 times as large); interstriae almost twice as wide as striae on basal half, only slightly wider at base of declivity, surface smooth, punctures about half as large as those of striae, each with three to four rounded nodules at base of declivity, each nodule as wide as its interstriae, as high as wide. Declivity convex, steep; surface rugose-reticulate; basal third of interstriae 1 and 3 each with three or four small, pointed denticles; striae punctures small to almost obsolete; elevated basal part of interstriae 9 ending behind in a pointed spine. Vestiture of minute striae hair on and near declivity, and erect interstitial scales; some scales attain base, much shorter on basal half of disc, longest on and near declivity, longest scales 1.3 times as long as distance between rows.

Female: Similar to male except interstitial nodules at base of declivity small to almost obsolete, interstitial scales more slender, slightly shorter, spine at apex of elevation on declivital interstriae 9 smaller.

Distribution: Venezuela: 9 km S Barrancas, Barinas, 5-XI-1969, 150 m, *Inga*, SLW; Ocomare, Aragua, 1967, *Theobroma cacao*, B. Mendoza.

Biology: Specimens were removed from broken branches 2–5 cm in diameter. Two females were usually found with 1 male in a gallery system. The galleries were entirely typical of the genus.

Notes: The above treatment was based on the type series of 35 specimens and on 1 other specimen, all from Venezuela.

Hylocurus plaumanni Wood, n. sp.

Hylocurus plaumanni Wood: Holotype ♂; Rondon, Parana, Brazil; USNM, Washington, designated below

Diagnosis: Distinguished from *verrucosus* Wood by the much longer transverse frontal carina in both sexes; by the wider male interstitial nodules near the base of the declivity; by the larger antennal club; and by the slightly larger size.

Male: Length 2.1–2.4 mm, 2.7 times as long as wide; color dark reddish brown. Frons broadly convex, a transverse carina on median half slightly below upper level of eyes; a weak, transverse impression below carina, upper area rugose-reticulate between rugae, moderately rugose elsewhere; vestiture obsolete, not clearly evident; middle half of suture 1 on antennal club essentially obsolete. Pronotum 1.1 times as long as wide, about as in preceding species. Elytra 1.6 times as long as wide, 1.5

times as long as pronotum; striae not impressed on basal third of disc, slightly impressed at base of declivity, punctures small, distinct, spaces between punctures subacute near declivity; interstriae almost twice as wide as striae throughout, punctures about half as large as those of striae, their anterior margins weakly elevated at base, strongly toward declivity, becoming moderately large nodules on posterior half, about six nodules on each before base of declivity. Declivity very broadly convex, irregularly flattened, very steep; mucro obtuse, rather short; striae punctures obscure to obsolete; interstriae 1 feebly elevated, one small tubercle on its basal third, 2 slightly impressed, 3 weakly elevated to middle of declivity, its basal half armed by about four small, pointed tubercles, last one largest, 4–8 each with one or two tubercles or small nodules near base, 9 with crest modestly elevated on about basal third and ending in a small, pointed spine, crest of basal area with small, rounded, confused tubercles. Vestiture largely confined to nodulate area, of minute striae hair and erect interstitial bristles, each bristle rather stout, equal in length to distance between rows.

Female: Similar to male except nodules of posterior third of elytral disc very small, tubercles on upper declivity reduced to absent, erect interstitial bristles more slender, slightly shorter.

Distribution: Brazil (Parana)

Type material: The male holotype, female allotype, and 8 paratypes were taken at Rondon, Parana, Brazil, 1950s, 24°38'B, 54°07'L, 500 m, F. Plaumann. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Hylocurus discifer Eichhoff

Hylocurus discifer Eichhoff, 1878:300. Holotype ♂; Venezuela; Hamburg Museum, lost

Hylocurus bidentatus Schedl, 1950:149. Lectotype ♂; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien, present designation (References in Wood & Bright c1992:423). *New synonymy*

Diagnosis: Distinguished by the small size; by the smooth, shining elytral surfaces (without interstitial nodules); by the densely pubescent female frons; and by the elytral declivity. Possibly allied to *singularis* Wood and *villifrons* Wood.

Male: Frons strongly, extensively pubescent as in female; scape club-shaped, with a small tuft of hair; elytral declivity obliquely truncate and armed by a circumdeclivital row of interstitial spines, spines rather small, projecting only slightly, interstriae 3 on face near middle of declivity length armed by two spines.

Female: Length 1.8–2.0 mm, 2.7 times as long as wide; color dark reddish brown. Frons apparently flattened (or weakly concave) from level of antennal insertion to vertex, densely covered by a brush of reddish yellow erect setae on median three-fourths from level of antennal insertion almost to vertex; scape club-shaped, ornamented by a rather large brush of long, yellow setae, club small, sutures 1 and 2 broadly procurved, 1 not

attaining middle of club. Pronotum 1.1 times as long as wide, about as in preceding species, except anterior margin only feebly serrate. Elytra 1.5 times as long as wide, 1.4 times as long as pronotum; striae not impressed, punctures rather large, deep; interstriae as wide as striae, smooth, brightly shining, surface not undulating, punctures uniseriate, each about one-third as large as those of striae. Declivity broadly convex, steep, mucro moderate, subacute; surfaces shining; striae punctures small, rather deep; interstriae 1 feebly elevated, with a row of small punctures, unarmed, 2 moderately impressed, very narrow (half as wide as striae), without punctures or tubercles, 3 joins 7, both feebly elevated, 3 with a row of about five small tubercles, last one largest, 9 rather weakly elevated, gradually declining behind, crest with a row of small tubercles. Vestiture confined to declivity, of rows of minute striae hair and rows of erect, slender bristles, each bristle slightly longer than distance between rows.

Distribution: Venezuela to Brazil.

Brazil: Nova Teutonia, Santa Catarina, IV-1941 (type series), X-1956, F Plaumann.

Venezuela: "Venezuela." (male holotype of *discifer*, and a Chevrolat male).

Notes: The above treatment was based on 4 male syntypes and 5 female syntypes of *bidentatus* Schedl, and on 1 other female from Brazil. Schedl's (1979:39) designations subsequent to the original description of a "female holotype" and "male allotype" are not valid under the International Code on Zoological Nomenclature. I here designate Schedl's syntype (his "allotype") as the male lectotype of *Hylocurus bidentatus* Schedl. His syntype that he labeled as the holotype is designated as the lectoallotype of this species. Because the sexes were reversed and the male has the most diagnostic characters for this species, the male was selected as the lectotype. Two males in the BMNH, London, identified by Sampson as *discifer* Eichhoff, are of this species. Because these 2 specimens from Venezuela fit the description of *discifer*, and because Sampson probably saw the Eichhoff type, Eichhoff's name is used for this species. It is presumed that these Sampson males came from Colonia Tovar, Aragua, taken by Dr. Moritz, near his home. It is entirely possible that these were part of the original Eichhoff series.

Hylocurus alternatus Eggers

Hylocurus alternatus Eggers, 1951:153. Holotype ♂; Venezuela; NHMW, Wien (References in Wood and Bright c1992:422)

Diagnosis: Distinguished from the allied *inaequalis* Wood by the smaller size; by the bluntly rounded apex of each interstitial spine in the male circumdeclivital ring; by the much more acutely pointed terminal mucro; and by the other characters described below (Wood 1982:613 distinguishes *inaequalis* and *alternus* Wood).

Male: Length 1.7–1.9 mm, 2.3 times as long as wide; color dark brown. Frons not visible on type or cotype.

Antennal scape short, not flattened; club smaller than in *inaequalis*, subcircular in outline, very slightly longer than wide, sutures 1 and 2 weakly procurved, dividing club into equal thirds, sutures devoid of setae on central third of club width. Pronotum 1.1 times as long as wide; sides almost straight and parallel on more than basal half, rather broadly rounded in front, anterior margin armed by eight small serrations; anterior slope closely, rather coarsely asperate, small asperities continue half distance from summit to base; basal fourth mostly reticulate, punctures moderately coarse. Elytra 1.3 times as long as wide, 1.2 times as long as pronotum; striae weakly impressed at base, rather strongly impressed by base of declivity, punctures deep; interstriae smooth, shining, slightly wider than striae, increasingly convex on posterior third, each ending in a projecting spine, those on even-numbered interstriae conspicuously shorter, projecting only slightly, projecting more conspicuously (equally) on odd-numbered interstriae, apex of all spines bluntly rounded. Declivity very steep, slightly convex within circumdeclivital row of spines; striae not impressed, punctures decreasing in size from base, 1 and 2 extend to base of mucro, 3–8 distinct on basal third, confused below; no tubercles immediately below major spines, 3 armed near middle by two small spines, apex of 9 bluntly projecting about one-fourth distance toward apex of mucro; mucro rather slender (about 60 degrees as seen from dorsal aspect); all surfaces shining. Vestiture restricted to declivity (including ends of spines); very short, sparse on face of declivity

Distribution: Venezuela: "Venezuela, type."

Hosts: The closely allied *inaequalis* breeds in *Acacia*, *Inga*, and similar Leguminosae.

Biology: Probably breeds in the xylem of cut, broken, or unthrifty stems about 3–10 cm in diameter.

Notes: The above treatment was based on the male holotype and 1 male cotype from Venezuela; both specimens were examined.

Hylocurus colombianus Wood, n. sp.

Hylocurus colombianus Wood: Holotype ♂; Honduras, Rio Negro, Santander Sur, Colombia; USNM, Washington, designated below

Diagnosis: Rather closely allied to *acutedentatus* Schedl. Remotely allied to *trispinatus* Schedl, except elytral declivity more strongly convex; and by the very different sculpture of the declivity, especially the deep, confused punctures.

Male: Length 2.0–2.3 mm, 2.9 times as long as wide; color dark brown, almost black. Frons broadly convex from epistoma to vertex, a small transverse carina on median fifth slightly below upper level of eyes; surface rugose-reticulate, median area on lower two-thirds with obscure, small punctures, lateral areas and above with small, subtuberculate granules; vestiture not evident; antennal scape club-shaped, with about six setae, club with middle two-thirds of suture 1 obsolete. Pronotum 1.1 times as long as wide; about as in preceding

species. Elytra 1.7 times as long as wide, 1.5 times as long as pronotum; striae not impressed, punctures small, deep; interstriae very slightly wider than striae, smooth, shining on basal two-thirds of disc, punctures very small, uniseriate, on posterior fourth each with about three to four small nodules. Declivity broadly convex, steep, mucro rather long, acute; striae and interstriae with punctures confused, punctures rather small, deep; position of basal half of interstriae 3 feebly elevated, with one pointed tubercle near middle of declivity, basal third of 9 modestly elevated and terminating in a small spine. Vestiture confined to and near declivity, of rows of minute strial hair, and rows of erect, slender, interstitial setae, each seta at base of declivity about as long as distance between rows.

Female: Similar to male except nodules on and near base of declivity much smaller, some indistinct, and crest of declivital interstriae 9 not as high.

Distribution: Colombia.

Type material: The male holotype, female allotype, and 9 paratypes were taken at Honduras, Rio Negro, Santander Sur, Colombia, 19, 26-VI-1959, guamo seco, A. Benavides. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Biology: Boring in recently cut tree seedlings.

Hylocurus acutedentatus Schedl

Hylocurus acutedentatus Schedl, 1978:300. Holotype ♂; Encruzilhada, Bahia, Brazil, 980 m; NHMW, Wien (References in Wood & Bright c1992:422)

Diagnosis: Distinguished from *colombianus* Wood by the smaller size; by the smaller nodules on the male discal interstriae near the declivity; by the much longer spine on declivital interstriae 3; and by other characters listed below.

Male: Length 2.7 mm, 2.9 times as long as wide; color dark reddish brown. Frons broadly convex, rather coarsely, closely tuberculate, a low transverse carina near middle. Antenna as in *colombianus*. Pronotum 1.1 times as long as wide, about as in *colombianus*. Elytra 1.7 times as long as wide, 1.5 times as long as pronotum; striae rather weakly impressed, punctures strongly impressed, rather small at base, gradually increasing to three times as large at base of declivity; interstriae smooth, shining, punctures about two-thirds as large as on adjacent striae, uniseriate, replaced on posterior fourth by about three to five coarse, rounded nodules before declivity, each nodule almost as high as wide. Declivity steep, weakly convex, mucro obtuse, rather short; lateral surfaces smooth, shining, interstriae 1 strongly reticulate; striae 1 and 2 with punctures small, partly confused on lower half; 3 distinctly elevated slightly above middle and armed by one large, slender, pointed spine (twice as long as its basal width); lateral areas coarsely, deeply, closely punctured; interstriae 1 at base with a small pointed tubercle; 9 moderately elevated, ending abruptly. Vestiture restricted to and near declivity, consisting of

small strial hair and longer, erect interstitial bristles (mostly in uniseriate rows); those at base blunt, each slightly longer than distance between rows, mostly half as long on face of declivity.

Distribution: Brazil: Encruzilhada, Bahia, XI-1972, 980 m, M. Alvarenga.

Notes: The above treatment was based on the male holotype from Brazil.

Hylocurus trispinatus Schedl

Hylocurus trispinatus Schedl, 1978:301. Holotype ♂; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:428)

Diagnosis: Male distinguished by having declivital interstriae 9 rather strongly elevated on its basal half and ending in a rather large, bluntly pointed, projecting spine; by the posterior elytral disc with interstriae each armed by four or five coarse, rounded nodules; and by other characters described below.

Male: Length 2.0–2.1 mm, 2.6 times as long as wide; color very dark brown. Frons broadly convex, surface moderately punctate-rugose, rugosities slightly below upper level of eyes forming an irregular, transverse, subcarinate row on more than median half; vestiture short, sparse, inconspicuous; antennal club subcircular, suture 1 feebly, 2 moderately procurved, middle third of suture 1 glabrous. Pronotum 1.03 times as long as wide; sculpture as in allied species. Elytra 1.5 times as long as wide, 1.5 times as long as pronotum; striae weakly impressed, punctures rather coarse, deep; interstriae slightly wider than striae, surface on basal half of disc smooth, shining, uniseriate punctures less than half as wide as those of striae, posterior half armed by about three to five coarse, acutely rounded uniseriate nodules. Declivity very steep, broadly convex; from dorsal aspect, terminal mucro moderately, subacutely produced; basal half of interstriae 9 elevated and moderately produced into a projecting spine (ending well before level of apex of mucro); face of declivity smooth, shining, strial punctures moderately coarse, deep to strial apices; interstriae 1 with one to three small tubercles on basal third, 3 with one to three small tubercles near middle on basal half, others unarmed. Vestiture restricted to posterior half of elytra, consisting of minute strial hair and interstitial rows of rather coarse, erect bristles each slightly longer than distance between rows on posterior disc, slightly shorter and less abundant on declivity.

Distribution: Brazil: Nova Teutonia, Santa Catarina, 27°11' B, 52°23' L, XI-1963, 300–500 m, F. Plaumann; Agudos, Duraflora SA, Parana, 8-V-1984, ethanol trap in pine stand, C.A.H. Flechtmann.

Biology: Attracted to ethanol trap.

Notes: The above treatment was based on 2 males from Brazil. The Nova Teutonia male was compared by me directly to the male holotype, which is also from Nova Teutonia.

Hylocurus nodifer Wood, n. sp.

Hylocurus nodifer Wood: Holotype ♂; Cardinamarca, Finca Belle Vista near Sasaima, Colombia; USNM, Washington, designated below

Diagnosis: Distinguished from *trispinatus* Schedl by the absence of a projecting spine at the apex of interstriae 9; and by the smaller, less numerous granules or nodules on the disc at and near the margin of the declivity. It is presumed that the male and female included here are of the same species.

Male: Length 1.8–2.0 mm, 2.4 times as long as wide; color very dark brown, elytra almost black. Frons similar to *trispinatus*, except transverse carina more definite, more strongly elevated, transverse impression below carina slightly deeper; row of setae complete on suture 1 of antennal club. Pronotum 1.1 times as long as wide, about as in *trispinatus*, except anterior margin armed by 2 coarse serrations. Elytra 1.5 times as long as wide, 1.4 times as long as pronotum; disc about as in *trispinatus*, except striae not impressed, interstitial nodules restricted to posterior fourth of disc, nodules not as high, less acutely rounded, about two to four nodules on each interstriae. Declivity not as steep and more distinctly, evenly convex than in *trispinatus*; face of declivity similar to *trispinatus*, interstriae 1 with one or two small granules near base, 3 with small, indistinct nodules on upper fourth, a row of small tubercles continuing to middle of declivity length, 9 weakly elevated on basal half, armed by several tubercles of medium size. Vestiture similar to *trispinatus*, more regular and slightly more numerous on face of declivity.

Female: Similar to male except serrations on anterior margin of pronotum indefinite; striae punctures on disc smaller; not as deep, interstitial nodules reduced to rather small tubercles, declivital base less abrupt, face more strongly convex, as in male except tubercles smaller, vestiture finer (almost hairlike), longer.

Distribution: Colombia.

Type material: The male holotype and female allotype were taken at Cundinamarca, Finca Bella Vista near Sasaima, Colombia, 25-V-1965 (male), 6-VI-1965 (female), P.R. Craig. The holotype and allotype are in the U.S. National Museum, Washington.

Notes: The above treatment was based on 1 male and 1 female from the same locality in Colombia. They are probably of the same species, but confirmation is needed.

Hylocurus singularis Wood

Plate LXIII

Hylocurus singularis Wood, 1971:31. Holotype ♀; 8 km SW Bumbum, Barinas, Venezuela; USNM, Washington (References in Wood & Bright c1992:428)

Diagnosis: Distinguished from *villifrons* Wood by the presence of a conspicuous transverse carina on the male frons; by the female frons being ornamented by a dense brush of setae; by the presence of tubercles only

on odd-numbered declivital interstriae; and by the longer, more slender declivital setae.

Male: Length 2.0–2.4 mm, 2.9 (female 3.0) times as long as wide; color dark reddish brown. Frons broadly convex, a conspicuous transverse carina on median half slightly below upper level of eyes, surface partly rugose-reticulate, punctures below carina small, obscure, those above coarse, close, rather deep; vestiture sparse, short, moderately coarse; antennal scape almost as short as pedicel, suture 1 moderately procurved, almost attaining middle of club length. Pronotum 1.1 times as long as wide; about as in allied species, anterior margin armed by 6 serrations. Elytra 1.8 times as long as wide, 1.7 times as long as pronotum; striae very weakly impressed, punctures rather coarse, deep (interiors of most reticulate), interstriae as wide as striae, smooth, shining, punctures uniseriate, very small (one-fourth as wide as those of striae). Declivity steep, convex; surface rugose-reticulate; all interstriae armed by uniseriate, rather small, pointed tubercles on less than basal half, tubercles continue on 1 and 3 to near apex, 9 acutely elevated and joining costal margin well before suture; base of declivity with interstriae 3 briefly, longitudinally costate, others with two to four subcostate tubercles. Vestiture of rows of stout, erect, interstitial setae, longest equal in length to distance between rows.

Female: Similar to male except frons broadly, shallowly concave from epistoma to vertex and ornamented by abundant setae of moderate, uniform length; scape more strongly flattened, with a small tuft of setae; anterior margin of pronotum unarmed by serrations; tubercles on declivity smaller, rounded, carinae absent; declivital setae more slender, slightly longer.

Distribution: Venezuela: 8 km SW Bumbum, Barinas, 11-II-1970, 150 m, No. 313, tree seedling, SLW.

Hosts: Tree seedling that resembled guava.

Biology: Boring in wood of small stems.

Notes: The above treatment was based on the type series of 29 specimens from Venezuela.

Hylocurus villifrons Wood

Plate LXIV

Hylocurus villifrons Wood, 1971:30–31. Holotype ♀; Rancho Grande, Pittier National Park, Aragua, Venezuela; USNM, Washington (References in Wood & Bright c1992:429)

Diagnosis: Distinguished from *singularis* Wood by the absence of a male transverse frontal carina; by the flattened, pubescent female frons; by the smooth, shining elytral declivity, with all rows of interstitial tubercles continuing to their apex.

Male: Length 2.1–2.5 mm, 2.9 (female 3.2) times as long as wide; color very dark reddish brown. Frons with upper third to vertex smooth, shining, coarsely, very closely, deeply punctured; lower two-thirds partly reticulate, a few small, shallow punctures, median area from epistoma to level of antennal insertion smooth, shining;

vestiture sparse above, moderate below; antenna similar to *singularis*. Pronotum and elytral disc as in *singularis*, base of declivity more abrupt, rows of fine tubercles extend to their apex on all interstriae; interstriae 1–6 at base of declivity each armed by one to three small tubercles, 6–8 each with a short, longitudinal carina. Declivity somewhat abrupt, very broadly convex, steep; striae weakly impressed, punctures shallow, rather obscure; interstriae feebly convex, shining, each with a row of small, rounded tubercles, 9 acutely elevated, its costa curving to join costal margin; rugose-reticulate on and near mucro. Vestiture confined to declivity, interstitial setae short, stout, moderately abundant, confused at least on 1–3, longest setae about equal in length to width of an interstriae.

Female: Similar to male except frons flat (feebly concave?), densely pubescent, longest setae on vertex extending to middle of frons; anterior margin of pronotum not serrate; base of elytral declivity rounded, tubercles smaller; setae on declivity mostly uniseriate, more slender, less numerous.

Distribution: Venezuela: Rancho Grande, Pittier National Park, Aragua, 9-VI-1970, 1100 m, No. 432 (Guttiferae), No. 409 (Meleaceae), SLW; El Laurel Experimental Farm 12 km SW Caracas, 1-V-1970, SLW; Colonia Tovar, Aragua, 4-V-1970, 1700 m, No. 499, tree branch, SLW.

Hosts: Guttiferae sp., Meleaceae sp., tree tranches.

Biology: Specimens were removed from the wood of stems 2–5 cm in diameter. The galleries were similar to other members of the genus.

Notes: The above treatment was based on the type series of 78 specimens from Venezuela.

Hylocurus woytkowskii Wood, n. sp.

Hylocurus woytkowskii Wood: Holotype ♂; Almirante, Dep. San Martin, Peru; USNM, Washington, designated below

Diagnosis: Distinguished from *spinifex* Blandford by having the antennal insertion in the usual, lateral position near the eye; by the rugose-reticulate elytral declivity; and by the very different, shorter male elytral spines.

Male: Length 2.6 mm, 2.8 times as long as wide; color dark reddish brown. Frons largely concealed on available specimen by pronotum, apparently very similar to male *villifrons* Wood; antenna as in *villifrons*. Pronotum 1.06 times as long as wide; as in *villifrons*. Elytra 1.7 times as long as wide, 1.6 times as long as pronotum; striae weakly impressed on basal half, stronger near declivity, punctures rather small at base, almost twice as large at base of declivity, interiors of punctures reticulate near declivity; interstriae smooth, shining on basal half (punctures minute to obsolete), 2, 4, and 6 strongly costate on posterior third, ending abruptly at declivity margin in a slightly projecting, pointed spine, odd-numbered interstriae on posterior third each armed by a row of about six, pointed tubercles (not as high as costae). Declivity abrupt at base,

broadly convex, steep, entire declivity rugose-reticulate; face with stria punctures minute to obsolete, interstriae 1 and 3 each with a row of fine tubercles to base of mucro, 2, 4, 5, and 7 each with one to four similar tubercles on basal fourth. Vestiture mostly abraded or obsolete, a few short setae on face, a few slightly longer setae at basal margin of declivity.

Distribution: Peru.

Type material: The male holotype was taken at Almirante, Dep. San Martin, Peru, 12-XII 1936, 1900 m, No. 3737, subtropical forest, F. Woytkowski. The holotype is in the U.S. National Museum, Washington.

Hylocurus spinifex Blandford

Hylocurus spinifex Blandford, 1904:225. Lectotype ♂; "Mexican" [actually Brazilian] tobacco refuse intercepted at Paris; BMNH, London; designated by Wood 1982:636 (References in Wood & Bright c1992:428)

Diagnosis: The male is distinguished by the strong mesad displacement of the antennal insertions; by the size and arrangement of spines on the elytral declivity; and by other characters described below.

Male: Length 2.0 mm, 2.6 times as long as wide; color very dark reddish brown, almost black. Frons convex, antennal insertions strongly displaced dorsad (to midway between epistoma and upper level of eyes) and mesad (separated by a distance equal to less than length of scape); epistomal margin with a small, median tubercle, lower third of frons weakly convex, smooth, shining, with fine punctures, upper two-thirds very coarsely, closely, rugosely punctured; vestiture of sparse, fine, short hair; antennal club not visible on specimens at hand. Pronotum 1.0 times as long as wide; summit anterior to middle of pronotum length, anterior slope strongly declivous, asperities coarse, close; area behind summit mostly smooth, punctured. Elytra 1.6 times as long as wide, 1.6 times as long as pronotum; striae not impressed except weakly near declivity, punctures small, gradually increasing to twice as large before base of declivity; interstriae at base almost twice as wide as striae, only slightly wider than interstriae at base of declivity, surface shining, punctures small, uniseriate, rather widely spaced. Declivity truncate, circumdeclivital row of acutely pointed spines on basal margin; 1 unarmed, 2, 4, and 5 each with one moderately coarse spine, 3 with a very large, laterally compressed spine on its base, curved slightly ventrad, 7 with a coarse, pointed spine, 8 with a small spine, 9 with a coarse spine (about equal to 7), costal margin with a small spine about in line with interstriae 4, broadly, shallowly emarginate to suture between these two spines; 2 with a moderately large spine just before apex; face of declivity smooth, shining, striae 1–9 extending onto face in rows. Sparse, short setae on spines and face of declivity.

Distribution: Brazil: Labeled "Mexico tobacco," recovered from tobacco crate refuse in Paris that was thought to have originated in Mexico; however, these

species are now known to have come from Brazil (Wood 1982:399).

Notes: The above treatment was based on the male lectotype and on 1 male lectoparatype.

Hylocurus retusipennis Blandford

Hylocurus retusipennis Blandford, 1898:223. Holotype ♂; "Mexican" [actually Brazilian] tobacco refuse intercepted at Paris; BMNH, London (References in Wood & Bright c1992:427)

Hylocurus dubius Schedl, 1959:547. Lectotype ♂; Rondon, Parana, Brazil; NHMW, Wien, present designation (References in Wood & Bright c1992:424). *New synonymy*

Diagnosis: Male with a circumdeclivital ring of interstitial spines of equal length, crest of 9 separated from costal margin by a narrow cleft (on striae 9); antennal club small, subcircular, sutures 1 and 2 very weakly procurved, dividing club into equal thirds; transverse frontal carina obscure (male) to obsolete (female).

Male: Length 1.9–2.1 mm, 2.8 times as long as wide; color very dark brown. Frons with a weak transverse impression from epistoma to a weak transverse crest just below upper level of eyes, broadly convex above crest, surface subreticulate and moderately punctate-granulate above crest, mostly smooth below, with small, distinct punctures; vestiture sparse, rather short above, longer toward epistoma; antennal scape short, slightly longer than pedicel, club small, subcircular; sutures 1 and 2 weakly procurved, row of setae on 1 absent on middle third. Pronotum 1.1 times as long as wide; sculpture about as in other members of this genus. Elytra 1.6 times as long as wide; 1.5 times as long as pronotum; striae weakly impressed on basal third, moderately near declivity; interstriae slightly wider than striae, weakly convex except moderately near declivity, surface smooth, shining, punctures in sparse uniseriate rows, each less than one-third as large as those of striae; discal interstriae ending in a circumdeclivital row of short, blunt spines of equal length. Declivity descending abruptly, broadly, rather weakly convex; mucro moderate, obtuse; striae 1 and 2 clearly, rather finely punctured to base of mucro, striae in lateral areas obscure, punctures coarse, deep near circumdeclivital spines, much smaller near base of mucro; middle of 1 armed by one to three small, pointed denticles, a larger denticle at junction of 3 and 5; crest of 9 moderately elevated, separated from costa. Vestiture of stout, short setae arising in a transverse row from apices of circumdeclivital spines and from middle half of declivital interstriae 1 and 3.

Female: Similar to male, except frons uniformly convex, smooth, shining, minutely (moderately close) punctured, sparsely pubescent; anterior margin of pronotum not serrate; circumdeclivital ring of spines absent, crest of 9 rather weakly elevated, armed by a crest of rounded tubercles, other small tubercles at base of declivity.

Distribution: Brazil: Rondon, Parana, 24°38' B, 50°07' L, 1950s, 500 m, F. Plaumann.

Notes: The above treatment was based on 6 males and 12 females from Brazil. Blandford's series of *retusi-*

pennis was compared to my specimens. Schedl's syntypic series of 3 males and 3 females of *dubius* was examined and compared directly to my material. Only one species is represented by this material. Schedl's (1979:85) designation of a "holotype" and an "allotype" for *dubius* Schedl was not valid under the International Code on Zoological Nomenclature. For this reason, I here designate that syntype ("holotype") as the male lectotype of *Hylocurus dubius* Schedl, as indicated above, and his "allotype" as the lectoallotype of this species.

Hylocurus elegans Eichhoff

Plate LX

Hylocurus elegans Eichhoff, 1872:134. Holotype ♂; Teapa, Tabasco, Mexico; IRSNB, Brussels (References in Wood & Bright c1992:424)

Diagnosis: Distinguished from *retusipennis* Blandford by the smaller size; by the presence of a transverse frontal carina in the male, a dense tuft of hair in the female; by the crest of declivital interstriae 9 joining the costal margin; and by other characters described below.

Male: Length 1.3–1.5 mm, 2.2 times as long as wide; color moderately dark reddish brown. Frons with a subacute transverse carina on more than median half, distinctly, transversely impressed and reticulate below carina, broadly, finely granulate-rugose above; vestiture sparse, short above, a few much longer setae near epistoma; antennal scape slender, three times as long as pedicel, club subcircular, sutures 1 and 2 almost obsolete except at margins. Pronotum 1.2 times as long as wide; similar to *retusipennis* except anterior margin more coarsely serrate. Elytra 1.6 times as long as wide, 1.4 times as long as pronotum; striae not impressed except weakly near base of declivity, punctures deep, small on basal third, twice as large toward base of declivity; interstriae wider than striae at base, narrower at base of declivity, surface smooth, shining, punctures less than one-third as large as those of striae, each ending in a blunt spine of equal length, most spines not projecting. Declivity abrupt, very steep, broadly, moderately convex; striae 1 and 2 distinct to base of mucro, others obscure, punctures small except larger near circumdeclivital spines; interstriae 1 with three or more tubercles near middle, 2 rather strongly constricted, 3 usually with one to three small, pointed tubercles; crest of interstriae 9 acutely elevated and joining costal margin. Vestiture on and near declivity of short, stout setae on all interstriae.

Female: Similar to male except frons almost flat to vertex, area above eyes densely pubescent except narrowly glabrous on median line, setae moderately long, of almost uniform length; anterior margin of pronotum not serrate; striae punctures only slightly larger near declivity, circumdeclivital ring of spines absent; face of declivity more strongly convex, sculpture finer, setae more slender, slightly longer.

Distribution: Mexico (Nayarit to Veracruz) to Colombia.

Colombia: Caicedonia, Valle de Cauca, 20-30-V-1959, ramas secas de guamo bejuco, J. Restrepo; El Bosque at Caicedonia, Valle de Cauca, VI-1959, ramas de cafe, J.H. Lasso.

Hosts: *Acacia* sp., *Inga* sp., *Coffea arabica*, woody lianas.

Biology: Galleries were made in the wood of stems 2–5 cm in diameter. The habits and behavior resemble other species of this genus.

Notes: The above treatment was based on 12 specimens from Colombia and on more than 200 others from Mexico and Central America.

Hylocurus declivis Wood, n. sp.

Holocurus declivis Wood: Holotype ♂; Colonia Tovar, Aragua, Venezuela; USNM, Washington, designated below

Diagnosis: Male elytral declivity more uniformly convex, without a peripheral subconcave impression inside of the circumdeclivital ring; circumdeclivital ring poorly formed, not projecting, spines not pointed; antennal club conspicuously longer than wide, sutures strongly procurved, 1 attaining middle of club.

Male: Length 2.8–3.1 mm, 3.1 times as long as wide; color medium reddish brown. Frons broadly, evenly convex from epistoma to vertex; surface rugose-reticulate except near epistoma; central half with about 20 shining tubercles; vestiture short, sparse, inconspicuous; antennal scape about three times as long as pedicel, slightly flattened, ornamented by about a dozen long setae, club 1.5 times as long as wide, sutures strongly procurved, 1 extending slightly beyond middle of club. Pronotum 1.1 times as long as wide; similar to allied species; anterior margin armed by a median pair of rather large serrations and two to four small lateral serrations. Elytra 1.9 times as long as wide, 1.7 times as long as pronotum; striae not impressed on basal half, moderately impressed at and near base of declivity, punctures rather small, moderately impressed; interstriae twice as wide as striae, surface almost smooth, shining, punctures uniseriate, small, less than half as large as those of striae. Declivity abrupt, steep, rather weakly convex; basal margin armed by a circumdeclivital ring of equal interstitial elevations (one on each interstriae), nodule (spine) moderately high, blunt, not projecting as a spine; striae 1–3 narrowly, distinctly impressed and punctured to base of mucro, 4–8 impressed and punctured only near base, 9 subacutely costate, costa joining costal margin and continuing to suture; interstriae 1 slightly elevated and armed on lower half by a row of about six small tubercles, 2–8 each with a row of small punctures; area on and near mucro rugose-reticulate. Vestiture near and on declivity consisting of interstitial setae, each seta equal in length to half distance between rows, uniseriate, except confused on 1 and near circumdeclivital ring.

Distribution: Venezuela (Aragua).

Type material: The male holotype and 2 male paratypes were taken at Colonia Tovar, Aragua, Venezuela, 4-V-1970, 1700 m, No. 487, Melastomaceae branches, SLW. The holotype and paratypes are in the U.S. National Museum, Washington.

Biology: Males were beginning entrance tunnels in cut stems 3 cm in diameter.

Hylocurus inaequidens Wood, n. sp.

Hylocurus inaequidens Wood: Holotype ♂; Telemaco Borba, Parana, Brazil; MZUSP, Sao Paulo, designated below

Diagnosis: Remotely allied to *declivis* Wood. The male is distinguished by the dark reddish brown color; by the very different arrangement of larger spines in the circumdeclivital ring; by the absence of setae on the declivity face; and by other characters described below.

Male: Length 3.0 mm, 3.0 times as long as wide; color dark reddish brown. Frons rather strongly convex eye to eye, from epistoma to vertex; surface rugose-reticulate from epistoma to vertex; rather numerous punctures replaced by shining, rounded tubercles, some punctures on peripheral areas; glabrous except for moderate epistomal brush; antennal club 1.7 times as long as wide, about 4.0 times as long as scape, outline oval, sutures 1 and 2 strongly procurved, 1 attaining slightly more than basal third, 2 about two-thirds of club length. Pronotum 1.1 times as long as wide; widest slightly behind middle of pronotum length, rather strongly arcuate on basal half, weakly constricted on anterior half, rather narrowly rounded in front; anterior margin armed at median line by a pair of moderately large serrations; summit at middle of pronotum length, anterior slope steep, rugose-reticulate to base; asperities rather small, close, confused, continued at and behind summit to base, with many transverse rugae; sparse short setae on and near anterior and lateral margins. Elytra 1.9 times as long as wide, 1.6 times as long as pronotum; disc occupying basal 67 percent of elytra length; disc smooth, brightly shining; striae not impressed, punctures moderately large, deep; interstriae as wide as striae, obscure punctures on 1 and base of 2. Declivity obliquely truncate, face moderately convex, with a circumdeclivital ring of spines at base; spines on interstriae 1, 2, 4, 6, and 8 comparatively small, tapered and acutely pointed, those on 3 very large, similarly pointed, 9 continued as a subacutely elevated costa to submucronate apex of suture; face with striae extending almost to costa, obscured in lateral areas on type, punctures small, shallow; sutural interstriae armed by 2 to 4 small tubercles, 3 sometimes with one or two minute tubercles; declivity glabrous.

Distribution: Brazil (Parana).

Type material: The male holotype (10-X-2003) and 1 male paratype (26-IX-2003) were taken at Telemaco Borba, Parana, Brazil, Klabin Papel e Celulose, ethanol baited intercept trap, *Pinus taeda* stand, C.A.H. Flechtmann. The holotype is in the Museum de Zoologia,

Universidade de Sao Paulo, Sao Paulo. The paratype is in USM, Washington.

Hylocurus aequalis Wood, n. sp.

Hylocurus aequalis Wood: Holotype ♂; Recanto Champagnat, Itaara, Rio Grande do Sul, Brazil; Museu de Zoologia, Universidade de Sao Paulo, Sao Paulo, designated below

Diagnosis: Distinguished from *declivis* Wood by the slightly smaller size; by the dark reddish brown color; by the spines in the circumdeclivital ring being distinctly larger, projecting slightly; by the finer longer setae on the face of the declivity; and by the very different male frons as described below.

Male: Length 2.3–2.6 mm, about 3.7 times as long as wide; color dark reddish brown. Frons rather strongly convex eye to eye from epistoma to vertex, surface rugose-punctate on central three-fourths, without any shining tubercles; vestiture rather coarse, moderately long, rather numerous to epistomal brush; antennal club oval, 1.2 times as long as wide, sutures 1 and 2 indicated by rows of setae, 1 almost attaining middle of club length, 2 three-fourths of club length. Pronotum 1.1 times as long as wide, widest on basal half, sides on basal half weakly arcuate, rather narrowly rounded in front; anterior margin armed by 12 rather slender serrations of moderate size; summit at middle of pronotum length; surface rugose-reticulate from anterior margin to base (including spaces between asperities); anterior slope steep, asperities rather small, close, confused; posterior areas with a moderate number of small, shining tubercles from summit to base of pronotum, punctures not evident. Elytra about 1.8 times as long as wide (elytra spread on all specimens at hand), 1.7 times as long as pronotum; disc occupying basal 75 percent of elytra length; disc almost smooth, shining, striae not impressed, punctures small, rather deep; interstriae almost twice as wide as striae, punctures minute, uniseriate. Declivity very steep, obliquely truncate, with circumdeclivital row of seven blunt spines, row 8 extending to suture below as a subacute costa; each spine on basal row of equal length, blunt, projecting moderately (conspicuously more than on *declivis*); apical mucro poorly formed; face of declivity rather weakly convex laterally, more distinctly on median area; punctures on striae 1–3 mostly in stria rows, mostly confused on lateral areas; surface between punctures mostly smooth, reticulate from suture to striae 2. Vestiture of moderately numerous slender hairlike setae of moderate length, uniformly distributed.

Distribution: Brazil (Rio Grande do Sul).

Type material: The male holotype and 2 male paratypes were taken at Recanto Champagnat, Itaara, Rio Grande do Sul, Brazil, 7-IX-1982, ethanol intercept trap in *Eucalyptus grandis* stand, T.E.F. Silva. The holotype and 1 paratype are in the Museum de Zoologia, Universidade de Sao Paulo, Sao Paulo, 1 paratype is in the U.S. National Museum, Washington.

Hylocurus dimorphus (Schedl)

Plate LIX

Hylocurus dimorphus (Schedl), 1939:724 (*Micracis*). Syntypes ♂ ♀; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien, and Plaumann Collection (Synonymy and references in Wood & Bright c1992:424)
Hylocurus acuminatus Schedl, 1950:148. Holotype ♂; Santa Catarina, Brazil; NHMW, Wien

Diagnosis: Distinguished from *declivis* Wood by the distinctly projecting spines of the circumdeclivital ring; by the concave peripheral impression just inside of the circumdeclivital ring; and by the very unique female antenna.

Male: Length 2.4–2.8 mm, 3.0 times as long as wide; color very dark reddish brown. Frons broadly convex, upper two-thirds rather coarsely punctate-subrugose, lower third more finely sculptured; vestiture of sparse, short, rather stout setae, longer on epistoma; antennal scape short (twice as long as pedicel), not flattened; club 1.2 times as long as wide, sutures strongly procurved, suture 1 attaining middle of club. Pronotum 1.14 times as long as wide; similar to allied species; anterior margin armed by eight serrations. Elytra 1.9 times as long as wide, 1.7 times as long as pronotum; striae not impressed except moderately between spines at margin of declivity, punctures rather small, moderately impressed; interstriae slightly less than twice as wide as striae, almost smooth, shining, punctures uniseriate, each almost half as wide as those of striae; interstriae 1–8 each ending in a large, blunt, moderately projecting spine. Declivity abrupt, very steep; central half convex, peripheral third moderately concave; interstriae 9 subacutely costate, joining costal margin and continuing to suture; interstriae 1 and 2 rugose-reticulate on lower two-thirds, striae indicated on peripheral third, confused or obsolete elsewhere; interstriae 1 and 2 armed by a row of fine granules on middle half. Vestiture of rows of fine, short stria hair and longer interstitial setae, plus a row of similar setae on circumdeclivital spines.

Female: Similar to male except frons subconcave from epistoma to vertex, densely, minutely punctured, a subacute transverse carina on vertex; antennal scape flattened, dorsal apical angle extended, with 1 reddish and 2 yellow tufts of long hair; anterior margin of pronotum unarmed; circumdeclivital ring absent, base of declivity rounded, face convex, all striae normal; interstriae rugose-reticulate, each with a row of fine, rounded tubercles.

Distribution: Brazil: Rondon, Parana, 1950s, 500 m, 24°38'B, 54°07'L, F. Plaumann; Nova Teutonia, Santa Catarina, II-1937, F. Plaumann.

Notes: The above treatment was based on 1 male paratype and 1 female paratype and on 6 male and 6 female other specimens, all from Brazil.

Hylocurus flagellatus Wood

Plate LXI

Hylocurus flagellatus Wood, 1971:32. Holotype ♀; Rancho Grande, Pittier National Park, Aragua, Venezuela; USNM, Washington (References in Wood & Bright c1992:425)

Diagnosis: Distinguished from *dimorphus* (Schedl) by the abundant scalelike setae on the elytral declivity; by the radically different female frons and antennal scape; and by the emarginate anterior margin of the female pronotum.

Male: Length 1.9–2.5 mm, 2.8 (female 3.3) times as long as wide; color very dark reddish brown. Frons broadly convex and rugose-reticulate above level of antennal insertion, a moderate transverse impression between epistoma and level of antennal insertion, more finely sculptured in impressed area; antenna as in male *dimorphus*. Pronotum 1.06 times as long as wide; about as in *dimorphus*. Elytra 1.8 times as long as wide, 1.5 times as long as pronotum; striae not impressed except moderately at base of declivity, punctures small, moderately deep; interstriae very slightly wider than striae, surface smooth, uneven in most specimens, obscurely reticulate in one male, punctures small, obscure; interstriae ending at base of declivity in a circumdeclivital ring of spines of equal length, each forming a blunt, weakly projecting spine. Declivital margin abrupt, face very steep, costa of interstriae 9 meeting costal margin at level of interstriae 1; face almost flat except slightly elevated toward suture on lower two-thirds; striae not visible except at base; surface rather densely covered by numerous, confused, white scales, each scale flattened, about one and one-half to two times as long as wide. Vestiture on elytral disc mostly abraded, consisting of sparse, uniseriate rows of erect, short interstitial setae.

Female: Remotely resembling male, body much more slender; frons deeply concave on more than median half from epistoma to vertex, concavity reticulate, setae of sparse, short recumbent hair except vertex bearing a large, long, projecting, penicellate tuft (capable of attaining level of antennal insertions); scape twice as long as pedicel, very broadly flattened (wider than long), bearing a large tuft of rather long, yellow hair on dorsal half, ventral half bearing two slender reddish tufts, anterior one consisting of about two to four curved setae twice as long as club, posterior tuft consisting of more than six similar exceedingly long setae extending beyond base of pronotum; club about as in *dimorphus*; pronotum 1.25 times as long as wide, anterior margin not serrate, shallowly emarginate on median one-sixth (to accommodate tuft of setae on vertex); circumdeclivital row of spines absent, base of declivity rounded, declivity more distinctly convex; declivital scales slightly less abundant, some setae at base of declivity slender; interstriae 9 not curved to meet costal margin.

Distribution: Venezuela: Rancho Grande, Aragua, 9-IV-1970, 1100 m, No. 431, *Nectandra*, SLW.

Biology: Boring in the wood of dying branches 2–4 cm in diameter.

Notes: The above treatment was based on the type series of 3 males and 5 females from Venezuela.

GENUS *MICRACISELLA* BLACKMAN

Micracisella blackman, 1928:192. Type-species: *Micracis opacicollis* LeConte, automatic, replacement name (Synonymy and references in Wood & Bright c1992:429)

Pseudomicracis Blackman, 1920:20. Type-species: *Micracis opacicollis* LeConte, original designation, preoccupied by Eggers 1920

Diagnosis: Distinguished from *Micracis* by the shallowly emarginate, more elongate eye; by the less strongly flattened protibia, with at least 1–5 apical denticles on the lateral margin; by the less strongly expanded antennal scape, the club wider and sutures more broadly procurved; and by the monogynous and myelophagous habits.

Description: Small species 1.2–2.5 mm, 2.8–3.2 times as long as wide; frons sexually dimorphic, female convex to shallowly concave, male less strongly impressed; eye shallowly emarginate; scape not flattened, usually ornamented by hair, club broadly oval; elytra elongate, rather weakly striate; protibiae moderately flattened, apical margin ornamented by 5-socketed denticles, at least 1 of these on lateral margin.

Distribution: Wood & Bright (c1992:429–431) list 20 species from North and Central America. One of these species also occurs in Colombia.

Micracisella nigra Wood

Micracisella nigra Wood, 1956:232. Holotype ♀; La Ceiba, Atlantida, Honduras; USNM, Washington (References in Wood & Bright c1992:430)

Diagnosis: Distinguished by the generic characters given above. Allied to *nigrella* Wood (Honduras), distinguished by the convex frons in both sexes that is impunctate and glabrous except near eyes; by the more coarsely faceted eyes, the eyes separated above by less than 1.5 times the width of an eye.

Male: Length 1.5–1.7 mm (1.3–1.5 mm in Guatemala), 2.8 times as long as wide; color black. Frons convex, median third on lower half feebly impressed, a slight transverse crest indicated at middle of area below upper level of eyes; surface very finely rugose-reticulate except almost smooth in impressed area; vestiture sparse, short, of stout setae mostly on epistoma and lateral areas; scape twice as long as pedicel, cylindrical, club subcircular; sutures 1 and 2 moderately procurved, clearly marked by rows of setae, 1 almost attaining middle of club. Pronotum 1.05 times as long as wide; summit at middle, anterior slope rather finely asperate, anterior margin armed by four to six small serrations, posterior area finely reticulate, punctures minute to obsolete, vestiture minute, obscure, mostly in asperate area. Elytra 1.7 times as long as wide, 1.7 times as long as pronotum; striae not impressed, punctures minute; interstriae subreticulate, more than twice as wide as striae, punctures minute to obsolete, mostly on posterior half of disc. Declivity convex, steep; striae slightly impressed, punctures minute; interstriae each with a row of small, rounded granules; mucro weakly indicated, almost obsolete. Vestiture mostly on and near declivity, consisting of interstitial rows of erect, white scales, each scale about three times as long as wide and slightly shorter than distance between rows; setae on interstriae 1 and 2 sometimes extending to middle of disc.

Female: Similar to male except frons uniformly, more strongly convex, smooth; scape slightly flattened, bearing a small tuft of long hair; anterior margin of pronotum armed by two to four small serrations; declivity with small areas rugose-reticulate near mucro.

Distribution: Mexico (Campeche) and Honduras to Colombia.

Colombia: El Bosque, Caicedonia, Valle de Cauca, 19-VII-1959, guamo verde, J. Restrepo.

Hosts: *Lonchocarpus castillo* (in Campeche, Mexico); guamo verde (in Colombia).

Biology: Boring in the pith of very small stems; the species is monogynous.

Notes: The above treatment was based on 13 specimens from Mexico and Central America and 5 from Colombia.

GENUS *MICRACIS* LeCONTE

Micracis LeConte, 1868:164. Type-species: *Micracis suturalis* LeConte, subsequent designation by Hopkins 1914:125 (References in Wood & Bright c1992:431–434)

Diagnosis: Distinguished from *Micracisella* by the much more broadly flattened protibia, with all 5-socketed

denticles on the apical margin; by the more elongate antennal club, with the sutures much more strongly procurved; and by the more broadly oval eye, with the anterior margin entire.

Description: Length 1.6–3.8 mm, female very slightly larger than male; male 2.6–3.0, female 3.0–3.5 times as long as wide; color yellowish brown to dark reddish brown. Frons dimorphic, male convex, female broadly impressed and shallowly to strongly concave from epistoma to vertex, sculpture conservative. Eye entire, elongate-oval. Antennal scape rather short, flattened at least in female; club elongate-oval, sutures 1 and 2 strongly flattened. Pronotum longer than wide, summit anterior to middle, anterior slope asperate, anterior margin serrate. Elytra with striae weakly impressed, sculpture conservative in South American species.

Distribution: Wood & Bright (c1992:431–434) record 25 species, 19 from North and Central America, 1 from Cuba, and 5 from South America.

Biology: The species are bigynous and xylophagous. They usually infest unthrifty, injured, or broken branches less than 5 cm in diameter. At least 2 tropical species were taken from the lower bole of standing trees of moderate size (30–50 cm in diameter).

Key to the Species of *Micracis*

- 1. Antennal scape wider than long in both sexes; frons more broadly, much more strongly impressed, extending from epistoma to middle of frons in male, to upper level of eyes in female; male declivity with basal margin rounded, never rugose reticulate; elytral setae slender, in uniseriate stria and interstria rows on disc, longer, more abundant, mostly confused on declivity; Venezuela (Merida); 1.4–2.0 mm ***exilis* Wood**
- Antennal scape longer than wide in both sexes; frons convex, a few species with a weak, transverse impression on lower fourth; elytral declivity much steeper, more broadly convex, obliquely truncate in some species; larger species **2**
- 2(1). Male declivital interstriae 1, 3, 5, 7, and 9 each armed by two or more moderately coarse tubercles, those on 1 and 3 extend below middle, 9 ends almost at 3, those on 2, 4, 6, and 8 with smaller tubercles at and anterior to base; declivital surface rugose reticulate; interstria setae uniseriate, rather slender (each at least eight times as long as wide); Venezuela (Caracas); 2.3 mm ***sentus* Wood**
- Male declivity descending rather abruptly at base, interstriae 1–7 about equal, sometimes forming a circumdeclivital ring of tubercles in male; declivital setae often shorter, stouter, at least in male **3**
- 3(2). A very small species; surface of elytra shining; declivity in both sexes steep, convex; female interstriae 1–7 with rows of small tubercles, female without a circumdeclivital ring of spines; in either sex; male interstriae 1–7 about as in female; Brazil (Parana); 1.4–1.6 mm ***minulus* Wood**
- Larger species; body much more slender; male declivity with a weak or strongly developed circumdeclivital ring of tubercles **4**
- 4(3). Surfaces of elytral declivity smooth, shining; area within circumdeclivital ring more strongly flattened, tubercles on interstriae 1 rather coarse, extending almost to base of mucro; stuture 1 on antennal club extending slightly beyond middle (male) or well beyond middle (female); body color very dark brown; male frons with a moderate median tubercle at level of antennal insertion; Venezuela (Merida); tree seedling; 3.3–3.8 mm ***vitulus* Wood**

- Surfaces of elytral declivity dull, rugose-reticulate; circumdeclivital ring of tubercles at base of declivity poorly formed, area within ring much more strongly convex, tubercles on interstriae 1 small to obsolete; male frons armed by a coarse median tubercle slightly below middle of frons; body color rather reddish brown; Colombia (La Palma); cut branches; 2.5–2.6 mm
 *tropicus* Wood

Micracis exilis Wood

Micracis exilis Wood, 1971:27. Holotype ♀; 9 km S Barrancas, Barinas, Venezuela; USNM, Washington (References in Wood & Bright c1992:432)

Diagnosis: Scape wider than long in both sexes; frons more strongly impressed than in other South American species; basal margin of male declivity rounded (not at all truncate).

Male: Length 1.4–2.0 mm, 2.9 (female 3.1) times as long as wide; color yellowish brown, vestiture pale. Frons broadly convex from upper third of area below upper level of eyes to vertex, surface rugose-reticulate, with rather numerous fine granules uniformly distributed; lower two-thirds moderately, transversely impressed, surface subreticulate (slightly rugose); vestiture coarse, moderately abundant, uniformly distributed, moderately long; scape flattened, as wide as long, twice as long as pedicel, with a small brush of hair; club 1.1 times as long as wide, sutures 1 and 2 strongly procurved, marked by rows of setae, 1 not attaining middle of club length. Pronotum 1.15 times as long as wide; summit slightly anterior to middle, anterior slope rather coarsely asperate, anterior margin armed by six to eight rather coarse serrations, posterior area reticulate, small, sparse granules behind summit almost to basal margin; vestiture short, sparse. Elytra 1.8 times as long as wide, 1.6 times as long as pronotum; striae not impressed, punctures very small, weakly impressed; interstriae about four times as wide as striae, shining, almost smooth, punctures very small. Declivity steep, broadly convex; surface much as on disc except interstriae with a few small, rounded granules. Vestiture largely confined to declivity, consisting of very small strial hair and larger, suberect, slender interstitial setae of moderate length.

Female: Similar to male except more slender; frons transversely impressed, shallowly concave from epistoma to upper level of eyes, ornamented by long hair; scape triangularly expanded, wider than long, ornamented by long hair; anterior margin of pronotum unarmed; elytral vestiture slightly shorter, less abundant.

Distribution: Venezuela: 20 km SW El Vigia, Merida, 10-XII-1969, 50 m, No. 186, tree twigs, SLW; 9 km S Barrancas, Barinas, 2-XII-1969, 150 m, No. 163, Espinito de Sabana, SLW.

Biology: Boring in wood of small branches of shrub; galleries resemble those of other members of this genus.

Notes: The above treatment was based on the type series of 9 males and 4 females from Venezuela.

Micracis sentus Wood

Plate LXV

Micracis sentus Wood, 1971:28. Holotype ♀; El Laurel Experimental Farm 12 km SW Caracas, Venezuela; USNM, Washington (References in Wood & Bright c1992:433)

Diagnosis: Male elytral declivity subtruncate, odd-numbered interstriae each armed by two or more coarse tubercles, those on 1 and 3 extend below middle of declivity.

Male: Length 2.3 mm, 2.7 times as long as wide; color reddish brown. Frons broadly convex from epistoma to vertex, surface rugose, a moderately large median tubercle at level of antennal insertions; vestiture sparse, inconspicuous, abraded; scape cylindrical, club oval, somewhat resembling *exilis* Wood. Pronotum 1.03 times as long as wide; resembling male *exilis* except more coarsely sculptured, anterior margin armed by 10 coarse serrations. Elytra 1.7 times as long as wide, 1.7 times as long as pronotum; striae not impressed except moderately at base of declivity, punctures moderately large, deep; interstriae slightly wider than striae, surface smooth, shining, punctures small, shallow, becoming tuberculate toward base of declivity. Base of declivity rounded, face broadly convex; at base interstriae 1, 3, 5, and 7 each armed by a row of three coarse, pointed tubercles, 2, 4, and 6 each with two slightly smaller tubercles; face reticulate-granulate, 2 and 4 unarmed, 1 and 3 each with two or three smaller tubercles on lower half, 9 weakly elevated on basal half, its crest with three small tubercles. Vestiture of rows of minute strial hair; and rows of erect interstitial scales from middle of disc to base of declivity, each scale almost as long as distance between rows, about four to six times as long as wide, face of declivity with a short bristle at each tubercle.

Distribution: Venezuela: El Laurel Experimental Farm 12 km SW Caracas, Aragua, 1-V 1970, 1300 m, No. 460, tree limb, SLW.

Biology: One male just beginning to bore into the wood.

Notes: The above treatment was based on 1 male from Venezuela.

Micracis vitulus Wood

Plates LXV, LXVI

Micracis vitulus Wood, 1971:27. Holotype ♀; La Carbonera Experimental Forest 50 km NW Merida, Merida, Venezuela; USNM, Washington (References in Wood & Bright c1992:434)

Diagnosis: Male declivity with a circumdeclivital ring of interstitial spines of equal length; surface of declivity smooth, shining.

Male: Length 3.2–3.8 mm, 3.2 (female 3.6) times as long as wide; color very dark reddish brown. Frons broadly convex above, shallowly, transversely impressed from epistoma to level of antennal insertions; surface rugose-reticulate, with a few granules above, finer below; antenna resembling *sentus* Wood. Pronotum 1.1 times as long as wide; resembling *sentus*, except more finely sculptured. Elytra 2.1 times as long as wide, 1.9 times as long as pronotum; striae not impressed, except weakly near base of declivity, punctures rather deep, small on basal half, slightly larger near base of declivity; interstriae narrower than striae, smooth, shining, punctures minute to obsolete; each discal interstriae ending in a short, blunt spine, those on 1 and 2 not projecting, 3–5 projecting slightly. Base of declivity abrupt, with a circumdeclivital ring of spines; very steep, very broadly convex; striae impressed, punctures coarse, deep; surfaces shining, interstriae 1 elevated on lower half, with a row of fine tubercles, 3 with similar tubercles, others irregular, not clearly tuberculate. Vestiture of stout hair on declivity, a confused row on suture of face and on circumdeclivital ring, uniseriate on other interstriae of face.

Female: Similar to male except frons broadly convex, smooth; antennal scape slightly flattened, ornamented by a large tuft of hair; sutures of antennal club more strongly procurved; circumdeclivital ring very weakly indicated, face similar to male.

Distribution: Venezuela: La Carbonera Experimental Forest 50 km NW Merida, Merida, 10 XI-1969, 2500 m, No. 128, tree seedling, SLW.

Biology: Boring in the wood of a stem 2–5 cm in diameter, in galleries typical of this genus.

Notes: The above treatment was based on the type series of 15 specimens from Venezuela.

Micracis minimus Wood, n. sp.

Micracis minimus Wood: Holotype ♀; Telemaco Borba, Parana, Brazil; MZUSP, Sao Paulo, designated below

Diagnosis: Distinguished from other South American members of this genus by the small body size; by the simple declivity in both sexes; and by other characters described below.

Male: Length 1.3 mm, about 2.2 times as long as wide (female 1.4–1.6 mm, 2.5 times as long as wide); color yellowish brown. Frons moderately convex; surface rugose-reticulate, a very small, obscure puncture on or near upper third; vestiture very sparse, mostly abraded, epistomal fringe moderately abundant; antennal scape twice as long as on female; club oval, slightly longer than wide, smooth, shining, with a peripheral fringe of minute setae, sutures not evident. Pronotum 0.90 times as long as wide; widest at base, sides on basal half weakly arcuate and converging slightly, narrowly rounded in front; anterior margin with six low, obscure serrations; summit at middle of pronotum length; anterior slope steep, asperities rather coarse, close, confused, small subasperate rugosities continuing to base on median area;

moderately numerous stout setae on asperate area, scales intermixed with very short, slender setae behind. Elytra about 1.3 times as long as wide (spread on allotype); disc occupying about 75 percent of elytra length; moderately mucronate at suture apex; disc with striae not impressed, punctures small at base, slightly larger toward base of declivity; interstriae smooth, brightly shining, about as wide as striae, punctures small, uniseriate, about one-third as large as those of striae. Declivity very steep, broadly convex; striae 1–3 about as on disc except punctures slightly smaller; lateral striae in normal pattern; sutural interstriae very narrow, 2 and 3 slightly wider, 2 and 3 each with a row of closely spaced tubercles from base to apex, 4–8 with similar tubercles; no indication of circumdeclivital spines; ventrolateral crest subacutely elevated from mucro to interstriae 8. Vestiture of minute strial hairlike setae; interstitial scales in rows on disc and on declivital interstriae 1 and 2, on 3–7 with scales on upper areas only, replaced by minute hairlike setae on lower half.

Female: Frons similar to male except more strongly convex; antennal scape half as long, with a small tuft of hair, club large, obovate, sutures 1 and 2 clearly marked by rows of setae, very strongly procurved, 1 almost attaining middle of club length, 2 about three-fourths of club length. Pronotum resembling male except posterior areas not rugose, densely micropunctate; elytral disc similar to male, strial punctures slightly larger. Declivity more narrowly convex than on male, strial punctures smaller, not as deep, interstitial tubercles more slender, pointed, not as widely but more regularly placed and extending to apex on all interstriae; ventrolateral crest rounded, not elevated.

Distribution: Brazil (Parana).

Type material: The female holotype (7-IX-2000), male allotype (22-XI-1999), and 3 female paratypes (10-XI-2000, 19-X-2001, 15-III-2003) were taken at Telemaco Borba, Parana, Brazil, Klabin Papel e Cellulose forest from ethanol baited funnel traps in a *Pinus taeda* stand, C.A.H. Flechtmann. One female paratype is from UFRRJ campus, Scropedica, Rio de Janeiro, Brazil, 14 XII-2000, ethanol baited funnel trap in *Pinus* sp. stand, A.M. Lunz, 1 paratype is from the same locality, 3-VIII-2000, ethanol trap in Atlantic forest, A.M. Lunz, and 4 paratypes are from the same locality, 3-VIII-2000, 17-V-2001, *Mimosa caesalpiniaefolia* stand, ethanol trap, A.M. Lunz.

Micracis tropicus Wood, n. sp.

Micracis tropicus Wood: Holotype ♂; Manilla, La Palma, Cundin, Colombia; USNM, Washington, designated below

Diagnosis: Male declivity with a circumdeclivital ring of spines of equal length, very poorly formed; surface of declivity rugose-reticulate (dull).

Male: Length 2.5–2.6 mm, 2.8 times as long as wide; color reddish brown. Frons broadly convex on slightly more than upper half of area below upper level of eyes, surface rugose-reticulate and with moderately abundant,

shining, rounded tubercles of varying size, a larger median tubercle at lower margin of convex area; lower third moderately, transversely impressed, surface sub-reticulate; vestiture sparse, apparently abraded; antennal scape elongate, slightly flattened, club conspicuously longer than wide, sutures 1 and 2 strongly procurved, 1 attaining middle of club length. Pronotum 1.0 times as long as wide; summit at middle, anterior slope rather coarsely asperate, anterior margin armed by 10 rather coarse serrations; posterior areas reticulate, a few fine tubercles behind summit, punctures obsolete. Elytra 1.8 times as long as wide, 1.7 times as long as pronotum; striae not impressed, punctures small, distinct; interstriae about three times as wide as striae, almost smooth, shining on basal half, minutely reticulate-granulate behind, punctures small, sparse; margin of declivity somewhat abrupt, each interstriae weakly elevated, representing a weak circumdeclivital spine (not projecting) or weak prominence of equal length. Declivity broadly convex, steep; mucro moderate; striae weakly impressed, punctures obscure; interstriae 1 and 3 weakly elevated, 3 with about three small tubercles, surface reticulate-

granulate, dull. Vestiture restricted to declivity, of small, erect pale scales, confused except uniseriate on 2 and 3.

Female: Similar to male except frons very broadly convex, a weak, median impression on middle third, surface very finely rugose-reticulate, without granules, vestiture restricted to epistomal area; scape as in male, except abundant long hair radiating in all directions; pronotum more finely sculptured; anterior margin not serrate; elytral interstriae shining to near base of declivity, declivital base rounded, without circumdeclivital ring of weak elevations; declivity more strongly convex, vestiture more slender, less abundant, extending to posterior third of disc.

Distribution: Colombia.

Type material: The male holotype, female allotype, and 1 paratype were taken at Manilla, La Palma, Cundin, Colombia, 25-IV-1959, gumo rama seca, Alvaro Diaz; 1 paratype is from La Laguna, Coromoro, Santander Sur, 26-VI-1959, guamo seco, A. Benevides. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

TRIBE CARPHODICTICINI

Description: Frons weakly to moderately dimorphic, male strongly convex, female weakly to moderately flattened, occasionally pubescent; eye elongate, sinuate to shallowly emarginate in South American genera; scape short to elongate, funicle 5-segmented, club small, flattened, symmetrical to rather large and asymmetrical with oblique sutures marked by grooves and rows of setae, not septate; pronotum elongate, sides conspicuously constricted on middle half, entirely unarmed by

asperities; posterior face of head truncate, dorsomedian area not extended caudad; procoxae narrowly to moderately separated; protibia stout to rather slender, armed by socketed denticles on lateral margin; scutellum visible; basal margins of elytra either rounded or moderately elevated and acutely costate.

Biology: Only *Carphodicticus cristatus* Wood has been observed in nature (see below). It is phloeophagous and monogynous.

Key to the Genera of Carphodicticini

- 1. Basal margins of elytra rounded, not elevated; antennal club rather large, distinctly asymmetrical, sutures slightly oblique; procoxae more narrowly separated; protibia short (only slightly longer than antennal club), stout (almost half as wide as long); phloeophagous; Venezuela; 2.0-2.4 mm ***Carphodicticus***
- Basal margins of elytra rather strongly elevated and acutely costate on a continuous, transverse line; antennal club rather small, symmetrical, sutures transverse; procoxae much more widely separated; protibia longer, much more slender; habits unknown; Argentina; 2.0 mm ***Dendrodicticus***

GENUS *CARPHODICTICUS* WOOD

Carphodicticus Wood, 1971:19. Type-species: *Carphodicticus cristatus* Wood, original designation (References in Wood & Bright c1992:437)

Diagnosis: Distinguished from *Dendrodicticus* by the larger, asymmetrical antennal club, with distinctly oblique sutures; by the rounded basal margins of the elytra; and by the more narrowly separated procoxae.

Carphodicticus cristatus Wood

Plate LXVI

Carphodicticus cristatus Wood, 1971:19. Holotype ♂; 8 km W Bumbum, Barinas, Venezuela; USNM, Washington (References in Wood & Bright c1992:437)

Diagnosis: See the tribal and generic characters above, especially the strong lateral constriction on the basal half of the pronotum and total absence of a pronotal declivity or asperities.

Male: Length 2.0–2.4 mm, 3.5 times as long as wide; color reddish brown. Frons very broad (frontal rectangle 1.6 times as wide as long), broadly, strongly, evenly convex from epistoma to vertex from eye to eye; epistomal margin distinctly elevated and carinate on median two-thirds; surface smooth, brightly shining, closely, moderately, deeply punctured from epistoma to vertex; glabrous except 0–12 hairlike setae above epistomal margin, a rather broad, dense epistomal brush below carina; eye broadly, moderately emarginate, coarsely faceted; antennal scape elongate, funicle 5-segmented, club moderately large, flattened, sutures 1 and 2 feebly procurved, weakly oblique. Pronotum 1.5 times as long as wide; sides rather strongly constricted on slightly more than posterior half, not declivous anteriorly; surface smooth, shining, punctures rather coarse, close, deep; glabrous; procoxae narrowly separated by a distance equal to less than one-fourth width of a procoxa. Scutellum small, flush with elytral surface. Protibia short, stout, armed by four socketed denticles. Elytra 2.0 times as long as wide, 1.5 times as long as pronotum; basal margins abrupt, not elevated or costate; striae not impressed, punctures coarse, deep; interstriae half to one-third as wide as striae, smooth, shining, punctures very minute, shallow, uniseriate. Declivity occupying about 15 percent of elytra length, very steep, base rounded, lower two-thirds broadly sulcate; interstriae 2 moderately impressed, strongly constricted, ending before apex by costa of 3; 1 slightly elevated, smooth, shining, minute punctures as on disc; 3 moderately elevated on basal third, strongly, subacutely elevated below, curving toward sutural apex below but obsolete at 2 before attaining costal margin. Vestiture confined to declivity, consisting of rather sparse, long, coarse, interstitial hair.

Female: Similar to male except frons slightly less strongly convex, setae above epistomal carina much more numerous and widely distributed; declivital costa on interstriae 3 not quite as high; declivital setae finer.

Distribution: Venezuela: 8 km SW Bumbum, Barinas, 11-II-1970, No. 326, large limb, SLW.

Hosts: Possibly *Pseudoolmedia* sp. or a rare Lauraceae.

Biology: Specimens were removed from a limb 20 cm in diameter that had been left fully exposed to the sun at least 50 days. The specimens entered the bark through entrance tunnels made by a small *Phloeotribus* species in tissue that was unusually hot. In the cambium area pairs of specimens constructed a simple branching tunnel, then other pairs branched from this branch. Hundreds of branching and rebranching gallery systems were present, 1 pair working at the apex of each branch. Larvae were in the phloem.

Notes: The above treatment was based on the type series of 103 specimens.

GENUS *DENDRODICTICUS* SCHEDL

Dendrodicticus Schedl, 1958:37. Type-species: *Dendrodicticus argentinae* Schedl, monobasic (References in Wood & Bright c1992:437)

Diagnosis: Distinguished from *Carphodicticus* by the smaller, symmetrical antennal club, with the sutures transverse; by the strongly elevated, acutely costate basal margins of the elytra; and by the much more widely separated procoxae.

Dendrodicticus argentinae Schedl

Dendrodicticus argentinae Schedl, 1958:37. Holotype, sex?; Tigre, Buenos Aires, Argentina; NHMW, Wien (References in Wood & Bright c1992:437)

Female: Length 2.0 mm, 2.6 times as long as wide (Schedl 1958:37); color reddish brown. Frons resembling *C. cristatus* Wood. Antennal club more slender than *C. cristatus*, symmetrical, sutures 1 and 2 transverse, aseptate. Pronotum 1.1 times as long as wide; apparently similar to *C. cristatus* except procoxae much more widely separated. Elytra 1.9 times as long as wide (Schedl 1958:37), their basal margin strongly elevated and acutely costate. (Schedl described this costa as finely dentate. I did not record the presence of dentations on this costa.) Disc and declivity similar to *C. cristatus* except costa on declivital interstriae 3 not as high and punctures on striae 1 and 2 much smaller. Protibia longer, more slender, and with a different arrangement of socketed denticles.

Distribution: Argentina: Tigre, Buenos Aires, I-1951, M.J. Viana.

Notes: The above treatment was based on notes made by me in 1979 on the Schedl syntype that is now in NHMW, Wien. Several attempts to locate those in the collection of the late M.J. Viana were not successful. Schedl (1975:42) placed *Carphodicticus* in synonymy under *Dendrodicticus* Schedl; however, in spite of superficial similarity, I suggest that the differences in antennal clubs, procoxae, protibiae, and the basal margin of the elytra are sufficient to delay synonymy until additional intermediate species are found. These characters as presently known are of sufficient magnitude to justify the recognition of 2 genera if no additional species are found.

TRIBE IPINI

Description: Frons usually dimorphic, male convex, female variously excavated, protuberant, or ornamented by setae; eye sinuate on anterior margin, very finely faceted in some genera, coarsely in others; antennal scape slender, elongate, funicle 5-segmented, club varying from obliquely truncate to flattened, with sutures strongly apically displaced on posterior face. Pronotum with anterior slope rather strongly declivous and closely asperate on anterior half; procoxae contiguous, intercoxal piece deeply notched or absent; protibia armed by three or four socketed teeth (sometimes a sexual difference). Scutellum visible, flush with surface of elytra. Elytral declivity moderately sulcate to deeply excavated, lateral margins of declivity often armed by tubercles or spines. Vestiture hairlike.

Biology: All are phloeophagous. They may be either monogynous or polygynous, the males are diploid. Hosts include members of the Pinaceae, although *Dendrochilus* and most *Acanthotomicus* breed in various angiosperm trees and lianas. Eggs are always deposited in niches, usually 1 egg in each niche, although some genera include species that place 2 or more eggs in a niche. Larval

mines are individual and rarely cross one another. These mines are usually exposed on the inner surface of peeled bark. The life cycle is comparatively short, with 2 or more generation`s commonly produced each year.

Taxonomy: Except for *Acanthotomicus*, which contains several species endemic to South America, the remaining genera of Ipini are represented there only by species introduced into the extensive plantations of *Pinus* species. Because our current concept of some genera in the world fauna has changed since publication of the world revision of genera (Wood 1986:67-70), the latter part of the world key to genera for this tribe is radically revised and was included here. Of these 6 genera, *Acanthotomicus* contains species endemic to South America, *Orthotomicus* and (possibly) *Ips* contain only introduced breeding populations in South American *Pinus* plantations, and *Pityogenes* is now represented in the USA and the Antillies Islands and should reach South America in the near future. The 2 remaining genera in the world fauna are not expected to reach South America.

World Key to the Genera of Ipini
(Modified from Wood 1986:68)

- 1. Elytral declivity rather narrowly bisulcate, lateral margins rather broadly elevated, rounded, and armed by not more than 3 pair of enlarged denticles; lower margin of elytral declivity rounded; prosternal intercoxal piece short, obtuse; female frons sometimes deeply, rather narrowly excavated; antennal club compressed, 2 sutures visible on apical third of posterior face; North America, Europe, Asia, N Africa; Pinaceae 1.8-3.7 mm *Pityogenes*
- Elytral declivity broadly, rather deeply excavated, margins acutely elevated and armed by 3 or more pair of denticles (1-6 pair in tropical *Acanthotomicus*); lower margin of declivity with an acutely elevated, transverse ridge separating declivital excavation from apical margin 2
- 2(1). Eye large, coarsely faceted, 2.2-4.0 times as long as wide, area below emargination at least as wide and as large (in area) as area above emargination; antennal club varying from clearly marked by procurved sutures to minutely pilose and entirely devoid of sutures; circumtropical; in Angiospermae (2 in Pinaceae in Asia); 1.4-2.7 mm *Acanthotomicus*
- Eye rather small, very finely faceted, 1.4-2.5 times as long as wide, area below emargination conspicuously reduced in area and width (to about two-thirds or less); antennal club with sutures marked by setae; north temperate (or introduced elsewhere); Gymnospermae; mostly larger species 3
- 3(2). Antennal club with sutures either weakly to rather strongly recurved (often subtruncate) or weakly to very strongly procurved; declivity usually steeper, sexual dimorphism more pronounced, lateral margins armed by 3 or fewer pair of spines in female (some males with 4 pair of spines); ventrolateral margin of declivity commonly wavy or undulating, less strongly elevated; endemic to northern hemisphere (introduced elsewhere); Pinaceae; 2.2-5.0 mm *Orthotomicus*

- Antennal club with sutures on anterior face bisinuate to acutely angulate at middle; elytral declivity more gradual, ventrolateral margin more strongly, acutely, uniformly elevated (crest not undulating or wavy), lateral margin armed by 4–6 denticles in both sexes; sexual dimorphism usually less conspicuous; endemic to northern hemisphere (introduced elsewhere); Pinaceae; 2.1–6.9 mm

Ips

GENUS *PITYOGENES* BEDEL

Pityogenes Bedel, 1888:397–398. Type-species: *Dermestes chalcographus* Linnaeus, original designation (Synonymy and references in Wood & Bright c1992:438)
Eggersia Lebedev, 1926:121. Type-species: *Bostrichus bidentatus* Herbst, subsequent designation by Wood 1986:68
Pityocera Balachowsky, 1947:44. Type-species: *Bostrichus quadridens* Hartig, original designation

Wood & Bright (c1992:438–459) list 14 species of *Pityogenes* from Europe and Asia, and 7 from North America. All breed in Pinaceae (mostly Pinus) and are of comparatively minor economic importance. One species, *chalcographus* (Linnaeus), has been transported through commerce and has been intercepted at numerous ports. It was introduced to Jamaica and has a breeding population there (Antilles Islands). Because of its past history, it should be watched very closely as a potential threat to South American *Pinus* plantations. It breeds mostly in the phloem of pine slash.

GENUS *ACANTHOTOMICUS* BLANDFORD

Acanthotomicus Blandford, 1894:89. Type-species: *Acanthotomicus spinosus* Blandford, monobasic (Synonymy and references in Wood & Bright c1992:478–484)
Mimips Eggers, 1932:33. Type-species: *Ips pilosus* Eggers, original designation (Synonymy and references in Wood & Bright c1992:478)
Isophthorus Schedl, 1938:173. Type-species: *Isophthorus quadrituberculatus* Schedl, subsequent designation by Wood 1980:89 (Synonymy and references in Wood & Bright c1992:478)

Diagnosis: *Acanthotomicus* is distinguished from other Ipini by the large, coarsely faceted eye in which

the lower half is subequal in area with the upper half above the emargination; by the more pronounced sexual dimorphism; and by the very different antennal club, which is often minutely pubescent and devoid of sutures (or sutures, when present, strongly procurved).

Description: Length 1.6–2.9 mm, 2.4–3.0 times as long as wide; color yellowish to reddish brown. Frons dimorphic in American species, convex or partly impressed in male, more broadly flattened to impressed and pubescent in female; eye large, coarsely faceted, shallowly emarginate, lower half equal in area to area above emargination; antennal scape elongate, funicle 5-segmented, club subcircular, moderately large, strongly flattened, sutures (when present) strongly procurved. Pronotum longer than wide, summit near middle, declivous on anterior half. Scutellum rather large, flat. Elytra striate; declivity rather steep, broadly excavated, lateral margins usually elevated and dentate, subapical margin rather strongly elevated; female usually less strongly sculptured than male.

Distribution: Wood & Bright (c1992:478–484) record 96 species from tropical and subtropical areas. Of these, 8 occur in South America and 3 more in adjacent Central America.

Biology: All species are phloeophagous. Of the 13 species observed in nature by me, 1 is monogynous, the others polygynous. Most species breed in cut or broken limbs and branches. At least a third of the neotropical species infest the lower bole of rather large trees.

Key to American Species of *Acanthotomicus*

- 1. Elytral declivity more narrowly (usually), more strongly concave, its upper and lateral margins armed by two to four pair of pointed denticles, at least one pair on lower half of declivity 2
- Elytral declivity shallowly to moderately more broadly (subcircularly) impressed, usually concave, its upper (basal) margin armed by pointed denticles on interstriae 2 and 3, denticles never present on margins of lower half of declivity 6
- 2(1). Declivity armed by two pair of spines on basal margin, spine 1 at interstriae 1, spine 2 at interstriae 2, and one very large, blunt spine on lateral margin at or slightly below middle; body much more slender, 3.0 times as long as wide; Brazil (MT); *Hevea brasiliensis*; 2.0 mm *flechtmanni* Wood
- Basal and lateral margins of declivity armed by three or more pair of denticles of about equal size (middle denticle sometimes slightly larger in male); body less slender, 2.4 times as long as wide 3
- 3(2). Spine on lateral margin of declivital interstriae 3 appearing to have a double base, lower element much larger; Brazil (Para); 2.6 mm *duplicatus* Schedl

- Spine on declivital interstriae 3 appearing to have a double base, upper element much larger, pointed 4
- 4(3). Spine on lateral margin of declivital interstriae 3 usually appearing to have a double base (lower element usually absent), small spine on margin at interstriae 4 almost always absent, spine on interstriae 5 present; Venezuela (Barinas); *Spondias mombin*; 1.9–2.2 mm **analogus** (Wood)
- Spine on lateral margin of declivital interstriae 3 with a hump on lower element, small spines present on 4 and 5 5
- 5(4). Male frons moderately impressed on lower half, gradually transcending to convex upper half, surface shining, punctured, weak granules rarely present; anterior margin of pronotum rather coarsely serrate; elytral setae mostly smaller, less abundant, tips of most blunt; Mexico (Veracruz) and Jamaica to Venezuela and Brazil (Bahia); *Spondias mombin*; 1.6–2.0 mm (to 2.3 mm in Brazil) **mimicus** (Schedl)
- Male frons abruptly, more strongly, transversely impressed on lower half, upper area rather coarsely tuberculate; anterior margin of pronotum unarmed to weakly serrate; elytral setae more abundant, much longer, tips strongly pointed; Costa Rica; blacklight; 2.2–2.3 mm **ipsiformis** Wood
- 6(1). Declivity very shallowly concave, all margins rounded, a very small, pointed tubercle on basal margin at interstriae 2, minute granules, sometimes on lateral margin (variable); disc and parts of declivity with fine, confused, recumbent, hairlike ground setae, rows of erect interstitial setae also present; eyes very large, coarsely faceted, separated above by distance 1.2 times width of an eye; Colombia (Valle de Cauca); *Icica altissima*; 1.8–2.1 mm **ocularis** (Wood)
- Elytral declivity more strongly concave, lateral margin on lower half subacutely elevated; larger species 7
- 7(6). Base of elytral declivity armed by two pair of denticles, one on interstriae 2 and one on interstriae 3; frons punctate-tuberculate in both sexes, lower half transversely impressed, moderately in male, weakly in female; Costa Rica to Panama; tree limbs and bole; 2.4–2.8 mm **fortis** (Wood)
- Base of declivity armed by one pair of pointed denticles; frons variable 8
- 8(7). Base of declivity on interstriae 3 armed by one pair of stout, blunt denticles; male frons with median line impunctate, a rounded median elevation near middle, lateral areas obscurely subreticulate and with rather sparse, moderately abundant granules, female frons finely, densely punctured except median line at least partly impunctate, median elevation absent; Colombia (Valle de Cauca); *Icica altissima*; 2.3–2.4 mm **bidentis** Wood
- Base of declivity on interstriae 2 armed by one pair of small pointed denticles 9
- 9(8). Punctures of elytral striae larger, deeper, interstriae about three times as wide as striae; spine at base of male declivity more slender, longer, apex hooked and directed mesad; declivital punctures larger; Venezuela; tree branch; 2.6–2.9 **granulatus** (Ferrari)
- Punctures of elytral striae and interstriae minute, interstriae six or more times as wide as striae; spine at base of male declivity shorter, directed caudad 10
- 10(9). Male declivity less strongly impressed, spine at base shorter, conical, wider than long, granules on lateral margins obsolete; declivital setae less abundant, finer; Bolivia; 3.0 mm **bolivianus** (Eggers)
- Male declivity more strongly impressed, spine at base longer, about 1.5 times as long as its basal width; declivital setae more numerous, coarser; Panama; 2.3–2.6 mm **chriquensis** (Blandford)

Acanthotomicus flechtmanni Wood, n. sp.

Acanthotomicus flechtmanni Wood: Holotype ♂; Itiquira River, Mato Grosso, Brazil; MZUSP, Sao Paulo, designated below

Diagnosis: Members of this species group resemble small *Ips* species that have three or four pair of denticles arming the upper and lateral margins of the elytral declivity and a subacutely elevated, transverse lower margin; this species is distinguished from others in this group by the small size; by the very slender body; and by the presence of pairs of spines on the declivity.

Male: Length 2.0 mm, 3.0 times as long as wide; color reddish brown. Frons rather weakly convex on upper two-thirds, slightly elevated toward epistoma; surface above reticulate, a few minute granules on marginal areas; epistomal process on median third appearing weakly, acutely elevated; vestiture of fine, sparse, inconspicuous hair; antennal club small, as long as scape, slightly longer than wide, distal half pubescent, sutures not evident (view obscured on specimen at hand). Pronotum 1.5 times as long as wide; sides on about posterior two-thirds straight and parallel, rather broadly rounded in front, anterior margin feebly serrate; declivous and weakly asperate on anterior third; posterior areas smooth, shining, small punctures moderately abundant; vestiture of fine, erect hair of moderate abundance and length. Elytra 1.5 times as long as wide, 1.1 times as long as pronotum; surface of disc shining, obscurely irregular; striae not evident, punctures small, shallow, moderately confused with those of interstriae. Declivity confined to posterior fourth, rather abrupt, very steep, broadly, shallowly concave; lateral margin moderately elevated, armed by a small, pointed denticle on interstriae 1, a slightly larger denticle on 2, a very large, blunt denticle on margin at middle of declivity, margin below denticle 3 distinctly, subacutely elevated; face of declivity smooth, shining, with moderately numerous small punctures. Vestiture on disc of fine, rather short, erect hair; setae longer and more abundant on declivity.

Distribution: Brazil (Mato Grosso).

Type material: The male holotype was taken at Itiquira River, Mato Grosso, MT, 15-VIII 1992, ethanol trap in *Hevea brasiliensis* stand, O. Dall'Oglia. The holotype is in MZUSP, Sao Paulo.

Acanthotomicus duplicatus (Schedl)

Acanthotomicus duplicatus (Schedl), 1973:170 (*Mimips*). Holotype ♂; Rio Papagaio, Utiariti, Brazil, Brazil; 325 m; MZUSP, Sao Paulo (References in Wood & Bright c1992:480)

Diagnosis: Distinguished from *mimicus* (Schedl) by the larger size; by the second denticle (on interstriae 3) with the lower element larger; and by other characters described below.

Male: Length 2.6 mm, 2.8 times as long as wide; color rather dark reddish brown. Frons reticulate, broadly convex, a short, shining median carina above middle of frons length; surface with moderately abundant, rather

coarse tubercles on upper half, becoming smaller to obsolete at epistoma; vestiture not evident; antennal club almost as wide as long, sutures 1 and 2 strongly procurved, marked by setae and weak grooves, 1 extending slightly beyond middle of club length. Pronotum 1.2 times as long as wide; sides straight and parallel on basal half, broadly rounded on unarmed anterior margin; summit slightly anterior to middle, anterior slope closely asperate; posterior half smooth, shining, punctures moderately coarse, close; almost glabrous. Elytra 1.5 times as long as wide, 1.3 times as long as pronotum; surface shining, some irregular obscurely impressed lines; punctures distinctly impressed, of moderate size, mostly confused, not in clearly defined rows. Declivity steep, broadly, moderately concave; spine 1 on margin at interstriae 2 rather small, blunt, poorly defined; spine 2 on interstriae 3 large, with a double base, lower element larger, blunt, poorly defined, spine 3 smaller (on interstriae 4), spine 4 distinctly larger, blunt; apical margin on lower third moderately elevated, subacute, crest undulating slightly; face shining, punctures rather coarse, close, confused. Almost glabrous.

Distribution: Brazil: Para, Cachimbo, VI-1962, Oliveira & Alvarenga.

Notes: The above treatment was based on the male paratype at NHMW, Wien.

Acanthotomicus analogus (Wood)

Plate LXVII

Acanthotomicus analogus (Wood), 1971:40 (*Mimips*). Holotype ♂; 40 km E Canton, Barinas, Venezuela; USNM, Washington (References in Wood & Bright c1992:478)

Diagnosis: Distinguished from others in this species group by the uniformly elevated subapical margin of the declivity (not undulating); by the small tubercle on interstriae 4 not basally united with spine on interstriae 3; and by the weak frontal impression.

Male: Length 1.9–2.2 mm, 2.4 times as long as wide; color yellowish brown. Frons convex above, rather strongly, transversely impressed on lower half, surface basically smooth, shining, with moderately abundant, fine tubercles uniformly distributed from epistoma to upper level of eyes; vestiture of long, fine, rather sparse hair; antennal club as long as scape, slightly longer than wide, suture 1 not septate, strongly procurved, attaining middle of club. Pronotum 1.1 times as long as wide; summit at middle, anterior half declivous, moderately asperate; posterior areas shining, almost smooth, punctures rather coarse, separated by less than diameter of a puncture; vestiture of rather sparse, long hair; more conspicuous at margins. Elytra 1.4 times as long as wide, 1.3 times as long as pronotum; striae not impressed, punctures rather coarse, moderately deep; interstriae slightly more than twice as wide as striae, smooth, shining, punctures two-thirds as large as those of striae, similarly impressed. Declivity occupying posterior one-third of elytral length, broadly, moderately concave, steep;

face smooth, shining, punctures rather coarse, close, moderately confused; lateral and lower margins subacutely elevated except crest absent near suture above; denticle 1 pointed, conical, on margin at interstriae 2, denticle 2 on 3, larger, pointed, base extended slightly ventrad, denticle 3 slightly below middle, pointed, larger than 2 (a small cusp sometimes present between 2 and 3); apical margin below 3 subacute, moderately elevated, summit undulating in height. Vestiture of erect hairlike setae in stria (short) and interstitial (longer) rows, shorter on declivity.

Female: Similar to male except frons more uniformly convex, closely, finely punctured; punctures on pronotum and elytra slightly smaller; declivity less strongly concave, lateral margins not as high, denticles smaller (2 without basal extension), apical margin lower, of uniform height.

Distribution: Venezuela: 40 km E Canton Barinas, 8-III-1970, 70 m, No. 394, *Spondias mombin*, SLW.

Biology: Boring radiate tunnels in the phloem of cut and broken branches 3–8 cm in diameter. When competing for space with *mimicus analogus* was confined to the larger branches.

Notes: The above treatment was based on the type series of 31 specimens from Venezuela.

Acanthotomicus mimicus (Schedl)

Plate LXIX

Acanthotomicus mimicus (Schedl), 1961:227 (*Mimips*). Holotype ♂; Turrialba, Costa Rica; NHMW, Wien (References in Wood & Bright c1992:482)

Diagnosis: Distinguished from other members of this species group by the small size; by the basal union of spine on declivital interstriae 3 to prominence on 4 incomplete, all spines smaller; and by the crest on the subapical, lower margin undulating.

Male: Length 1.6–2.0 mm, 2.4 times as long as wide; color yellowish brown. Frons similar to *analogus* Wood, impression and tubercles less definite; antennal club suture 1 less strongly arcuate, 2 indicated. Pronotum and elytral disc resembling *analogus* except punctures not as deep. Declivity resembling *analogus* except denticles 1 and 2 slightly larger; lower (ventral) base of 2 forming a separate cusp, a second cusp present before smaller denticle 3, apical margin more acutely raised, crest undulating in height.

Female: Similar to male except frons more finely, more densely punctured, setae much more dense and longer; elytral declivity less strongly concave, denticles and cusps present but smaller; apical margin of more uniform height.

Distribution: Mexico (Veracruz), Hispanola (Dominican Republic), and Jamaica to Venezuela and Brazil.

Brazil: Bahia, Cepec, Ilheus, 11-III-1981, blacklight, Kaston; "Santa Catarina."

Venezuela: 9 km S Barrancas, Barinas, 5-XII-1969, 150 m, No. 115, *Spondias mombin*, SLW; 40 km E Canton, Barinas, 8-III-1970, 70 m, No. 394, *Spondias mombin*, SLW.

Biology: Boring in phloem of recently broken and felled stems 3–10 cm in diameter. When intermixed with *analogus*, *mimicus* usually selected the smaller stems and *analogus* the larger stems.

Notes: The above treatment was based on 56 specimens from Costa Rica and Panama and 93 from Venezuela. Several specimens were examined from Santa Catarina (Brazil) but the data were not recorded.

Acanthotomicus ocularis (Wood)

Plate LXIX

Acanthotomicus ocularis (Wood), 1971:42 (*Mimips*). Holotype ♂; Carton de Colombia forest 8 km S Colonia (near Buenaventura), Valle de Cauca, Colombia; USNM, Washington (References in Wood & Bright c1992:482)

Diagnosis: Distinguished from all other American members of this genus by the very shallowly concave elytral declivity, with all margins rounded, the basal margin armed on interstriae 2 by one pair of small denticles; and by the unusually large, coarsely faceted eyes that are narrowly separated above.

Male: Length 1.8–2.1 mm, 2.7 times as long as wide; color reddish brown. Frons convex, a weak, transverse impression on median half of lower half, shining, convex area with rather small, moderately numerous tubercles; impressed area usually with at least a few longitudinally impressed fine lines; vestiture rather short, sparse; eyes rather narrowly separated above by 1.1 times width of an eye; antennal club as wide as long, pubescent to base, suture 1 rather obscure, not septate. Pronotum 1.1 times as long as wide; summit in front of middle, asperate on anterior half, anterior margin armed by low serrations; posterior areas shining, almost smooth, punctures small, rather close; vestiture rather sparse, hair-like. Elytra 1.5 times as long as wide, 1.4 times as long as pronotum; striae not impressed, punctures not in rows; interstriae smooth, shining, punctures of equal size, most confused with those of striae. Declivity rather steep, margins rounded, face shallowly concave; a very small, pointed denticle at upper margin on interstriae 2; crest of lateral margin with about 4 fine granules scattered along summit; subapical lower margin rounded. Vestiture of moderately abundant fine, short, recumbent hair on disc and declivity; declivity also bearing short, erect, stout bristles in rows on interstriae 1–3 and on lateral areas.

Female: Similar to male, except frontal setae more abundant and much longer; erect declivital bristles apparently, slightly longer and more slender.

Distribution: Colombia: Carton de Colombia forest 8 km S Colonia (near Buenaventura), Valle de Cauca, 9-VII-1970, 70 m, No. 628, *Icica altisma*, SLW.

Biology: Boring radiate tunnels in the phloem of a small, dying tree seedling about 5 cm in diameter.

Notes: The above treatment was based on the type series of 19 specimens from Colombia.

Acanthotomicus bidentis Wood

Plate LXVIII

Mimips bidens Wood, 1971:41. Holotype ♂; 8 km S Colonia (near Buenaventura), Valle de Cauca, Colombia; USNM, Washington, preoccupied by Schedl 1967:229

Acanthotomicus bidentis Wood, 1972:191. Holotype ♂; Carton de Colombia forest 8 km S Colonia (near Buenaventura), Valle de Cauca, Colombia; USNM, Washington, automatic (Synonymy and references in Wood & Bright c1992:479)

Diagnosis: Base of declivity armed by one pair of stout denticles on interstriae 3; female frons rather densely, finely punctured, male with median line impunctate and a small median elevation near middle.

Male: Length 2.3–2.4 mm, 2.6 times as long as wide; color reddish brown. Frons moderately convex, surface obscurely subreticulate, with moderately abundant, isolated tubercles from epistoma to above eyes; median line at middle with a moderate elevation, a weak, obscure continuation extending to vertex; vestiture sparse, inconspicuous, more abundant on epistomal margin; eyes widely separated; antennal club slightly longer than wide, basal segment smooth, shining, suture 1 strongly procurved, indicated by pubescence. Pronotum about as in *ocularis* except posterior areas mostly reticulate. Elytra 1.4 times as long as wide, 1.3 times as long as pronotum; striae not impressed, punctures in rows, small, not strongly impressed; interstriae about three times as wide as striae, surface smooth, shining, punctures in rows, slightly smaller than those of striae. Declivity abrupt, steep, broadly, rather deeply concave; margin rounded at base of interstriae 1–2, 3 armed at base by a coarse, blunt spine, subapical margin acutely, rather strongly elevated from spine to suture near apex, crest of margin wavy near spine; face smooth, shining, confused punctures close, rather coarse, moderately deep. Vestiture hairlike, rather short, largely restricted to sides and declivity.

Female: Similar to male except frons more broadly convex, tubercles smaller, more numerous, vestiture longer, much more abundant; declivital spine nearer to suture, short, blunt; subapical margin less strongly elevated, crest rounded near spine.

Distribution: Colombia: 8 km S Colonia (near Buenaventura), Valle de Cauca, 9-VII-1970, 30 m, No. 628, *Icica altissima*, SLW.

Biology: Boring radiate tunnels in the phloem of a dying tree seedling about 5 cm in diameter.

Notes: The above treatment was based on the type series of 97 specimens from Colombia.

Acanthotomicus granulatus (Ferrari)

Plate LXVIII

Acanthotomicus granulatus (Ferrari), 1867:40 (*Xylocleptes*). Lectotype ♂; Venezuela, Moritz (presumably Colonia Tovar, Aragua, near the Moritz home); NHMW, Wien, designated by Wood 1974:277 (Synonymy and references in Wood & Bright c1992:481)

Mimips uncinatus Wood, 1971:41. Holotype ♂; Colonia Tovar, Aragua, Venezuela; USNM, Washington

Diagnosis: Distinguished from *chiriquensis* (Blandford) by the declivital spines on interstriae 2 directed primarily mesad; and by the larger punctures on the elytral disc and declivity.

Male: Length 2.6–2.9 mm, 2.6 times as long as wide; yellowish brown to reddish brown. Frons about as in *bidentis* (Wood); antennal club with 2 strongly procurved sutures indicated by setae. Pronotum about as in *bidentis*, disc obscurely reticulate. Elytra much as in *fortis* (Wood) except spines at base of declivity much closer to one another (on interstriae 2), these spines pointed mesad (not caudad as in *chiriquensis*).

Female: Similar to male, except frons more broadly convex, more finely, more closely punctured, obscure granules reduced to obsolete, frontal vestiture longer, more abundant; declivital spines slightly smaller, lateral and apical margins less strongly elevated.

Distribution: Colombia?; “Colombie,” Moritz (presumably taken near the Moritz home at Colonia Tovar, Venezuela).

Venezuela: Colonia Tovar, Aragua, 4-V-1970, 1700 m, No. 498, tree seedling, SLW.

Biology: Boring in the phloem of a dying tree seedling.

Notes: The above treatment was based on 62 specimens from the type locality [this was the type series of *uncinatus* Wood (= *granulatus*)] that was taken less than 500 m from the Moritz home). The holotype of *uncinatus* was compared by me directly to the lectotype of *granulatus* (Ferrari).

Acanthotomicus bolivianus (Eggers)

Acanthotomicus bolivianus (Eggers), 1943:357 (*Isophthorus*). Holotype ♂; Cochabamba; NHMW, Wien (References in Wood & Bright c1992:479)

Diagnosis: Distinguished from *chiriquensis* (Blandford), from Panama, by the larger size; by the less strongly impressed elytral declivity; by the smaller, conical spine 1 at the base of the declivity; by the absence of granules on the lateral crest of the declivity; and by the subaciculate frons.

Male: Length 3.0 mm, 2.8 times as long as wide; color dark reddish brown. Frons shining, rather finely, convergently aciculate from epistoma to above upper level of eyes, punctures obscure; vestiture of rather abundant long hair uniformly distributed. Both antennae missing from type. Pronotum 1.06 times as long as wide; sides feebly arcuate on basal half, anterior margin broadly rounded, armed by about 12 small serrations; summit slightly anterior to middle, anterior slope closely asperate; posterior areas mostly shining, with areas of weak reticulation especially near punctures, punctures rather small, moderately close. Elytra 1.8 times as long as wide, 1.8 times as long as pronotum; striae 1 weakly impressed, others not impressed, punctures very small, distinct; interstriae smooth, brightly shining, about five times as wide as striae, punctures slightly smaller than those of striae, distinct, uniseriate. Declivity steep,

broadly, shallowly concave, surface shining, suture distinctly elevated, not as high as lateral margins; lateral margin subacutely elevated near sutural apex, obtusely, rather narrowly rounded to spine 1 on interstriae 2 at base, margin not elevated from suture to spine 1; spine 1 conical, pointed, its length about equal to its basal width; punctures on face of declivity rather small, confused, moderately numerous. Vestiture of very small, fine strial hair and rows of longer, erect interstitial hair (mostly abraded on disc and declivity of type).

Distribution: Bolivia: Cochabamba [F. Woytkowski].

Notes: The above treatment was based on the male holotype from Bolivia, presumably a male.

GENUS *ORTHOTOMICUS* FERRARI

Orthotomicus Ferrari, 1867:44. Type-species: *Bostrichus laricis* Fabricius, subsequent designation by Hopkins 1914:126; original spelling of *Orthotomicus*, lapsus calami, corrected by Ferrari 1869:256 to *Orthotomicus* (Synonymy and references in Wood & Bright c1992:467)

Neotomicus Fuchs, 1911:33. Type-species: *Bostrichus laricis* Fabricius, subsequent designation by Hopkins 1914:126

Pseudips Cognato, 2000:365. Type-species: *Bostrichus concinnus* Mannerheim, original designation. *New synonymy*

Diagnosis: Antennal club varying from obliquely truncate to sutures weakly to strongly recurved or weakly to strongly procurved. It is distinguished from *Ips* by the steeper elytral declivity, with the lateral margins armed by three or fewer pair of spines (a few males may have 4 pair), the ventrolateral subapical margin is commonly wavy or undulating in height (or both), and the lateral margin less strongly elevated; and by the more pronounced sexual dimorphism.

Description: Length 2.0–3.7 mm, about 2.5 times as long as wide; color dark reddish brown. Frons convex, variously granulate-punctate in both sexes, vestiture sparse, often inconspicuous; eye elongate-oval, shallowly emarginate, narrower on lower half; antennal scape elongate, funicle 5 segmented, club varying from obliquely truncate to sutures on anterior face either procurved or recurved, sutures on posterior face displaced to apex. Pronotum longer than wide, summit at middle, anterior slope declivous and asperate, posterior area punctate. Elytra striate; declivity abrupt, broadly excavated (less than in *Ips*), lateral margins armed by 3

pair of spines or fewer (four in a few males), more weakly elevated than in *Ips*, lowest denticle often displaced mesad; sexual dimorphism moderate.

Distribution: Wood & Bright (c1992:467–478) list 1 species from North America and 7 from Asia (only), plus 5 additional species from Asia that also extend into Europe (and 1 of these also into northern Africa). With the present realignment of species in *Orthotomicus*, the North American *concinnus* group of species [(*concinnus*, *mexicanus* Hopkins) plus *orientalis* Wood & Yin (China)] were transferred from *Ips* to *Orthotomicus* by Lanier (1966). Also transferred from *Ips* to *Orthotomicus* is the *erosus* group of species [*latidens* LeConte and *spinifer* Eichhoff (from North America) and *erosus* Wollaston and *robustus* Knotek (from Europe and Asia)].

Biology: The habits are essentially as described above for the tribe. The galleries are of the radial type in polygynous species or longitudinally biramous in monogynous species. At least several species (all?) may deposit more than 1 egg in an egg niche.

Taxonomy: The alignment of species outlined above removes from *Ips* 2 species groups that are structurally, biologically, and behaviorally intermediate between a now more compact *Ips* and a more diverse *Orthotomicus*, which has been based on the allies of *laricis* to which the *erosus* and *concinnus* groups of species are now added. The elytral declivities of both species groups are more nearly similar to other *Orthotomicus*, but the antennal club of the *erosus* group more nearly resembles *Ips*, while in the *concinnus* group the sutures are very strongly procurved as in some *Acanthotomicus*. Two apparent unifying characters in this alignment of *Orthotomicus* are (1) the habit of placing more than 1 egg in an egg niche (universal?), and (2) a reduced number of chromosomes (N = 7).

More than 2 years after the above paragraph was written, Cognato (2000:365) named *Pseudips* as a genus containing *concinnus* (Mannerheim), *mexicanus* (Hopkins), and *orientalis* Wood & Yin, without studying the Asiatic *Orthotomicus*. When the full diversity of the Asian and European *Orthotomicus* is examined, Cognato's genus cannot stand as a distinct genus, or even as a distinct species group.

Key to the Species of *Orthotomicus*

- 1. Antennal club thicker at base (segment 1), suture 1 almost straight, 2 distinctly recurved; declivity less deeply excavated, margin armed by three pair of denticles, denticle 3 displaced slightly mesad from lateral margin; Europe, Asia, introduced elsewhere, including South America (Chile); *Pinus*, *Picea*; 3.0–3.7 mm ***laricis* (Fabricius)**
- Antennal club more strongly flattened, sutures 1 and 2 distinctly procurved; declivity more deeply excavated, lateral margins armed by four pair of denticles, last pair on lateral margin (not displaced mesad); Europe, Asia, introduced elsewhere, including South America (Chile); *Pinus*; 2.6–3.3 mm ***erosus* (Wollaston)**

Orthotomicus laricis (Fabricius)

Orthotomicus laricis (Fabricius), 1792:365 (*Bostrichus*). Syntypes 8, sex?; Germaniae; UZMC, Copenhagen (References in Wood & Bright c1992:469)

Diagnosis: Distinguished from *erosus* (Wollaston) by the thicker base of the antennal club (essentially, obliquely truncate), with sutures feebly to distinctly recurved; by the elytral declivity being armed by three pair of pointed denticles, with denticle 3 displaced mesad from the lateral margin; and by the steeper, less deeply excavated elytral declivity.

Male: Length 3.0–3.7 mm, 2.7 times as long as wide; color very dark reddish brown. Frons broadly convex, a weak transverse impression on lower third; surface reticulate, rather finely, not closely punctured; hairlike setae sparse, long, fine; antennal club basally thickened, almost obliquely truncate, sutures distinctly recurved. Pronotum 1.17 times as long as wide; moderately declivous and coarsely asperate on anterior two-fifths, posterior half smooth, shining, moderately, rather coarsely punctured; sparse vestiture of long hair, mostly on sides and in front. Elytra 1.55 times as long as wide, 1.4 times as long as pronotum; striae 1 slightly impressed, others feebly impressed, punctures rather small, close, uniseriate. Declivity occupying about one-sixth of elytral length, very steep, shallowly, broadly concave; lateral margin obtusely elevated on upper two-thirds, rather acutely on lower third, armed by three pair of pointed spines, spine 1 on interstriae 1, 2 on interstriae 2, and 3 distinctly below middle of declivity and slightly displaced mesad from lateral margin; face broadly, moderately concave, with close, rather coarse, confused punctures. Vestiture of erect interstitial hair of moderate length, mostly on sides and declivity.

Female: Similar to male except frontal impression weaker, elytral declivity not as strongly impressed, lateral margins usually less strongly elevated, spines slightly smaller.

Distribution: Northern Africa, Europe, northern Asia, introduced into South America (Chile).

Chile: "Chile" (Wood & Bright c1992:469).

Hosts: *Pinus* (also *Picea*, *Larix* in Europe and Asia).

Biology: Phloeophagous in large stems (not seen by me).

Notes: The above treatment was based on more than 100 specimens from Europe and 9 from Asia. South American specimens were not seen by me.

Orthotomicus erosus (Wollaston)

Plate LXVII

Orthotomicus erosus (Wollaston), 1857:95 (*Tomicus*). Syntypes, sex?; Madera; BMNH, London (References in Wood & Bright c1992: 504–506)

Tomicus rectangulus Ferrari, 1867:83. Five syntypes, sex?; Gall. merid. et Algeria; not located

Diagnosis: Distinguished from *laricis* (Fabricius) by the larger, very strongly flattened antennal club, with

sutures 1 and 2 distinctly procurved; by the elytral declivity being armed by four pair of denticles, all on the lateral margin; and by the less steep, more strongly excavated elytral declivity.

Male: Length 2.6–3.3 mm, 2.7 times as long as wide; color dark reddish brown. Frons broadly convex, a weak, transverse impression on lower third; surface shining, rather coarsely granulate-punctate; vestiture of sparse, long hair; antennal club slightly wider than long, strongly flattened, sutures 1 and 2 moderately procurved. Pronotum 1.12 times as long as wide, about as in *laricis*. Elytra 1.6 times as long as wide, 1.4 times as long as pronotum; striae 1 distinctly, others feebly impressed, punctures rather small, deep, close; interstriae about twice as wide as striae near base, about 1.5 times near declivity, punctures small, sparse on basal half, larger near declivity. Declivity occupying one-fourth of elytral length, steep, broadly, strongly concave; interstriae 2 armed at base by a moderately coarse, pointed, conical spine; middle third of lateral margin acutely elevated and armed by pointed spines of moderate size on interstriae 3 (displaced laterad, appearing as if on 4), 5 and 7; ventral margin moderately, acutely to subacutely elevated from suture to base of spine 4, crest of its lateral half undulating and/or wavy; face shining, punctures coarse, close, confused. Vestiture of erect interstitial hair, mostly on sides and declivity.

Female: Similar to male except less coarsely sculptured, tubercles and spines slightly smaller.

Distribution: Northern Africa, Europe, northern Asia, introduced to South Africa, Fiji, and South America (Chile).

Chile: "Chile" (Wood & Bright c1992:504).

Hosts: *Pinus* (rare in *Abies*, *Cedrus*, *Picea* in Europe and Asia).

Biology: This species was introduced into Chile, where it came into unsuccessful ecological competition for the same niche occupied by *Hylurgus ligniperda* (Fabricius). It is now rarely found there (USDA 1990, Pest Risk Assessment for importation of solid wood packing material into the United States, p. 221). It bores in phloem tissues of the host.

Notes: The above treatment was based on 16 specimens from Europe and on 2 from the Canary Islands (Teneriffe), which had been identified by A. Pfeffer and F.G. Browne. South American specimens were not seen by me but have been reported in the literature.

GENUS *IPS* DEGEER

Ips DeGeer, 1775:190. Type-species: *Dermestes typographus* Linnaeus, subsequent designation by Bergroth 1884:230 (Synonymy and references in Wood & Bright c1992:485)

Cumatotomicus Ferrari, 1867:44. Type-species: *Bostrichus stenographus* Duftschmidt = *Dermestes sexdentatus* Boerner subsequent designation by Hopkins 1914:119

Cyrtotomicus Ferrari, 1867:44. Type-species: *Bostrichus acuminatus* Gyllenhal, subsequent designation by Hopkins 1914:120

Diagnosis: Distinguished from *Orthotomicus*, as revised above, by the more gradual, more deeply excavated elytral declivity, with the lateral margins armed at their summit by three to six pair of denticles, and with the ventrolateral, subapical margin more strongly (acutely) elevated, its crest of constant height; and by the (usually) less conspicuous sexual dimorphism.

Description: Length 2.1–6.7 mm, 2.4–2.8 times as long as wide; color yellowish brown to almost black, vestiture hairlike. Frons simple to strongly, sexually dimorphic; eye finely faceted, shallowly emarginate, lower half distinctly narrower than upper half; antennal club sub-circular to oval, strongly flattened, sutures 1 and 2 on anterior face weakly bisinuate to strongly angulate. Pronotum and elytral disc about as in *Orthotomicus*; declivity concavely excavated, summit of lateral margins armed by three to six pair of denticles (none of them displaced mesad), apical margin more strongly, more uniformly elevated (not undulating or wavy).

Distribution: Wood & Bright (c1992:484–538) report 43 species in the world fauna, none from South America. A majority of the species breed in *Pinus* species and are a potential threat to *Pinus* plantations everywhere; other species infest *Picea*, *Larix*, and (rarely) other hosts. Two species, *calligraphus* (Germar) and *grandicollis* (Eichhoff),

have been introduced into Australia and the Antilles Islands (Bahama, Cuba, Hispanola). One oral report from South America of an *Ips* species introduction may have been based on an error in identification, presumably of an *Orthotomicus* species.

Biology: The habits are basically as described for the tribe. All species are polygynous and phloeophagous. The parent galleries are of the radial type. The eggs are deposited individually in separate niches. Most species breed in windfalls, felled or broken trees or slash and, usually, are of minor economic concern. However, some species are moderately to strongly aggressive and are capable of becoming epidemic (especially with introductions into new geographical areas).

Taxonomy: See the alignment (above) under *Orthotomicus* for those former *Ips* species that are presently transferred to *Orthotomicus*.

Notes: South American species of *Ips* have not been reported. However, in view of the large plantations of *Pinus* spp. that exist in South America and because several species of *Ips* are known to have been transported to extra-territorial areas, it is only a matter of time before they will become a significant problem in South America.

TRIBE DRYOCOETINI

Description: Frons usually sexually dimorphic, male convex to variously impressed, female convex to flattened or with elevations, ornamented by setae in some species; eye emarginate to divided (exotic species only); antennal scape elongate, funicle 4- to 6-segmented, club obliquely truncate to strongly flattened, when flattened sutures variously procurved to obsolete, on posterior face sutures strongly displaced toward apex; pronotum anteriorly declivous or not, armed by asperities or not; pro-coxae contiguous to narrowly separated; protibia with lateral margin armed by 3 or more socketed denticles; scutellum visible; elytral declivity usually convex, rarely shallowly sulcate or flattened, sometimes bearing small granules; vestiture hairlike.

Biology: Apparently all are polygynous, most are normally bisexual (with diploid males that join females in formation of new parental galleries). *Dryocoetiops*,

Coccotrypes, and *Ozopemon* apparently have haploid males that are variously dwarfed and cannot fly from the brood host. *Dactylotrypes* and some *Coccotrypes* are spermophagous; 1 New Guinea species, *Dryocoetiops* [*coffae* (Eggers)] is myelophagous. In phloeophagous genera, eggs are placed individually in niches (except *Ozopemon*); in *Dryocoetiops*, most *Coccotrypes*, and *Ozopemon*, they are deposited in clusters in the brood chamber.

Taxonomy: This is a large and inadequately studied diverse group. Only 4 of the known 17 genera in the world fauna occur in South America. Two of these (*Dryocoetes*, *Coccotrypes*) were introduced from the eastern hemisphere; 2 are endemic (*Dendrocranulus*, *Chiloxylon*). The habits of *Chiloxylon* are entirely unknown.

Key to the Genera of Dryocoetini

- 1. Lateral margin of protibia armed by 5 or more socketed denticles; male diploid, capable of flight, subequal in size to female, joins female in parental gallery formation 2
- Lateral margin of protibia armed by 2–4 socketed denticles; 3
- 2(1). Antennal club strongly flattened pubescent, basal area not corneous, sutures obscure, procurved; Cucurbitaceae hosts; 1.2–2.7 mm *Dendrocranulus*
- Antennal club obliquely truncate, basal area corneous and glabrous, sutures obscure, recurved; Pinaceae hosts; 1.5–5.1 mm *Dryocoetes*
- 3(1). Protibia rather broad apically, lateral apical angle abrupt (almost 90 degrees), 1 denticle on this angle, another on apical margin, and a third on lateral margin one fourth tibia length from apical angle; funicle 4-segmented, club constricted at partly septate suture (not actually, obliquely truncate), suture 2 indicated by setae; habitus resembling *Dryocoetes*, uniseriate interstitial setae almost scalelike on declivity, declivity very steep; strial punctures coarse, deep; (biology unknown 1.7 mm *Chiloxylon*
- Protibia narrowed near apex, outer apical angle not abrupt; funicle 5-segmented, club obliquely truncate or nearly so, sutures never septate; in phloem of various angiosperm/dicot hosts and palm fruits; (male haploid, flightless, dwarfed, occurs only in brood host) 1.3–3.7 mm *Coccotrypes*

GENUS *DENDROCRANULUS* SCHEDL

Dendrocranulus Schedl, 1937:165. Type-species: *Dendrocranulus tardus* Schedl, subsequent designation by Schedl 1938:169 (References in Wood & Bright c1992:550–554)

Diagnosis: This genus is allied to *Xylocleptes* of Europe and Africa. It is distinguished from that genus by the presence of a metatibial groove into which the tarsus can be placed; by the obscure, strongly procurved sutures of the antennal club; and by the neotropical distribution.

Description: Length 1.2–2.7 mm, 2.5–3.0 times as long as wide; color pale yellowish brown to very dark brown. Frons usually sexually dimorphic, male feebly impressed to strongly excavated, female convex to flattened, often with abundant vestiture. Eye finely faceted, oval, emarginate. Antennal scape slender, elongate, funicle 5-segmented, club rather small, circular in outline, strongly flattened, with 2 obscure, strongly procurved sutures marked by setae. Pronotum longer than wide, anterior half declivous and asperate; basal and lateral margins rounded. Scutellum small. Elytra elongate, striate; declivity convex to broadly concave, devoid of denticles.

Distribution: Wood & Bright (c1992:550–554) list 44 species from North, Central, and South America, 15 of

which are recorded from South America. Because of the lack of knowledge and the apparent overlap of species between Central and South America, all known species are included in the following key.

Biology: These species breed in the stems of over-mature, injured, cut or broken stems of vines of Cucurbitaceae. Apparently because of the non-economic status of their hosts, none of the species has been studied in detail. The entrance tunnel is made at leaf nodes where an irregular chamber is excavated. At least some of the species are polygynous, others may be monogynous (not yet confirmed). Egg galleries may be rather long. The positioning of eggs has not been reported. Larval mines may be rather long and entirely riddle the central part of the stem. The life cycle is very short. The wet season or winter apparently is passed in litter on the ground (apparently not in the host stems). In 9 months (mid-March to early December) of intense search in Costa Rica during the wet season, not one specimen of this genus was found. When the rains ceased, they were in flight in large numbers and were infesting Cucurbitaceae vines everywhere. They seemed to produce 1 generation then disappeared.

Key to the Species of *Dendrocranulus*
(Modified from Wood 1982:709–711)

- 1. Posterolateral margin of elytra acutely (rather weakly) elevated from sutural apex to interstriae 7 . . . 2
- Posterolateral margin of elytra rounded, declivital face convex to shallowly, broadly concave . . . 8

SCOLYTIDAE OF SOUTH AMERICA

2(1).	Punctures on pronotum disc clearly impressed, tubercles or granules absent	3
—	Punctures on pronotum disc almost entirely replaced by tubercles or granules	6
3(2).	Pronotum rather coarsely punctured over entire surface, entirely devoid of crenulations; ventrolateral margin of declivity subacutely elevated from suture to interstriae 8, tubercles at apex of 7 not joining 8; male frons strongly impressed, female frons ornamented by long setae; Brazil (Santa Catarina); <i>Sapota gonocarpa</i> ; 1.9–2.1 mm	<i>brasiliensis</i> (Schedl)
—	Pronotum closely, rather finely asperate on anterior half; ventrolateral crest of declivity joining interstriae 7 or 8 or obsolete at base of declivity	4
4(3).	Elytral declivity rather strongly convex, striae 2 and 3 straight to their apices; Costa Rica: 1.7–2.0 mm	<i>limus</i> Wood
—	Elytral declivity somewhat flattened, striae 2 and 3 curve toward suture near apex	5
5(4).	Pronotal and elytral punctures smaller, not as deep; elevated posterolateral margin of declivity short sharply defined only near apex; Costa Rica; <i>Sechium edule</i> ; 1.4–1.5 mm	<i>tardulus</i> Wood
—	Pronotal and elytral punctures coarse, deep; posterolateral margin of declivity longer and acutely elevated; Honduras to Costa Rica; <i>Cayaponia macrodonta</i> ; 1.9–2.0 mm	<i>tardus</i> Schedl
6(2).	Disc of pronotum entirely covered by granules or tubercles, few punctures evident; body larger, stouter, 2.4 times as long as wide; Colombia to Venezuela; Cucurbitaceae vine; 1.5–1.7 mm	<i>columbianus</i> Schedl
—	Disc of pronotum shining, punctures indicated, accompanied by impressed lines, some of which lead to or form granules; body much smaller, more slender (2.7 times as long as wide)	7
7(6).	Frons and pronotum shining; declivity more broadly flattened; interstitial setae on declivity stouter, shorter (length slightly less than distance between rows); Mexico (Nayarit) to Honduras; <i>Cayaponia microdonta</i> , <i>Sicydum tamnifolia</i> ; 1.2–1.5 mm	<i>consimilis</i> Wood
—	Frons and pronotum rather strongly reticulate, subshining; declivity more narrowly flattened; interstitial setae on declivity more slender, length slightly greater than distance between rows; Venezuela (Barinas); vine; 1.3–1.4 mm	<i>conditus</i> Wood
8(1).	Declivity slope usually steeper, more narrowly convex, lateral margins more gradually rounded in both sexes, if impressed, interstriae 1 elevated and impression not extending laterad from interstriae 3 in either sex; female frons usually much more strongly pubescent, male frons devoid of excavation or prominent tubercle on vertex	9
—	Declivital slope often more gradual, more broadly convex to shallowly concave, at least in male, impression often extending from suture to striae 4, if convex, male frons strongly impressed and armed by a median elevation on vertex; female frons sparsely to densely pubescent; male mandible usually with inner cusp directed cephalad	27
9(8).	Pronotum disc clearly, rather deeply punctured over at least median half	10
—	Pronotum disc with transverse or flat, rounded granules, occasionally with a few punctures near median line	24a
10(9).	Smaller, more slender species, at least 2.7 times as long as wide	11
—	Larger, stouter species, less than 2.5 times as long as wide	18
11(10).	Disc of pronotum with punctures distinct, without any rugosities; impressions on male frons weak	12
—	Disc of pronotum with punctures accompanied by fine rugosities; impression on lower male frons slightly deeper; punctures on discal interstriae minute, regularly placed	13

DRYOCOETINI

- 12(11). Female frons weakly convex, punctures rather sparse; body more slender; color darker; Costa Rica; vine; 1.3–1.4 mm *pumilus* Wood
- Female frons more nearly flattened, punctures minute, dense, vestiture more abundant; Mexico (Morelos); *Sechium edulis*; 1.3–1.5 mm *gracilis* Wood
- 13(11). Summit on male frons at upper level of eyes rounded, not as high; interstitial setae on declivity slightly longer, more slender (as long or longer than distance between rows) 14
- Summit on male frons at upper level of eyes subacutely elevated; interstitial setae on declivity stouter, most shorter than distance between rows 17
- 14(13). Pronotum disc reticulate; male declivital interstriae 2 more broadly, more strongly impressed, its interstitial punctures obsolete; Mexico (Veracruz); *Luffa acutangula*; 1.9–2.3 mm *sobrinus* Wood
- Pronotum disc smooth, shining or reticulate on disc, punctures on disc near median line less clearly present; male declivity shallowly, more narrowly impressed, with a row of fine interstitial punctures 15
- 15(14). Pronotum strongly reticulate; frons almost uniformly convex, transverse impression on lower half feeble to absent, with reticulation in lateral areas; punctures on discal interstriae 2 and 3 rather sparse; color reddish brown; Costa Rica; vine; 1.2–1.3 mm *vicinalis* Wood
- Pronotum smooth, shining between punctures; frons moderately impressed on lower half, without any reticulation in lateral areas; punctures on discal interstriae 2 and 3 regularly placed 16
- 16(15). Elytral declivity more strongly, evenly convex, interstriae 2 about equal in height to 1 and 3; male frons with median half of lower half almost flat; color reddish brown; Venezuela (Merida); *Cucurbita*; 1.7–2.3 mm *modus* Wood
- Elytral declivity distinctly impressed, particularly interstriae 2 in male; male frons with median half of lower half conspicuously convex; color dark brown to almost black; Brazil (Bahia to Sao Paulo); 1.4–1.8 mm *costalimai* Schedl
- 17(13). Punctures on discal interstriae widely spaced, some by distances two to three times greater than width of an interstriae; transverse impression on male frons less abrupt; male declivital interstriae 2 not impressed, declivity more evenly convex; Mexico (Veracruz) to Honduras; *Cayponia microdonta*; 1.2–1.3 mm *vinealis* Wood
- Punctures on discal interstriae small, regularly placed, spacing never greater than width of an interstriae; transverse impression on male frons more abrupt; male declivital interstriae 2 distinctly impressed; Venezuela (Barinas); vine; 1.3–1.5 mm *reditus* Wood
- 18(10). Disc of pronotum obscurely reticulate in some areas; declivital setae on interstriae 1 and 2 distinctly shorter than distance between rows; male frons reticulate, punctured; female frons moderately convex, reticulate, rather coarsely punctured, with rather sparse, long hair shorter than distance equal to width of antennal club 19
- Disc of pronotum shining, not at all reticulate; male frons shining, with subaciculate sparse rows of fine granules; female frons very finely punctured, with moderately to very abundant, fine, long hair 20
- 19(18). Male frons more narrowly, less strongly impressed on median half, a median callus above upper level of eyes; female frons more coarsely, more distinctly, rugosely punctured, setae mostly longer (almost equal in length to width of antennal club); male declivity convex, impression weaker, extending from suture to striae 2, setae on interstriae 2 stouter, much more closely spaced within row; Costa Rica; vine; 1.7–2.1 mm *securus* Wood

- Male frons broadly, more strongly impressed on median three-fourths, a median callus not evident; female frons more finely, subrugosely punctured, setae much shorter (length equal to less than half width of antennal club); male declivity less strongly convex, much more strongly impressed, impression extending from suture to striae 3, setae on interstriae 2 slender, rather widely spaced within row; Venezuela (Barinas); vine; 2.2–2.4 mm *pinguis* Wood
- 20(19). Smaller species; setae on female frons shorter (length equal to width of antennal club); female frons weakly, more evenly convex, not impressed on lower third; Mexico (Chiapas) to Honduras; *Cayaponia microdonta*; 1.8–2.0 mm *maurus* (Blandford)
- Larger species; setae on female frons much longer (length conspicuously greater than width of antennal club); female frons distinctly, transversely impressed on lower third 21
- 21(20). Pronotum weakly, distinctly reticulate; base of elytral disc near suture almost smooth; declivity steeper; mature color reddish brown; Guatemala to Costa Rica; 2.1–2.8 mm (see also couplet 33) *limbatus* (Blandford)
- Pronotum smooth, shining between punctures and tubercles 22
- 22(21). Setae on declivital interstriae 1–3 longer; more slender, tips sharply pointed, these setae distinctly longer than distance between rows; female frons more strongly convex, vestiture sparse, inconspicuous, margins of oral area with a conspicuous, dense tuft of yellow hair; male frons less strongly, more abruptly impressed; male declivity with punctures on striae 1 and 2 conspicuously larger; deeper; Argentina; 2.4–2.6 mm *barbatus* Schedl
- Setae on declivital interstriae 1–3 uniformly shorter, stouter, blunt, distinctly shorter, each about equal in length to two-thirds distance between rows; female frons with a conspicuous tuft of long hair 23
- 23(22). Pronotal asperities on basal half not as high; interstitial punctures on disc small, half as large as those of adjacent striae; declivital impression slightly deeper; male frons more strongly impressed below, median summit above eyes tuberculate; female frons finely punctured and ornamented by a dense tuft of long, yellow setae, longest setae on upper and lateral margins; Mexico (Oaxaca) to Honduras; 1.7–1.8 mm *maurus* Blandford
- Pronotal asperities on basal half rather coarse; interstitial punctures on disc coarse, almost as large as those of adjacent striae; declivital impression not as deep; male frons below less strongly impressed; female frons with median summit above eyes rounded, uniformly, closely granulate-punctate from epistoma to vertex, setae fine, long, uniformly distributed, not as dense; Mexico (Veracruz); *Sechium edulis*; 2.3–2.6 mm *mexicanus* Wood
- 24a(9). Larger; declivital impression slightly deeper, wider, including all of interstriae 2 (not striae 3); frontal vestiture shorter, less abundant; body 3.0 times as long as wide; Bolivia (Cochabamba); 2.7 mm *major* Schedl
- Smaller than 2.5 mm; declivital impression deepest at striae 1, ascending laterad; frontal vestiture more abundant, mostly near epistoma 24b
- 24b(24a). Larger; interstitial setae on disc and lateral areas of declivity very fine, slender; vestiture on female frons long, rather sparse above; male frons shallowly impressed, a low median elevation above upper level of eyes 25a
- Smaller; interstitial setae on disc and declivity moderately to very coarse, slightly flattened, male frons evenly convex 26
- 25a(24b). Male frons weakly impressed below, a distinct median elevation above upper level of eyes; female frons more weakly convex; more densely punctured, with feeble aciculation on lateral areas, pubescence long, very fine, moderately abundant, uniformly distributed from epistoma to above

DRYOCOETINI

- upper level of eyes; declivity more strongly convex, rather weakly impressed in male, feebly impressed in female; Panama; vine; 1.8–2.3 mm *fulgidus* Wood
- Male frons feebly impressed below, a weak median callus above upper level of eyes; lower one-third of female frons rather densely pubescent, sparsely pubescent above, more strongly convex, less densely punctured; declivity more strongly, more broadly impressed in both sexes 25b
- 25b(25a). Male frons less strongly impressed on lower half, a weak median callus at upper level of eyes; female frons more strongly convex and without a median callus, epistoma with a conspicuous rather dense tuft of long, yellow setae; male declivity more strongly, broadly impressed, declivital setae twice as long, very slightly more slender; Venezuela (Aragua); vine; 1.9–2.3 mm
. *limitaris* Wood
- Male frons more distinctly, broadly impressed on lower half, a weak, distinct median callus above upper level of eyes (female not seen); male declivity less strongly, more narrowly impressed; Brazil; 1.8–2.0 mm *melaenus* (Eichhoff)
- 26(24b). Female frons convex, with a few minute granules, sparsely pubescent; elytral declivity less strongly, more narrowly impressed; Costa Rica; vine; 1.5–1.7 mm *schedli* Wood
- Female frons somewhat flattened, finely punctured, with abundant, long fine pubescence; elytral declivity more strongly, broadly impressed; Honduras to Costa Rica; *Cayaponia microdonta*, *Potakowskia tacaco*; 1.4–1.7 mm *vicinus* Wood
- 27(8). Male declivity feebly, broadly impressed to broadly convex; frons strongly impressed and with a prominent median elevation on vertex; female declivity usually more strongly convex than in male, frons moderately convex 28
- Male declivity broadly sulcate to rather strongly, broadly concave; male frons less strongly impressed, median elevation absent (except moderately to weakly developed in *knausi*); female declivity usually similarly but usually less strongly impressed, interstriae 1 never elevated; female frons variable but usually somewhat similar to male 30
- 28(27). Pronotum disc with coarse, subcrenulate granules, punctures obscurely evident only near median line, obsolete laterally; male frons below upper level of eyes almost flat, median elevation on vertex moderately developed, little if any higher at its lower end; Mexico (Durango to Michoacan); vine; 1.6–1.9 mm *rudis* Wood
- Pronotum disc with crenulations smaller, punctures clearly evident, obscure but usually present almost to lateral margins; male frons more strongly impressed, median elevation on vertex higher or projecting slightly at its lower end 29
- 29(28). Pronotum disc subreticulate between crenulations, crenulations shorter, thicker, less acutely elevated, more regularly spaced; male frontal impression not as deep, more extensive, elevation on vertex blunt; Panama; vine; 1.5–2.0 mm *confinis* Wood
- Pronotum disc shining, crenulations longer, thinner, more acutely elevated, surface appearing more wrinkled; male frontal excavation deeper, less extensive, elevation on vertex acute; USA (S Utah, S California) to Mexico (Michoacan, Morelia); *Cucurbita*, *Echinocystis macrocarpa*, *Luffa acutangula*; 1.5–2.2 mm *cucurbitae* (LeConte)
- 30(27). Elytral declivity narrower, rather broadly bisulcate, sutural interstriae as strongly elevated as lateral convexities; average size smaller 31
- Elytral declivity broad to very broad, moderately to very strongly impressed, lateral convexities distinctly higher than suture, interstriae 1 not elevated to weakly elevated; average in size 36
- 31(30). Pronotum rather strongly reticulate over entire surface, asperities on anterior half small, rather widely separated, punctures small, most of them subgranulate; interstitial setae rather coarse, blunt; Costa Rica; *Potakowskia tacaco*, *Sechium edule*; 1.5–1.8 mm *declivis* Schedl

- Pronotum rather coarsely asperate and shining on anterior half, rather coarsely punctured or asperate and either shining or partly, obscurely reticulate on posterior half; interstitial setae more slender 32
- 32(31). Larger, stouter; pronotum 1.15 times as long as wide; pronotal and elytral punctures larger, deeper; discal striae almost as wide as interstriae; pronotum shining, entirely devoid of reticulation; declivital strial and interstitial punctures very small; female frons with moderately abundant pubescence 33
- Smaller, more slender; pronotum 1.2 times as long as wide; pronotal and elytral punctures smaller; discal interstriae one and one-half times as wide as striae 34
- 33(32). Elytral declivity more narrowly, more strongly convex; declivital interstriae 2 with a row of small granulate punctures bearing a row of erect setae; female frons weakly convex from epistoma to upper level of eyes, finely, densely punctured, abundant long pubescence extending almost to vertex; Guatemala; 2.3–2.5 mm (see also couplet 21) *limbatus* (Blandford)
- Elytral declivity more strongly, more broadly impressed; declivital interstriae 2 impunctate in both sexes and devoid of a row of interstitial setae; female frons rather strongly convex, punctures much larger, not as close, vestiture long and dense on lower third of area below upper level of eyes, sparse above; Venezuela (Merida); *Cucurbita*; 2.1–2.5 mm *limbellus* Wood
- 34(33). Interstitial setae on disc longer, very fine, pointed, on declivity each seta one and one-half times as long as distance between rows, spaced within a row by distances half as great as distance between rows; strial setae on posterolateral areas fine, more than half as long as interstitial setae; body slender; 3.0 times as long as wide; Mexico (Veracruz) to Costa Rica; vine; 1.7–2.0 mm *macilentus* (Blandford)
- Interstitial setae on disc about as on declivity, blunt, those on declivity as long as distance between rows, spaced within a row by distances slightly less than their length; strial setae very short, almost obsolete; body stouter, about 2.6 times as long as wide 35
- 35(34). Pronotum at least partly reticulate on posterior half in marginal areas or near punctures; transverse granules on pronotum disc finer, not reaching posterior margin; elytral punctures averaging slightly smaller; Mexico (Veracruz) and Honduras to Guadeloupe Island; *Cayaponia microdonta*; 1.7–1.9 mm *guatemalensis* (Hopkins)
- Pronotum shining, devoid of reticulation; transverse granules on pronotum disc coarser, more widely distributed; elytral punctures averaging slightly larger; USA (Florida) to Cuba and Jamaica; 1.6–1.7 mm *carbonarius* (Ferrari)
- 36(30). Interstriae about as wide as striae, strial and interstitial punctures coarse, of equal size and spacing; spine on mesal margin near base of male mandible not evident; pronotum disc shining, punctures coarse, deep; vestiture fine, very long 37
- Interstriae about twice as wide as striae, punctures smaller, more widely spaced; pronotum disc at least partly reticulate in lateral areas, punctures smaller; vestiture much shorter 38
- 37(36). Male frons strongly, transversely impressed from epistoma to upper level of eyes, upper margin rather abrupt, median tubercle on upper margin distinctly larger; male elytral declivity shallowly, rather broadly impressed, interstriae 1 weakly elevated, striae 1 and 2 with punctures shallow to obsolete; female frons more strongly convex above, more coarsely punctured, median tubercle on vertex more conspicuous, a short median carina on lower fifth; Argentina; *Cayaponia ficifolia* *tayuyaensis* Schedl
- Male frons shallowly, transversely impressed from epistoma to upper level of eyes, upper margin gradual, median tubercle small; male elytral declivity broadly, much more strongly impressed, lateral margins rather abruptly rounded, interstriae 1 not elevated, punctures on striae 1 and 2 rather coarse, deep; USA (Kansas to New Mexico); 1.7–2.3 mm *knausi* Hopkins

- 38(36). Male frons more narrowly impressed on median half from epistoma to well below upper level of eyes, with vestiture fine, sparse; female frons more strongly convex, less densely punctured, vestiture sparse, short, inconspicuous; Honduras to Costa Rica; *Cayaponia microdonta*; 2.0–2.9 mm
 **diversus** Wood
- Male frons more strongly, more broadly impressed on median three-fourths from epistoma to upper level of eyes, with moderately abundant, long vestiture extending from epistoma almost to vertex; female frons more broadly convex, more densely punctured below, with a dense brush of abundant, long hair from epistoma to upper level of eyes; Venezuela (Aragua); vine; 2.7–3.2 mm
 **auctus** Wood

Dendrocranulus brasiliensis (Schedl)

Dendrocranulus brasiliensis (Schedl), 1963:224 (*Xylocleptes*). Holotype ♂; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:550)

Diagnosis: Distinguished from all known species of *Dendrocranulus* by the total absence of pronotal asperities; and by the unique frons and elytral declivity described below.

Male: Length 1.9–2.1 mm, 2.8 times as long as wide; color yellowish brown. Frons strongly, abruptly, transversely impressed from epistoma to well above upper level of eyes, lower fifth at epistoma very weakly concave; surfaces shining, punctures minute, rather sparse; vestiture of fine, long, moderately abundant setae; antennal club oval, very slightly longer than wide, slightly longer than scape, sutures 1 and 2 aseptate, obscure, moderately procurved. Pronotum 1.1 times as long as wide; widest at middle of pronotum length, rather weakly arcuate then converging on anterior third to rather broadly rounded, unarmed anterior margin; moderately declivous on anterior fifth; surface smooth, shining, punctures rather coarse, moderately close (separated by half diameter of a puncture), entirely devoid of asperities; vestiture of sparse, moderately long setae on lateral areas. Elytra 1.7 times as long as wide, 1.4 times as long as pronotum; striae not impressed, punctures rather small; interstriae shining, with some irregular, fine lines, twice as wide as striae, punctures uniseriate, almost as large as those of striae. Declivity confined to slightly less than posterior third, steep, rather weakly convex; striae 1 and 2 punctured as on disc; interstriae 1 and 3 feebly elevated, 1–7 each with a row of small rounded tubercles, ventrolateral margin subacutely elevated then joining 8 at base of declivity, 7 at base with a very short carinate crest. Vestiture of uniseriate rows of moderately long, erect interstitial setae from base of elytra to apex.

Female: Similar to male except frons broadly flat from epistoma to upper level of eyes, uniformly ornamented by abundant, fine, long setae, apparently, slightly longer at margins; tubercles on declivital interstriae replaced by punctures except on 6–8, crest on 7 slightly longer.

Distribution: Brazil: Nova Teutonia, Santa Catarina 27°11'N, 52°23'W, 300–500 m, *Sapota gonocarpa*, F. Plaumann (type), Malpighiaceae 221 (allotype), *Cassia dalbergia* 74 (male paratype), *Cedrella* 82 (female paratype).

Hosts: Apparently all hosts listed above were roosting (beating) records. The true host should be a Cucurbitaceae vine.

Notes: The above treatment is based on the male holotype, female allotype, 1 male paratype, and 1 female paratype from Brazil.

Dendrocranulus columbianus Schedl

Plate LXXI

Dendrocranulus columbianus Schedl, 1937:167. Holotype ♂; Colombia; NHMW, Wien (References in Wood & Bright c1992:550)

Dendrocranulus limatus Wood, 1974:22. Holotype ♂; Bumbum Forest Station, Barinas, Venezuela; USNM, Washington (References in Wood & Bright c1992:552). *New synonymy*

Diagnosis: Distinguished from *consimilis* Wood by the entire pronotum disc being covered by granules and tubercles, punctures almost entirely absent; and by the slightly larger, stouter body form. The ventrolateral margin of the elytral declivity is subacutely elevated on a continuous costa and the female frons has a brush of long, yellow hair.

Male: Length 1.5–1.7 mm, 2.4 times as long as wide; color reddish brown. Frons convex, a weak transverse impression on lower half of median half, a weak median callus above upper level of eyes; surface shining, punctures organized into obscure convergent aciculation; vestiture sparse, short, hairlike. Pronotum 1.2 times as long as wide; summit at middle, closely, rather coarsely asperate in front, disc rather closely tuberculate, punctures not evident, shining; vestiture hairlike, mostly on anterior and lateral margins. Elytra 1.4 times as long as wide, 1.2 times as long as pronotum; striae not impressed, punctures small, rather deep, very close, interstriae three times as wide as striae, smooth, shining, punctures slightly smaller than those of striae, close. Declivity occupying about 30 percent of elytra length, steep, broadly convex; posterolateral margin from suture to interstriae 7 distinctly, subacutely elevated on a continuous costa; face broadly convex, striae weakly impressed, interstriae 1 distinctly elevated, sculpture about as on disc except punctures feebly granulate. Vestiture consisting of rows of rather stout interstitial setae, each seta very slightly longer than distance between rows.

Female: Similar to male except frons more weakly, broadly convex from epistoma to well above upper level of eyes, this area densely covered by a brush of long, yellow hair; elytral setae slightly more slender.

Distribution: Colombia to Venezuela.

Colombia: "Colombien."

Venezuela: Bumbum Forest Station, Barinas, 29-I-1970, 150 m, No. 276, Cucurbitaceae vine, SLW; 8 km SW Bumbum, Barinas, 11-II-1970, 150 m, No. 311, Cucurbitaceae vine, SLW; 5 km W El Pino, Merida, 20-XI-1969, 10 m, No. 142, Cucurbitaceae vine, SLW.

Biology: Boring in overmature and broken stems of Cucurbitaceae vines.

Notes: The above treatment was based on the 32 specimens in the type series of *limatus* Wood, all from Venezuela. The holotype of *columbianus* Schedl was compared by me directly to paratypes of *limatus*.

Dendrocranulus conditus Wood

Dendrocranulus conditus Wood, 1974:23. Holotype ♂; Bumbum Forest Station, Barinas, Venezuela; USNM, Washington (References in Wood & Bright c1992:550)

Diagnosis: Distinguished from *consimilis* Wood by the reticulate frons and pronotum; by the more narrowly flattened elytral declivity; by the minute to obsolete, sparse interstitial punctures on the disc; and by the more slender interstitial setae.

Male: Length 1.3–1.4 mm, 2.7 times as long as wide; color reddish brown. Frons about as in *columbianus* Schedl, except surface reticulate, aciculation obscure to absent, transverse impression on lower half obscure to absent. Pronotum 1.2 times as long as wide; summit well in front of middle of pronotum length; surface of disc strongly reticulate, punctures rather coarse, deep, most associated with weak, shining rugae; vestiture sparse, restricted to anterior and lateral areas. Elytra 1.6 times as long as wide, 1.4 times as long as pronotum; striae not impressed, punctures moderately coarse, deep; interstriae slightly wider than striae, smooth, shining, punctures small, varying from small to obsolete, sparse when present. Declivity steep; striae 1 and 2 distinctly impressed, interstriae 2 distinctly impressed, not as high as 1 or 3, rows of punctures minute but present. Vestiture consisting of interstitial rows of erect, slender, setae on sides and declivity, mostly absent on disc.

Female: Similar to male except short, sparse setae present on frons; declivity less strongly impressed, interstriae 2 not impressed (equal to 1 and 3).

Distribution: Venezuela: Bumbum Forest Station, Barinas, 29-I-1970, 150 m, No. 276, Cucurbitaceae vine, SLW.

Biology: Boring in overmature stems in the Forest Station garden.

Notes: The above treatment was based on the holotype and allotype from Venezuela. The 1 paratype apparently is another species.

Dendrocranulus modus Wood

Dendrocranulus modus Wood, 1979:140. Holotype ♀; Merida, Merida, Venezuela, 1700 m; USNM, Washington (References in Wood & Bright c1992:553)

Diagnosis: Distinguished from *vicinalis* Wood by the absence of reticulation on the pronotum; by the more broadly flattened male frons; and by the larger size.

Male: Length 1.7–2.3 mm, 2.7 times as long as wide; color dark reddish brown. Frons flat on median half from epistoma to upper level of eyes, surface smooth, shining, with very small, sparse punctures; punctures larger and closer at sides and above; vestiture sparse on epistoma and lateral areas. Pronotum 1.1 times as long as wide, obscure summit at middle; asperities on anterior slope small, numerous; rugae in lateral areas attain base; disc on median half rather coarsely, deeply punctured, median line impunctate, surface between punctures smooth, shining, sparse, rather long setae on anterior and lateral areas. Elytra 1.5 times as long as wide, 1.4 times as long as pronotum; striae not impressed, punctures rather small, deep, close; interstriae almost twice as wide as striae, smooth, shining, punctures small (half as large as those of striae). Declivity steep, broadly convex; interstriae 1 and 2 moderately impressed; punctures on striae 1 and 2 minute, interstriae 1–3 each with a row of fine punctures equal in size to those of adjacent striae. Vestiture of rows of slender interstitial setae on disc and declivity (including interstriae 2 on declivity).

Female: Similar to male except frons more strongly convex above, a moderate transverse impression on lower half; declivity more strongly convex, impression very weak.

Distribution: Venezuela: Merida, Merida, 22-IX-1969, 1700 m, No. 18, *Cucurbita*, SLW.

Biology: Boring in a broken stem of *Cucurbita* sp.

Notes: The above treatment was based on the type series of 18 specimens from Venezuela.

Dendrocranulus costalimai Schedl

Plate LXXI

Dendrocranulus costalimai Schedl, 1938:169. Lectotype, sex?; Santos, Sao Paulo, Brazil; USNM, Washington, designated by Anderson & Anderson 1971:10 (References in Wood & Bright c1992:551)
Dendrocranulus sechii Nunberg, 1972:193. Holotype ♂; Barueri, Sao Paulo, Brazil; MZUSP, Sao Paulo. *New synonymy*

Diagnosis: Distinguished from *modus* Wood by the more strongly convex declivity; by the reticulate pronotum; by the smaller size; and by the darker color.

Male: Length 1.4–1.8 mm, 2.7 times as long as wide; very dark brown to black. Frons broadly convex from epistoma to upper level of eyes, more strongly convex above; a weak median callus from near epistoma almost to vertex, stronger above; surface strongly reticulate, punctures moderately coarse, close, callus impunctate, smooth, shining; vestiture sparse, inconspicuous, hairlike. Pronotum 1.2 times as long as wide; summit anterior to middle of pronotum length, anterior third declivous, rather finely, closely asperate; surface strongly reticulate, punctures on median half of disc very small, each associated with a shining, weak crenulation; sparse vestiture confined to anterior and lateral areas. Elytra 1.6 times as long as wide, 1.5 times as long as pronotum; striae not

impressed, punctures small, moderately deep; interstriae twice as wide as striae, smooth, shining, with a few minute lines, punctures in rows, half as large as those of striae, rather widely spaced. Declivity steep, broadly convex, not impressed, occupying one-fourth of declivity length; sculpture as on disc. Vestiture of interstitial rows of slender, erect setae on sides and declivity; each seta as long as distance between rows.

Female: Essentially as in male.

Distribution: Brazil: Cepec, Bahia, I-III-1981, black-light, Kaston; Santos, Sao Paulo (holotype); Barueri, Sao Paulo, 14-I-1968, *Sechium edule*, K. Lenko (paratypes).

Notes: The above treatment was based on 8 specimens from Brazil, 1 of which was compared by me to Schedl's female cotype of *costalima* Schedl, and on 2 paratypes of *D. sechii* Nunberg (MZUSP).

Dendrocranulus reditus Wood

Plate LXXIII

Dendrocranulus reditus Wood, 1974:23. Holotype ♂; 9 km S Barancas, Barinas, Venezuela, 150 m; USNM, Washington (References in Wood & Bright c1992:553)

Diagnosis: Distinguished from *vinealis* Wood by the more closely, regularly placed punctures on the pronotum disc; by the more strongly impressed male declivity; and by the slightly larger size.

Male: Length 1.3–1.5 mm, 3.0 times as long as wide; color dark reddish brown. Frons broadly, transversely, rather strongly impressed on lower half, a rather prominent, obtuse, median elevation immediately above upper level of eyes; surface shining, punctures sparse, minute on impressed area, larger, closer above; vestiture hair-like, sparse, rather long, inconspicuous. Pronotum 1.1 times as long as wide; summit indefinite, anterior to middle; closely, moderately asperate on anterior slope; disc shining on median third, becoming finely reticulate laterally, punctures fine, each associated with a low, shining, transverse or oblique crenulation; vestiture restricted to anterior and lateral areas. Elytra 1.8 times as long as wide, 1.7 times as long as pronotum; striae not impressed, punctures small, rather deep; interstriae almost twice as wide as striae, surface smooth, shining, punctures in rows, half as wide as those of striae. Declivity restricted to posterior third of elytra length, steep, broadly convex; convex except interstriae 2 weakly impressed, sculpture about as on disc, punctures on 2 present, regularly impressed. Vestiture of rows of erect interstitial setae on disc, sides, and declivity, setae slender, most very slightly longer than distance between rows.

Female: Similar to male, except transverse impression on frons not as strong and median elevation on vertex absent; impression on declivital interstriae 2 much weaker.

Distribution: Venezuela: 9 km S Barancas, Barinas, 1-X-1969, 150 m, No. 34 (and 2-XII 1969, No. 162), vine, SLW; 29 km SW El Vigia, Merida, 10-XII-1969, 50 m, No. 18, Cucurbitaceae vine, SLW.

Hosts: Cucurbitaceae vines.

Biology: Boring in overmature stems.

Notes: The above treatment was based on 97 specimens in the type series, all from Venezuela.

Dendrocranulus pinguis Wood

Plate LXXII

Dendrocranulus pinguis Wood, 1979:140. Holotype ♀; Bumbum Forest Station, Barinas, Venezuela, 150 m; USNM, Washington (References in Wood & Bright c1992:553)

Diagnosis: Distinguished from *securus* Wood by the larger size; by the more strongly, more broadly impressed male frons; by the absence of a median callus on the male vertex; and by the less strongly convex male declivity.

Male: Length 2.2–2.4 mm, 2.5 times as long as wide; color dark reddish brown. Frons moderately, broadly impressed on more than lower half, with no indication of a median elevation above; surface of lower fourth shining immediately above epistoma, then moderately reticulate to well above upper level of eyes, shining area mostly without punctures, reticulate area with moderately abundant, fine punctures; vestiture sparse, hair-like, inconspicuous. Pronotum 1.2 times as long as wide; summit indefinite, at middle; anterior slope moderately, closely asperate; discal area smooth, shining and moderately punctured on median third, becoming weakly reticulate laterally, punctures each with a small, weak, shining crenulation extending transversely; sparse vestiture on anterior and lateral areas. Elytra 1.6 times as long as wide, 1.5 times as long as pronotum; striae not impressed, punctures moderately small, deep; interstriae about one and one-half times as wide as striae, smooth, shining, punctures in rows, each at least two-thirds as large as those of striae. Declivity confined to posterior third, steep, broadly, subconvexly impressed from suture to striae 3; interstriae 1 weakly elevated, 2 and most of 3 impressed, lateral convexities slightly higher than suture; interstriae 1–3 each with a row of fine tubercles. Vestiture consisting of rows of erect interstitial setae on disc, sides, and declivity, each as long as distance between rows.

Female: Similar to male except frons more strongly convex, more strongly reticulate, pronotum entirely reticulate; declivity broadly convex, weakly impressed on interstriae 2.

Distribution: Venezuela: Bumbum Forest Station, Barinas, 29-I-1970, 150 m, No. 276, Cucurbitaceae vine, SLW.

Hosts: Cucurbitaceae vine.

Biology: Boring in overmature stems in Forest Station garden.

Notes: The above treatment was based on the type series of 8 specimens from Venezuela.

Dendrocranulus barbatus Schedl

Dendrocranulus barbatus Schedl, 1939:172. Lectotype ♀; Argentina, Vicente Lopez; NHMW, Wien, designated by Schedl 1979:34 (References in Wood & Bright c1992:550)

Diagnosis: Remotely allied to *mexicanus* Wood, but distinguished by the tuft of long hair on the margins of the female oral area; by the longer, more slender interstriae on the elytral declivity; and by the strongly convex female frons that lacks abundant, conspicuous long setae.

Male: Length 2.4–2.6 mm, 2.37 times as long as wide; color very dark brown. Frons convex on upper half and finely, closely punctured, shallowly impressed on lower half; vestiture sparse, inconspicuous. Pronotum 1.1 times as long as wide; sides almost straight and parallel on more than basal half, broadly rounded in front; summit indefinite at middle; anterior slope closely, rather coarsely asperate; posterior areas smooth, shining, a small punctured area behind summit, transverse, rounded rugae continue in lateral areas to base. Elytra 1.5 times as long as wide, 1.3 times as long as pronotum; striae not impressed, punctures rather coarse, deep; interstriae twice as wide as striae, smooth, shining, punctures uniseriate, almost as large as those of striae. Declivity occupying posterior fourth of elytra length, steep, shallowly impressed on median two-thirds; punctures on striae 1 and 2 rather coarse, deep; interstriae 1 shallowly impressed, 1 weakly, 3 more distinctly elevated, 1, 2, and 3 each with a row of small, rounded tubercles. Vestiture of interstitial rows of long pointed hair, on declivity each seta distinctly longer than distance between rows.

Female: Similar to male, except frons strongly convex above upper level of eyes, closely, deeply punctured, with an impunctate median, longitudinally elongate bulla, moderately, transversely impressed below, with a small, median impunctate area above epistoma; margins of oral area bearing a tuft of long setae; declivital impression not as strong, interstitial tubercles reduced to absent.

Distribution: Argentina: Vicente Lopez, III-1939, *Cayaponia ficifolia*, C. Bruch.

Notes: The above treatment was based on the female lectotype, male lectoallotype, and 1 male and 1 female paratype, all in NHMW, Wien.

Dendrocranulus major Schedl

Dendrocranulus major Schedl, 1938:170. Lectotype ♂; Cochabamba, Bolivia; USNM, Washington, designated by Anderson & Anderson 1971:19 (References in Wood & Bright c1992:552)

Diagnosis: Allied to *limitaris* Wood, distinguished by the larger size and more slender body form; by the wider declivital sulcus; by fewer setae on the frons; and by other characters described below.

Male: Length 2.7 mm, 3.0 times as long as wide; pronotum color almost black, elytra dark reddish brown. Frons moderately convex, a weakly elevated shining median callus slightly above upper level of eyes; mostly rather finely rugose except median line almost smooth, rugose areas with fine moderately abundant setae of moderate length. Pronotum 1.15 times as long as wide; widest on basal third, sides weakly arcuate and subparallel on basal half, rather narrowly rounded in front;

summit indefinite, slightly behind middle of pronotum length; asperities rather small, numerous, confused, their crest becoming rounded toward summit and on lateral areas to base, punctures at and behind summit rather small and each with a weak, rounded lateral crest; sides and asperate area with moderately numerous, rather long, hairlike setae. Elytra 1.8 times as long as wide, 1.8 times as long as wide; disc occupying basal 70 percent of elytra length; striae 1 feebly, others not impressed, punctures rather small, rather strongly impressed; interstriae smooth, shining, about three times as wide as striae, punctures in rows, almost half as wide as those of striae but more widely spaced. Declivity very steep, basically, broadly concave except shallowly impressed from striae 1 almost to 3; punctures on striae 1 and 2 half as large and not as deep as on disc; interstriae 1 distinctly elevated and with a continuous row of very small punctures, 2 distinctly wider than 1 and with a row of punctures on basal fourth and apical fourth (mostly or entirely obsolete on middle half); striae 3 and interstriae 3 each with a row of small punctures, punctures larger than on striae 2. Vestiture mostly confined to sides, shorter and mostly abraded on disc and declivity from suture to striae 3.

Distribution: Bolivia: Cochabamba.

Notes: The above treatment was based on the male holotype.

Dendrocranulus limitaris Wood

Plate LXXII

Dendrocranulus limitaris Wood, 1979:140. Holotype ♀; Rancho Grande, Pittier National Park, Aragua, Venezuela; USNM, Washington (References in Wood & Bright c1992:552)

Diagnosis: Distinguished from *fulgidus* Wood by the less strongly impressed male frons, with only a weak median callus above; by the densely pubescent lower female frons; and by the more broadly, more strongly impressed declivity in both sexes.

Male: Length 1.9–2.3 mm, 2.7 times as long as wide; color dark reddish brown. Frons convex above, weakly, transversely impressed on lower half, an obscure median callus on vertex; surface obscurely reticulate, punctures moderately coarse above, minute below, a few small, rounded granules in central area; vestiture sparse, moderately long, inconspicuous. Pronotum 1.2 times as long as wide; indefinite summit at middle of pronotum length, asperities on anterior slope rather small, close; disc shining, smooth, moderate transverse crenulations extend to base, most crenulations on median third with a small puncture at mesal end; sparse vestiture moderately long on anterior and lateral areas. Elytra 1.5 times as long as wide, 1.3 times as long as pronotum; striae 1 feebly, others not impressed, punctures small, rather deep; interstriae twice as wide as striae, smooth, shining, punctures almost as large as those of striae, rather sparse. Declivity restricted to posterior third, steep, broadly impressed (appearing almost transversely flat to

shallowly concave from dorsal aspect); stria punctures small, shallow; interstriae 1 weakly elevated, 2 and median half of 3 moderately impressed; interstriae 1 with a row of fine punctures, 2 impunctate, 3 with a row of fine granules. Vestiture of interstitial rows of fine, long hair, except absent on declivital interstriae 2, each seta about one and one-half times as long as distance between rows.

Female: Similar to male except frons broadly convex from epistoma to vertex, weakly reticulate, moderately, rather coarsely punctured above, finely, densely on lower third, lower third with rather dense, long setae; punctures on discal interstriae more closely spaced; declivity more strongly convex, impressed at striae 1, with 1–3 each with a row of setiferous tubercles.

Distribution: Venezuela: Rancho Grande, Pittier National Park, Aragua, 9-IV-1970, No. 422, Cucurbitaceae vine, SLW.

Biology: Boring in recently cut stems of the host.

Notes: The above treatment was based on the type series of 138 specimens from Venezuela.

Dendrocranulus melaenus (Eichhoff)

Dendrocranulus melaenus (Eichhoff), 1871:136 (*Dryocoetes*). Holotype ♀; America meridionalis (Brazil)

Diagnosis: Two specimens in the BMNH, London, were identified by Sampson (1926:482) as *Dryocoetes melaenus* Eichhoff. Both are males clearly belonging to the genus *Dendrocranulus*. They are distinguished from *limitaris* Wood by the more distinctly, more widely impressed male frons, with a weak median carina above upper level of eyes; female *limitaris* with a dense brush of long, yellow setae above epistoma (female *melaenus* not seen). The elytral setae of *melaenus* are shorter and slightly stouter than in *limitaris*.

Male: Length 1.8–2.0 mm, about 2.6 times as long as wide (glue obstruction, not clear); color dark reddish brown. Frons slightly impressed (planoconvex) on about median three-fourths from epistoma to upper level of eyes, surface smooth, brilliantly shining, punctures sparse, very minute; setae sparse, slender, of moderate length; antennal club oval, sutures 1 and 2 strongly procurved, 1 attaining middle of club length. Pronotum 1.14 times as long as wide; widest slightly behind middle of pronotum length, sides weakly arcuate on basal two-thirds of pronotum length, rather narrowly rounded in front; summit indefinite, anterior to middle of pronotum length; asperities on anterior slope small, numerous, confused, their crest rounded from pronotum summit to base, those from summit to base on and near median line each with a small, deep puncture at mesal end; rather short, hairlike setae of moderate abundance over entire surface. Elytra about 1.7 times as long as wide, 1.7 times as long as pronotum; disc occupying basal 72 percent of elytra length; disc surface smooth, shining; striae not impressed, punctures rather small, in rows, moderately deep; interstriae about as wide as striae, punctures in

rows, each puncture half as large as those of striae (about as in *limitaris*). Declivity rather steep; sutural interstriae feebly elevated, 2 weakly impressed, weakly ascending and broadly rounded from striae 2 to 3; striae and interstitial punctures slightly smaller than those on disc. Vestiture of fine, short, recumbent striae setae from base to apex (many abraded), and erect rows of moderately stout interstitial setae, each seta almost twice as long as those of striae from base to apex.

Distribution: Brazil (FW. Sampson Coll. [accessioned by BMNH] 1926-482).

Notes: Two specimens, cited above, in the BMNH, London, and obtained by them from FW. Sampson, were examined. There are no indications on the labels that these specimens have any standing as types, nor is there an indication that Sampson saw or compared them to the Eichhoff type. They fit Eichhoff's key (1878) and description of *Dryocoetes melaenus* rather well and could be that species. Most *Dendrocranulus* breed in vines of endemic Cucurbitaceae.

Dendrocranulus limbellus Wood

Dendrocranulus limbellus Wood, 1979:139. Holotype ♀; Merida, Merida, Venezuela, 5300 feet; USNM, Washington (References in Wood & Bright c1992:552)

Diagnosis: Distinguished from *limbatus* (Blandford) by the more strongly, more broadly convex elytral declivity, with interstriae 2 impunctate and devoid of setae in both sexes; and by the long, dense vestiture on the lower third of the female frons, similar to *limbatus*.

Male: Length 2.1–2.5 mm, 2.8 times as long as wide; color dark reddish brown. Frons moderately, transversely impressed on median half of lower two-thirds of area below upper level of eyes; weakly reticulate and rather closely, coarsely punctured above, smooth, shining, finely punctured in impressed area below; vestiture of sparse, fine, long hair. Pronotum 1.1 times as long as wide; summit anterior to middle, anterior slope with small, rather close asperities; disc weakly reticulate, median third moderately punctured, a rather small low crenulation extending laterad from each puncture. Elytra 1.7 times as long as wide, 1.6 times as long as pronotum; striae 1 weakly, others not impressed; punctures rather small, close; interstriae three times as wide as striae, smooth, shining, punctures two-thirds as large as those of striae, most spaced by distance equal to width of an interstriae. Declivity broadly, shallowly concave; stria punctures slightly smaller than on disc, rather deep; interstriae 1 weakly elevated at suture, 2 and 3 moderately impressed, punctures on 1 fine, regularly placed, feebly granulate, mostly obsolete on 2 with one granule near base, 3 and 4 with small granules. Vestiture of sparse rows of interstitial setae, most setae as long as distance between rows, a few near base of declivity longer.

Female: Similar to male except frons broadly convex, rather coarsely punctured, lower third and epistoma rather densely covered by long hair; declivity convex, impressed at striae 1, interstriae 1 feebly elevated, with

a row of minute granules, 2 and lower 3 impunctate, upper 3 and lateral areas with a few fine granules.

Distribution: Venezuela: Merida, Merida, 11-IX-1969, 1700 m, No. 1, *Cucurbita*, SLW.

Biology: Boring in a broken stem of the host.

Notes: The above treatment was based on the type series of 27 specimens from Venezuela.

Dendrocranulus tayuyaensis Schedl

Dendrocranulus tayuyaensis Schedl, 1939:173. Lectotype ♀; Vicente Lopez, Argentina; NHMW, Wien, designated by Schedl 1979:250 (References in Wood & Bright c1992:553)

Diagnosis: Distinguished from *knausi* (Hopkins) by the much more strongly impressed male frons; and by the much less strongly impressed male declivity.

Male: Length 1.7–2.0 mm, 2.7 times as long as wide; color very dark reddish brown. Frons strongly, transversely impressed from epistoma to well above upper level of eyes, surface smooth, shining, sparse punctures in lateral areas, part of median line subcarinate; upper margin of impressed area abrupt, crest armed by several small tubercles, median one slightly larger; small spine on inner margin at base of mandible rather small, larger than in *knausi*. Pronotum 1.07 times as long as wide; widest on basal half, sides weakly arcuate, rather broadly rounded in front; summit indefinite, slightly in front of middle of pronotum length, anterior half finely, closely asperate, asperities continuing to base in lateral areas; disc smooth, shining, punctures coarse, transversely connected by weak, rounded rugae; vestiture of sparse hair (abraded on type). Elytra 1.6 times as long as wide; striae 1 feebly, others not impressed, punctures rather small, deep; interstriae twice as wide as striae, punctures two-thirds as large as those of striae, uniseriate, surface smooth, shining, slightly wrinkled. Declivity confined to posterior third of elytra length, steep; shallowly sulcate between left and right interstriae 3, lateral margins broadly rounded, suture weakly elevated; punctures on striae 1 and 2 very small, distinctly impressed, interstitial punctures minute. Vestiture consisting of rows of fine, erect hair from base to apex, most setae equal in length to distance between rows.

Female: Similar to male except frons convex, with fine, irregular rugosity, a weak median carina on lower third, a median callus on vertex; rugae on disc of pronotum larger, more conspicuous; declivity more strongly convex, impression rather weak.

Distribution: Argentina: Vicente Lopez, III-1939, *Cayaponia ficifolia*, C. Bruch (type series).

Notes: The above treatment was based on the female lectotype, male lectoallotype, 1 male and 2 female lectoparatypes from Argentina.

Dendrocranulus auctus Wood

Plate LXX

Dendrocranulus auctus Wood, 1979:139. Holotype; Rancho Grande, Pittier National Park, Aragua, Venezuela; USNM, Washington (References in Wood & Bright c1992:550)

Diagnosis: Distinguished from *diversus* Wood by the larger average size; by the more broadly, more strongly impressed male frons; and by the dense female frontal pubescence extending from the epistoma to the vertex.

Male: Length 2.7–3.2 mm, 2.7 times as long as wide; color dark reddish brown. Frons rather strongly, transversely impressed on lower two-thirds of area below upper level of eyes; surface weakly reticulate above, shining on lower third, dorsal and lateral areas with small to moderately large, rounded granules; vestiture of moderately abundant, fine, long hair from epistoma to well above upper level of eyes. Pronotum 1.2 times as long as wide; summit indefinite, slightly in front of middle; asperities small, close, numerous; disc weakly reticulate, with low, transverse crenulations to base, a small puncture at mesal end of most of those on median fourth; hairlike vestiture mostly on anterior and lateral areas. Elytra 1.6 times as long as wide, 1.3 times as long as pronotum; striae 1 feebly others not impressed, punctures small, moderately impressed; interstriae slightly more than three times as wide as striae, almost smooth, shining, punctures almost as large as those of striae, shallow, regularly spaced, some punctures granulate near declivity on 1–3. Declivity restricted to posterior third, broadly, shallowly concave; striae punctures small to obsolete on 1–4; interstriae smooth, shining, 1 weakly elevated, 2–3 impressed, 4 obtusely subangulate on lower half, 1–3 each with a sparse row of small granules. Vestiture of interstitial rows of erect setae except mostly absent on 2 and 3 on declivity.

Female: Similar to male, except frons broadly, uniformly convex and finely, closely punctate granulate, with a rather dense brush of fine, long hair from epistoma to well above upper level of eyes; disc of pronotum more strongly reticulate; elytral declivity essentially convex, much more narrowly, less strongly impressed, impression deepest at striae 1, striae punctures minute, interstitial punctures on 1–3 replaced by rows of minute granules.

Distribution: Venezuela: Rancho Grande, Pittier National Park, Aragua, 9-IV-1970, 1700 m, No. 407, *Cucurbitaceae* vine, SLW.

Biology: Boring in recently broken stems.

Notes: The above treatment was based on the type series of 50 specimens from Venezuela.

Species Not Seen

Dendrocranulus pilosus Eggers

Dendrocranulus pilosus Eggers, 1943:357. Holotype, sex?; Cochabamba, Bolivia; MNHN, Paris (References in Wood & Bright c1992:553)

Dendrocranulus rubripes (Eggers)

Dendrocranulus rubripes (Eggers), 1943:358 (*Pityophthorus*). Holotype ♂; Cochabamba, Bolivia; MNHN, Paris (References in Wood & Bright c1992:553)

Dendrocranulus uncinatus (Eichhoff)

Dendrocranulus uncinatus (Eichhoff), 1872:134 (*Xylocleptes*). Holotype, sex?; Bogota, Colombia; Hamburg Museum, lost; may belong to another genus (References in Wood & Bright c1992:553)

GENUS *DRYOCOETES* EICHHOFF

Dryocoetes Eichhoff, 1864:38. Type-species: *Bostrichus autographus* Ratzeburg, subsequent designation by Hopkins 1914:121 (Synonymy and references in Wood & Bright c1992:569)

Anodius Motschulsky, 1860:155. Type-species: *Bostrichus autographus* Ratzeburg, subsequent designation by Wood 1974:232, officially suppressed by International Commission on Zoological Nomenclature (ICZN) 1979:149

Dryocoetinus Balachowsky, 1949:180. Type-species: *Bostrichus villosus* Fabricius, original designation

Diagnosis: This introduced genus is not closely related to any South American genus. The relationship to *Dendrocranulus*, *Chiloxylon*, and *Coccotrypes* is remote biologically as well as anatomically. The only known species in South America was introduced from Europe, northern Asia, or North America. It is distinguished by the large size and the coniferous host.

Description: Length 2.8–4.4 mm, 2.5 times as long as wide; color dark reddish brown. Frons broadly convex, rather coarsely punctured, granules rather small; oral region unusually broad. Antennal scape elongate; funicle 5-segmented; club obliquely truncate, basal area corneous, without any sutures on posterior face. Eye oval, emarginate. Pronotum rather evenly, strongly arched from base to anterior margin; anterior slope asperate, asperities often attain base in lateral areas. Elytra with striae weakly impressed, punctures rather coarse, deep; declivity convex, conservatively sculptured. Vestiture hairlike.

Distribution: Wood & Bright (c1992:569–587) list 43 species in the world, mostly in Europe, Asia, and North America. Two additional South American species, cited below, have been referred to this genus, but they appear to belong elsewhere.

Biology: The known species are mainly polygynous and phloeophagous. Although most species breed in the coniferous genera *Abies*, *Larix*, *Pseudotsuga*, *Picea*, *Pinus*, and *Tsuga*, some species infest one or more dicotyledonous Angiospermae. In the dozen or more species observed by me, the beetles enter large limbs or the bole of their host, most commonly at or near the ground level or where limbs lie on the ground. Below the entrance tunnel a nuptial chamber is formed at or just above the cambium area. From this chamber about three to five rather short egg galleries radiate mostly or entirely in the phloem. Eggs are laid in niches, and the larvae develop in the phloem.

Dryocoetes autographus (Ratzeburg)

Dryocoetes autographus (Ratzeburg), 1837:160 (*Bostrichus*). Syntypes, sex?; Sudlichen Deutschland (Hr. Warnkonig) bis Russland und Schweden; presumably at FRI, Muncheberg (Synonymy and references in Wood & Bright c1992:572–576)

Bostrichus villosus Herbst, 1793:121. Syntypes, sex?; Deutscher; not located; preoccupied by Fabricius 1792:367

Bostrichus septentrionis Mannerheim, 1843:298 (reprint p. 126). Syntypes, sex?; Sitka Island, Alaska; MZU, Helsinki, lost, not at Helsinki in 1968

Bostrichus semicastaneus Mannerheim, 1852:358 (reprint p. 76). Holotype, sex?; Sitka Island, Alaska; MZU, Helsinki

Bostrichus victoris Mulsant & Rey, 1853:91. Syntypes, sex?; Faillefeu, Basses-Alpes, France; not located

Dryocoetes americanus Hopkins, 1915:51. Holotype ♀; Cheat Bridge, Randolph County, West Virginia; USNM, Washington

Dryocoetes pseudotsugae Swaine, 1915:360 (reprint p. 5). Lectotype ♀; Stanley Park, Vancouver Island, British Columbia, Canada; CNCI, Ottawa, designated by Bright 1967:674

Dryocoetes alternans Eggers, 1931:30. Holotype, sex?; Sao Paulo, Brazil; NMPC, Prague

Dryocoetes brasiliensis Schedl, 1940:207. Syntypes, sex?; Sao Paulo, Brazil; NHMW, Wien

Dryocoetes longicollis Eggers, 1941:121. Holotype, sex?; Lensahn, Ostholstein; USNM, Washington

Dryocoetes artepunctatus Eggers, 1941:122. Lectotype ♂; Weissrussland (Bialowjesh); USNM, Washington, designated by Anderson & Anderson 1971:4

Dryocoetes sachalinensis Sokanovskii, 1960:675. Syntypes, sex?; Sakhalin Island, Russia; Sokanovskii Collection

Diagnosis: The comparatively large size; very broad oral area; simple, convex elytral declivity; and coniferous hosts will aid in the identification of this species in South America.

Male: Length 2.8–4.4 mm, 2.5 times as long as wide; color dark reddish brown. Frons broadly convex from epistoma to vertex; surface smooth, shining, with rather coarse, deep punctures, their margins weakly granulate; vestiture of sparse long hair except epistomal brush broad, conspicuous. Pronotum 1.1 times as long as wide; anterior two-fifths and lateral areas to base finely asperate, other areas coarsely, deeply, closely punctured, a shining, impunctate area on median line of posterior half often present. Elytra 1.6 times as long as wide, 1.6 times as long as pronotum; striae not impressed, punctures rather coarse, deep; interstriae smooth, shining, as wide as striae, punctures rather fine, deep, uniseriate. Declivity steep, broadly convex; sculpture about as on disc except interstitial punctures granulate or not; interstriae 1 feebly elevated. Vestiture of rows of fine, short, strial hair and rows of much longer, fine, interstitial hair.

Female: Similar to male except frons with a weak transverse impression just below middle (variable), impunctate at center, remaining area with sparse granules; interstitial punctures with fine granules.

Distribution: Europe, northern Africa, northern Asia, northern North America, introduced into South America.

Brazil: Sao Paulo (Eggers 1931:30, Schedl 1940:207)

Hosts: Known from *Abies*, *Larix*, *Pseudotsugae*, *Picea*, *Pinus*, and *Tsuga* on other continents.

Biology: This species breeds in the basal or stump areas of large trees at or below the ground level. Radiate tunnels usually have 3–5 egg galleries. Larvae develop in the cambium area.

Species Not Seen

Dryocoetes pumilio Eichhoff

Dryocoetes pumilio Eichhoff, 1878:295. Holotype, sex?; America meridionalis, Venezuela; Hamburg Museum, lost (References in Wood & Bright c1992:584)

The original description, cited above, is too general to permit accurate classification of this species. It was described as 1.5 mm in length, very slender, rather dark in color, and rather sparsely pubescent. Eichhoff said it resembled the genus *Xylocleptes*, of Europe (or the nearest South American genus would be *Dendrocranulus*). No attempt was made to associate this species with the members of *Dendrocranulus* treated here.

GENUS *CHILOXYLON* SCHEDL

Chiloxylon Schedl, 1959:550. Type-species: *Chiloxylon rufulus* Schedl, monobasic (References in Wood & Bright c1992:587)

Diagnosis: The type specimen of the type-species of this genus is small, in rather poor condition, and it could very well be placed among primitive Pityophthorina of the Corthylini. In the world key to genera (Wood 1986:73) it is grouped with *Dryocoetiops*, *Ozopemon*, and *Coccotrypes*.

Description: The antennal funicle is 4-segmented; the club is constricted at the partly septate suture 1, suture 2 is indicated by setae (club not actually, obliquely truncate). The protibia is very broad apically; the lateral apical angle is abrupt, about 90 degrees, it has one denticle on this angle, a second denticle on the apical margin, and a third denticle on the lateral margin one-fourth of the tibial length from the lateral apical angle. The general habitus resembles *Dryocoetes*, interstitial setae are almost scalelike on the elytral declivity (Wood 1986:73).

Distribution: Only 1 species has been reported.

Biology: Entirely unknown.

Chiloxylon rufulus Schedl

Chiloxylon rufulus Schedl, 1959:550. Holotype ♂; Mato Grosso: Rio Caraguata; NHMW, Wien (References in Wood & Bright c1992:587)

Diagnosis: Distinguishing features are listed in the generic treatment above.

Original description (Schedl 1959:50): "Rotbraun, 1.8 mm lang, 2.6 mal so lang wie breit.

"Stern über den Augen gewölbt, darunter abgeflacht, mit leichter Eindellung in der Mitte, sehr dicht massig stark punktiert, sehr kurz unscheinbar behaart.

"Halsschild etwas länger als breit (21:19), Basis gerade, hintere Seitenecken rechtwinkelig und wenig gerundet, die Seiten im basalen Funftel nahezu parallel, dann im flachen Bogen trapezförmig verengt, Vorder- und Vorderrand massig breit gerundet, der Länge nach massig gewölbt, in den basalen zwei Dritteln sehr kraftig und sehr dicht punktiert, gegen den Vorderrand werden die Punkte durch kleine Körnchen ersetzt, die ausserdem in konzentrischen Halbkreisen angeordnet sind; Behaarung kurz, rotlich, abstehend. Schildchen sehr klein, knopfförmig, glänzend.

"Flugeldecken wenig breiter (20:19) und 1.5 mal so lang wie der Halsschild, die Seiten bis über die Mitte hinaus parallel, Apex sehr breit gerundet, der Absturz

steil schief gewölbt, relativ kurz, dentlich hinter der Mitte beginnend; die Scheibe wenig glänzend, grob gestreift punktiert, die Reihenpunkte enggestellt, die Streifen deutlich vertieft, die Zwischenräume eng, etwas enger als die Punkstreifen, und jeder derselben mit einer Reihe von Punkten, die in der Nähe der Basis klein sind, gegen den Absturz aber deutlich grösser werden und kurze, abstehende, rotlichgelbe Härchen tragen; auf dem Absturz die Härchen etwas spachtelförmig, die allgemeine Skulpturierung noch etwas rauher und die Punkstreifen stärker vertieft."

Distribution: Brazil: Rio Caraguata, Mato Grosso, IV-1953, F. Plaumann.

Notes: The above treatment was based on notes taken by me at Wien in 1983 and on the original description. The holotype at NHMW, Wien, was examined. The paratype in the Plaumann Collection in Brazil was not seen.

GENUS *COCCOTRYPES* EICHHOFF

Coccotrypes Eichhoff, 1878:308. Type-species: *Bostrichus dactyliperda* Fabricius, subsequent designation by Hopkins 1914:118 (Synonymy and references in Wood & Bright c1992:591-614)

Poecilips Schaufuss, 1897:110. Type-species: *Poecilips sannio* Schaufuss, monobasic

Cryphaloides Formanek, 1908:91. Type-species: *Cryphaloides donis-*

thorpei Formanek = *Bostrichus carpophagus* Hornung, monobasic

Thamnurgides Hopkins, 1915:45. Type-species: *Thamnurgides persi-*

caea Hopkins = *Coccotrypes advena* Blandford, original designation

Spermatoplex Hopkins, 1915:48. Type-species: *Spermatoplex rhizo-*

phorae Hopkins, original designation

Dendrugus Eggers, 1923:144. Type-species: *Dendrugus rhizophorae*

Eggers = *Spermatoplex* Hopkins, subsequent designation by Wood

1982:731

Diagnosis: Distinguished from *Ozopemon* (from SE Asia to Fiji) by the subacutely elevated lateral margins on more than the basal half of the pronotum; anterior half of pronotum declivous or not, asperities present or absent; frons commonly with convergent aciculation; elytral declivity usually convex, rarely impressed (never in South American species), granules absent or inconspicuous; either phloeophagous or spermophagous.

Description: Length 1.2-2.5 mm, 2.1-2.5 times as long as wide; color reddish brown to almost black; sexual dimorphism conspicuous. Males smaller, deformed, flightless, eyes of reduced size, haploid. Frons convex, convergently aciculate in South American species. Eye elongate, finely faceted, shallowly emarginate. Antennal scape slender, elongate; funicle 5-segmented, club somewhat obliquely truncate, with or without sutures on posterior face. Pronotum weakly to strongly arched, smooth to asperate on anterior half. Elytra smooth, shining, striate; declivity convex, simple (in South American species). Tibiae rather slender, armed on lateral margin by 2-4 socketed denticles.

Distribution: Tropical and subtropical areas worldwide. Wood & Bright (c1992:591-614) list 125 species, of which 10 were introduced to South America through commerce. The only native American species appears

DRYOCOETINI

to be *robustus* Eichhoff of Cuba, Puerto Rico, and S Florida (USA).
 Biology: All members of this genus are thought to have male haploidy, and inbreed. Many species are ex-

clusively phloeophagous, others exclusively spermophagous, and at least a few can produce viable offspring in either bark or large seeds.

Key to the Species of *Coccotrypes*
 (Adapted from Wood 1982:732–733)

- 1. Strial setae entirely obsolete, interstitial bristles rather coarse; pronotum usually much more broadly convex both longitudinally and transversely, its anterior margin more broadly rounded and devoid of serrations 2
- Rows of strial setae conspicuously present between rows of longer, fine, interstitial setae; pronotum more strongly, narrowly convex both longitudinally and transversely, its anterior margin more narrowly rounded and partly serrate 4
- 2(1). Pronotum smooth, shining, entirely devoid of asperities, punctures fine, deep, a few of them with one margin minutely granulate; sides of pronotum on anterior third converging rather abruptly; India to Hawaii and Florida to Suriname; fruit and phloem of many hosts; 1.4–2.0 mm *advena* Blandford
- Anterior half of pronotum finely asperate, devoid of punctures in asperate area; sides on anterior third of pronotum broadly rounded; larger species 3
- 3(2). Pronotum asperities fine, more widely spaced, minute to almost obsolete on basal third; surface on posterior half of pronotum etched, subreticulate, shining; strial punctures rather coarse, striae almost as wide as interstriae; Indonesia, S Florida, Mexico (Veracruz), Belize, Galapagos Islands, Peru, Suriname; *Rhizophora mangle* propagules; 2.2–2.5 mm *rhizophorae* (Hopkins)
- Pronotal asperities moderately coarse, close, extending to base, surface between asperities smooth, shining; strial punctures small, interstriae twice as wide as striae; SE Asia to Australia and Hawaii, S Florida and Costa Rica to Suriname and Brazil; phloem and fruits of many hosts; 1.7–2.3 mm *cyperi* (Beeson)
- 4(1). Body rather slender, 2.5 times as long as wide; strial setae erect, almost as long as those of interstriae, both very fine; strial and interstitial punctures equally small, each with a fine granule on anterolateral margin; Cuba to Puerto Rico, S Florida; *Eutrepe globosa*; 1.3 mm *robustus* Eichhoff
- Body stouter, 2.1–2.2 times as long as wide; strial setae semirecumbent, shorter and finer than interstitial setae; strial punctures never with granules on margin 5
- 5(4). Pronotal asperities small, rather sparse, those at summit averaging less than twice as long (transversely) as thick, those at summit as high as those on anterior slope 6
- Pronotal asperities larger, closer, those at summit at least 4 times as long (transversely) as thick, higher on anterior slope than at summit 7
- 6(5). Smaller; interstitial bristles blunt, their apices often slightly flattened, each bristle only slightly longer than distance between interstitial rows; strial punctures small, very shallow, spaced within a row by two or three diameters of a puncture; New Guinea, Costa Rica to Brazil; 1.2–1.3 mm *aciculatus* Schedl
- Larger; interstitial bristles pointed, each about twice as long as distance between interstitial rows; strial punctures shallowly impressed, separated by distances equal to diameter of a puncture; Sri Lanka, Guam to Hawaii, Florida (USA) and Honduras to Suriname; palm fruits; 1.7–2.3 mm ... *distinctus* (Motschulsky)

- 7(5). Body form not as stout, 2.3 times as long as wide; elytral disc proportionately shorter; profile of discal suture more strongly arched, lower half of declivity steeper; striae and interstitial punctures not as close, striae setae minute, half as long; color very dark reddish brown; French Guyane; 2.8 mm *palmarus* Eggers
- Body form 2.2–2.3 times as long as wide; elytral disc proportionately longer, profile of suture straight to feebly convex; declivity more evenly arched, not as steep on lower half; striae and interstitial punctures more closely spaced within a row; striae setae longer, each about half as long as adjacent interstitial setae 8
- 8(7). Smaller; mature color dark brown to almost black; striae punctures very slightly smaller, shallow; interstitial granules on disc averaging smaller, more widely spaced; interstitial setae on declivity shorter, each only slightly longer than distance between rows; almost cosmopolitan through commerce; palm fruits; 1.5–1.9 mm *carpophagus* (Hornung)
- Larger; mature color reddish brown; striae punctures slightly larger, very slightly deeper; interstitial granules averaging slightly larger, closer; interstitial setae on declivity longer, each almost twice as long as distance between rows; almost cosmopolitan through commerce; palm fruits; 1.8–2.3 mm *dactyliperda* (Fabricius)

Coccotrypes advena Blandford
Plate LXXIV

Coccotrypes advena Blandford, 1894:100. Holotype ♀; Nagasaki, Japan; BMNH, London (Synonymy and references in Wood & Bright c1992:591–592)

Thamnurgides persicae Hopkins, 1915:45. Holotype ♀; Honolulu, Hawaii; USNM, Washington (Synonymy and references in Wood & Bright c1992:592)

Dendrugus philippinensis Eggers, 1923:145. Lectotype ♀; Mt. Makiling, Insel Luzon, Philippines; USNM, Washington, designated by Anderson & Anderson 1971:145

Dendrugus ternatensis Eggers, 1923:146. Syntypes ♀; Insel Ternate; MCG, Genova, and USNM, Washington

Dendrugus minor Eggers, 1923:150. Lectotype ♀; Buitenzorg auf Java, Botanischer Garten; USNM, Washington, designated by Anderson & Anderson 1971:21

Thamnurgides setosus Beeson, 1929:228. Holotype ♀; Samoa: Tutuila, Fagasa; BMNH, London

Thamnurgides tutuilensis Beeson, 1929:229. Holotype ♀; Samoa: Tutuila, Fagasa; BMNH, London

Coccotrypes philippinensis Schedl, 1933:104. Holotype ♀; Mount Maquiling, Laguna, Luzon; repository not given

Thamnurgides cubanus Eggers, 1934:79. Holotype ♀; Cuyajabas, Sierra Rosario, Cuba; USNM, Washington

Poecilips nuciferus Schedl, 1938:10. Lectotype ♀; Paramaribo, Suriname; NHMW, Wien, designated by Schedl 1979:172

Thamnurgides vicarius Beeson, 1939:285. Holotype ♀; Samsing, Kalimpong, Bengal, India; FRI, Dehra Dun

Poecilips niger Schedl, 1939:345. Syntypes ♀; Malaya, Selangor: Kuala Lumpur, Kepong, Sungei Buloh For. Res., Perak: Trolak For. Res.; BMNH, London, and NHMW, Wien, preoccupied by Eggers 1927:180

Poecilips subnitidus Schedl, 1954:147. Holotype ♀; Java, Buitenzorg, 250 m; NHMW, Wien

Diagnosis: Pronotum smooth to weakly reticulate, shining, entirely devoid of asperities, punctures present on anterior and posterior areas.

Male: Smaller than female, dwarfed, deformed, flightless.

Female: Length 1.4–2.0 mm, 2.2 times as long as wide; mature color very dark brown. Frons broadly convex,

rather weakly, convergently aciculate on lower third, sparse, fine, granulate punctures above, shining, subreticulate toward vertex; median line broadly, rather indistinctly elevated; vestiture of sparse, fine, long hair. Pronotum 1.06 times as long as wide; widest just behind middle of pronotum length, sides moderately arcuate, converging rather strongly on anterior third, rather narrowly rounded in front; surface smooth and brightly shining to subreticulate (variable in series), finely, rather sparsely punctured, most punctures on anterior half minutely granulate, asperities absent; vestiture of sparse, fine, long hair. Elytra 1.4 times as long as wide, 1.5 times as long as pronotum; sides almost straight on basal half, slightly wider near base of declivity, narrowly rounded behind; striae 1 feebly, others not impressed, punctures moderately large, rather shallow; interstriae smooth, shining, about one and one-half times as wide as striae, punctures fine, uniseriate, minutely granulate on their anterior margin. Declivity rather steep, broadly convex; sculpture as on disc. Vestiture of rows of interstitial bristles only; each bristle slightly longer than distance between rows or between bristles within a row; each bristle slender, either slightly flattened on its apical fourth or not.

Distribution: India to Hawaii, and Florida (USA) to Cuba and Suriname.

Suriname: Paramaribo (Schedl 1938:10).

Hosts: Numerous tropical trees, especially those having large seeds.

Biology: This species is able to breed in both bark and the large seeds of numerous host species.

Notes: Wood (1982:733) and Wood & Bright (c1992:592–593) examined the primary types and from them established the synonymy listed above. More than 1000 additional specimens were examined from India, Malaysia, Indonesia, Philippine Islands, Japan, Micronesia, Hawaii, Florida, Cuba, and 1 series from Suriname.

It is expected to spread throughout tropical South America and could become an economic factor in the processing or reproduction of certain fruits and nuts.

Coccotrypes rhizophorae (Hopkins)

Plate LXXXVI

Coccotrypes rhizophorae (Hopkins), 1915:48 (*Spermatoplex*). Holotype ♀; Miami, Florida; USNM, Washington (Synonymy and references in Wood & Bright c1992:609–610)

Dendrugus rhizophorae Eggers, 1923:149. Lectotype ♀; Inslø Saleyer and Moeara Antjol (Sumatra); USNM, Washington, designated by Schedl 1979:211, preoccupied by Hopkins 1915:48

Thamnurgides nephelii Eggers, 1936:84. Holotype ♀; Java (Buitenzorg); BMNH, London

Thamnurgides shanorum Beeson, 1939:296. Holotype ♀; Burma: Northern Shan States, Maymyo; FRI, Dehra Dun

Diagnosis: Distinguished from *cyperi* (Beeson) by the larger average size; by the smaller, more widely spaced asperities on the pronotum; by the smooth, minutely etched to subreticulate surface between the pronotal asperities; and by the larger stria punctures.

Male: Smaller (1.1 mm) than female, dwarfed, deformed, flightless.

Female: Length 2.2–2.5 mm, 2.4 times as long as wide; color reddish brown. Frons essentially as in *advena* Blandford. Pronotum 1.07 times as long as wide; outline about as in *advena*; surface shining, subreticulate; slightly more than anterior half with fine, low, isolated, transverse asperities; posterior area with sparse, minute punctures, most of them minutely granulate or subasperate; vestiture of sparse, fine, long hair. Elytra 1.5 times as long as wide, 1.6 times as long as pronotum; sides almost straight and parallel on basal two-thirds, rather broadly rounded behind; striae weakly impressed, punctures moderately large, rather deep; interstriae smooth, shining, very slightly wider than striae, punctures uniseriate, fine, most of them finely granulate. Declivity rather gradual, broadly convex, more narrowly convex toward apex; sculpture as on declivity except striae 1 slightly more strongly impressed. Vestiture of rows of erect interstitial bristles; each bristle as long as distance between rows, or between bristles within a row, each bristle very slightly flattened on its apical third.

Distribution: Burma to Indonesia and Florida (USA), Mexico (Veracruz), and Belize to Suriname and Peru.

Galapagos Islands: Albermarle Island, 4-14-III-1906, F.X. Williams.

Suriname: “Suriname” (unconfirmed oral reports).

Peru: Timbes, Puerto Pizarro, 18-XI-1996, *Rhizophora mangle*, P.S. Castillo.

Hosts: *Rhizophora mangle*, *R. mucronata*, and (in Indonesia) *Nephelium lappaceum*.

Biology: The living propagules (“fruits”) dropped by the parent plants are attacked, and destroyed. The destruction of mangrove reproduction in some areas is said to be so complete that the character of the coastal mangrove forests is deteriorating rapidly, threatening to seriously erode coastal areas. So far as is currently known

in South America, only the mangrove (*Rhizophora* spp.) trees are affected.

Notes: The above treatment was based on my series from Burma, Indonesia, Hawaii, Florida, Mexico (Veracruz), Belize, Galapagos Islands, and Peru. The holotypes of *Spermatoplex rhizophorae* Hopkins, *Thamnurgides nephelii* Eggers, and *Thamnurgides shanorum* Beeson, and the lectotype of *Dendrugus rhizophorae* Eggers were examined and compared to my series.

Coccotrypes cyperi (Beeson)

Plate LXXXV

Coccotrypes cyperi (Beeson), 1929:230 (*Thamnurgides*). Holotype ♀; Upalo: Apia, Samoan Islands; BMNH, London (Synonymy and references in Wood & Bright c1992:598–599)

Thamnurgides indicus Eggers, 1936:631. Holotype ♀; Sakalapur, Mysore States, India; BMNH, London

Xyleborus conspiciens Schedl, 1936:110. Holotype ♀; Hamburgfarm, Rio Reventazon, Limon, Costa Rica; NHMW, Wien

Dryocoetes insularis Eggers, 1940:127. Syntypes ♀; Guadeloupe and Martinique; MNB, Berlin, 4 cotypes in NHMW, Wien, preoccupied by Eggers 1939:223

Coccotrypes insularis Eggers, 1940:129. Lectotype ♀; Trois-Rivieres, Guadeloupe; USNM, Washington, designated by Anderson & Anderson 1971:15, preoccupied by Eggers 1939:223

Dryocoetes subimpressus Eggers, 1940:127. Holotype ♀; Trois Rivieres, Guadeloupe; NHMW, Wien [this name inadvertently, incorrectly spelled *subdepressus*, a lapsis calami]

Poecilips subaplanatus Schedl, 1942:23. Lectotype ♀; O. Preanger, Tjampea, Java; NHMW, Wien, designated by Schedl 1979:240

Poecilips caraibicus Schedl, 1952:345. Syntypes ♀; Guadeloupe and Martinique; MNB, Berlin, and USNM, Washington

Poecilips eggersi Schedl, 1952:347. Lectotype ♀; Trois-Rivieres, Guadeloupe; USNM, Washington, designated by Anderson & Anderson 1971:15

Poecilips pilifrons Browne, 1970:568. Holotype ♀; Nilgiri Hills, Indis; BMNH, London

Diagnosis: Distinguished from *rhizophorae* (Hopkins) by the smaller average size; by the larger, more closely spaced asperities on the pronotum, with the spaces between asperities smooth, shining; by the smaller stria punctures; and by the very different habits.

Male: Smaller (1.1–1.2 mm) than female; dwarfed, deformed, flightless, eye reduced or absent, haploid.

Female: Length 1.7–2.3 mm, 2.3 times as long as wide; rather dark reddish brown. Frons broadly convex, convergently, rather finely aciculate from epistoma to upper level of eyes, with fine, rather deep punctures interspersed, rugose-reticulate above; vestiture of sparse, fine hair. Pronotum 1.08 times as long as wide; outline as in *advena* (Blandford); surface smooth, shining, rather closely, somewhat coarsely asperate to base, those on posterior half decreasing in size, a few punctures interspersed near base of disc; vestiture of sparse, fine, hair, usually abraded. Elytra 1.4 times as long as wide, 1.4 times as long as pronotum; striae not impressed, punctures small, shallow; interstriae smooth, shining, twice as wide as striae, punctures uniseriate, fine, minutely granulate. Declivity rather steep, convex; sculpture as on disc. Vestiture of rows of erect, blunt, interstitial

bristles; each bristle about one and one-half times as long as distance between rows or between bristles within a row, each very slightly flattened at extreme tip.

Distribution: India and S China to Australia, and Hawaii, Jamaica, Costa Rica, Trinidad, Suriname, and Brazil.

Brazil: Amazonas, Manaus, INPA Campus, ethanol trap, R.L.S. Abreu; Seropedica, Rio de Janeiro, UFRRS Campus, atrophied Atlantic forest, ethanol trap, A.M. Lunz; Maranhao, Pedriman edo Luis Island, white tray trap, E.C. Bergman; Sao Paulo, Agudos, Duraflora, ethanol trap, *Pinus oocarpa* stand, C.A.H. Flechtmann; Sao Paulo, Ifapetininga, ESALQ-84, 11-X-1991, ethanol trap, *Pinus elliottii* stand, A. Dwulatka; MS, Tres Lagoas, CPC, Horto Barra do Moeda, 2-XI-1993, ethanol trap, C.A.H. Flechtmann.

Suriname: "Suriname" (Wood 1982:735, Wood & Bright c1992:598).

Hosts: *Aesculus punchuana*, *Amoora walichii*, *Artocarpus lakoocha*, *Borassus flabellifer*, *Canarium strictum*, *Carallia lucida*, *Careya arborea*, *Cossia arabica*, *Cynometra hemitobophylla*, *Diptocarpus trinervis*, *Eleocarpus oblongus*, *Eugenia formosa*, *E. sp.*, *Ficus glomerata*, *Gluta travancoria*, *Macademia indica*, *Macaranga denticulata*, *Mammea americana*, *Mangifera indica*, *Orbignya oleifera*, *Persea americana*, *Phytellephas macrocarpa*, *Pronia copaifer*, *Swietenia macrophylla*, *Swintonia floribunda*, *Terminalia myriocarpa*, *Theobroma cacao*, *Vateria indica*, *Xylia dolabriformis*. (This is a world-wide host list).

Biology: Common on the forest floor in large seeds of fallen fruit. It is reported to breed in bark in Burma and Malaysia but has not been seen in bark by me in American forests. Previously mated females enter a fallen fruit and form a short cave tunnel, usually in a large seed, where eggs are deposited in clusters. The larvae extend or enlarge the parent tunnel, often consuming the entire seed. Larval development is very rapid. Mating is normally among siblings in the brood chambers, often, unsclerotized white males were observed to mate repeatedly.

Notes: The above treatment was based on several hundred specimens taken in Costa Rica and Panama, on 1 series from Suriname, and on several specimens from Brazil. Part of these were compared directly by me to the type series of *cyperii*, *indicus*, *conspiciens*, *insularis* (1940:127), *insularis* (1940:129), and *impressus*. The name *subdepressus* was used by Eggers for this species, but this name has never been validated in nomenclature.

Coccotrypes aciculatus Schedl

Plate LXXIII

Coccotrypes aciculatus Schedl, 1952:360. Holotype ♀; Hamburgfarm on Rio Reventazon, Limon, Costa Rica; NHMW, Wien (References in Wood & Bright c1992:591)

Diagnosis: Distinguished from *distinctus* (Motschulsky) by the much smaller size; by the blunt, apically flat-

tened, shorter interstitial bristles; and by the smaller, very shallow, rather widely spaced striaal punctures.

Male: Length 1.0 mm (described by Schedl 1950:148). Not seen by me.

Female: Length 1.2–1.3 mm, 2.0 times as long as wide; color reddish brown. Frons about as in *distinctus*. Pronotum 1.0 times as long as wide; widest just behind middle, sides moderately arcuate, converging on anterior half to rather broadly rounded, subserrate anterior margin; strongly convex, with indefinite summit slightly behind middle of pronotum length; asperities on anterior slope small, sparse, intermixed with sparse, fine, shallow punctures; small, sparse subasperate granules on posterior area to base; surface smooth, shining; an obscure, raised basal line indicated; vestiture of sparse, blunt hair of moderate length. Elytra 1.2 times as long as wide, 1.3 times as long as pronotum; striae not impressed, punctures moderately small, distinct, very shallow, spaced within a row by about two to three diameters of a puncture; interstriae about twice as wide as striae, smooth, shining, punctures replaced by small, uniseriate, widely spaced granules. Declivity moderately steep, rather broadly convex; sculpture essentially as on disc. Vestiture of short, fine striaal hair and rows of erect, blunt interstitial bristles, each bristle as long as distance between rows or between bristles within a row.

Distribution: New Guinea at Erima, Astrolobe Bay (Schedl 1955:281), and Costa Rica and Panama to Brazil.

Brazil: Brazil ex Cumala nut, 5-X-1938 (Schedl 1950:148); Camboriu, Parque Unipraias, Santa Catarina, 31-XII-2001, Atlantic forest, *Cecropia* petiole, C.A.H. Flechtmann; Argudos, Sao Paulo, 16-XII-1986, Duraflora forest, ethanol trap, *Pinus oocarpa* and *P. caribea hondurensis* stand, C.A.H. Flechtmann; Sao Paulo, Lencois Paulis, ca Duraflora, ethanol trap, *Eucalyptus grandis* stand, C.A.H. Flechtmann.

Hosts: Cumala nut.

Biology: Boring mainly in palm and cecropia petiole seeds.

Notes: The above treatment was based on the holotype from Costa Rica, on 1 female from Panama, and on 1 female from Brazil.

Coccotrypes distinctus (Motschulsky)

Plate LXXVI

Coccotrypes distinctus (Motschulsky), 1866:403 (*Anodius*). Holotype ♀; type labeled Ceylon, published as Des Montagnes de Nura-Ellia; IZM, Moscow (Synonymy and references in Wood & Bright c1992:602)

Coccotrypes floridensis Schedl, 1948:117. Lectotype ♀; Winter Park, Florida (USA); NHMW, Wien, Schedl 1979:98

Diagnosis: Distinguished with difficulty from some *carpophagus* (Hornung) by the small, isolated asperities on the pronotum disc, none more than twice as long as thick; color reddish brown (never black).

Male: Smaller (1.3 mm), dwarfed, deformed, flightless.

Female: Length 1.7–2.3 mm, 2.2 times as long as wide; color reddish brown. Frons about as in cyperi Beeson. Pronotum 1.0 times as long as wide; about as in *aciculatus* Schedl except asperities smaller (on both disc and anterior slope), much shorter, each about twice as long as thick, rather widely separated from one another; setae finer, slightly longer. Elytra 1.2 times as long as wide, 1.3 times as long as pronotum; striae not impressed, punctures rather small, distinctly impressed, separated within a row by diameter of a puncture, interstriae about three times as wide as striae, smooth, shining, punctures replaced by small, widely spaced, uniseriate granules. Declivity steep, convex; sculpture as on disc. Vestiture of rows of semirecumbent strial hair, each half as long as distance between rows; and rows of erect, fine, pointed interstitial bristles, each bristle slightly shorter than distance between rows or between bristles within a row.

Distribution: Sri Lanka, New Guinea to Hawaii, S USA, Honduras, Puerto Rico and Jamaica to Suriname and Guiana.

Brazil: Agudos, Sao Paulo, 5-II-1985, Duraflora SA forest, ethanol trap in *Pinus caribea hondurensis* stand, C.A.H. Flechtmann.

Guiana: “British Guiana” (Wood 1982:737).

Suriname: “Suriname” (Wood & Bright c1992:602).

Hosts: *Coccothrinus* sp., *Phoenix* spp. palms.

Biology: Boring in palm fruits and seeds.

Notes: The female holotype was examined in 1968 at a time when other specimens were not available for direct comparison. Also examined were Schedl’s specimens from Guam he reported as *carpophagus* (Hornung) and the holotype of *floridensis* Schedl.

Coccotrypes rutschuruensis Eggers (?)

Coccotrypes rutschuruensis Eggers, 1940:103. Holotype ♀; Congostaat, Rutshuru; MRCB, Tervuren (References in Wood & Bright c1992:611)

Coccotrypes surinamensis Schedl, 1948:116. Lectotype ♀; Suriname (=Dutch Guiana); NHMW, Wien, designated by Schedl 1979:247 (References in Wood & Bright c1992:613). Probable synonym, see below

Coccotrypes brevipilosus Eggers, 1951:150. Holotype ♀; Blumenau, Brazil; NHMW, Wien, preoccupied by Beeson 1939:298

Diagnosis and discussion: The entity treated here may be (1) a composite of 2 or more species, or (2) a single species represented by 2 or more introductions that have been modified through hybridization. DNA studies or the collection of many more series will probably be needed to resolve the problem. The body is smaller (1.5–2.0 mm) and more slender (elytra 1.3 times as long as wide) than in *distinctus* (Motshulsky); the pronotum is about as in *carpophagus* (Hornung) except the discal area is mostly smooth and shining and has the crenulations sparse and very short as in *distinctus*. The interstitial setae are sparse and short as in *distinctus*. One series, from “Italian” Somalia (Africa) appears to be *rutschuruensis* Eggers (compared directly to a cotype by me); a second series is from Suriname, ex *Astroca-*

cyrum, 1948, and appears to have been part of the topotypic series taken with the lectotype of *surinamensis* Schedl; the third series is from Brazil (Sao Paulo, Agudos, Duraflora, ethanol trap in *Pinus caribaea caribaea* stand, C.A.H. Flechtmann); a fourth series was taken in California (Wood & Bright c1992:611).

All 4 series before me are different from one another and, in the above key, had been placed with *distinctus*, a very different species.

Distribution: Ghana, Somalia, Zaire (in Africa); California (USA), Brazil, and Suriname.

Brazil: Sao Paulo, Agudos, Duraflora, ethanol trap in *Pinus caribaea caribaea* stand, C.A.H. Flechtmann; “Brasil (Blumenau).”

Suriname: “Dutch Guiana,” 1948, ex *Astrocaryum murumura* palm nut (Schedl 1948c:116).

Notes: The above treatment was based on the 5 series described above.

Coccotrypes palmarus Eggers

Coccotrypes palmarus Eggers, 1933:8. Holotype ♀; French Guyane (Haut-Carsevenne); MNHN, Paris (Wood & Bright c1992:608)

Diagnosis: Distinguished from *carpophagus* (Hornung) and *dactyliperda* (Fabricius) by the stouter body form; by the shorter elytral disc, with the profile of the suture more strongly arched and the lower declivity steeper; strial and interstitial punctures not as close, strial setae minute, half as long; color dark reddish brown.

Female: Length 2.8 mm, 2.3 times as long as wide; color very dark reddish brown. Frons strongly convex, shining, distinctly, shallowly, convergently aciculate from epistoma to above upper level of eyes, punctures obsolete; vestiture of rather sparse, moderately long, hairlike setae. Pronotum 1.0 times as long as wide; sides rather strongly, evenly arcuate on more than basal two-thirds, narrowly rounded in front; anterior margin armed by 8 rather coarse serrations; summit slightly behind middle of pronotum length; anterior slope steep, aperiodities rather coarse, close, confused, some of those near summit up to four times as wide as thick; posterior areas mostly smooth, shining, punctures replaced by rather small granules spaced by 1–3 diameters between granules; hairlike setae rather numerous, rather long over entire surface. Elytra 1.3 times as long as wide, 1.3 times as long as pronotum; disc occupying basal 54 percent of elytra length, profile of disc moderately arched (slightly more than on declivity); surface smooth, shining, striae not impressed, punctures rather small, larger and deeper than in *carpophagus* and more widely spaced; interstriae about three times as wide as striae, punctures small, about one-third as wide as those of striae. Declivity steep, broadly convex except almost flat on median half, profile of suture feebly convex; centers of punctures on striae 1 and 2 mostly with a small granule at center (somewhat oculate); lateral crest at 3 broadly rounded, feebly higher than suture. Vestiture of short strial setae at least on

declivity, and interstitial rows of slender, erect setae equal in length to 1.5 times width of an interstriae.

Distribution: French Guyane: Haut-Carsevenne, 1899, F Geay.

Notes: The above treatment was based on the female holotype and 1 female paratype bearing identical labels. Two larger species in my collection, from Africa, very closely resemble *palmaris*. It is probable that *palmaris* was introduced to South America prior to 1900.

Coccotrypes carpophagus (Hornung)

Plate LXXIV

- Coccotrypes carpophagus* (Hornung), 1842:116 (*Bostrichus*). Syntypes ♀; Ostindien in Furchten von Betelnüssen; MNB, Berlin (Synonymy and references in Wood & Bright c1992:594–597)
- Coccotrypes pygmaeus* Eichhoff, 1878:310. Syntypes ♀; Madagascar; NHMW, Wien
- Coccotrypes integer* Eichhoff, 1878:331. Syntypes ♀; Siam; 1 in USNM, Washington, others lost with Hamburg Museum
- Cryphaloides donisthorpei* Formanek, 1908:91. Syntypes ♀; Kew Gardens, London, England; BMNH, London
- Coccotrypes bakeri* Hopkins, 1915:46. Holotype ♀; Havana, Cuba; USNM, Washington
- Coccotrypes anonae* Hopkins, 1915:46. Holotype ♀; Cuba; USNM, Washington
- Coccotrypes hubbardi* Hopkins, 1915:46. Holotype ♀; Monserrat, West Indies; USNM, Washington
- Coccotrypes thrinacis* Hopkins, 1915: 46. Holotype ♀; Isle of Pines, Cuba; USNM, Washington
- Coccotrypes liberiensis* Hopkins, 1915:47. Holotype ♀; Mount Coffee, Liberia; USNM, Washington
- Coccotrypes rollinae* Hopkins, 1915:47. Holotype ♀; Para, Brazil; USNM, Washington
- Coccotrypes nanus* Eggers, 1920:33. Lectotype ♀; Cameroon; USNM, Washington, designated by Anderson & Anderson 1971:21
- Coccotrypes canariensis* Eggers, 1928:117. Lectotype ♀; Gran Canaria (Las Palmas) im Park Santa Catalina; USNM, Washington, designated by Anderson & Anderson 1971:8
- Coccotrypes phoenicola* Beeson, 1939:281. Holotype ♀; United Provinces, India; FRI, Dehra Dun
- Coccotrypes trevori* Beeson, 1939:282. Holotype ♀; Nicobars: Kondul; FRI, Dehra Dun
- Coccotrypes pilosulus* Schedl, 1948:118. Holotype ♀; Kurando, Q. (Queensland?); NHMW, Wien
- Coccotrypes ceylonicus* Schedl, 1948:119. Lectotype ♀; Ceylon; NHMW, Wien, designated by Schedl 1979:55
- Coccotrypes punctulatus* Eggers, 1951:151. Holotype ♀; Insel St. Thomas, Virgin Islands; NHMW, Wien
- Coccotrypes grisseopuberulus* Schedl, 1972:59. Holotype ♀; Pariquera, Sao Paulo, Brazil; NHMW, Wien
- Coccotrypes exasperatus* Schedl, 1975e:455. Holotype ♀; Madras: Anaimalai Hills, au dessus d'Aliyar Dam; MHCG, Genebe

Diagnosis: Distinguished from *dactyliperda* (Fabricius) by the smaller size; by the darker color; by the smaller average size of the stria punctures and of the discal interstitial granules; and by the shorter interstitial bristles.

Male: Smaller (1.2–1.3 mm), dwarfed, deformed, flightless.

Female: Length 1.5–1.9 mm, 2.2 times as long as wide; color very dark brown to almost black. Frons broadly convex, weakly, transversely impressed on lower half; about as in *distinctus* (Motschulsky). Pronotum resembling *distinctus* except anterior margin rather coarsely serrate; asperate to base, asperities rather coarse, close,

abundant, those behind summit with long axis longitudinal, each about 4–6 times as long as thick; punctures not evident; vestiture of rather sparse hair of moderate length. Elytra 1.3 times as long as wide, 1.3 times as long as pronotum; about as in *distinctus*. Vestiture of rows of short, recumbent stria hair; and rows of erect interstitial bristles, each bristle slender, blunt, very slightly longer than distance between rows of setae or between bristles within a row.

Distribution: Cosmopolitan through commerce, breeding only in tropical and subtropical areas where the hosts grow from S Europe and S Asia to Africa and Australia; New Jersey (USA) to Brazil.

Brazil: Para; Manaus, Amazonas, Adolpho Ducke Forest Reserve, 10-V-1993, ethanol trap, RLS Abreu; Pedrinhas; Seropedica, UFFRS Campus, Rio de Janeiro, 28-XII-2000, *Pinus* stand, ethanol trap, A.M. Llunz; Tres Lagoas, International Paper, Horto Rio Verde, Mato Grosso do Sul, 7-IV-1999-4-V-2003, carrado stand, ethanol trap; MA, Sao Luis Island, 7-VII-1987, white tray trap, E.C. Bergmann; Tres Llagos, MS, CPC, Horto Barra do Moeda, 25-III-1995, 18-V-1995, ethanol trap, *Eucalyptus grandis* stand, C.A.H. Flechtmann; Morretes, PR, 27-VII-1982, sementes palmito, Pedrosa; Telmaco, Borba, PR, KPC, 22-III-1996, ethanol trap, *Eucalyptus grandis* stand, C.A.H. Flechtmann; Agudos, Duraffora, SP, 2-IX-1980, 30-XII-1986, ethanol trap, *Pinus* spp. stand, C.A.H. Flechtmann; Parquergcu, palmeto, A.A. Martines.

Colombia: Palmira, 1-VII-1942, B.L. Losada.

French Guyane: Cayenne (Wood & Bright c1992:594).

Guiana: Guiana (Wood & Bright c1992:594).

Peru: Peru (Wood & Bright c1992:594).

Suriname: Suriname (Wood & Bright c1992:593).

Hosts: *Anona squamosa*, *Archantophoenix alexandrae*, *Areca catechu*, *Borassus flabellifer*, *Cassia grandis*, *Chamaedorea elegans*, *Chrysalidocarpus* sp., *Coccothrinix argentea*, *Diospyros* spp., *Elaeis guineensis*, *Erythrina cyiestagalli*, *Eugenia cumini*, *Euterpe globosa*, *Hyphaena guineensis*, *Livingstonia* spp., *Manikara kauki*, *Neowashingtonia robusta*, *Phoenix dactylifera*, *Polyalthia simiarum*, *Prichardia thurstoni*, *Rollinia octopetala*, *Sabal mauretiaeformis*, *S. palmetto*, *Shorea robusta*, *Theobroma cacao*, *Thrinax argentinia*, *Washingtonia filifera*. This host list is worldwide.

Biology: This species has been transported through commerce almost worldwide in palm nuts and other large seeds of many kinds.

Notes: The above treatment was based on several thousand specimens, mostly from Puerto Rico and Central America to Brazil. The types of all of the synonyms were examined and compared to my series.

Coccotrypes dactyliperda (Fabricius)

Plate LXXV

- Coccotrypes dactyliperda* (Fabricius), 1801:387 (*Bostrichus*). Syntypes 2 ♀ ♀; date seeds; UZMC, Copenhagen (Synonymy and references in Wood & Bright c1992:599–602)
- Bostrichus palmicola* Hornung, 1842:116. Syntypes ♀; Ostindien, Fruchten von Betelnüssen; MNB, Berlin

Coccotrypes tropicus Eichhoff, 1878:312. Holotype ♀; America meridionalis, Peru; Hamburg Museum, lost
Coccotrypes laboulbenei Decaux, 1890:2 (p. 1–16). Syntypes, sex?; Siam; not located
Coccotrypes eggersi Hagedorn, 1904:449. Syntypes ♀; Hamburg importiert in Steinnussen aus Ekuador; Hamburg Museum, lost
Coccotrypes bassivorus Hopkins, 1915:47. Holotype ♀; Washington, D.C.; USNM, Washington
Coccotrypes moreirai Eggers, 1928:86. Lectotype ♀; Guaxupe Minas Garaes, Brazil; USNM, Washington, designated by Anderson & Anderson 1971:21
Coccotrypes tanganus Eggers, 1935:307. Holotype ♀; Ostafrika (Tanga); BMNH, London
Coccotrypes borassi Beeson, 1939:283. Holotype ♀; Coorg; Bhagamandala; FRI, Dehra Dun
Coccotrypes elaeocarpi Beeson, 1939:284. Syntypes ♀; Bhagamandala, Coorg, India, 3500 ft.; FRI, Dehra Dun

Diagnosis: Distinguished from *carpophagus* (Hornung) by the larger size; by the lighter color; by the deeper and slightly larger stria punctures; and by the longer interstitial bristles.

Male: Smaller than female, dwarfed, deformed, flightless.

Female: Length 1.8–2.3 mm, 2.3 times as long as wide; color rather pale reddish brown. Frons about as in *carpophagus*. Pronotum about as in *carpophagus* except anterior margin less coarsely, less regularly serrate, asperities more numerous, each smaller in basal area but averaging as high or slightly higher. Elytra 1.3 times as long as wide; as in *carpophagus* except stria punctures averaging slightly larger, distinctly deeper; interstitial bristles more slender, pointed, each about one and one-half to two times as long as distance between rows, more closely spaced within a row.

Distribution: Cosmopolitan through commerce, breeding only in tropical and subtropical areas where the hosts grow from S Europe and S Asia to Africa and Australia; California and Florida (USA) to N Argentina.

Argentina: “Argentina” (Wood & Bright c1992:599).

Brazil: Minas Garaes Guaxupe Araraquara, Sao Paulo, EEIF, 27-IX-1988, *Acrocomia aculeata* seeds, E.P. Teixeira; Araraquara, SP, EEIF, 27-IX-1988, *Acrocomia aculeata* seed, E.P. Teixeira.

Chile: “Chile” (Wood & Bright c1992:601–602).

Colombia: “Colombia” (Wood & Bright c1992:602).

Ecuador: Intercepted at Hamburg in nuts received from Ecuador.

Guiana: “Guyana” (Wood & Bright c1992:602).

Peru: Jenaro Herrera, 6-VI-1990, *Astrocaryum* fruit, Couturier; America meridionalis (Peru).

Uruguay: “Uruguay” (Wood & Bright c1992:599).

Venezuela: “Venezuela” (Wood & Bright c1992:599).

Hosts: *Acrocomia aculeata*, *Areca catechu*, *Astrocaryum murumura*, *Cargotus urenus*, *Chamaedorea* spp., *Cargotus urenus*, *Chamaedorea* spp., *Chamerops* spp., *Cinnamomum zeylanicum*, *Coccus* spp., *Coccothrinax* sp., *Dictyospermum album*, *Elaeis guineensis*, *Elaeocarpus oblongus*, *Freycinetia arborea*, *Hyphaena* spp., *Hyphorbe* sp., *Livingstonia* spp., *Olea europaea*, *Oreodoxa* spp., *Persea gratissima*, *Phoenix* spp., *Phytelaphas macrocarpa*, *Pritchardia pacifica*, *Pitychosperma* sp., *Sabal bermudana*, *Seaforthia* sp., *Washingtonia filifera*, and many others (see Schedl 1961k:698–701 for African additions).

Biology: Large seeds, particularly of palms, are selected for attack. It commonly infests buttons made from vegetable ivory even when they are polished and painted. Virgin females are capable of establishing a new gallery, then producing parthenogenetically 2 or 3 haploid males, with whom she then mates in order to produce diploid females.

Notes: The above treatment was based on the original type material of *Bostrichus dactyliperda* Fabricius, *B. palmicola* Hornung, *Coccotrypes bassivorus* Hopkins, *C. moreirai* Eggers, *C. tanganus* Eggers, *C. borassi* Beeson, and *C. elaeocarpi* Beeson. The others were either lost or could not be located, and their synonymy was based on the observations of Eggers and/or Schedl.

TRIBE XYLEBORINI

Description: Body dimorphic, male usually dwarfed, modified, flightless, eye reduced in size, its shape often aberrant, and haploid; female normal, diploid. Frons convex, unadorned; eye emarginate to divided (Asiatic species only); antennal scape elongate, funicle 5-segmented (some Asiatic genera 3- or 4-segmented), club obliquely truncate (basal corneous area reduced or absent in some genera). Pronotum variously asperate on anterior slope (asperities absent in some males); procoxae varying from contiguous to widely separated; scutellum varying from large and flat to modified to absent. Elytra variable, conservatively to elaborately sculptured. Protibia variable; meso- and metatibiae flat, broad, tapered on apical third, lateral margin armed by a row of numerous, small, closely set socketed denticles, these usually alternating with marginal or submarginal setae in specialized groups; meso- and metatarsi retractable into tibial grooves.

Biology: Xylomycetophagy and inbreeding polygyny are universal in this tribe. Males are rare, haploid, and are produced only from unfertilized eggs; modified. Mating usually occurs among siblings in the brood chamber. Eggs are deposited in clusters in the parent tunnels. The larvae usually extend the parent galleries and feed almost exclusively on the fungal growth that is cultivated on the walls in these tunnels. Only in *Xyleborinus andrewesi* (Blandford), from tropical Asia, have partial, individual larval mines been reported. The brood emerges through the parent entrance hole. Temperate species may overwinter either in the brood host or in litter on the forest floor. Several species in several gen-

era have been transported through commerce to and from South America.

Notes: Because the species of Xyleborini are so poorly known in South America and comprise a significant portion of the fauna of that area, the limited material reported here does not fairly report the geographical or host ranges of the existing endemic species. For this reason, it was considered prudent to include in the identification keys almost all species reported from both North and South America. The descriptive treatment, however, is restricted to species actually occurring in and reported from South America. A few Central American and Mexican species new to science are also treated. The inbreeding mating system found in all Xyleborini makes these species capable of producing haploid males by parthenogenesis. These males may then mate with their own mothers or female siblings to produce diploid females and, thus, establish a breeding population from 1 introduced female, virgin or not. The ease and speed with which such populations can be established was a significant concern in determining what should and should not be included in this volume. It was noted in a preliminary count that 21 of 174 species (12 percent) of the Xyleborini species reported below were either introduced to South America or have been exported through commerce to other parts of the world. The potential for economic impact by these species is obvious. *Xyleborus abberrans* Schedl, named from Sri Lanka (Ceylon), was reported by Schedl (1971:148) from Brazil, Sete Lagos; if it was correctly identified, it was regarded as an interception, not as a resident species.

Key to the Genera of Xyleborini
(Females only. Adapted from Wood 1986:79–82)

- 1. Basal segment of labial palpus cylindrical, only slightly wider than segment 2 or 3, none of segments ornamented by a special tuft of setae; pregula and adjacent surfaces flush with general contour of ventral surface of head; antennal club rather strongly flattened, without visible sutures, corneous area reduced, usually pubescent to base; lateral margins of pronotum acutely elevated, pleural area concave (on transverse axis); anterior margin of pronotum unarmed; protibia inflated, armed on its posterior face by minute tubercles; Africa, three species introduced into America; 1.4–4.7 mm *Premnobius*
- Basal segment of labial palpus enlarged, conspicuously wider than segment 2 or 3, its posterior face usually flat, 1 or more segments ornamented by an oblique row of setae; pregula and adjacent areas usually conspicuously impressed below general contour of head 2
- 2(1). Antennal club with sutures 1 and 2 rather strongly procurved, both segments 1 and 2 corneous and mostly glabrous except at sutures; protibia slender, almost cylindrical, posterior face armed by tubercles, lateral margins of pronotum acutely elevated, pleural areas transversely concave; body very slender; anterior margin of pronotum armed by 2 or more very coarse serrations; domicile parasites of other ambrosia beetles; Mexico to Brazil; 2.7–6.0 mm *Sampsonius*

- Antennal club obliquely truncate or nearly so, sutures (when visible) on or very near margin of corneous area, recurved (except pubescent to base in some Asiatic forms); protibia usually more strongly expanded on apical half; lateral margins of pronotum rounded; habit as domicile parasites unknown 3
- 3(2). Shallow sutural notch at base of elytra exposing depressed, cone-shaped scutellum that appears to be displaced cephalad, emargination usually filled by dense setae; femoral groove for reception of tibia visible only near apical joint; tropical and temperate areas worldwide; 1.4–3.5 mm *Xyleborinus*
- Scutellum visible, moderately large, its surface flush with adjacent surface of elytra; ventral margin of metafemur either rounded or rather obtusely angulate, on its posterior face groove for reception of tibia usually clearly indicated on distal half 4
- 4(3). Posterior face of antennal club marked by 2 sutures on apical third (suture 2 poorly represented in some *Coptoborus*), anterior face with apical portion convex (or concave only distad from segment 2), segment 2 comparatively large, sclerotized, protibia armed by 6 or 7 socketed teeth on lateral margin, metatibia with 6–9 socketed teeth; anterior coxae always contiguous 5
- Posterior face of antennal club with not more than 1 suture visible at or very near apex (usually none), apical portion of anterior face usually flat to concave, segment 2 (if visible) not corneous; number of metatibial teeth variable; anterior coxae either contiguous or separated 7
- 5(4). Protibia with posterior face inflated and armed by numerous small tubercles; metatibia usually with 8 or 9 socketed denticles; segment 2 of antennal club usually forming a complete oblique annulus on anterior face, its apical margin acutely costate as on segment 1; Mexico to South America (1 species introduced to Africa); 2.1–5.3 mm *Dryocoetoides*
- Protibia with posterior face flat, unarmed (except socketed denticles on lateral margin); metatibia never with more than 7 socketed teeth; apical margin of antennal club segment rounded, never acutely costate 6
- 6(5). Posterior fourth of elytra comparatively broad, rather broadly rounded behind, suture never emarginate; declivital interstriae 1–3 similar, tubercles minute, if present, body comparatively stout, less than 2.6 times as long as wide; Mexico to South America, also introduced into tropical Africa; 1.7–3.0 mm *Theoborus*
- Posterior third of elytra attenuate or acuminate, narrowly rounded behind, suture often emarginate; 1 or more declivital interstriae sometimes armed by small denticles, body slender, at least 2.6 times as long as wide; Mexico to South America, Africa to SE Asia; 1.5–5.0 mm *Coptoborus*
- 7(4). Antennal club with segment 2 on anterior face usually conspicuous, sometimes rather large, apical margin of segment 1 on both faces rounded, often inconspicuous or absent on anterior face, almost always visible on subapical area of posterior face; procoxae always contiguous, intercoxal piece never inflated or armed by spines, mesocoxae usually more widely separated by distance greater than thickness of antennal scape 8
- Segment 1 of antennal club corneous, its distal margin very acutely elevated into a continuous costa (forming a complete circle) extending from anterior face to apex, suture almost never visible on posterior face; procoxae varying from contiguous to widely separated, if contiguous then posterior intercoxal piece sometimes inflated and armed; mesocoxae usually subcontiguous, usually separated by distance less than thickness of antennal scape 10
- 8(7). Pronotal asperities extending to base, including most of discal area; anterior margin of pronotum never armed by a definite row of serrations; lateral margin of protibia armed by 7–8 socketed denticles, metatibia by 8–11 denticles; ventrolateral margin of declivity never costate; pantropical; 1.9–4.2 mm *Ambrosiodmus*

- Pronotal asperities confined to slightly more than anterior half; lateral margin of metatibia armed by 7 to more than 11 socketed denticles; ventrolateral margin of declivity weakly to acutely costate 9
- 9(8). Most of postolateral declivital margin rounded, a carina not indicated on its basal two-thirds, sub-acutely elevated from apex of suture to interstriae 7; declivital face basically convex; antennal club obliquely truncate in South American species; pronotum commonly subquadrate, its anterior margin almost always unarmed; striae and interstitial punctures usually in rows, elytral vestiture comparatively sparse, confined to striae and interstitial rows; Asia to Australia, introduced to South America; 2.4–4.6 mm *Euwallacea*
- Elytra obliquely, abruptly truncate behind, usually with an acutely, distinctly elevated circum-
declivital subcircular costa, face of declivity flat to concave (if costa absent then antennal club
pubescent to base); discal interstriae with punctures uniseriate, occasionally slightly confused on
some interstriae; antennal club usually pubescent to its base, more strongly flattened; eye deeply
emarginate to entirely divided; SE Asia to Australia, incorrectly reported from South America;
2.4–3.1 mm *Amasa*
- 10(7). Procoxae contiguous, intercoxal piece longitudinally emarginate, its posterior element inflated,
occasionally dentate; body usually more slender, mostly more than 2.0 times as long as wide; world-
wide in tropical and temperate areas; 1.7–5.9 mm *Xyleborus*
- Procoxae moderately to rather widely separated, intercoxal piece continuous, not longitudinally
emarginate (a slight notch in some *Taurodemus*); body usually stouter, mostly less than 1.9 times
as long as wide 11
- 11(10). Lateral margin of protibia armed by 9–12 socketed teeth; elytral declivity moderately to very
strongly sulcate on at least basal half, lateral margins armed by at least 1 major spine and several
smaller tubercles; procoxae moderately to rather narrowly separated; Central and South America;
2.4–4.5 mm *Taurodemus*
- Lateral margin of protibia armed by 4–7 socketed teeth; elytral declivity usually not conspicu-
ously sulcate, lateral margins not conspicuously armed by spines or tubercles; basal area of ely-
tral declivity convex; procoxae widely separated; pantropical; 1.3–5.0 mm *Xylosandrus*

GENUS *PREMNOBIUS* EICHHOFF

Premnobius Eichhoff, 1878:65, 404. Type-species: *Premnobius cavipennis* Eichhoff, monobasic (Synonymy and references in Wood & Bright c1992:651–655)

Premnophilus Browne, 1962:79. Type-species: *Xyleborus joveri* Schedl = *Premnobius quadrispinosus* Schedl, original designation

Diagnosis and description: Distinguished from other genera of the Xyleborini by the cylindrical segment 1 (basal) of the labial palpus that is only slightly wider than segment 2 or 3, none of these segments is ornamented by a special tuft of setae; by the pre-gula being flush with adjacent surfaces of the head (not conspicuously impressed); by the strongly flattened antennal club, without sutures, corneous area reduced, pubescent to base; by the acutely elevated lateral margins of the pronotum; by the unarmed anterior margin of the pronotum; and by the inflated protibia that is armed on its posterior face by minute tubercles.

Distribution: Wood & Bright (c1992:651–655) report 25 species from Africa, 3 of which have been introduced into South America.

Biology: The species are xylomycetophagous and reproduce by inbreeding or consanguineous polygyny, as described for the tribe. Adult females bore into unthrifty, fallen, or cut limbs larger than 3 cm in diameter and logs. The female bores about 3 cm directly (radially) into the wood. The tunnel may then branch or radiate palmately. Larvae develop in the parent tunnel and feed on the mycelial growth of the fungi cultivated by the beetles on their tunnel walls until just before pupation. Each forms its own pupation chamber immediately above or below the parent gallery. About 11–17 pupal cradles occur in each gallery system. Mating occurs in the brood chambers with the flightless males. Emergence is through the parent entrance hole.

Notes: This genus is intermediate between the Dryocoetini and Xyleborini. The (1) labial palpi, (2) non-impressed oral area on the ventral area of the head, and (3) DNA sequence data apparently suggest an affinity with Dryocoetini and Ipinini. However, the (1) xylomycetophagous habit with (2) larval/pupation cradles, and (3) the emergence of brood through the parent entrance

tunnel are clearly associated with the Xyleborini. This suggests an intermediate position between these 2 tribes that, at present, can be resolved only through author choice. More detailed studies of the habits and behavior of African species of this genus could be of great value in the proper placement of this genus.

Key to the Species of *Premnobius*
(Modified from Wood 1982:756)

- 1. Punctures of discal striae and interstriae in definite rows; declivity strongly concave, lateral margins armed by 4 major and about 4 minor spines; body smaller, more slender, 3.9 times as long as wide; tropical Africa (?) and Suriname; 2.1–3.0 mm ***sexnotatus*** (Schedl)
- Interstitial punctures on elytral disc confused (minute strial punctures sometimes in rows); elytral declivity rather strongly concave, lateral margins armed by 1 large denticle or none (2–3 very small denticles sometimes present); body larger, less slender; 3.0–3.3 times as long as wide 2
- 2(1). Smaller; declivital interstriae 1 with a row of small, pointed tubercles; declivity steeper, occupying only 33 percent of elytra length, its lateral margin finely serrate, a slightly larger tubercle near middle, another on lower fourth; Africa, Florida (USA) to Brazil; 2.3–2.8 mm ***cavipennis*** Eichhoff
- Larger; declivital interstriae 1 entirely unarmed; declivity occupying 43 percent of elytra length, its lateral margins each armed by about four rather coarse tubercles on upper third and one much larger, blunt spine slightly below middle; tropical Africa, and Colombia and Venezuela to Bolivia and Brazil; 3.0–3.3 mm ***ambitosus*** (Schauffuss)

Premnobius sexnotatus (Schedl)
Plate LXXVIII

Premnobius sexnotatus (Schedl), 1970:95 (*Xyleborus*). Holotype ♀; Para Distr.; Suriname; NHMW, Wien (References in Wood & Bright c1992:655)

Diagnosis: Distinguished by the small, slender body form; by the deeply excavated elytral declivity and the coarse lateral spines; and by the clearly uniseriate punctures of the discal striae and interstriae.

Female: Length 2.1–3.0 mm, 2.9 times as long as wide; color yellowish brown. Frons convex, reticulate, obscurely punctured; vestiture of short, sparse hair. Pronotum 1.4 times as long as wide; summit one-third pronotum length from anterior margin, anterior slope steep, armed by numerous, small, confused asperities; disc smooth, obscurely reticulate, punctures sparse, minute; vestiture absent except a few sparse, short setae on anterior and lateral areas. Elytra 2.2 times as long as wide, 1.5 times as long as pronotum; striae not impressed, punctures rather small, shallow, in rows; interstriae three times as wide as striae, smooth, shining, punctures minute, half as large as those of striae, in uniseriate rows. Declivity occupying posterior third of elytra length, rather deeply concave; lateral margins armed by 3 pairs of coarse spines on less than lower half, by 2 or more pairs of smaller spines on basal half; face of declivity reticulate, punctures not clearly indicated. Vestiture on disc of rather short, sparse interstitial setae, longer and more numerous on margins of declivity.

Distribution: Suriname to Brazil.

Brazil: Cited in Wood & Bright (c1992:655).

Suriname: Jodensavane, Kamp 8, 1961, Lichtv., #765, Schulz.

Notes: The above treatment was based on 1 female from a Suriname light trap. It was compared by me to the slightly larger female holotype (3.0 mm), also from Suriname. It is an obvious introduction from Africa of a species near *hystrix* (Schedl).

Premnobius cavipennis Eichhoff
Plate LXXVII

Premnobius cavipennis Eichhoff, 1878:404. Syntypes ♀; Africa meridionalis (Cap bonae spei), America meridionalis (Colombia); most lost with Hamburg Museum, 1 in IRSNB, Brussels (Synonymy and references in Wood & Bright c1992:651–652)

Xyleborus industrius Sampson, 1912:248. Holotype ♀; Uganda; BMNH, London

Xyleborus xylocranellus Schedl, 1931:344. Holotype ♀; Brazil; NHMW, Wien

Premnobius bituberculatus Eggers, 1932:35. Holotype ♀; Congostaat, Region de Sassa; MRCB, Tervuren

Premnobius latior Eggers, 1933:9. Holotype ♀; St. Jean du Maroni, French Guyane; MNHN, Paris

Diagnosis: Distinguished by characters presented in the above key to species.

Male: Described and figured by Browne (1961:46) and Wood (1982:756–758). Similar to female but smaller and less perfectly formed.

Female: Length 2.3–2.8 mm, 3.3 times as long as wide; color reddish brown. Frons broadly convex, median line

usually feebly elevated; surface subreticulate, obscurely punctured above, some punctures replaced by fine granules below. Pronotum 1.2 times as long as wide; outline as in *sexnotatus* (Schedl); posterior areas smooth, shining, very finely, rather deeply, closely punctured; lateral margins subacute; vestiture of fine, short, rather abundant hair. Elytra 1.7 times as long as wide, 1.4 times as long as pronotum; striae not impressed, punctures minute, usually not in recognizable rows; interstriae smooth, usually with minute, impressed points, punctures small, confused, mostly indistinguishable from those of striae. Declivity broadly, rather deeply, concavely excavated on posterior third of elytra length; lateral margins distinctly higher than suture; interstriae 1 with a row of fine, pointed tubercles; declivital face with rather large, moderately deep, confused punctures, shining; lateral margins on upper half with a row of minute denticles, a slightly larger denticle near middle; lower half with one to three minute denticles, a moderately large denticle on margin on lower fourth; ventrolateral margin obsolete before apex. Vestiture of abundant, rather short, fine hair, somewhat longer and coarser at base of declivity.

Distribution: Africa, introduced to America in USA (Florida), Mexico (Chiapas, Veracruz, Yucatan), Honduras, Cuba, Guadeloupe, Puerto Rico, Trinidad, and South America south to Brazil.

Brazil: Cepec, Ilheus, Bahia, 1966–1968, at light, Kaston; “Brazil, J.L. Saunders”; Aracruz, Espirito Santo, 11-XII-1991, No. 3565; Rio Grande do Sul, Sao Francisco de Paula, I-1992, ethanol trap in *Pinus taeda* stand, A. Dwulatka; Sao Paulo, Duraflora, Agudos, 17-IV-1984, ethanol trap in *Pinus caribaea* stand, C.A.H. Flechtman.

Colombia: Colombia (Eichhoff 1878:404); El Silencio, Nito Palermo, Hulla, 27-IV-1959, Cacao arbol, B. Herrera.

French Guyane: Cited in Wood & Bright (c1992:652).

Guiana: Cited in Wood & Bright (c1992:652).

Suriname: Cited in Wood & Bright (c1992:652).

Venezuela: 9 km S Barrancas, Barinas, 5-XI-1969, 60 m, No. 116, *Inga*, SLW; 8 km SW Bumbum, Barinas, 11-II-1970, 150 m, No. 309, tree limb, SLW; Merida, Merida, 22-IX-1969, 1700 m, SLW; 17 km SE Miri, Barinas, 17-XII-1969, 150 m, No. 199, *Bombacopsis quinata*, SLW; 40 km SE Socopo, Barinas, 25-I-1970, 150 m, No. 262, *Protium*, SLW; Finca Monasterios, Cacaagua, Miri, 1971, *Theobroma cacao*.

Hosts: African hosts (59 plant genera) cited in Wood & Bright (c1992:652). South American hosts include *Bombacopsis quinata*, *Inga*, *Protium*, and *Theobroma cacao*.

Biology: As described for the genus.

Notes: The above treatment was based on 4 specimens from Zaire (Africa), on 21 from North America and the Antilles Islands, on 6 from Brazil, 3 from Colombia, 29 from Venezuela, and 1 or more each from French Guyane, Guiana, and Suriname.

Premnobius ambitiosus (Schaufuss)

Plate LXXVII

Premnobius ambitiosus (Schaufuss), 1897:109 (*Xylocleptes*). Holotype ♀; Gabun; Hamburg Museum, lost (Synonymy and references in Wood & Bright c1992:651)

Premnobius cavipennis spinosus Hagedorn, 1908:376. Syntypes ♀; Kinshasa, Waelbroek, Congo; IRSNB, Brussels

Premnobius brasiliensis Nunberg, 1958:490. Holotype ♀; Sao Paulo, Brazil; Escola Nacional de Agronomia, Rio de Janeiro (Now at MZUSP, Sao Paulo)

Diagnosis: Distinguished from *cavipennis* Eichhoff by the larger size; by the unarmed declivital interstriae 1; and by having a rather large spine just below the middle of the lateral margin of the declivity.

Female: Length 3.0–3.3 mm, 3.0 times as long as wide; color reddish brown. Frons convex, weakly reticulate, a feeble median elevation obscurely indicated; small punctures moderately abundant, some of them accompanied by a small granule. Pronotum 1.3 times as long as wide; summit distinctly in front of middle; anterior slope closely, moderately asperate; posterior areas smooth, shining, punctures small, rather close; vestiture of fine, rather short hair on anterior and lateral areas. Elytra 1.7 times as long as wide, 1.3 times as long as pronotum; striae not impressed, rather obscurely indicated by rows of small, shallow punctures; interstriae smooth, shining, five or more times as wide as striae, punctures confused, each slightly smaller than those of striae. Declivity occupying about 43 percent of elytral length, broadly, rather strongly concave; lateral margins subacutely elevated much higher than suture, a rather large, conical spine moderately displaced mesad from margin at level about two-thirds distance from base of declivity toward apex, about 5–7 smaller denticles on margin on basal half, crest below major spine subacute, a small denticle at mesal end in line with position of striae 1; face of declivity mostly smooth, shining, some reticulation in lateral areas, large, shallow, confused punctures moderately abundant. Vestiture of fine, moderately long hair, sparse on disc and declivity, moderately abundant on sides and near base of declivity.

Distribution: Tropical Africa, introduced to South America (Colombia and Venezuela to Bolivia and Brazil).

Bolivia: Cited in Wood & Bright (c1992:651).

Brazil: Rio de Janeiro; Ibateripasa, Sao Paulo, 27-III-1985, 8-IV-1985, 10-IV-1985, ethanol trap in *Eucalyptus* stand, C.D. Santos.

Colombia: Dinamarca, La Coqueta Seville, Valle de Cauca, V-1959, en guamo, A. Duque V.

Venezuela: Finca Monasterios, Cacaagua, Miranda, *Theobroma cacao*, J.L. Saunders.

Hosts: *Albizzia* spp., *Celtis mildbraedii*, *C. soyaurii*, *Gmelina arborea*, *Gossypium hirsutum* (fruit), *Mangifera indica*.

Biology: Apparently as described for the genus (not studied by me).

Notes: The above treatment was based on 4 specimens from Africa, 1 from Colombia, and 1 from Venezuela.

The identification was based on direct comparisons of my specimens to those of Browne (BMNH, London) and Schedl (NHMW, Wien).

GENUS *SAMPSONIUS* EGGERS

Sampsonius Eggers, 1935:157. Type-species: *Sampsonius sexdentatus* Eggers, original designation (References in Wood & Bright c1992:655–656)

Diagnosis: Distinguished from other genera of Xyleborini by having the antennal club with sutures 1 and 2 rather strongly procurved, setments 1 and 2 on anterior face corneous and mostly glabrous; protibia slender, its posterior face armed by tubercles; lateral margins of pronotum acutely elevated; anterior margin of pronotum armed (usually) by 2 very coarse serrations that may play a significant role in their habit as domicile parasites of other ambrosia beetles.

Description: Female body very slender, 3.9–4.1 times as long as wide; color yellowish to reddish brown. Male dwarfed, deformed, flightless. Antennal club flattened, sutures 1 and 2 moderately procurved, segments 1 and 2 corneous on anterior face. Pronotum elongate, summit well in front of middle, anterior slope asperate, anterior margin armed by 2 coarse serrations (absent in 3 species); lateral margins subacutely elevated. Elytra elongate, weakly striate; declivity gradual, variously, often remarkably sculptured. Procoxae contiguous, intercoxal

piece obsolete. Protibia slender, posterior face armed. Male dwarfed, anterior slope of pronotum impressed to excavated; elytral declivity less strongly impressed, less perfectly formed than in female.

Distribution: Wood & Bright (c1992:655–656) report 3 species from Central America and 12 species from South America. See Bright (1991:11–28), revision.

Biology: All are xylomycetophagous domicile parasites of other ambrosia beetles, usually (always?) a species of another genus of Xyleborini. The critical factor in host-beetle selections appears to be the diameter of the entrance hole of the host-beetle tunnel. After the host-beetle species is established its tunnel in small-diameter stems (about 3–8 cm in diameter) of shrubs or tree seedlings, the *Sampsonius* species arrives, forces entry (apparently using the large prothoracic spines), and evicts the original tenant, eggs, larvae, and boring dust. It then produces its own brood in that appropriated tunnel. The beetles are solitary and are usually found through accidental encounters. There appears to be no aggregation factor present unless the host species produces something that attracts the domicile parasite.

Note: Schoenherr (1994:63–69) named *S. Giganteus*, *S. Prolongus*, and *S. Pedrosai* from Brazil. Requests for a loan of these species and for publication data not answered by the author and could not be included here. Synonymy is suspected.

Key to the Species of *Sampsonius*
(Females only)

- 1. Anterior margin of pronotum procurved, unarmed by serrations 2
- Anterior margin of pronotum variously produced in median area, armed by 2 large serrations . . . 4
- 2(1). Median area of pronotum without a serrated crest immediately behind anterior margin; elytral declivity impressed, armed on interstriae 3 by two rather short, subacutely pointed spines; Brazil (Mato Grosso); 4.3 mm *alvarengai* **Bright**
- Median area of pronotum immediately behind anterior margin armed by a serrated crest; elytral declivity impressed, armed on interstriae 3 by three large spines (either blunt or elongate) 3
- 3(2). Declivity moderately impressed, interstriae 3 armed by three shining, acutely pointed spines, 1 shorter, 2 and 3 longer; French Guyane; 7.9 mm *sexdentatus* **Eggers**
- Declivity rather strongly impressed, interstriae 3 armed by three dull, reticulate, obtusely pointed, short spines of about equal length; Guiana; 5.4 mm *coniferae* (**Hagedorn**)
- 4(1). Elytral declivity variously, broadly impressed (never concave), surfaces partly to entirely reticulate, lateral margin moderately, subacutely elevated and armed by a row of numerous small denticles 5
- Elytral declivity rather strongly concave, lateral margins strongly, acutely elevated, crest armed by about 3 small spines 13
- 5(4). Elytral declivity not armed by major spines on lower half 6
- Elytral declivity armed by 1 or more pair of conspicuous spines on lower half 8

- 6(5). Declivity dull, reticulate except interstriae 1 or 2 (?) with a shining, longitudinal elevation (half as long as length of declivity) beginning near apex of 1 and continuing to an obtuse elevation above; Brazil (Sao Paulo); 4.6–4.8 mm *pennatus* Schedl
 — Declivity dull, reticulate, without any conspicuous elevations 7
- 7(6). Declivity moderately impressed, a moderate, longitudinal sulcus on median half from base almost to apex, lateral areas (presumably interstriae 3) moderately elevated (summit obtusely rounded); Mexico (Veracruz); 5.4–6.0 mm *reticulatus* Bright
 — Declivity strongly impressed, transversely almost flat, suture and lower third of interstriae 3 weakly elevated; Colombia (Valle de Cauca); 5.1 mm *expulsus* Wood
- 8(5). Elytral declivity armed by 2 pair of spines (on interstriae 3?); Bolivia; 5.4 mm
 *quadrispinosus* Eggers
 Elytral declivity armed by 1 pair of spines on lower fourth 9
- 9(8). Declivity armed by 1 pair of subcontiguous, modified spines near apex of interstriae 1 10
 — Declivity armed by 1 pair of widely separated spines on lower fourth of interstriae 3 12
- 10(9). Elytral declivity modestly sulcate, interstriae 3 moderately, obtusely elevated on lower two-thirds of elytral length; interstriae 1 armed by a small, acutely pointed spine on suture at apex; declivital vestiture longer and more abundant; Costa Rica; 4.0–4.4 mm *usurpatus* Wood
 — Elytral declivity not sulcate, interstriae 3 not elevated to very weakly elevated; elevated spine-like process at apex of interstriae 1 much larger 11
- 11(10). Declivital spines near apex of elytral suture contiguous, their mesal side often contiguous to apex of spines, basal longitudinal axis of spine often prolonged on its anterior face; Mexico (Chiapas) to Panama and Venezuela to Brazil; 2.8–4.7 mm *dampfi* Schedl
 — Declivital spines near apex of suture contiguous at their base, strongly diverging to their apices, spines usually longer, their basal axis shorter; Brazil (Bahia to Santa Catarina); 4.8 mm
 *buculus* Schedl
- 12(9). Declivital spine near apex of interstriae 3 very slender, about four times as long as its basal (longitudinal) width, almost straight, slightly curved at apex, lateral base of spine not attaining lateral margin; Panama (Canal Zone); 5.8–6.0 mm *detractus* Wood
 — Declivital spine near apex of interstriae 3 long, stout, about twice as long as longitudinal basal width, distinctly curved on its apical half, lateral base attaining lateral margin; French Guyane to Brazil (Mato Grosso); 5.5–6.2 mm *ensifer* Wood
- 13(4). Elytral declivity moderately steep, lateral margins strongly rounded; declivital face rugose-reticulate, apical profile (dorsal aspect) rounded; Trinidad; 3.8 mm *sulcatus* Bright
 — Elytral declivity more gradual, concavely excavated, conspicuously emarginate at sutural apex, lateral margin strongly, acutely elevated, its summit armed by 3 or more pointed denticles; face of declivity smooth, shining between punctures; Costa Rica and Brazil (Parana, Sao Paulo) to Peru; 3.0–3.5 mm *obtusicornis* Schedl

Sampsonius alvarengai Bright

Sampsonius alvarengai Bright, 1991:15. Holotype ♀; Vera, Mato Grosso, Brazil; CNCI, Ottawa (References in Wood & Bright c1992:655)

Diagnosis: Distinguished by the evenly procurved, unarmed anterior margin of the pronotum and absence of a submarginal costa; by the somewhat concave elytral declivity the lateral margins of which are armed by 2 pair of coarse denticles (on interstriae 3?).

Female: Length 4.3 mm, 3.1 times as long as wide. Head and pronotum about as in allied species, except anterior margin of pronotum procurved and unarmed by serrations, submarginal costa absent. Elytra 2.0 times as long as wide, rather broadly rounded behind; striae punctures large, deeply impressed; interstriae almost as wide as striae, smooth, shining, punctures small, uniseriate. Declivity occupying posterior half of elytral length, reticulate, moderately concave on interstriae 1 and 2,

suture distinctly elevated, strial punctures not indicated; lateral margins armed by 2 pair of moderately coarse spines (apparently on interstriae 3) of subequal size; lateral areas rounded.

Distribution: Brazil: Mato Grosso, Vera, X-1973, M. Alvarenga.

Notes: The above treatment was modified from Bright (1991:15–16).

Sampsonius sexdentatus Eggers

Sampsonius sexdentatus Eggers, 1933:23. Holotype ♀; Gourdonville, French Guyane; MNHN, Paris (References in Wood & Bright c1992:656)

Diagnosis: Distinguished from *alvarengai* Bright by having a submarginal, serrated costa behind the unarmed anterior margin of the pronotum; by the smaller strial punctures; by the weakly concave declivity, with the lateral margins armed by three pair of moderately coarse denticles (on interstriae 3).

Female: Length 7.9 mm, 3.4 times as long as wide. Head and pronotum about as in *alvarengai*, except a submarginal serrated costa present behind unarmed anterior margin of pronotum. Elytra 2.0 times as long as wide, rather broadly rounded behind; strial punctures rather small, weakly impressed; interstriae two to three times as wide as striae, smooth, shining, punctures small, uniseriate. Declivity occupying posterior half, reticulate, broadly, shallowly concave, strial punctures obsolete, armed on lateral margin by three pair of spines, spines increasing in size from moderate to rather large from 1 to 3 (apparently on interstriae 3); lateral areas rounded.

Distribution: French Guyane: Gourdonville, 1907, E. Le Moutl.

Notes: The above treatment was modified from Bright (1991:18).

Sampsonius conifer (Hagedorn)

Sampsonius conifer (Hagedorn), 1905:540 (*Xyleborus*). Holotype ♀; Riviere Lunier, French Guyane; MNHN, Paris (References in Wood & Bright c1992:655)

Diagnosis: Distinguished from *sexdentatus* (Eggers) by the smaller size; by the shorter, equal size of the peg-like (acorn-shaped) declivital spines; by the weakly serrated costa immediately behind the anterior margin of the pronotum.

Female: Length 5.0 mm, 3.3 times as long as wide (Bright 1991:16 gives 5.4 mm, 3.6 times as long as wide); color reddish brown. Frons as in *detractus* Wood. Pronotum 1.5 times as long as wide; as in *detractus* except anterior slope devoid of asperities, anterior margin unarmed except for a low submarginal costa on median fourth. Elytra 2.0 times as long as wide, 1.3 times as long as pronotum; disc occupying basal half; strial punctures large for this genus, distinctly impressed, close; interstriae slightly wider than striae, smooth,

shining, punctures small, uniseriate. Declivity strongly concave, lateral margins rounded, not serrate; concave area rugose-reticulate, punctures not evident, armed on interstriae 3 by three pair of large, black, reticulate, stout spines (resembling pointed acorns of *Quercus*, complete with caps at their base), of almost equal size, each spine about 1.5 times as long as its basal width and slightly inclined mesad.

Distribution: French Guyane: Riviere Lunier, 1899, F. Geay.

Notes: The above treatment was based on my examination of the female holotype and the notes recorded on 5 June 1972.

Sampsonius pennatus Schedl

Plate LXXX

Sampsonius pennatus Schedl, 1973:171. Holotype ♀; Guanabara, Repressa Rio Grande, Brazil; MZUSP, Sao Paulo (References in Wood & Bright c1992:656)

Diagnosis: Distinguished by the unique elevation on declivital interstriae 1 as described below.

Female: Length 4.6–4.8 mm, 3.8 times as long as wide. Frons and pronotum about as in *detractus* Wood except frons with a weak median elevation, pronotum 1.45 times as long as wide. Elytra 1.4 times as long as wide, broadly rounded behind; strial punctures rather large, impressed; interstriae as wide as striae, punctures small, uniseriate. Declivity confined to posterior third of elytral length, reticulate; interstriae 3 slightly elevated, with numerous fine granules on crest of summit, 1 weakly elevated and with a few granules, 2 weakly impressed and with a few granules, interstriae 7 forming lateral margin below, sharply elevated, moderately serrate, largest serrations ending at 5; “apex of interstriae 1 bearing a distinct, strongly elevated process which extends half of declivital length, lateral margin of process acutely elevated, ending in an acute elevation on anterior end of process, surface of process smooth, glabrous, brightly shining” (Bright 1991:20).

Distribution: Brazil: Sao Paulo, Guanabara, Repressas Rio Grande (apparently a vacation resort near Rio de Janeiro), XII-1967, F.M. Oliviera; INPA Campus, Manaus, Amazonas, 23-II-1987, ethanol trap, R.L.S. Abreu.

Notes: The above treatment was adapted from Bright (1991:20). Two specimens from Brazil were examined.

Sampsonius expulsus Wood

Plate LXXIX

Sampsonius expulsus Wood, 1974:31. Holotype ♀; Carton de Colombia forest 8 km S Colonia (near Buenaventura), Valle de Cauca, Colombia; USNM, Washington (References in Wood & Bright c1992:656)

Diagnosis: Distinguished from *reticulatus* Bright by the more strongly impressed, transversely almost flat elytral declivity, the lower third of interstriae 3 weakly elevated.

Female: Length 5.1 mm, 3.4 times as long as wide; color reddish brown. Frons convex, reticulate, narrow, not as wide as width of an eye; area on and near epistomal margin finely, closely tuberculate; vestiture sparse, fine, long, hairlike. Pronotum 1.5 times as long as wide; anterior margin narrowly rounded, armed by 2 large, slender, basally subcontiguous, median serrations; summit indefinite, near middle; crenulations on anterior slope low, small, except in median area near anterior margin; disc smooth, brightly shining, punctures sparse, minute. Elytra 2.2 times as long as wide, 1.6 times as long as pronotum; disc occupying slightly more than half of elytra length, striae not impressed, punctures small, impressed, in definite rows, interstriae almost flat, smooth, shining, punctures very small, uniseriate near base, confused near declivity. Declivity gradual, abruptly subtruncate, broadly impressed, transversely straight, longitudinally concave, rugose-reticulate; interstriae 1 and 3 weakly elevated on lower half; striae punctures minute, uniseriate, interstitial punctures minute, some finely granulate, uniseriate; interstitial vestiture of fine, long, moderately abundant hair on sides and declivity.

Distribution: Colombia: Carton de Colombia forest 8 km S Colonia, Valle de Cauca (near Buenaventura), 7-VII-1970, 30 m, *Pouteria*, SLW.

Biology: Domicile parasite in a *Xyleborus* sp. gallery in a branch of a recently felled tree.

Notes: The above treatment was based on the female holotype.

Sampsonius quadrispinosus Eggers

Sampsonius quadrispinosus Eggers, 1935:158. Holotype ♀; Cochabamba, Bolivia; NHMW, Wien (References in Wood & Bright c1992:656)

Diagnosis: This is the only known species of this genus having both 2 serrations on the anterior margin of the pronotum and also 2 pair of major spines on the elytral declivity.

Female: Length 5.4 mm, 3.9 times as long as wide. Frons and pronotum about as in *usurpatus* Wood, pronotum 1.5 times as long as wide, anterior margin armed by 2 coarse serrations. Elytra 2.3 times as long as wide, very broadly rounded (almost straight) behind; striae punctures on disc moderately large, shallowly impressed; interstriae twice as wide as striae, smooth, shining, punctures very small, uniseriate. Declivity occupying posterior third of elytral length, surface reticulate near major spines, with numerous small, scattered, acute granules, lower half armed by 2 pair of large, acute spines, area between spines smooth, shining; interstriae 7 below forming ventrolateral margin, rather coarsely serrate, row of serrations continuing cephalad to suture (forming most of a circumdeclivital ring of small spines); major spines apparently on interstriae 3 (not stated).

Distribution: Bolivia to Brazil (Mato Grosso).

Bolivia: Cochabamba [F. Woytkowski]

Brazil: Sao Nicolau Farm, Catriguacu, Mato Grosso, VI-2002, Amazon rain forest, ethanol trap, P. Filho.

Notes: The above treatment was modified from Bright (1991:21, fig. 11), and 1 female.

Sampsonius usurpatus Wood

Sampsonius usurpatus Wood, 1974:32. Holotype ♀; Turrialba, Cartago, Costa Rica; USNM, Washington (References in Wood & Bright c1992:656)

Diagnosis: Distinguished from *dampfi* Schedl by the moderate declivital sulcus from suture to moderately elevated interstriae 3 on lower two-thirds of declivital length; by the smaller spine at apex of declivital interstriae 1; and by the longer, more abundant declivital vestiture.

Male: Length 3.3 mm; pronotum almost as long as elytra, anterior half strongly, concavely excavated, anterior margin armed by 3, stout spines; declivity remotely resembling female, declivity narrower, almost convex, spine absent at end of suture.

Female: Descriptions in Wood (1974:32, 1982:761).

Distribution: Costa Rica to Panama.

Hosts: Unidentified recently cut tree seedlings and tree branches.

Biology: Specimens were removed from partly to completely formed tunnels of *Dryocoetoides capucinus* (Eichhoff); *dampfi* is a domicile parasite of this species.

Notes: Although not yet recorded from South America, its occurrence in Costa Rica and Panama and the occurrence of the host beetle in South America suggest that it will eventually be found there.

Sampsonius dampfi Schedl

Plate LXXIX

Sampsonius dampfi Schedl, 1940:359. Lectotype ♀; Chiapas, Mexico; NHMW, Wien, designated by Schedl 1979:75 (Synonymy and references in Wood & Bright c1992:655)

Sampsonius costaricensis Nunberg, 1963:104. Lectotype ♀; Finca La Lola, Limon, Costa Rica; University of Wisconsin Collection, Madison, designated by Wood (1982:761)

Diagnosis: Distinguished from *usurpatus* Wood by the spines near apex of elytral suture larger, their basal longitudinal axis much longer than their transverse axis; by the elytral declivity being weakly if at all sulcate, with interstriae 3 feebly elevated.

Female: Length 2.8–4.2 mm, 4.1 times as long as wide; color yellowish brown to reddish brown. Frons and pronotum about as in *usurpatus*. Elytra resembling *usurpatus* except basal margin of declivity more gradually rounded, lateral margin of declivity more coarsely serrate, spine at apex of suture much larger, blunt, longitudinal axis of its base occupying up to lower third of declivital length; declivital vestiture less abundant.

Distribution: Mexico (Chiapas) to Panama and Venezuela to Brazil.

Brazil: "Brazil, J.L. Saunders"; Reserva Ouecc, Armadilha, 3-V-1993, A.P. Santos; Adelphoduke Forest Reserve,

Manaus, Amazonas, 1-III-1993, ethanol trap, W5, FA. Campos; Aracruz, Bahia, 25-VI-1997, Celulose SA, Nova Vicosa, ethanol trap, *Eucalyptus grandis* stand, C.A.H. Flechtmann; Champion Papel e Celulose, Horto Rio Verde, Tres Logoas, MS, ethanol trap, *Eucalyptus grandis* stump, C.A.H. Flechtmann; Mato Grosso, Itiquira, 28-II-1993, *Hevea brasiliensis*, GTI stand, ethanol trap, O.T. Dall'Oglio; Telemaco Borba, Parana, Klabin Papel e Celulosa, ethanol trap in *Pinus taeda* stand, C.A.H. Flechtmann; Sao Paulo, Agudas Duraflora, 9-IV-1985, *Pinus caraibica hondurensis* stand (trap?), C.A.H. Flechtmann; Sao Paulo, Ibate Ripasa, 13-III-1985, *Eucalyptus* stand, C.D. Santos.

Colombia: 24 km E Barbosa, Antioquia, 18-VII-1970, 1200 m, No. 697, *Inga*, SLW.

Venezuela: 30 km N Canyon Zancudo, Merida, 4-VI-1970, 10 m, No. 515, tree seedling, SLW; Barrancas, Barinas, 5-VI-1969, 150 m, No. 257, *Protium*, SLW; Barrancas, Barinas, 5-XI-1969, 150 m, *Spondias mombin*, SLW; Canton, Barinas, 8-III-1970, 70 m, No. 348, tree seedling, SLW; 7 km NW Socopo, Barinas, 13-II-1970, 200 m, No. 324, *Protium*, SLW; 40 km SE Socopo, Barinas, 25-I-1970, 150 m, No. 257, *Protium*, SLW; Campamento Rio Grande 30 km E Palmar, Bolivar, 13-VI-1970, 1200 m, *Trichilia propingua*, SLW.

Hosts: *Inga* sp., *Protium* sp., *Spondias mombin*, *Trichilia propingua*.

Biology: This was a domicile parasite of *Dryocoe-toides capucinus* in cut or broken stems about 2 to 5 cm in diameter.

Notes: The above treatment was based on 9 specimens from Mexico and Central America, 1 from Brazil, 2 from Colombia, and 9 from Venezuela. One female in my series was compared by me directly to the lectotypes of *dampfi* Schedl and *costaricensis* Nunberg.

Sampsonius buculus Schedl

Plate LXXVIII

Sampsonius buculus Schedl, 1937:170. Holotype ♀; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:655)

Diagnosis: Distinguished from *dampfi* Schedl by the contiguous spines at apex of declivital suture strongly diverging laterad from their base toward their apices, their longitudinal basal axis much shorter.

Female: Length 4.3–4.8 mm, 4.1 times as long as wide; color reddish brown. Head and pronotum as in *dampfi*. Elytra as in *dampfi* except interstitial punctures on disc closer, more distinctly impressed; base of declivity more abrupt; spines at apex of declivital suture more slender, much longer, their longitudinal axis at base reduced to about half, spines basally contiguous, diverging strongly laterad toward their apices.

Distribution: Brazil: Cepec Ilheus, Bahia, 1966–1968, at light; Nova Vicosa, Bahia, 25-VI-1997, *Eucalyptus grandis* stand, ethanol trap, C.A.H. Flechtmann; Sao Paulo, Jarinu, 23-IV-1991, *Eucalyptus saligna* stand, ethanol trap, SAM D, A.D.W. Vlatka.

Notes: One female from Brazil (Bahia) was compared to the female holotype by me. Six specimens from Brazil were examined.

Sampsonius detractus Wood

Sampsonius detractus Wood, 1974:31. Holotype ♀; Madden Forest, Canal Zone, Panama; USNM, Washington (References in Wood & Bright c1992:655)

Diagnosis: This species and *ensifer* Wood are distinguished from all other known members of this genus by the presence of a pair of widely separated, long spines on the lower half of the elytral declivity; this species is distinguished from *ensifer* by the more abrupt basal margin of the elytral declivity, and by the much more slender spines on the lower declivity, the longitudinal and transverse thicknesses are about equal.

Female: Length 5.8–6.0 mm, 4.0 times as long as wide; color reddish brown. Frons and pronotum essentially as in *expulsus*, punctures on pronotum disc distinctly smaller than in *ensifer*. Elytra 2.3 times as long as wide, 1.5 times as long as pronotum; disc occupying slightly more than basal half, striae not impressed, punctures small, uniseriate; interstriae about three times as wide as striae, smooth, shining, punctures very small, uniseriate. Basal and lateral margins of declivity rather abrupt, subserrate at base, moderately serrate laterally below; declivital face rugose-reticulate, more strongly, broadly impressed than in *ensifer*; interstriae 3 weakly convex on lower half, spine near apex of 3 very slender, about 4.0 times as long as its basal width, longitudinal and transverse widths at base about equal, apex more narrowly, sharply pointed; posterolateral base of spine separated from serrate lateral margin of declivity by basal thickness of spine. Declivital vestiture rather coarse, long, abundant.

Distribution: Panama: Canal Zone, Barro Colorado Island, 10-16-X-1984, at light, H. Wolda; Madden Forest Canal Zone, 2-I-1964, 70 m, tree limb, SLW.

Notes: Not represented from South America, but probably present in Colombia and Venezuela.

Sampsonius ensifer Wood, n.sp.

Sampsonius ensifer Wood. Holotype ♀; Petit-Saut, French Guyane, 24-31-X-1989, Foret primaire, Plege Malaise, H.P. Aberlenc; USNM, Washington, designated below

Diagnosis: Distinguished from *detractus* Wood by the less abrupt basal margin of the elytral declivity, with the basal area more nearly convex, less strongly impressed, and by the much thicker spines on the lower declivity, longitudinal thickness at base at least twice transverse thickness.

Female: Length 5.5 (type) 6.2 mm, 4.0 times as long as wide; color reddish brown. Frons and pronotum essentially as in *detractus*, punctures on pronotum disc slightly larger. Elytral disc about as in *detractus*, base of declivity rounded (not abrupt), upper declivity more

nearly convex, not as strongly impressed below; resembling *detractus* except on lower half crest of interstriae 3 more strongly elevated to base of spine near apex, longitudinal thickness of spine at base at least twice as great as transverse thickness, apex much more blunt; spine about 2.2 times as long as longitudinal thickness at base, posterolateral base of spine touching subserrate lateral margin of declivity.

Distribution: French Guyane to Brazil.

Type material: The female holotype was taken at Petit-Saut, French Guyane, 24-31-X-1989, Forêt primaire, Plege Malaise, H.P. Aberlenc; it is in the U.S. National Museum. Three paratypes are from Manaus, Amazonas, Brazil, 15-VII-1993, Adolpho Ducke Forest Reserve, ethanol trap, A.P. Santos (1 specimen); Mato Grosso, Itiquira, 15-IV-1993, *Hevea brasiliensis* clone, Rimagoo stand, ethanol trap, O. Dall'oglio (2 specimens); 2 paratypes are from Panflorq Farm, Jangaa, Mato Grosso do Sul, Brazil, X-2000, ethanol trap in *Tectona grandis* stand, P. Filho. Two of these paratypes are in the collection of MZUSP, Sao Paulo, Brazil; 1 paratype is in the USNM, Washington.

Sampsonius sulcatus Bright

Sampsonius sulcatus Bright, 1981:163. Holotype ♀; Trinidad; CNC, Ottawa (References in Wood & Bright c1992:656)

Diagnosis: Distinguished from *obtusicornis* Schedl by the stouter body form; by the concave elytral declivity, with major denticles on the lateral margin of the basal half; and by the absence of an emargination at the apex of the suture.

Female: Length 3.6–3.8 mm, 3.6 times as long as wide. Head and pronotum similar to *obtusicornis*. Elytra 2.1 times as long as wide; striae punctures large, deeply impressed; interstriae about as wide as striae, punctures small, uniseriate. Declivity moderately steep, deeply impressed, sutural apex broadly rounded, not emarginate; lateral margins (apparently interstriae 3) rather strongly elevated, higher than 1, basal half of margin armed by 3 or 4 acutely pointed major denticles, minor granules on basal half; concave area reticulate, with several small granules. Vestiture of long hair, rather abundant on declivity.

Distribution: Trinidad: Morne Bleu, 6-VIII-1969, 2700 feet, H. & A. Howden.

Notes: The above treatment was based on Bright (1991:26–27, fig. 17).

Sampsonius obtusicornis Schedl

Plate LXXX

Sampsonius obtusicornis Schedl, 1976:78. Holotype ♀; Filtro, Brazil; NHMW, Wien (References in Wood & Bright c1992:656)

Diagnosis: Distinguished from *sulcatus* Bright by the more gradual, concavely excavated elytral declivity, with the sutural apex emarginate; and by the denticles that arm the lateral margin of the declivity extend to lower half.

Female: Length 3.0–3.5 mm, 4.0 times as long as wide; color yellowish brown. Frons convex, eyes rather widely separated by 2.5 times width of an eye; surface of frons reticulate above, smooth, shining below; punctures sparse above, more numerous on epistomal margin; vestiture sparse, hairlike, longer on epistoma. Pronotum 1.6 times as long as wide, anterior margin acutely projecting cephalad, its apex armed by a pair of large, slender serrations; summit slightly anterior to middle, anterior slope moderately asperate; posterior areas smooth, shining, sparse punctures minute. Elytra 2.4 times as long as wide, 1.4 times as long as pronotum; disc occupying basal half; striae not impressed, punctures very small; interstriae about four times as wide as striae, smooth, shining, punctures minute, uniseriate. Declivity gradual, its lower half strongly concave with lateral margins acutely elevated and armed by 3 major, paired denticles and at least 3 minor unpaired denticles; interstriae 1 and 2 with a few small denticles on basal third; path of striae 1 impressed to apex of declivity, punctures not indicated; surfaces mostly shining in concave area, punctures very small, obscure. Vestiture of fine, long hair, confined to sides and declivity, moderately abundant in concave area.

Distribution: Costa Rica to Brazil and Peru.

Costa Rica: La Selva Biological Station, Heredia, I, II, VIII, IX-1998, 50–150 m canopy lighttraps, secondary forest.

Brazil: "AR, 18-XI-1992, J.B. Silva." Maranhao, Pedrinhas, Sao Luis Island, BL trap, E.C. Bergmann; Sao Paulo, Filtro, Martins (Bright 1991:26). Parana: Marituba, Num. Ananindeua; Sao Nicolau Farm, Cotriguacu, Mato Grosso do Sul, VI-2002, ethanol trap, P. Filho.

Peru: Vic. of Leonpampa, Dep. Huanuco, 11-30-XII-1937, jungle, 800 m, No. 3811, F. Woytkowski.

Notes: The above treatment was based on 1 specimen from Peru and 4 from Brazil, including the female holotype.

GENUS *DRYOCOETOIDES* HOPKINS

Dryocoetoides Hopkins, 1915:52. Type-species: *Dryocoetoides guatemalensis* Hopkins = *Xyleborus capucinus* Eichhoff, original designation

Diagnosis: Distinguished from other American genera of Xyleborini by the inflated protibia, with posterior face inflated and armed by numerous, confused, small tubercles, metatibia usually with eight or nine socketed denticles; and by antennal club segment 2 usually forming a complete, oblique annulus, on anterior face its apical margin acutely costate as on segment 1.

Description: Body of female rather slender to moderately stout, 2.1–5.3 mm; color reddish brown to almost black. Male dwarfed, deformed, flightless. Eye rather large, moderately to coarsely faceted, deeply emarginate; antennal club subcircular, flattened, subcorneous basal area thickened, segment 2 forming a complete, oblique annulus, its apical margin acutely

costate as on segment 1 (both sutures show on posterior face). Pronotum about as long as wide; summit near middle; anterior slope moderately asperate, anterior margin armed by serrations. Elytra elongate, weakly striate, interstitial punctures usually confused; declivity convex, its ventrolateral margin marked by a crest from suture to interstriae 8. Protibia inflated, armed by numerous, confused small tubercles. Male dwarfed, modified, flightless, rare; anterior slope of pronotum impressed to excavated, anterior margin acutely elevated on a continuous

crest varying to a median tuberculate prominence; protibia not inflated or armed on its posterior face.

Distribution: Wood & Bright (c1992:656–659) report 25 species from South America, 3 of which extend into Central America and Mexico, 2 in the Antilles Islands, and 1 introduced into Africa.

Biology: All species are xylomycetophagous and in-breed polygynous. They breed mostly in unthrifty, injured, or cut stems larger than 3 cm and, apparently, smaller than 10 cm in diameter.

Key to the Species of *Dryocoetoides*

- 1. Body stout, 2.0–2.3 times as long as wide; punctures on elytral disc small, confused, striae punctures on surface not in identifiable rows (sometimes evident on declivity; mature color black 2
- Body more slender, at least 2.5 times as long as wide; striae punctures on disc in identifiable rows; mature color reddish brown 6
- 2(1). Punctures on declivital striae 1–6 shallow, clearly evident (not including a tubercle) 3
- Strial punctures on declivity not clearly evident, replaced by tubercles 4
- 3(2). Larger; elytral declivity occupying 50 percent of elytral length, mostly or entirely shining, striae punctures distinctly, shallowly impressed, granules on 2–7 mostly uniseriate except near base; crenulations on ventrolateral margin extending anteriorly to level of suture between abdominal segments 2 and 3; Mexico (Veracruz) to Colombia and Venezuela; 2.8–3.2 mm *monachus* (Blandford)
- Smaller; elytral declivity occupying 60 percent of elytral length, surface strongly reticulate, dull, striae punctures obscure to obsolete, interstitial tubercles confused on basal two-thirds; crenulations on ventrolateral margin of declivity extending to level of abdominal sterna 1 and 2; Mexico (Nayarit, Veracruz) to Brazil and Peru; 2.2–2.6 mm *capucinus* (Eichhoff)
- 4(2). Declivity steeper, occupying 57 percent of elytral length; declivity with weak groove at position of striae 1 and part of 2; tubercles uniseriate on lower interstriae 2 and on 3 immediately above ventrolateral crest; Venezuela (Amazonas) to Suriname and Brazil; 3.3–3.6 mm *granulicauda* (Eggers)
- Declivity more gradual, occupying at least 65 percent of elytral length; tubercles on lower declivity entirely confused (none in uniseriate rows) 5
- 5(4). Punctures of pronotum disc smaller, less deeply impressed; surface of elytral disc much smoother, more brightly shining; position of declivital striae 1 on lower half distinctly impressed; tubercles on declivity distinctly larger; Venezuela (Barinas); 3.3 mm *pileatus* Wood
- Punctures on pronotum disc larger, deeper; surface of elytra disc with impressed lines, surface not as smooth; position of lower striae 1 on declivity not impressed, as high as 1 or 3; tubercles on declivity much smaller; Ecuador; 2.6–2.7 mm *versutus* Wood
- 6(1). On elytral declivity all striae and interstitial punctures replaced by tubercles, these tubercles confused, not in rows; disc occupying basal two-thirds of elytral length; vestiture moderately short, rather abundant on striae and interstriae; Brazil (Guanabara); 2.7 mm *inaffectatus* (Schedl)
- Punctures on declivital striae clearly indicated, in rows 7
- 7(6). Interstitial tubercles on at least basal two-thirds of declivity numerous, strongly confused on 1 and 3 8

- Interstitial tubercles on declivity mostly in uniseriate rows except sometimes confused near base; mostly smaller species 10
- 8(7). Smaller species; punctures on declivital striae 1 and 2 rather large, adjacent interstriae less than twice as wide as striae; declivity broadly, evenly convex, weakly protuberant near apex of 1; ventrolateral margin acutely costate; Brazil (Santa Catarina); 1.8–2.3 mm *truncatellus* (Schedl)
- Larger species, 3.7–5.7 mm; strial punctures on declivity mostly smaller, ventrolateral margin shorter, less distinctly carinate 9
- 9(8). Declivital interstriae 1 and 2 shining, with tubercles strongly confused, 2 strongly constricted below and obsolete before apex, tubercles on 3–5 uniseriate; interstriae 2 at base moderately, obtusely elevated into a prominence (not armed), a moderate sulcus on upper third on 1 and part of 2; anterior margin of pronotum armed by 10–12 serrations; Venezuela (Barinas); *Eschweilera subglandulosa*; 5.7 mm *severus* Wood
- Declivital interstriae 1–5 reticulate with tubercles confused, 2 without an elevated prominence at base or a constriction near apex; smaller species; Venezuela (Bolivar) to Brazil (Espirito Santo, Mato Grosso); 3.7–3.8 mm *rusticus* Wood
- 10(7). Declivital interstriae 1 normal, tubercles uniseriate 11
- Interstriae 1 on lower half of declivity conspicuously expanded (and sometimes slightly elevated), tubercles in expanded area strongly confused, striae 1 and 2 diverge strongly near apex toward suture 18
- 11(10). Declivital interstriae 3 moderately elevated, convex on lower half, joining ventrolateral margin, 2 weakly impressed, constricted and obsolete before apex, devoid of tubercles on lower half, 1 feebly elevated, usually joining ventrolateral margin, tubercles of 1 and 3 moderately coarse, about equal in size and number; Brazil (Santa Catarina); 2.5–2.6 mm *solitarinus* (Schedl)
- Declivital interstriae 3 not conspicuously elevated more than 2, with 2 continued to its usual apex, 1 sometimes elevated 12
- 12(11). Punctures of declivital interstriae 1 and 2 clearly impressed, declivital surface between punctures and tubercles smooth, shining 13
- Punctures of declivital interstriae 1 and 2 obscure to obsolete, areas between punctures and tubercles smooth to reticulate to rugose-reticulate 14
- 13(12). Body stouter, 2.4 times as long as wide; disc occupying slightly more than basal half of elytral length; anterior margin of pronotum costate, feebly serrate; tubercles on declivital interstriae 1 and 2 uniseriate, small, more widely spaced, moderately confused on apical half of 1; Brazil (Para); 2.3 mm *paradoxus* (Schedl)
- Body more slender, 2.7 times as long as wide; disc occupying two-thirds of elytra length; anterior margin of pronotum rather coarsely serrate; tubercles on declivital interstriae 1 and 2 slightly larger, closer; elytral declivity more narrowly convex, brightly shining; tubercles on lower declivital interstriae 1 mostly uniseriate; Venezuela to Trinidad and Brazil; 2.3–2.6 mm *flavus* (Fabricius)
- 14(12). Declivital striae distinctly, equally impressed, interstriae 1 distinctly elevated, tubercles on all interstriae distinctly larger 15
- Declivital striae weakly or not impressed, interstitial tubercles small to obsolete 16
- 15(14). Declivital striae 1 and 2 more distinctly impressed, interstriae 2 and 3 equally, weakly convex and finely serrate, 1 slightly more strongly elevated from base almost to apex, crest weakly subserrate; ventrolateral margin of declivity acutely costate; Brazil (Mato Grosso); 2.8 mm *semicostatus* (Schedl)

- Declivital striae less strongly impressed, tubercles on interstriae 2 and 3 feebly convex, tubercles larger, more definite, closer, 1 more strongly, broadly elevated on central two-thirds of declivity length, crest granular, tubercles indefinite; Venezuela (Barinas); 2.5 mm *verrucosus* Wood
- 16(14). Declivital striae weakly impressed, interstitial tubercles rather small, interstriae 1 without a shallow sulcus on lateral half near apex; Brazil (Minas Gerais); 2.2 mm *vexans* (Schedl)
- Declivital striae not impressed, tubercles very small to obsolete; declivital interstriae 1 with a shallow sulcus on lateral half near apex 17
- 17(16). Declivity occupying 45 percent of elytral length, steeper, more strongly convex; disc of pronotum moderately reticulate; Antilles Islands and Venezuela to Guiana and Brazil; 2.4–2.8 mm *psudosolitarius* (Eggers)
- Declivity more gradual, occupying slightly more than half of declivital length, more broadly convex; disc of pronotum smooth, shining; Africa, Antilles Islands, Venezuela and Trinidad to Brazil; 2.6–3.0 mm *cristatus* (Fabricius)
- 18(10). Body smaller, more slender, 2.9 times as long as wide; ventrolateral costa of declivity forming a complete circumdeclivital ring, interstitial tubercles restricted to declivity inside costate ring; Brazil (Santa Catarina) to Paraguay; 2.7–2.8 mm *obtusitruncatus* (Schedl)
- Body stouter, less than 2.7 times as long as wide; two-thirds of basal margin of declivity rounded, subcostate on less than lower fourth 19
- 19(18). Elytral declivity rugose-reticulate, dull; declivital striae less strongly impressed, punctures shallowly impressed; ventrolateral costa on declivity slightly higher, longer 20
- Elytral declivity subshining, reticulation obscure; declivital striae distinctly to moderately impressed; ventrolateral costa on declivity shorter, less distinct, sometimes obscure 21
- 20(19). Strial punctures on disc small, most equal in size to those of interstriae, some obsolete; tubercles on basal half of declivital interstriae 8 distinctly smaller than those of 9; Venezuela (Palmar); 2.8–3.0 mm *velutinus* Wood
- Strial punctures in distinct rows, impressed, almost twice as large as those of interstriae; tubercles on basal half of declivital interstriae 8 at least equal in size to those of 9; Venezuela (Palmar); 3.7–3.8 mm *indolatus* Wood
- 21(19). Declivital sculpture occupying more than basal half of elytra, striae strongly impressed on basal half of declivity, punctures rather small, shallow; interstriae on basal half of declivity each armed by a row of rather coarse tubercles, becoming much smaller on lower half; Colombia; *Humiristrum excelsum*; 4.7–4.9 mm *insculptus* Wood
- Declivital sculpture restricted to posterior 40 percent of elytral length; striae weakly to moderately impressed; interstitial tubercles on declivity smaller, confused 22
- 22(21). Declivital tubercles on interstriae 1 and 2 mostly confused on basal two-thirds; strial punctures on declivity moderately large; Brazil (Sao Paulo); 3.7 mm *alter* (Eggers)
- Declivital tubercles on interstriae 1 and 2 mostly uniseriate on basal two-thirds; strial punctures on declivity very small; “Mexico,” Costa Rica to Brazil; 3.5–4.3 mm *asperulus* (Eggers)

Dryocoetoides monachus (Blandford)

Plate LXXXIII

Dryocoetoides monachus (Blandford), 1898:204 (*Xyleborus*). Lectotype ♂; Cerro Zunil, Guatemala; BMNH, London, designated by Wood 1982:764 (References in Wood & Bright c1992:658)

Diagnosis: Distinguished from *capucinus* (Eichhoff) by the larger size; by the shorter, steeper, shining elytral declivity, with strial punctures distinctly impressed, granules on interstriae 2–7 mostly uniseriate, costa of ventrolateral margin longer.

Male: Not at hand, type in BMNH, London.

Female: Length 2.8–3.2 mm, 2.4 times as long as wide; color black. Frons broadly convex, rather strongly reticulate and moderately punctured on upper half, obscurely reticulate below, with numerous tubercles from epistoma almost to upper level of eyes; hairlike setae sparse on lower half, more numerous and longer on epistomal margin. Pronotum essentially as in *capucinus* (below). Elytra 1.5 times as long as wide, 1.3 times as long as pronotum; declivity occupying about 50 percent of elytral length; surface of disc and upper half of declivity smooth, shining, lower half of declivity often dull, subreticulate in some specimens; interstrial granules on declivity mostly uniseriate, crenulations on interstriae 8 begin about middle of declivity.

Distribution: Mexico (Veracruz) to Colombia and Venezuela.

Colombia: 24 km E Barbosa, Antioquia, 18-VII-1970, 1200 m, No. 696, Rubiaceae, SLW.

Venezuela: El Laurel Experimental Farm, 12 km SW Caracas, 1-V-1970, 1300 m, No. 460, tree limb, SLW; Rancho Grande, Aragua, 9-IV-1970, 1100 m, No. 420, *Tabebuia*, SLW

Hosts: *Inga* sp., *Tabebuia* sp., etc.

Biology: As in *capucinus*.

Notes: The above treatment was based on 1 specimen from Colombia and 20 from Venezuela, all females. The male lectotype was examined (Wood 1982:764) and was compared to females taken in Guatemala.

Dryocoetoides capucinus (Eichhoff)

Plate LXXXI

Dryocoetoides capucinus (Eichhoff), 1869:281 (*Xyleborus*). Holotype ♀; Guadeloupe Island; IRSNB, Brussels (Synonymy and references in Wood & Bright c1992:656)

Xyleborus rufithorax Eichhoff, 1869:281. Holotype ♀; Brazil; IRSNB, Brussels

Dryocoetoides guatemalensis Hopkins, 1915:52. Holotype ♀; Livingston, Guatemala; USNM, Washington

Xyleborus capucinoides Eggers, 1941:104. Holotype ♀; Gourbeyere, Guadeloupe Island; USNM, Washington

Diagnosis: Distinguished by the stout body; by the confused striae and interstrial punctures on the disc; by the strongly reticulate declivity that occupies 60 percent of the elytral length; and by other characters included in the above key.

Male: Length 2.2–2.5 mm, head and elytra about as in female but less perfectly formed; pronotum 1.4 times as long as wide, devoid of asperities, summit near base, middle third flattened on median half, anterior third deeply excavated to lateral and anterior margins, anterior margin sharply elevated, with a median tuberculate prominence.

Female: Length 2.2–2.6 mm, 2.4 times as long as wide; mature color black. Frons about as in *monachus* (Blandford) except punctures and tubercles smaller; eyes separated by 3.0 times width of an eye. Pronotum 0.96 times as long as wide, anterior margin rather

broadly rounded, slightly produced at median area. Elytra 1.3 times as long as wide, 1.3 times as long as pronotum; disc occupying 40 percent of elytra length; striae scarcely evident, punctures very small, distinct, spaced by two diameters of a puncture, interstriae smooth, almost shining, six to eight times as wide as striae, setiferous punctures slightly smaller than those of striae. Declivity rather gradual, entirely reticulate; striae weakly impressed, punctures obscure to obsolete, when visible, shallow and larger than on disc, interstrial punctures replaced by fine, confused granules, sometimes uniseriate on apical half of 2 and 3, with 8 subcrenulate granules from near base of declivity to sutural apex. Vestiture of abundant, moderately long hair, fine on disc, usually coarser on declivity.

Distribution: Mexico (Nayarit, Veracruz) and Guadeloupe Island to Peru and Brazil.

Brazil: Cited in Eichhoff (1869:281) and Wood & Bright (c1992:656–657).

Colombia: 24 km E Barbosa, Antioquia, 18-VII-1970, 1200 m, No. 696, Rubiaceae sp., SLW.

Guiana: Cited in Wood & Bright (c1992:656).

Peru: Dept. San Martin Almirante, 12-XII-1936, 1900 m, No. 3737, subtropical forest, F. Woytkowski.

Venezuela: Cited in Wood & Bright (c1992:656).

Hosts: *Inga* sp., *Miconia* sp., Rubiaceae sp., etc.

Biology: Breeds in cut, broken, or unthrifty branches about 3–7 cm in diameter. A radial entrance tunnel extends 1 to 2 cm into the wood where it diverges across the grain of wood to transversely follow a growth ring around the stem. The pattern often forms a complete circle and may rejoin the original (radial) entrance tunnel.

Notes: The above treatment was based on 43 specimens from Mexico and Central America, on 31 from Colombia, and on 2 from Peru. The female holotype of *Xyleborus capucinus* Eichhoff, *X. rufithorax* Eichhoff, *X. capucinoides* Eggers, and *Dryocoetoides guatemalensis* Hopkins were also examined and compared to my series.

Dryocoetoides granulicauda (Eggers)

Dryocoetoides granulicauda (Eggers), 1931:22 (*Xyleborus*). Holotype ♀; Camopi, French Guyane; Hamburg Museum, lost, cotype in NHMW, Wien (Synonymy and references in Wood & Bright c1992:657)

Xyleborus rufithorax nigricollis Hagedorn, 1905:2. Holotype ♀; Camopi, French Guyane; MNHN, Paris; cited as a synonym by Eggers (1933:3); type not available for loan for confirmation

Diagnosis: Distinguished from *capucinus* (Eichhoff) by the obscure striae punctures (disc), most of which are replaced on the declivity by tubercles; and by the larger size.

Female: Length 3.3–3.6 mm, 2.2 times as long as wide; mature color black. Frons and pronotum about as in *monachus* (Blandford). Elytra 1.3 times as long as wide, 1.3 times as long as pronotum; disc occupying basal 40 percent of elytral length, transition to declivity rather abrupt; disc smooth, shining, striae not impressed,

punctures very small, not larger than those of interstriae, partly confused (at least near base). Declivity somewhat abrupt at its base, strongly reticulate, less strongly arched than in *monachus*; striae not indicated, surface armed by numerous, confused, subacutely pointed tubercles; ventrolateral margin to interstriae 9 subacutely elevated, rather coarsely serrate (longer and more prominent than in *monachus*); vestiture similar to *monachus*, but slightly recumbent.

Distribution: French Guyane to Venezuela and Brazil.

Brazil: San Nicolau Farm, Cotriguacu, Mato Grosso do Sul, VI-2002, rain forest, ethanol trap, P. Filho.

French Guyane: Comopi.

Venezuela: Amazonas, 1975, No. 24, E.F. Bruning.

Notes: The above treatment was based on 1 female in my collection from Venezuela that was identified by me in 1974. My notes indicate that it was compared to an Eggers specimen, but an official record was not made. The female holotype of *Xyleborus rufithorax* Hagedorn was examined and is identical to my specimen.

Dryocoetoides versutus Wood, n. sp.

Dryocoetoides versutus Wood: Holotype ♀; Napo Mirahualli near Tena, Ecuador; USNM, Washington, designated below

Diagnosis: Distinguished from *pileatus* Wood by the much smaller tubercles on the declivity; by the absence of an impression on the lower half of declivital interstriae 1; by the larger punctures on the elytral disc and impressed lines between punctures; by the smaller punctures on the pronotum disc; and by the smaller size.

Female: Length 2.6–2.7 mm, 2.3 times as long as wide; color very dark reddish brown to almost black. Frons broadly convex eye to eye from epistoma to vertex; reticulate above upper level of eyes, smooth below; small moderately close punctures on upper half gradually replaced by small, rounded tubercles on lower third; vestiture very sparse except epistomal brush with numerous rather long setae. Pronotum 1.0 times as long as wide; widest near middle of pronotum length, sides rather weakly arcuate on posterior two-thirds, rather narrowly, subangulately rounded in front; anterior margin armed by 4 serrations on less than central fourth, median pair largest; summit near middle of pronotum length; asperities rather coarse, close, confused; surface behind summit almost smooth, becoming moderately then strongly reticulate laterally, punctures moderately coarse, deep, close; vestiture of moderately coarse long setae at margins, less abundant and shorter toward declivity. Elytra 1.15 times as long as wide, 1.15 times as long as pronotum; disc occupying 38 percent of elytra length; disc smooth, shining, punctures small, confused, with impressed irregular lines. Declivity rather steep, moderately convex; surface minutely rugose-reticulate, punctures of striae 1 minute (and with granules), others obsolete, striae and interstriae with numerous confused, small granules; without any impression or elevated areas;

ventrolateral margin marked by a closely set row of small cusps, ending below middle of declivity length. Vestiture of moderately abundant short, coarse setae of a mixture of very short and moderately short length. Protibia inflated on posterior face and armed by several small tubercles.

Distribution: Ecuador.

Type material: The female holotype and 1 female paratype were taken at Napo Mirahualli near Tena, Ecuador, 3-8-XI-1999, at light S.R. Keller. The holotype and paratype are in the U.S. National Museum, Washington.

Dryocoetoides pileatus Wood

Plate LXXXIV

Dryocoetoides pileatus Wood, 1974:29. Holotype ♀; 40 km SE Socopo, Barinas, Venezuela; USNM, Washington (References in Wood & Bright c1992:658)

Diagnosis: Distinguished from *granulicauda* (Eggers) by the longer, more gradual elytral declivity; by the weak declivital groove at position of striae 1; by the confused tubercles on the lower declivity; and by the almost uniformly short declivital setae.

Female: Length 3.3 mm, 2.1 times as long as wide; mature color dark reddish brown to black. Frons, pronotum, and general shape and contour of elytra about as in *granulicauda*. Elytral disc occupying 31 percent of elytral length, striae punctures on disc very small but in distinct rows, punctures distinctly larger than those of interstriae; a distinctly impressed sulcus on most of lower half of striae 1 (punctures not evident); tubercles arming declivity smaller and of more uniform size than in *granulicauda*, crest of ventrolateral margin weakly elevated, very weakly serrate.

Distribution: Venezuela: 10 km SE Miri, Barinas, 8-II-1970, 150 m, No. 295, *Inga*, SLW; 40 km SE Socopo, Barinas, 25-I-1970, 150 m, No. 263, *Inga*, SLW; 3 km NE Creole, Barinas, 18-XII-1969, 150 m, No. 203, *Inga*, SLW.

Hosts: *Inga* sp., 1 from a small palm stem. It is considered a roosting record only.

Notes: The above treatment was based on the type series of 8 specimens from Venezuela.

Dryocoetoides inaeffectatus (Schedl)

Dryocoetoides inaeffectatus (Schedl), 1972:71 (*Xyleborus*). Holotype ♀; Repressa, Rio Grande, Guanabara, Brazil; NHMW, Wien (References in Wood & Bright c1992:658)

Diagnosis: This is the only known species in this genus having the striae punctures on the disc in uniseriate rows and those on the declivity replaced by confused tubercles.

Female: Length 2.7 mm, 2.6 times as long as wide; color dark reddish brown, elytra darker. Frons broadly convex, an obscure median fovea at center; surface reticulate, coarsely, closely punctured on upper half, lower half with rather numerous rounded granules, a few

punctures laterally; vestiture hairlike, moderately abundant on lower third, rather long. Pronotum 1.1 times as long as wide; sides almost straight and parallel on basal two-thirds, broadly rounded in front; anterior margin feebly armed by 10 weak serrations; summit at middle, anterior slope rather coarsely, closely asperate; posterior areas smooth, shining, punctures small, moderately close; vestiture hairlike, rather abundant, moderately long. Elytra 1.5 times as long as wide, 1.4 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed, small punctures in obscure rows; interstriae four times as wide as striae, almost smooth, shining, small punctures half as large as those of striae, confused, some of those near declivity replaced by small tubercles. Declivity broadly convex, steep, base rounded; striae 1 and 2 indicated only near base, tubercles strongly confused below and laterally, tubercles conical, as wide as long, of uniform size, rather abundant; slightly protruding on interstriae 1 near apex; ventrolateral margin acutely costate, rather long. Interstitial setae of fine, moderately long, confused hair.

Distribution: Brazil: Guanabara, Represa Rio Grande, III-1970, F.M. Oliveira.

Notes: The above treatment was based on the female holotype from Brazil.

Dryocoetoides truncatellus (Schedl)

Dryocoetoides truncatellus (Schedl), 1948:272 (*Xyleborus*). Lectotype ♀; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien, present designation (References in Wood & Bright c1992:658)

Diagnosis: Distinguished from *inaffectatus* (Schedl) by having declivital striae 1 and 2 in closely marked rows of rather large punctures, interstitial tubercles mostly in rows; by the surface of the declivity being mostly, weakly reticulate; and by the small size.

Female: Length 1.8–2.3 mm, 2.9 times as long as wide; color reddish brown. Frons about as in *inaffectatus*, except fovea obscure to absent. Pronotum 1.1 times as long as wide; similar to *inaffectatus*, except anterior margin armed by 6 rather coarse serrations, basal areas behind summit strongly reticulate, punctures rather small, deep, close. Elytra 1.6 times as long as wide, 1.3 times as long as pronotum; disc occupying basal 80 percent of elytra length; striae not impressed, punctures small, shallow; interstriae about four times as wide as striae, punctures minute to obsolete, confused near declivity, mostly uniseriate anteriorly. Declivity base rather abrupt, steep, broadly convex; punctures of striae 1 and 2 greatly enlarged, distinctly impressed, in rows; interstriae 1 and 2 with punctures replaced by small pointed tubercles, almost uniseriate above, moderately confused below; surface weakly subreticulate; interstriae 1 slightly protuberant near apex; ventrolateral margin acutely subcostate, crest partly, weakly serrate. Vestiture of fine, rather short, sparse interstitial hair.

Distribution: Brazil: Nova Teutonia, Santa Catarina, 1944, F. Plaumann.

Notes: The above treatment was based on the syntype Schedl (1979:257), subsequently labeled as the “holotype,” and on 6 female syntypes Schedl labeled as “paratypes,” from Brazil. Because his designations were invalid under the International Code on Zoological Nomenclature, I here designate that “holotype” as the female lectotype, and the 6 “paratypes” as lectoparatypes of *Xyleborus truncatellus* Schedl, as indicated above.

Dryocoetoides severus Wood

Dryocoetoides severus Wood, 1974:30. Holotype ♀; 30 km E Palmar, Bolivar, Venezuela; USNM, Washington (References in Wood & Bright c1992:658)

Diagnosis: Distinguished by the large size; by the almost subquadrate pronotum; by the short, steep elytral declivity, with punctures on striae 1 and 2 and an elevation at base of declivital interstriae 2; and by other characters described below.

Female: Length 5.7 mm, 2.9 times as long as wide, color dark reddish brown. Frons about as in previous species. Pronotum almost quadrate, anterior margin poorly armed in median area. Elytra 1.6 times as long as wide, 1.2 times as long as pronotum; disc occupying basal 70 percent of elytra length; striae not impressed, punctures small, shallow, in rows; interstriae smooth, shining, about five times as wide as striae, punctures almost as wide as those of striae, rather numerous, confused, those on anterior half replaced by rounded tubercles. Declivity short, steep; interstriae 2 at base of declivity obtusely elevated, shallowly impressed near base between these elevations; striae 1–8 with small, shallowly impressed punctures, interstriae each armed by a row of rounded granules except confused on 1; ventrolateral margin obtusely elevated to interstriae 9. Vestiture of fine, long, rather abundant interstitial setae on posterior half of elytra length, striae setae much shorter.

Distribution: Venezuela: Campamento Rio Grande 30 km E Palmar, Bolivar, 12-VI-1970, 200 m, No. 548, *Eschweilera subglandulosa* in rain forest, SLW.

Notes: The above treatment was based on the female holotype.

Dryocoetoides rusticus Wood

Plate LXXXV

Dryocoetoides rusticus Wood, 1974:30. Holotype ♀; Campamento Rio Grande 30 km E Palmar, Bolivar, Venezuela; USNM, Washington (References in Wood & Bright c1992:658)

Xyleborus haesitus Schedl, 1976:74. Holotype ♀; Ter. Ampara, Serra Navio, Brazil; NHMW, Wien (References in Wood & Bright c1992:742). *New synonymy*

Diagnosis: Distinguished by the short, steep declivity, with striae punctures on 1–3 clearly indicated.

Female: Length 3.7–3.8 mm, 2.6 times as long as wide; color reddish brown. Frons similar to previous species. Pronotum 1.1 times as long as wide; anterior margin procurved and armed by 6 serrations; summit rounded, at middle of pronotum length; disc smooth, shining, punctures small, shallow, moderately abundant; vestiture

sparse, hairlike, rather sparse. Elytra 1.5 times as long as wide, 1.2 times as long as pronotum; disc occupying basal half of elytra length; striae not impressed, punctures small, distinct, uniseriate; interstriae five times as wide as striae, smooth, shining, punctures minute, confused, moderately abundant. Declivity steep, very broadly convex, reticulate (weakly above, almost rugose-reticulate below); striae punctures twice as large as on disc; interstitial punctures replaced by rather numerous, confused, subacutely pointed tubercles of rather small size from base almost to apex; ventrolateral costa low, subacute from suture to level of interstriae 3, interstriae 8 moderately serrate from near end to ventrolateral costa (not connected to costa) cephalad to near base of declivity. Vestiture moderately abundant on declivity, confused, consisting mostly of rather short, somewhat stout hair and (on basal half) a few fine, long, hairlike setae.

Distribution: Brazil to Venezuela.

Brazil: Espirito Santo, Aracruz, 12-III-1993, 5250, C.A.H. Flechtmann; RS/RGS Expedition 12°31'S, 51°46'W, 4-XII-1968, E3, 1/1, R.A. Beaver; Ter. Ampara, Serra Navio, Bicellicol.

Venezuela: Campamento Rio Grande 30 km E Palmar, Bolivar, 12-VI-1970, 200 m, rain forest, No. 582, SLW (type).

Notes: The above treatment was based on 2 females of *Xyleborus haesitus* Schedl from Brazil from the Schedl series, and on the female holotype of *Dryocoetoides rusticus* Wood from Venezuela.

Dryocoetoides solitarinus (Schedl)

Dryocoetoides solitarinus (Schedl), 1950:178 (*Xyleborus*). Lectotype ♀; Rio Claro, Brazil; NHMW, Wien, designated by Schedl 1979:232 (References in Wood & Bright c1992:658)

Diagnosis: Distinguished from other members of this genus by the unique declivity on which declivity interstriae 2 is strongly constricted to obsolete and interstriae 3 is convexly elevated on the lower half.

Female: Length 2.5–2.6 mm, 2.7 times as long as wide; color dark reddish brown. Frons broadly convex, strongly reticulate from epistoma to vertex; punctures very small, obscure, a few granules on lower fourth; sparse hairlike vestiture mostly on or near epistoma. Pronotum 1.1 times as long as wide; about as in *inaffectatus* (Schedl) except anterior margin armed by 8 serrations; basal area strongly reticulate, punctures moderately coarse, close; vestiture hairlike, moderately abundant, mostly on margins. Elytra 1.7 times as long as wide, 1.5 times as long as pronotum; disc occupying basal 60 percent of elytra length; striae not impressed, punctures rather coarse, deep; interstriae three times as wide as striae, almost smooth, shining, a few impressed lines, punctures less than half as large as those of striae, mostly uniseriate on 1 and 3, mostly confused on 2 and 4. Declivity moderately steep; striae 1–3 clearly marked by punctures; interstriae 1 and 3 weakly convex at base, more strongly convex below, each armed by a row of rather coarse,

closely placed denticles from base to apex, 2 armed by denticles on basal third, constricted and obsolete on lower half; a few smaller tubercles on 4 6. Vestiture of minute striae hair and erect interstitial setae of moderate abundance, rather short.

Distribution: Brazil: Nova Teutonia, Santa Catarina, 6-XII-1947, IV-1955, X-1966, F. Plaumann.

Notes: The above treatment was based on the female lectotype and 5 female lectoparatypes from Brazil.

Dryocoetoides paradoxus (Schedl)

Dryocoetoides paradoxus (Schedl), 1972:71 (*Xyleborus*). Holotype ♀; Jacareacanga, Para, Brazil; NHMW, Wien (Synonymy and references in Wood & Bright c1992:658)

Xyleborus solitaripennis Schedl, 1976:77 (*Xyleborus*). Holotype ♀; Maturaca AM, alto Rio Canaburi; NHMW, Wien

Diagnosis: Distinguished from other members of this genus by the comparatively stout body form; by the costate anterior margin of the pronotum; and by the simple elytral declivity.

Female: Length 2.3 mm, 2.3 times as long as wide; color reddish brown. Frons apparently as in *inaffectatus* (Schedl) (partly concealed by pronotum on type). Pronotum 1.08 times as long as wide; sides almost straight and parallel on basal half, rather broadly rounded on anterior margin; anterior margin acutely costate on more than median third of pronotum width (not serrate); summit at middle of pronotum length, anterior slope closely, rather coarsely asperate; posterior areas smooth, shining, punctures minute, rather sparse. Elytra 1.3 times as long as wide, 1.3 times as long as pronotum; disc occupying basal half of elytra length; striae not impressed, punctures rather small, in distinct rows; interstriae three to four times as wide as striae, smooth, shining, uniseriate punctures half as large as those of striae (not granulate near declivity). Declivity broadly convex, steep; striae 1–3 not impressed, clearly marked by moderately large punctures (almost twice as large as those on disc); interstriae 1 and 2 on basal half as wide as striae, smooth, shining, 2 and 3 each with a uniseriate row of very small tubercles, 1 with similar, closer tubercles on basal half, closer and confused below, distinctly protuberant near apex; ventrolateral costa acutely, uniformly elevated from suture to interstriae 7. Vestiture of fine striae and interstitial hair of about equal, moderate length, rather abundant.

Distribution: Brazil: Jacareacanga, Para, IX-1970, ER. Barbosa.

Biology: Type apparently attracted to light (numerous loose moth scales on elytra of type).

Notes: The above treatment was based on the female holotype from Brazil.

Dryocoetoides flavus (Fabricius)

Plate LXXXII

Dryocoetoides flavus (Fabricius), 1801:394 (*Hylesinus*). Syntypes 2♂♂, 2♀♀; types labeled Essiquibo [River, in Guiana], published as *America meridionali*; UZMC, Copenhagen (References in Wood & Bright c1992:657)

Diagnosis: Distinguished from *verrucosus* Wood by the smooth (not rugose-reticulate) surfaces of the elytral declivity; by the clearly impressed stria punctures on the declivity; and by the declivital interstriae 1 sculptured as 2–8 (not elevated or acutely serrate).

Male: Two *Dryocoetoides* males were taken from an otherwise empty, used tunnel in Venezuela (Miri). The size, location, and general characters suggest that they are males of *D. flavus* (Fabricius). They are described as follows: Length 2.6 mm, 2.6 times as long as wide, color yellowish brown. Frons about as in female except a weak central fovea present in both (in 1 this fovea partly occupied by a minute tubercle; in a second specimen a weak sulcus extending from fovea toward epistoma). Pronotum 1.1 times as long as wide; indefinite summit anterior to middle, anterior margin more narrowly rounded and feebly emarginate on median sixth, anterior slope moderately declivous, asperities reduced to minute granules (spaces between smooth, shining); vestiture at and near lateral margins much more abundant and larger than in female. Elytra 1.5 times as long as wide, 1.3 times as long as pronotum; disc about as in female except stria and interstitial punctures slightly larger and deeper. Declivity occupying posterior half of elytral length, slightly more gradual than in female, weakly impressed between feebly elevated interstriae 3; striae obscurely punctured, interstriae without punctures or granules. Vestiture hairlike, almost absent on disc, short, rather sparse on declivity, rather long and moderately abundant on sides from base to near apex of declivity. Antenna and protibia as in female.

Female: Length 2.3–2.5 mm, 2.8 times as long as wide; color reddish brown. Frons and pronotum as in *verrucosus* (except pronotum 1.1 times as long as wide). Elytra 1.6 times as long as wide; 1.4 times as long as pronotum; disc as in *verrucosus* except punctures on interstriae 2 and 3 slightly more numerous and confused (others uniseriate). Declivity rather steep, convex; surface smooth, shining (not reticulate); striae 1–8 with punctures twice as large as those on disc, moderately impressed; interstriae 1–8 feebly elevated, each bearing a uniseriate row of subacutely pointed granules (or small tubercles) of equal size from base to near apex. Vestiture of fine, uniseriate rows of interstitial hair on posterior half of elytra, each seta up to twice as long as distance between rows.

Distribution: Venezuela to French Guyane and Trinidad to Brazil.

Brazil: Amazonas, Corcovado N.P., Manaus, 26-XI-1979, G. Stevens; IPNA Campus, Manaus, 31-XII-1986, ethanol trap, G.M. Souza; Lagoas, CPC, Horto Rio Verde, MS, ethanol trap, *Eucalyptus grandis* stand, C.A.H. Flechtmann.

Guiana: Essiquibo River (America Meridionale; Wood 1974:28).

Venezuela: Tortuga Estate, 6-IV-1964, *Theobroma cacao*, J.L. Saunders; 17 km SE Miri, Barinas, 17-XII-1969, 150 m, No. 199, *Bombacopsis quinata*, SLW; 9 km S Barancas, Barinas, 5-XI-1969, 150 m, No. 116, *Inga*,

SLW; 3 km E Creole, Barinas, 18-XII-1969, 150 m, No. 203, *Inga*, SLW, same data from *Trichilia propinqua*; 40 km SE Socopo, Barinas, 25-I-1970, 150 m, No. 258, “palito negro,” SLW; Campamento Rio Grande 30 km E Palmar, Bolivar, 12-VI-1970, 200 m, No. 581, *Brownia*, SLW; Finca Monosterios, Cacaugua, Miranda, 1971, *Theobroma cacao*, J.L. Saunders.

Hosts: *Bombacopsis quinata*, *Brownia* sp., *Inga* sp., *Qualea ingens*, *Theobroma cacao*, *Trichilia propinqua*, *Xylopia* sp.

Notes: The above treatment was based on 2 specimens from Brazil, 4 from Guiana, and 44 from Venezuela. Several of these were compared by me directly to Schedl's series of this species.

Dryocoetoides semicostatus (Schedl)

Dryocoetoides semicostatus (Schedl), 1948:268 (*Xyleborus*). Holotype ♀; Corumba, Alto, Paraguay; NHMW, Wien (References in Wood & Bright c1992:658)

Diagnosis: Distinguished from other known species of this genus by the strongly impressed declivital striae 1–6; and by the convex declivital interstriae from base to apex.

Female: Length 2.8 mm, 2.6 times as long as wide; color yellowish brown (anterior) to reddish brown (posterior). Frons apparently as in *inaffectatus* (Schedl). Pronotum 1.1 times as long as wide; sides weakly arcuate and subparallel on basal two-thirds, rather narrowly rounded in front; anterior margin armed by 6 coarse serrations; summit at middle, anterior slope coarsely, closely asperate; posterior areas shining, almost smooth, surface very weakly reticulate, punctures moderately large, sparse. Elytra 1.5 times as long as wide, 1.3 times as long as pronotum; disc occupying basal 60 percent of elytra length; striae not impressed, punctures moderately large, in rows; interstriae two to three times as wide as striae; surface partly smooth, shining, with areas of weak to moderate reticulation, punctures half as large as those of striae, uniseriate. Declivity convex, rather steep; striae 1–6 strongly impressed, punctures obscure to obsolete; interstriae 2–6 moderately convex, each armed by a uniseriate row of fine to obscure denticles from base to apex, 1 more strongly elevated, with tubercles on crest weak to obscure; ventrolateral margin acutely costate and undulating slightly from suture to interstriae 7. Vestiture mostly obsolete, a few minute interstitial setae on disc near base of declivity.

Distribution: Brazil: “Corumba, alto Paraguay, H. Richter, *X. semicostatus* Hagedorn, 1909, cotype.”

Notes: The above treatment was based on the female holotype. This specimen bears the name and label of Hagedorn and Hagedorn's cotype label that indicate it was in the Hamburg Museum until Eggers moved it during World War II to the Eggers Collection (Wood & Bright c1992:2–3).

Dryocoetoides verrucosus Wood

Dryocoetoides verrucosus Wood, 1974:28. Holotype ♀; Campamento Rio Grande 30 km E Palmar, Bolivar, Venezuela; USNM, Washington (References in Wood & Bright c1992:659)

Diagnosis: Interstitial tubercles on declivity in uniseriate rows, lower half of 1 not expanded, elevated and subserrate on middle two-thirds of elytra length; anterior margin of pronotum armed by eight serrations.

Female: Length 2.5 mm, 3.1 times as long as wide; color reddish brown. Frons convex, obscurely reticulate, upper half obscurely punctured, lower areas with several small, rounded granules; vestiture hairlike, mostly on or near epistoma. Pronotum 1.3 times as long as wide; sides straight and parallel on basal two-thirds, broadly rounded in front, anterior margin armed by 8–10 serrations; summit in front of middle; anterior slope finely, closely asperate; posterior areas smooth, brightly shining, punctures sparse, minute. Elytra 1.8 times as long as wide, 1.4 times as long as pronotum; disc occupying basal 45 percent of elytral length; striae not impressed, except 1 weakly near declivity, punctures small, shallow, uniseriate; interstriae about four times as wide as striae, smooth, shining, punctures about one-third as large as those of striae, uniseriate. Declivity rather steep, convex, surface rugose-reticulate, transition in sculpture abrupt; striae punctures obscure to obsolete; interstriae 2–8 each armed by a row of small, pointed denticles from base to near apex, 1 rather strongly elevated on middle two-thirds of declivital length, acute summit irregularly subserrate. Vestiture largely confined to declivity, consisting of uniseriate rows of short, rather slender hair of uniform length, each seta about as long as distance between rows.

Distribution: Venezuela: 30 km E Palmar, Bolivar, 12-VI-1970, 200 m, No. 579, *Rosada* (Moraceae), SLW (holotype); 3 km NE Creole, Barinas, 18-XII-1969, 150 m, No. 203, *Inga*, SLW (paratype).

Biology: Boring into small stems.

Notes: The above treatment was based on the female holotype (with head and pronotum missing) and on 1 female paratype, with apex of elytra damaged, both from tropical rain forests in Venezuela.

Dryocoetoides vexans (Schedl)

Plate LXXXVI

Dryocoetoides vexans (Schedl), 1972:72 (*Xyleborus*). Holotype ♀; S. Caraca, Barbara, Minas Gerais, Brazil, 1450 m; NHMW, Wien (References in Wood & Bright c1992:659)

Diagnosis: Superficially resembling *flavus* (Fabricius), but slightly smaller, pronotum disc reticulate, elytral declivity shorter, steeper, more broadly convex, outline of posterior profile much more broadly rounded, details of declivital sculpture different.

Female: Length 2.2 mm, 2.6 times as long as wide; color yellowish brown (mature?). Frons similar to *flavus* except less strongly convex. Pronotum 1.1 times as long as wide, resembling *flavus*, except serrations on anterior

margin weak to almost obsolete, surface of disc reticulate. Elytra 1.6 times as long as wide, 1.6 times as long as pronotum; disc occupying 73 percent of elytra length; striae not impressed, punctures small, very shallow; interstriae four times as wide as striae, smooth, shining, uniseriate punctures minute, less than half as wide as those of striae. Declivity rather abrupt at base, steep, broadly convex, posterior profile much more broadly rounded than in *flavus*; striae very weakly impressed, punctures twice as large as on disc, more strongly impressed; interstriae slightly wider than striae, surfaces smooth, shining, with no punctures, 1–3 each with a uniseriate row of rather small tubercles, except tubercles confused on lower half of 1 (and very weakly elevated). Vestiture of fine very short hair on declivity; and erect interstitial setae (mostly obsolete on declivity), mostly in rows and more numerous than in *flavus*, but distinctly shorter.

Distribution: Brazil: S. Caraca, S. Barbara, Minas Gerais, 1450 m, II-1969, F.M. Oliveira.

Notes: The above treatment was based on the female holotype from Brazil.

Dryocoetoides pseudosolitariarius (Eggers)

Plate LXXXV

Dryocoetoides pseudosolitariarius (Eggers), 1933:28 (*Xyleborus*). Holotype ♀; Cayenne, French Guyane; MNHN, Paris (Synonymy and references in Wood & Bright c1992:658)

Xyleborus pseudosolitariarius schizolobus Schedl, 1950:179. Lectotype ♀; Rio Claro, Brazil; NHMW, Wien, designated by Schedl 1979:202

Diagnosis: Distinguished from *flavus* (Fabricius) by the larger size; by the rugose-reticulate elytral declivity; and by the smaller, less regular interstitial tubercles on the declivity.

Female: Length 2.4–2.8 mm, 2.8 times as long as wide; color dark reddish brown. Frons resembling *flavus*. Pronotum about as in *flavus*, disc weakly reticulate. Elytra about as in *flavus* except surface of declivity rugose-reticulate, dull; declivital striae usually with visible punctures, interstitial tubercles smaller, less regular, vestiture slightly less abundant, profile of declivital suture more strongly convex.

Distribution: Antilles Islands to Venezuela.

Antilles Islands: Dominicana: Samana Prov., 15-VIII-1967, L.H. Rolston. Puerto Rico: Mayagoza, Hopk. US 6275, *Inga vera*.

Brazil: Cepec, Ilheus, Bahia, 1966–1968, at light.

French Guyane: Cited in Wood & Bright (c1992:638).

Venezuela: 9 km S Barancas, Barinas, 1-X-1969, 150 m, No. 28, *Cassia fistula*, SLW; Campamento Rio Grande 30 km E Palmar, Bolivar, 12-VI-1970, 200 m, No. 579, *Rosada* (Moraceae), SLW.

Hosts: *Cassia fistula*, *Eucalyptus excelsum*, *Gleditsia*, *Hirtella glandulosa*, *Inga vera*, *Rosada*.

Biology: Boring in small stems 2–5 cm in diameter.

Notes: The above treatment was based on 7 females, 2 of which were from the Antilles Islands, 1 from Brazil, and 4 from Venezuela. One female from Venezuela was

compared by me directly to the holotype of *Xyleborus pseudosolitarium* Eggers.

Dryocoetoides cristatus (Fabricius)

Plate LXXXI

Dryocoetoides cristatus (Fabricius), 1801:389 (*Bostrichus*). Holotype ♀; labeled Essiquibo [River, Guiana], published as America Meridionali; UZMC, Copenhagen (Synonymy and references in Wood & Bright c1992:657)

Xyleborus solitarium Hagedorn, 1905:415. Holotype ♀; Camopi, French Guiana; MNHN, Paris (♀)

Xyleborus urichi Sampson, 1912:245. Holotype ♀; Trinidad; BMNH, London

Dryocoetoides caracicolai Hopkins, 1915:53. Holotype ♀; Port of Spain, Trinidad; USNM, Washington (References in Wood & Bright c1992:657). *New synonymy*

Xyleborus crenatus Eggers, 1920:42. Lectotype ♀; Kangu; USNM, Washington, designated by Anderson & Anderson 1971:10

Diagnosis: Distinguished from *pseudosolitarium* (Eggers) by the larger average size; by the more shining pronotum disc; and by the convex, more gradual elytral declivity with stria punctures obsolete.

Female: Length 2.6–3.0 mm, 2.8 times as long as wide; color dark reddish brown. Frons and pronotum about as in *pseudosolitarium*, except disc of pronotum usually mostly or entirely smooth, shining; punctures of declivital striae very shallow but usually present; interstriae 1 much more strongly, broadly impressed on middle half of declivity, profile of declivital suture less strongly convex, almost straight in some specimens.

Distribution: Africa (introduced to Angola, Cameroon, Congo, Fernando Poo, Gabon, Ghana, Ivory Coast, Nigeria, Sao Tome Island, Uganda, Zaire), Antilles Islands, Venezuela to Trinidad and Brazil.

Brazil: Cepec, Ilheus, Bahia, 1966–1968, at light.

French Guyane: Sampson (1912:245).

Guiana: Cited in Wood & Bright (c1992:657).

Venezuela: Cheroni, Aragua, 23-V-1961, *Theobroma cacao*, J.L. Saunders; Valle de Cheroni, 3-VI-1964, *Theobroma cacao*, J.L. Saunders; Campamento Rio Grande 30 km E Palmar, Bolivar, 12-VI-1970, 200 m, No. 570, tree limbs, SLW; 9 km S Barrancas, Barinas, 5-XI-1969, 150 m, No. 103, *Cassia fistula* branches, SLW; 5 km W El Pino, Zulia, 20-X-1969, No. 138, tree limb, SLW; 13 km SW El Vigia, Merida, 22-X-1969, No. 76, *Inga*, SLW.

Hosts: *Alexa imperatricia*, *Brownia* sp., *Cassia fistula*, *Hymenostegia afzelii* Inga sp., *Sterculia* sp., *Theobroma cacao*.

Notes: The above treatment was based on 5 specimens from Brazil and 44 from Venezuela. Two specimens were compared by me directly to the holotype of *Bostrichus cristatus* Fabricius, *Xyleborus urichi* Sampson, *Xyleborus crenatus* Eggers, and *Dryocoetoides caracicolai* Hopkins.

Dryocoetoides obtusitruncatus (Schedl)

Plate LXXXIV

Dryocoetoides obtusitruncatus (Schedl), 1948:271 (*Xyleborus*). Lectotype ♀; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien, de-

signed by Schedl 1979:176 (References in Wood & Bright c1992:658)

Diagnosis: This is the only known member of this genus having a complete circumdeclivital costa extending from the suture at the base of the elytral declivity to the suture at the apex of the elytra, the declivity appears obliquely truncate.

Female: Length 2.7–2.8 mm, 3.1 times as long as wide; color yellowish brown. Frons about as in *flavus* (Fabricius). Pronotum 1.1 times as long as wide; sides straight and parallel on basal two-thirds, very broadly rounded in front, anterior margin armed by 10–12 serrations; summit in front of middle, asperities small, numerous, disc smooth, shining, punctures moderately large. Elytra 1.5 times as long as wide, 1.4 times as long as pronotum; disc occupying basal 70 percent of elytral length, abruptly, obliquely truncate behind; disc smooth, shining glabrous, striae not impressed, punctures small, shallow, in rows (obscure on basal fourth); interstriae about five times as wide as striae, punctures rather numerous, confused, almost as large as those of striae. Declivity abruptly, obliquely truncate, a subacute circumdeclivital costa extending from suture at apex to suture at base; striae weakly sinuate, slightly impressed, punctures impressed, slightly larger than those on disc; interstriae tuberculate, tubercles confused, except uniseriate on 3, with 1 widest below middle of declivity length; declivital face convex, except near margins, summit on lower half; glabrous.

Distribution: Brazil to Paraguay.

Brazil: Nova Teutonia, Santa Catarina; Porto Uniao, 13-X-1998, Swedish Match, hexanol intercept trap, *Populus deltoides* stand, C.A.H. Flechtmann; Tres Lagoas, Mato Grosso, CPC, Horto Barra do Moeda, 10-II-1994, ethanol trap, *Eucalyptus grandis* stand, C.A.H. Flechtmann.

Paraguay: San Bernardino, 1909, K. Fiebrig.

Notes: The above treatment was based on 7 females from Paraguay and several from Mato Grosso and Santa Catarina in Brazil.

Dryocoetoides velutinus Wood

Plate LXXXIV

Dryocoetoides velutinus Wood, 1974:29. Holotype ♀; Campamento Rio Grande 30 km E Palmar, Bolivar, Venezuela; USNM, Washington (References in Wood & Bright c1992:659)

Diagnosis: Declivital striae, tuberculate interstriae, and elytral disc much as in *obtusitruncatus* (Schedl), except circumdeclivital costa absent except on lower fourth; declivity rugose-reticulate.

Male: Length 2.9 mm, 2.4 times as long as wide. Head deformed, a moderate impression on median half of frons; eyes greatly reduced in size. Pronotum 1.3 times as long as wide, subquadrate; slightly less than anterior half strongly, triangularly concave to anterior and anterolateral subcostate margins, median fifth of anterior margin protruding slightly cephalad, lateral areas

of posterior parts of concave area rounded; asperities obsolete, disc smooth, shining, punctured. Posterior face of protibia unarmed by tubercles. Elytra slightly shorter than pronotum; resembling female.

Female: Length 2.8–3.0 mm, 2.5 times as long as wide; color dark reddish brown. Frons about as in *flavus* (Fabricius). Pronotum 1.13 times as long as wide, sides almost straight and parallel on basal half, somewhat narrowly rounded in front, anterior margin armed by about 6 serrations; summit at or slightly behind middle, asperities rather small, close; disc smooth, shining, punctures minute. Elytra 1.4 times as long as wide, 1.3 times as long as pronotum; disc occupying basal two-thirds of elytral length; striae not impressed, punctures very small, usually confused near base, in rows to middle of elytra then obsolete; interstriae almost smooth, shining on basal half becoming rugose-reticulate before base of declivity, punctures very small, mostly confused. Declivity steep, broadly convex, basal margin rounded; striae punctures visible at least on lower half; interstriae rugose-reticulate, armed by tubercles, tubercles uniseriate on basal half of 1 and 3, mostly confused elsewhere; ventrolateral costa subserrate from suture to level near base of declivity, not joining 8. Vestiture of interstitial hair from base to apex, of moderate length and abundance.

Distribution: Venezuela: 30 km E Palmar, Bolivar, 12-VI-1970, 200 m, No. 538, in pandanga, SLW.

Hosts: "Pandanga" (Balbino Rodriguez identification).

Biology: Boring in a broken branch.

Notes: The above treatment was based on the type series of 1 male and 21 females.

Dryocoetoides indolatus Wood

Plate LXXXII

Dryocoetoides indolatus Wood, 1974:31. Holotype ♀; Campamento Rio Grande 30 km E Palmar, Bolivar, Venezuela; USNM, Washington (References in Wood & Bright c1992:658)

Diagnosis: Distinguished from *velutinus* Wood by the larger size; by the distinct rows of striae punctures; and by the larger tubercles on declivital interstriae 9.

Female: Length 3.7–3.8 mm, 2.7 times as long as wide; color dark reddish brown. Frons similar to *flavus* (Fabricius). Pronotum 1.14 times as long as wide; almost subquadrate, sides feebly arcuate, anterior margin very broadly procurved, margin feebly, obscurely serrate; summit at middle, asperities rather small, numerous; disc smooth, shining, punctures small. Elytra 1.7 times as long as wide, 1.4 times as long as pronotum; disc occupying basal half; striae not impressed, punctures very small, distinct, in rows; interstriae about six times as wide as striae, smooth, shining, punctures smaller than those of striae, numerous, confused. Declivity rugose-reticulate, very gradual on basal half, rather steep behind; striae 1–8 indicated by rows of punctures, punctures at least twice as large as those on disc, interstriae armed by moderately large, subacute tubercles, tubercles on

1–3 confused on basal half, mostly uniseriate laterally and near apex. Vestiture of fine hair, mostly glabrous on disc, rather abundant and moderately long on declivity.

Distribution: Venezuela: Campamento Rio Grande 30 km E Palmar, Bolivar, 12-VI-1970, 200 m, No. 578, *Parinari excelsa* in rain forest, SLW.

Hosts: *Parinari excelsa* (Balbino Rodriguez identification).

Notes: The above treatment was based on the type series of 2 females, the holotype, and 1 paratype.

Dryocoetoides insculptus Wood

Plate LXXXIII

Dryocoetoides insculptus Wood, 1974:30. Holotype ♀; Carton de Colombia forest 8 km S Colonia (near Buenaventura), Valle de Cauca, Colombia; USNM, Washington (References in Wood & Bright c1992:658)

Diagnosis: Distinguished from *indolatus* Wood by the larger size; by the replacement of a continuous ventrolateral costa on declivity by a row of separate tubercles; and by the very different elytral sculpture.

Female: Length 4.7–4.9 mm, 2.7 times as long as wide; color dark reddish brown. Frons more strongly convex than *flavus* (Fabricius), with granules widely distributed. Pronotum 1.15 times as long as wide, sides almost straight on basal two-thirds, anterior margin strongly procurved, weakly serrate; summit near middle, asperities small, numerous; disc smooth, shining, punctures very small. Elytra 1.6 times as long as wide; disc occupying slightly less than basal half; striae not impressed, punctures moderately coarse, deep; interstriae smooth, shining, about four times as wide as striae. Declivity rugose-reticulate, very gradual on basal half, steep behind; striae strongly impressed, punctures larger than on disc, obscurely indicated; interstriae convex, each about half as high as wide, each armed by a uniseriate row of about 8 smooth, moderately coarse tubercles, tubercles continued below but much smaller to obsolete by apex, confused on 1 below. Vestiture confined to declivity, mostly of uniseriate rows of interstitial hair; most setae slightly shorter than distance between rows.

Distribution: Colombia: Carton de Colombia forest 8 km S Colonia (near Buenaventura), Valle de Cauca, 9-VII-1970, 30 m, No. 605, *Humiristrum excelsum*, SLW.

Hosts: *Humiristrum excelsum* (Carton de Colombia identification).

Notes: The above treatment was based on the type series of 9 females from Colombia.

Dryocoetoides alter (Eggers)

Dryocoetoides alter (Eggers), 1931:22 (*Xyleborus*). Holotype ♀; Brazil; USNM, Washington (References in Wood & Bright c1992:656)

Diagnosis: Distinguished from *insculptus* Wood by the absence of rugose-reticulate areas on the elytral declivity; by the much less strongly impressed striae at the base of the declivity; and by the smaller size.

Male: Length 2.5 mm, 2.4 times as long as wide. Pronotum 1.2 times as long as wide; anterior two-fifths triangularly, strongly concave, apical angle on lower half of concavity acutely elevated, a median, pointed tubercle on crest of carina; middle third in lateral areas with weak asperities; disc smooth, shining, punctures rather small, moderately abundant. Elytra 1.2 times as long as wide, 1.0 times as long as pronotum; disc about as in female, except punctures slightly larger; declivity more gradual, resembling female but features poorly formed.

Female: Length 3.7 mm, 2.6 times as long as wide; color reddish brown. Frons about as in *flavus* (Fabricius). Pronotum 1.1 times as long as wide; sides on basal half feebly arcuate, rather strongly procurved in front, anterior margin armed in median area by 6 serrations; summit at middle, anterior slope closely, rather coarsely asperate, small tubercles at summit less than twice as wide (transversely) as longitudinal thickness; disc smooth, shining, punctures moderately large. Elytra 1.4 times as long as wide, 1.5 times as long as pronotum; disc occupying two-thirds of elytral length; striae feebly impressed, punctures rather small, distinct; interstriae about four times as wide as striae, smooth, shining on basal two-thirds, irregular, somewhat reticulate near declivity, punctures smaller than those of striae, confused on 2 and 3, mostly uniseriate on 1 and 4. Declivity steep, convex; striae slightly impressed, punctures slightly larger than on disc; interstriae almost smooth to obscurely reticulate, armed by numerous subacutely pointed, tubercles of moderate size, tubercles confused except uniseriate on basal half of 1; ventrolateral crest acute, serrate, not joining 8. Vestiture of moderately abundant, confused hair from base to apex; most setae about equal in length to width of an interstriae.

Distribution: Brazil: Mat. No. 17, Rio Claro, Sao Paulo, III-1947, XII-1947 (apparently taken at light); Agudos Durafloa, Sao Paulo, 27-I-1987, ethanol trap in *Pinus c. ribacea* stand, C.A.H. Flechtmann, same, 17-IX-1985, *Pinus c. durenensis* stand, C.A.H. Flechtmann; Parana, Monte Alegre, 22-III-1996, ethanol trap in *Eucalyptus grandis* stand, C.A.H. Flechtmann; Telemanco Borba, Parana, KPC, ethanol trap, 7-II-1997, *Pinus taeda* stand, C.A.H. Flechtmann.

Notes: The above treatment was based on 1 male and 1 female; the female was compared to the holotype by me.

Dryocoetoides asperulus (Eggers)

Dryocoetoides asperulus (Eggers), 1931:21 (*Xyleborus*). Holotype ♀; Mexico: MNB, Berlin (Schedl 1979:28 gives NHMW, Wien); (Synonymy and references in Wood & Bright c1992:656)
Xyleborus imitator Schedl, 1976:75. Holotype ♀; Barueri, Sao Paulo, Brazil; NHMW, Wien

Diagnosis: Distinguished from *alter* (Eggers) by the impressed declivital striae 1–3, with punctures twice as

large as those of disc; and by the subacutely elevated ventrolateral crest of the declivity.

Female: Length 4.3 mm, about 2.7 times as long as wide (elytra spread, estimated); color reddish brown. Frons about as in *flavus* (Fabricius). Pronotum 1.1 times as long as wide; sides almost straight and parallel on basal two-thirds, broadly rounded in front, anterior margin weakly armed by 8 obscure serrations; summit anterior to middle, asperities rather small, numerous, small crenulations at summit 3–8 times as wide (transversely) as thick (longitudinally); disc smooth, shining, punctures of moderate size; vestiture hairlike, mostly confined to sides. Elytra about 1.6 times as long as wide, about 1.5 times as long as pronotum; disc occupying basal two-thirds; striae not impressed except weakly near declivity, punctures small; interstriae about five times as wide as striae, punctures confused, almost as large as those of striae, uniseriate tubercles beginning well before base of declivity. Declivity steep, convex; striae feebly impressed, punctures about equal in size to those of disc; interstriae obscurely subreticulate, tubercles mostly small, confused except almost uniseriate on 3. Vestiture of interstitial hair from base to apex, some setae on declivity equal in length to twice width of an interstriae.

Distribution: “Mexico” (type of *asperulus*) to Costa Rica and Brazil.

Brazil: Barueri, Sao Paulo (type of *imitator*); Aracruz, Espirito Santo, 19-X-1988, No. 2232, 11-XII-1991, No. 3585; Agudos, Sao Paulo, 2-VIII-1994, Durafloa S.A., *Pinus caribea hondurensis* stand.

Notes: The above treatment was based on 1 female from Costa Rica that was compared by me to Schedl’s specimens and 1 from Brazil.

GENUS *THEOBORUS* HOPKINS

Theoborus Hopkins, 1915:57. Type-species: *Theoborus theobromae* Hopkins, original designation (References in Wood & Bright c1992: 660–662)

Diagnosis: Antennal club with 2 sutures visible on posterior face as in *Dryocoetoides*; distinguished from that genus by the flat, smooth posterior face of the protibia; and by the more finely faceted eyes.

Description: Body of female 1.7–3.0 mm, 2.3–2.8 times as long as wide; color brown to almost black. Male dwarfed, deformed, flightless. Description about as in *Dryocoetoides* except for antennal club and protibial characters.

Distribution: Wood & Bright (c1992:660–662) report eight species from Central and South America, 4 of which occur in South America, 1 was introduced into tropical Africa.

Biology: Insufficient information is available to distinguish the habits and behavior of this genus from *Dryocoetoides* and *Xyleborus*.

Key to the Species of *Theoborus*
(Modified from Wood 1982:770–772)

1. Elytral declivity strongly convex, its posterolateral margin rounded and devoid of crenulations; strial and interstitial punctures on disc small, shallow, confused or in definite rows; declivital interstitial punctures replaced by minute granules 2
- Elytral declivity very broadly convex to weakly impressed, its posterolateral margin subacutely elevated and carinate or crenulate from sutural apex to interstriae 7; strial punctures in definite rows easily distinguishable from interstitial punctures 4
- 2(1). Strial and interstitial punctures on disc in uniseriate rows; declivital interstriae 2 slightly impressed; anterior margin of pronotum armed by 2 serrations; Costa Rica; *Protium panamensis*; 1.7 mm *paurus* Wood
- Strial and interstitial punctures on disc confused; declivital interstriae 1–3 evenly convex; anterior margin of pronotum armed by 6 serrations 3
- 3(2). Smaller; punctures on pronotal disc smaller, shallow; elytral punctures larger, more distinctly granulate on declivity; Antilles Islands and Costa Rica to Colombia and Venezuela; 1.8–2.1 mm *theobromae* Hopkins
- Larger; punctures on pronotum disc larger, deeper; elytral punctures smaller, about half as large, very feebly granulate on declivity; Guatemala to Bolivia and Argentina; 2.3 mm *villosulus* (Blandford)
- 4(1). Elytral declivity broadly convex, its posterolateral margin unevenly costate, somewhat crenulate; interstriae four to six times as wide as striae, strial punctures very small, usually little if any larger than those of interstriae (except *molestulus*); color dark brown 5
- Elytral declivity moderately impressed at least on interstriae 2, its posterolateral margin a continuous costa; interstriae about three times as wide as striae, strial punctures moderately large, at least twice as large as those of interstriae; color yellowish to light reddish brown 9
- 5(4). Body more slender, at least 2.6 times as long as wide 6
- Body stouter, less than 2.3 times as long as wide 8
- 6(5). Declivital interstriae 2 impressed and unarmed on lower two-thirds, 1 and 3 slightly elevated, tubercles on 1 confused; Mexico (Campeche) to Panama; 2.3 mm *incultus* (Wood)
- Declivital interstriae 1–3 uniseriately, finely tuberculate, 2 not impressed, 1 and 3 not elevated 7
- 7(6). Strial punctures on disc very small, spaced within a row by three to four diameters of a puncture; declivity rather abrupt, steep, its surface somewhat shagreened, cusps on ventrolateral margin higher, those near suture coarse, declivital interstitial vestiture of long, fine hair two to three times longer than distance between rows, strial hair up to half as long; Costa Rica to Panama; 1.7–2.0 mm *pristis* Wood
- Strial punctures somewhat larger, spaced within a row by one to two diameters of a puncture, declivity more gradually, more broadly arched, shining, cusps on ventrolateral margin low, not particularly larger near suture; interstitial declivital vestiture stout, very slightly longer than distance between rows, strial hair fine, at least half as long as that of interstriae; Costa Rica; 1.8–2.0 mm *micarius* Wood
- 8(5). Interstitial punctures on disc confused, not replaced by granules; declivital vestiture more abundant, consisting of strial rows and confused interstitial hair; Panama to Venezuela (Barinas); 1.9–2.3 mm *crinitulus* (Wood)

- Interstitial punctures uniseriate, mostly replaced by small tubercles to base; elytral setae in uniseriate rows; Panama; 2.0–2.2 mm *molestulus* Wood
- 9(4). Smaller; elytral declivity shorter, steeper, occupying 30 percent of elytral length, more narrowly impressed particularly on lower half; interstitial setae on declivity very stout, short, as long as distance between rows or less; Africa (introduced), Antilles Islands, and Mexico (Veracruz) to Brazil; 2.3–2.5 mm *ricini* (Eggers)
- Larger; elytral declivity more gradual, occupying 40 percent of elytra length, more broadly impressed on lower half; interstitial setae on declivity slender, pointed, about one and one-half times as long as distance between rows; Antilles Islands and Mexico (Chiapas) to Costa Rica, Colombia and Brazil; 2.5–2.9 mm *coartatus* (Sampson)

Theoborus paurus Wood, n. sp.

Theoborus paurus Wood: Holotype ♀; Est. Biol. La Selva, Heredia, Costa Rica; USNM, Washington, designated below

Diagnosis: Remotely allied *T. incultus* Schedl, but distinguished by the smaller, stouter body form; by the remotely similar, simple declivity; and by other characters described below.

Female: Length 1.7 mm, 2.1 times as long as wide; color medium reddish brown. Frons convex, reticulate, punctures small, moderately abundant; vestiture sparse, hairlike, inconspicuous. Pronotum 1.0 times as long as wide, anterior margin slightly produced at median line and armed by 2 or 3 basally contiguous, rather coarse serrations; summit at middle of pronotum length, anterior slope asperate as in *incultus* (Wood); basal and lateral areas reticulate, punctures small, moderately abundant; vestiture hairlike, moderately abundant, rather long. Elytra 1.2 times as long as wide, 1.3 times as long as pronotum; striae not impressed; interstriae three to four times as wide as striae, surface almost smooth, shining, punctures minute (one-third as large as those of striae), in uniseriate rows. Declivity confined to posterior third of elytra length, steep, broadly convex; apical margin rounded (not armed by a carina or row of denticles); lower two-thirds shallowly impressed between left and right interstriae 3, lower third of interstriae 1 slightly elevated; interstriae 1 armed by a row of about ten small denticles, 2 with a staggered row of very minute, obscure granules, 3 with row of about six small, pointed tubercles (larger than those on 1). Vestiture of minute strial hairlike setae on disc and declivity, and erect interstitial setae at least on sides and declivity, of moderate to short length.

Distribution: Costa Rica.

Type material: The female holotype was taken at Est. Biol. La Selva, Heredia, Costa Rica, ERO/11/a/042m 12-VI-1995, *Protium panamensis*. The holotype is in the U.S. National Museum, Washington.

Theoborus theobromae Hopkins

Plate LXXXIII

Theoborus theobromae Hopkins, 1915:57. Holotype ♀; Dominicana, West Indies; USNM, Washington (Synonymy and references in Wood & Bright c1992:661)

Xyleborus pseudococcotrypes Eggers, 1941:105. Holotype ♀; St. Jean du Maroni, French Guyane; MNHN, Paris
Xyleborus hirtellus Schedl, 1948:271. Lectotype ♀; St. Vincent, Trinidad; NHMW, Wien, designated by Schedl 1979:118

Diagnosis: Distinguished by the strongly convex elytral declivity, its posterolateral margin rounded and devoid of crenulations; by the small punctures on the pronotum disc; and by the small size.

Male: Length 1.3 mm, 2.0 times as long as wide; color pale yellow. Head deformed, frons with a median sulcus; eyes of greatly reduced size. Pronotum 1.2 times as long as wide; anterior half deeply, broadly concave, anterior margin subacute, with a small, acute, median tubercle; lateral margins rounded, surface reticulate, devoid of tubercles and asperities on sides and concave area; disc obscurely reticulate, punctures small, poorly formed. Elytra 1.1 times as long as wide, 0.90 times as long as pronotum sculpture resembling female but all features poorly formed.

Female: Length 1.8–2.1 mm, 2.4 times as long as wide; color dark brown. Frons moderately convex and rugose-reticulate above, feebly convex below, reticulate, punctures sparse, small; vestiture of fine, short, sparse hair. Pronotum 1.0 times as long as wide; summit at middle of pronotum length; anterior slope closely, rather coarsely asperate; disc weakly reticulate, punctures very small, not close. Elytra 1.3 times as long as wide, 1.3 times as long as pronotum; disc occupying slightly more than basal half of elytral length, surface smooth, shining, punctures small, confused. Declivity broadly convex, steep; striae 1–3 each indicated by a row of small, shallow punctures; interstriae smooth, shining, each with a uniseriate row of small tubercles. Vestiture of fine, moderately long strial and interstitial hair, rather abundant on posterior half, usually sparse to absent on basal half.

Distribution: Mexico (Veracruz) and Antillies Islands to Colombia, Venezuela, and French Guyane.

Colombia: El Pleceros Rosas, Valle de Cauca, 28-IV-1959, cafe, J.L. Arboleda; El Vergal, La Palma, Cundinamarca, 24-IV-1959, cafe, A. Diaz; El Pensil, Palermo, Huila, 30-IV-1959, *Theobroma cacao*, B. Herrera; Piemonte, Palermo, Huila, 29-IV-1959, cacao, B. Herrera.

French Guyane: Cayenne; St. Jean du Maroni.

Venezuela: Campamento Rio Grande 30 km E Palmar, Bolivar, 12-VI-1970, 200 m, No. 549, *Alexa imperatrix*, SLW, same No. 527 *Cecropia* branches; Rancho Grande, Pittier N.P., Aragua, 9-IV-1970, 1100 m, No. 432, Guttiferae, No. 470 *Piper*; Merida, Merida, 22-IX-1969, 1700 m, No. 16, *Ficus*, SLW; 9 km S Brancas, Barinas, 2-XII-1969, 150 m, No. 152, *Pithecolobium saman*, SLW.

Hosts: *Alexa imperatrix*, *Cecropia*, *Coffea*, *Erythrina costaricensis*, *Ficus*, *Ochroma*, *Piper*, *Theobroma cacao*.

Biology: Breeds in small stems.

Notes: The above treatment was based on 37 specimens from Central America, 12 from the Antilles Islands, 5 from Colombia, 2 from French Guyane, and 67 from Venezuela. One of these was compared to the holotype of *Theoborus theobromae* Hopkins, 2 to the holotype of *Xyleborus pseudococcotrypes* Eggers, and 1 to the lectotype of *Xyleborus hirtellus* Schedl.

Theoborus villosulus (Blandford)

Plate LXXXIII

Theoborus villosulus (Blandford), 1898:204 (*Xyleborus*). Holotype ♀; Rio Naranjo, San Marcos, Guatemala; BMNH, London (Synonymy and references in Wood & Bright c1992:661–662)

Xyleborus coccotrypoides Eggers, 1943:388. Holotype ♀; Cochabamba, Bolivia; MNHN, Paris

Xyleborus villosus Schedl, 1948:270. Syntypes ♀ ♀; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien

Diagnosis: Distinguished from *theobromae* Hopkins by the larger size; by the larger, deeper punctures on the pronotum disc; by the smaller elytral punctures; and by the smaller, sometimes obsolete interstitial granules on the declivity.

Female: Length 2.3 mm, 2.4 times as long as wide; color brown. Frons and pronotum as in *theobromae* except pronotum disc more strongly reticulate, punctures slightly larger, deeper. Elytra with punctures on disc smaller than *theobromae*, on declivity striae punctures less distinct, interstitial granules mostly smaller, partly obsolete.

Distribution: Guatemala to Bolivia and Argentina.

Argentina: Cited in Wood & Bright (c1992:662).

Bolivia: Cochabamba, Woytkowski (Eggers 1943:388).

Brazil: Telemaco Borba, Parana, 31-XII-1999, 3-III-2000, 10-X-2000, Klabin Papel e Cellulose, sulcatol trap, ethanol trap, C.A.H. Flechtmann; Nova Teutonia, Santa Catarina (Schedl 1948:388); Duraflora, Agudos, Sao Paulo, 19-IV-1988, ethanol trap, *Pinus c. caribica* stand, C.A.H. Flechtmann.

French Guyane: Cayenne (Wood & Bright c1992:662).

Peru: Cited in Wood & Bright c1992:662.

Venezuela: Rancho Grande, Aragua, 9-IV-1970, 1100 m, No. 404, tree branch, SLW.

Hosts: "Anonillo," *Inga* sp., *Pinus elliotti*, *Theobroma cacao* (Wood & Bright c1992:661–662).

Biology: Taken from broken tree branches.

Notes: The above treatment was based on 2 specimens from Guatemala (including the type of *villosulus*

Blandford), 1 from Venezuela, and on the types of *coccotrypoides* (Eggers) and *villosus* (Schedl).

Theoborus crinitulus (Wood), n. comb.

Plate LXXXVII

Theoborus crinitulus (Wood), 1974:34 (*Xyleborus*). Holotype ♀; 40 km SE Socopo, Barinas, Venezuela; USNM, Washington (References in Wood & Bright c1992:721)

Diagnosis: Distinguished from *molestulus* Wood by the uniseriate interstitial punctures on the disc that have been replaced by small tubercles to the base; and by the uniseriate interstitial setae.

Female: Length 1.9–2.3 mm, 2.3 times as long as wide; color dark reddish brown. Frons broadly convex (weakly on lower half), surface weakly reticulate, small sparse punctures mostly replaced on lower half by small, rounded granules; a very weak median elevation on upper half. Pronotum 1.0 times as long as wide; sides weakly arcuate on posterior two-thirds, broadly rounded in front; anterior margin irregularly armed by about 4 low serrations; summit near middle; anterior slope armed by numerous rather coarse asperities; disc smooth, shining, punctures moderately abundant, small. Elytra 1.3 times as long as wide, 1.3 times as long as pronotum; disc occupying about half of elytra length; striae 1 weakly, others not impressed, punctures small, distinct, uniseriate; interstriae about four times as wide as striae, smooth, shining, with some irregular surface lines, punctures half as large as those of striae, confused. Declivity steep, very broadly convex, posterior profile (dorsal aspect) obtusely subangulate; striae not impressed, punctures more strongly impressed, slightly larger than on disc; interstriae two to three times as wide as striae, smooth, shining, each armed by a row of about eight to ten pointed tubercles of moderate size, each about as high as basal width of a tubercle; interstriae 1 on lower fourth modestly protuberant before apex; ventrolateral margin serrate and subacutely elevated from suture to near base of declivity, not joining 8. Vestiture largely confined to sides and declivity, more abundant and slightly longer on declivity.

Distribution: Africa (introduced) and Panama to Venezuela.

Venezuela: 40 km SE Socopo, Barinas, 25-I-1970, 150 m, No. 280, *Hirtella triandra*, SLW.

Notes: The above treatment was based on the type series of 17 specimens from Venezuela and 3 from Panama.

Theoborus ricini (Eggers)

Plate LXXXVII

Theoborus ricini (Eggers), 1932:298 (*Xyleborus*). Holotype ♀; Stanleyville, Congo; USNM, Washington (Synonymy and references in Wood & Bright c1992:661)

Xyleborus solitariceps Schedl, 1954:45. Lectotype ♀; Rondon, Parana, Brazil; NHMW, Wien, designated by Schedl 1979:232

Diagnosis: Distinguished from *coartatus* (Sampson) by the smaller size; by the shorter, steeper elytral declivity; by the more narrowly impressed lower declivity; and by the shorter, stouter setae on the declivity.

Female: Length 2.3–2.5 mm, 2.5 times as long as wide; color yellowish brown to dark reddish brown. Frons broadly convex, almost smooth, shining between coarse punctures on upper half and rounded granules (tubercles) on lower half; vestiture of moderately abundant, fine, long hair on lower half. Pronotum 1.1 times as long as wide; sides straight and parallel on basal two-thirds, broadly rounded in front; anterior margin armed by about 6 coarse serrations in median area; summit at middle, anterior slope rather coarsely, closely asperate, disc mostly reticulate, punctures moderately large, rather close. Elytra 1.5 times as long as wide, 1.4 times as long as pronotum; striae not impressed at base, feebly impressed toward base of declivity, punctures rather small, deep; interstriae smooth, shining, two to three times as wide as striae, punctures slightly more than half as wide as those of striae, punctures uniseriate on 1 and 3, confused on 2 and 4. Declivity occupying slightly more than posterior third of elytral length, steep; striae slightly impressed, punctures slightly larger than on disc; interstriae 1 slightly impressed, 2 and 3 weakly convex, each armed by a row of moderately coarse tubercles; ventrolateral margin subacutely elevated, serrate. Vestiture hairlike, moderately abundant to base, rather short.

Distribution: Africa (introduced), Mexico (Veracruz), and Antilles Islands to Colombia and Brazil.

Brazil: Cepec, Ilheus, Bahia, 1966–1968, at light.

Colombia: Libano, Tolima, 2-VI-1959, *Theobroma cacao*, E. Piedrahita; Partachuelo, Rio Negro, Santander Sur, 26-VI-1959, cacao verde, E. Rangel.

Venezuela: Finca Monasterios, Cacaugua, Miranda, 1971, *Theobroma cacao*, J.L. Saunders.

Hosts: *Albizzia gummifera*, *Aptandra zenkeri*, *Citrus aurantifolia*, *Dioclea megacarpa*, *Hevea brasiliensis*, *Maesa rufescens*, *Ricinus communis*, *Swietenia* sp., *Terminalia* sp., *Tetrapleura tetraptera*, *Theobroma cacao* (Schedl 1962:289 adds other African hosts).

Biology: Boring in large limbs and stumps.

Notes: The above treatment was based on 3 specimens from Africa, 2 from Jamaica, 16 from Central America, 1 from Brazil, 4 from Colombia, and 1 from Venezuela, all females. One female was compared by me directly to the holotype of *Xyleborus ricini* Eggers and also to the lectotype of *Xyleborus solitariceps* Schedl.

Theoborus coartatus (Sampson)

Plate LXXXVI

Theoborus coartatus (Sampson), 1921:32 (*Xyleborus*). Holotype ♀; Trinidad; BMNH, London (Synonymy and references in Wood & Bright c1992:661)

Xyleborus artecuneolus Schedl, 1939:14. Holotype ♀; Trinidad; BMNH, London

Diagnosis: Distinguished from *ricini* (Eggers) by the larger size; by the more gradual slope of the elytral declivity; by the more broadly impressed lower declivity; and by the more slender, longer declivital setae.

Male: Length 2.3 mm, 2.5 times as long as wide; color yellowish brown; head as in *theobromae* Hopkins; pronotum as long as wide, anterior half deeply concave on median half, anterior margin obtusely produced, subacutely elevated on less than median half (not exactly forming a tubercle on obtuse median line); lateral margins of concave area broadly rounded, surface obscurely reticulate, asperities absent, punctures small on anterior half, moderately large on disc.

Female: Length 2.5–2.9 mm, 2.6 times as long as wide; color reddish brown. Frons and pronotum very similar to female *ricini*. Elytra 1.5 times as long as wide, 1.6 times as long as pronotum; disc occupying 60 percent of elytra length; striae not impressed, punctures moderately deep, rather small, interstriae about three times as wide as striae, smooth, shining, punctures half as large as those of striae, mostly uniseriate, moderately confused on 2, feebly confused on 3 and 4. Declivity moderately steep, less than in *ricini*; interstriae 1 and lower half of 2 distinctly impressed, tubercles on 1–3 very small to obsolete below. Vestiture of fine hair; distinctly longer than in *ricini*, ventrolateral margin less strongly elevated, more finely serrate.

Distribution: Africa (introduced), Mexico (Chiapas) and Antilles Islands to Brazil.

Brazil: Cepec, Ilheus, Bahia, 1966–1968, at light; Minas [Geraiis?]; Itiquiera, MS, 28-IX-1992, *Hevea brasiliensis* clone PB235, branch, O. Dall'Oglio.

Colombia: Palmira, Valle de Cauca, I-1947, 3-245, B. Losada; Hidaga Jamaica, Nilo, Cunadin, cacao; Ibaque, Tolima, No. 14, *Theobroma cacao*, L.M. Murillo.

Hosts: *Mimosa* sp., *Theobroma cacao*.

Biology: Boring in large limbs and stumps. It is a minor pest of cacao.

Notes: The above treatment was based on 4 specimens from Mexico (Chiapas), 13 from Central America, 2 from Brazil, and 10 from Colombia. One specimen was compared to the holotype of *Xyleborus coartatus* Sampson and also to the lectotype of *Xyleborus artecuneolus* Schedl.

GENUS *COPTOBORUS* HOPKINS

Coptoborus Hopkins, 1915:53. Type-species: *Coptoborus emarginatus* Hopkins = *Xyleborus vespatorius* Schedl, original designation (Synonymy and references in Wood & Bright c1992:662–665)

Streptocranus Schedl, 1939:52. Type-species: *Streptocranus mirabilis* Schedl, monobasic (Synonymy and references in Wood & Bright c1992:662)

Diagnosis: Distinguished from *Theoborus* by the more slender body form, with the elytra attenuate or acuminate on the posterior third, narrowly rounded behind, the suture often emarginate at its apex; one or more declivital interstriae armed by small denticles.

Description: Length 1.5–5.0 mm, slender, at least 2.6 times as long as wide; color yellowish to reddish brown. Posterior face of antennal club marked by two sutures, suture 2 obscure in some species, club face concave only distad from comparatively large segment 2. Protibia armed on lateral margin by 6 or 7 socketed denticles, metatibia with 6–9 socketed denticles; anterior coxae contiguous. Elytra attenuate or acuminate behind; one or more declivital interstriae armed by small denticles.

Distribution: Wood & Bright (c1992:662–665) report 27 species from Africa, southeastern Asia, and tropical America. Of these, 10 occur in South America.

Biology: All of the South American species are small and breed in small stems. Except for their xylomycetophagous habit, their habits have not been studied in detail.

Key to the Species of *Coptoborus*
(Females only)

- 1. Elytral declivity with interstriae 2 unarmed (at least on lower half), 3 armed by denticles and sometimes elevated; declivity occupying at least 40 percent of elytra length 2
- Elytral declivity with interstriae 1–3 about equally sculptured, with or without tubercles 9
- 2(1). Lower elytral declivity on posterior half weakly to strongly sulcate, interstriae 3 moderately to strongly elevated 3
- Declivity convex to weakly flattened on lower half; declivity occupying about 33 percent of elytral length; small species 8a
- 3(2). Lower declivity moderately to very strongly sulcate, interstriae 3 strongly elevated 4a
- Lower declivity weakly sulcate, interstriae 3 weakly elevated 5
- 4a(3). Elytral declivity entirely devoid of tubercles on interstriae 1–3 and glabrous; slightly larger species; Brazil (Mato Grosso); 2.6 mm *nudulus* Wood
- Declivital interstriae 1 or 3, or both, armed by small tubercles, declivital setae present; slightly smaller species 4b
- 4b(4a). Declivital interstriae 1 and 2 unarmed by tubercles except at extreme base, interstriae 3 subacutely elevated, armed by three to five denticles, apical margin strongly, acutely elevated and obtusely emarginate; Mexico (Veracruz) to Argentina; 2.3–2.8 mm *vespatorius* (Schedl)
- Interstriae 1 armed by a row of small tubercles on basal two-thirds, 2 with a similar row on basal half or less, elevation on 3 limited to lower third, moderately strong near apex, crest of 3 armed by a row of small tubercles of approximately equal size; interstitial setae rather short, stout; attracted to light; Suriname; 2.4 mm *schulzi* Wood
- 5(3). Apex of elytral declivity more broadly rounded behind (as seen from dorsal aspect; surface of declivity dull; body less slender; Suriname; female 2.1–2.2 mm, male 2.0 mm *spicatus* Wood
- Apex of declivity as seen from dorsal aspect more narrowly rounded; declivital surfaces more smooth, shining; body more slender 6
- 6(5). Apical margin at declivital suture more acutely elevated; setae on declivity much longer; pronotum rather strongly reticulate, punctures moderately large; color very dark brown; Costa Rica to Panama; 2.3 mm *exilis* (Schedl)
- Apical margin at sutural emargination less acutely elevated; setae on declivity rather short; pronotum disc weakly reticulate, punctures minute to obsolete 7
- 7(6). Elytral declivity distinctly steeper; body form less slender; profile of posterior margin more broadly rounded; declivital setae much more slender; color reddish brown; Brazil (Santa Catarina); 1.8 mm *subtilis* (Schedl)

- Elytral declivity more gradual, interstriae 3 often (not always) with a tubercle on lower half distinctly larger; body form more slender; profile of posterior margin of declivity narrower; most declivital setae distinctly stouter; color usually yellowish brown; Mexico (SLP, Veracruz) to Panama and Venezuela to Brazil; 1.8–2.2 mm *pseudotenius* (Schedl)
- 8a(2). Elytral declivity more narrowly, more evenly convex, interstriae 1 and 3 each with about four to six small denticles, ventrolateral margin armed by a row of three to four small denticles from margin of emargination to level of interstriae 3; on disc striae and interstitial punctures minute; Panama to Venezuela and Peru; 1.6–1.7 mm *cuneatus* (Eichhoff)
- Elytral declivity more broadly, weakly convex, interstriae 1 and 3 each with about four to six small denticles, ventrolateral margin without any denticles; striae punctures on disc distinctly larger; Brazil; 1.6–1.9 mm 8b
- 8b(8a). Body 2.6 times as long as wide; anterior margin of pronotum armed by eight moderately coarse serrations; declivity more narrowly convex, not as steep; declivital interstriae 1 with about six to ten denticles closely spaced; Brazil (Mato Grosso); 1.75 mm *solitariformis* (Schedl)
- Body 3.0 times as long as wide; anterior margin of pronotum without definite serrations; declivity steeper; more broadly convex; declivital interstriae 1 with about four tubercles, more widely spaced; Panama to Suriname and Brazil; 1.6–1.9 mm *catulus* (Blandford)
- 9(1). Declivital interstriae 8 or 9 not elevated, without a distinct crest 10
- Declivital interstriae 9 slightly elevated and shining, often with a distinct crest 13
- 10(9). Pronotum disc smooth, shining, anterior margin unarmed by serrations; body smaller, more slender; declivital apex at suture armed by a coarse, blunt cusp, a row of pointed tubercles of decreasing size continuing toward interstriae 7; body more slender; Brazil (Mato Grosso); 1.7–1.8 mm *neosphenos* (Schedl)
- Pronotum disc reticulate, anterior margin armed by 2–4 serrations; body larger, stouter, darker; tubercles on margin of declivity small 11
- 11(10). Elytral declivity smooth, shining; ventrolateral margin of declivity more strongly elevated (with crest subserrate) from suture to interstriae 3, tubercles on 3 distinctly larger, those on 1 and 2 slightly larger; interstitial setae longer, more widely distributed; body form slender, 2.8 times as long as wide; Brazil (Guanabara); 2.2 mm *gentilis* (Schedl)
- Elytral declivity reticulate, dull; ventrolateral margin of declivity less strongly elevated, tubercles on 1–3 smaller; body form less slender, 2.6 times as long as wide 12
- 12(11). Punctures on declivital striae 1 and 2 larger, distinctly impressed in rows to apex, interstriae 1–3 with a few small tubercles; Puerto Rico; 2.3–2.4 mm *puertoricensis* Bright
- Punctures on declivital striae 1 and 2 smaller, in rows on basal third, confused below, interstriae 1–3 with tubercles almost entirely obsolete; Puerto Rico; 2.2 mm *bellus* Bright
- 13(9). Elytra 1.5–1.6 times as long as wide, posterior 40 percent tapered to apex, apex with two or more tubercles or cusps on lateral or dorsal margin; declivital interstriae 4 with a row of small tubercles; less slender species, 2.5–2.8 times as long as wide 14
- Elytra 2.8–3.2 times as long as wide, posterior 60 percent of elytra length strongly tapered to apex, apex curved slightly dorsad and not armed by cusps or tubercles; declivital interstriae 4 unarmed by tubercles; very slender species 18
- 14(13). Elytral apex subacute, its dorsal profile a continuation of profile of declivity at suture; body distinctly more slender 15

- Elytral apex distinctly produced caudad and somewhat dorsad, not exactly in line with profile of declivital suture; body distinctly stouter 16
- 15(14). Elytral apex with margin subacute, not armed by cusps or tubercles; tubercles on declivity smaller on median half, mostly obsolete in lateral areas; Costa Rica; 2.0 mm *exutus* Wood
- Elytral apex formed into a moderately large cusp, with a row of four or more tubercles continuing from cusp to interstriae 3; interstitial tubercles on declivity in rows, slightly larger and more extensively distributed; Costa Rica and Panama to Colombia, Venezuela and Brazil (Bahia); 1.8–2.2 mm *tolimanus* (Eggers)
- 16(14). Slightly smaller species, more slender, 2.8 times as long as wide; weakly raised elytral apex at suture without any tubercles on weak attenuate, raised margin; Brazil (Mato Grosso); 1.8 mm *inornatus* Wood
- Slightly larger, less slender species 2.5 times as long as wide; weakly raised attenuate apex of elytra at suture armed by several small tubercles 17
- 17(16). Apex of elytra moderately attenuate, bearing on dorsal and lateral surfaces 6–8 small, confused tubercles; declivital interstriae armed on about 1–5 by rows of regularly spaced, small, pointed tubercles; anterior margin of pronotum armed by 4 weak serrations; Paraguay; 2.2–2.4 mm *carumbensis* Wood
- Apex of elytra strongly attenuate, bearing on dorsal and lateral surfaces many very small, confused tubercles; declivital interstriae with rows of minute tubercles on 1–4; Brazil (Mato Grosso); 2.0 mm *attenuatus* Wood
- 18(13). Strial and interstitial punctures shallow, obscure, obsolete on basal fourth; elytra tapered on posterior 50 percent; Brazil (Espirito Santo); 1.8 mm *cracens* Wood
- Strial and interstitial punctures clearly marked on disc and extend to base; elytra tapered on posterior 60 percent of elytra length; Brazil (Espirito Santo); 2.2–2.5 mm *gracilens* Wood

Coptoborus vespatorius (Schedl)

Plate XCI

Coptoborus vespatorius Schedl, 1931:342 (*Xyleborus*). Holotype ♀; San Ignacio, Argentina; NHMW, Wien (Synonymy and references in Wood & Bright c1992:665)

Coptoborus emarginatus Hopkins, 1915:53. Holotype ♀; Livingston, Guatemala; USNM, Washington, preoccupied while in *Xyleborus*

Xyleborus corniculatus Schedl, 1948:275. Holotype ♀; Santa Catarina, Brazil; NHMW, Wien

Xyleborus corniculatulus Schedl, 1948:275. Holotype ♀; Trinidad; NHMW, Wien

Diagnosis: Distinguished by having declivital interstriae 1 and 2 unarmed except at extreme base; and by having the declivity strongly sulcate, interstriae 3 strongly elevated and armed by three to five denticles on the lateral margin.

Female: Length 2.3–2.8 mm, 3.4 times as long as wide; color reddish brown. Frons moderately convex, surface reticulate, punctures rather sparse; vestiture sparse, hairlike, mostly on epistomal margin. Pronotum 1.3 times as long as wide; summit well anterior to middle of pronotum length, anterior slope rather coarsely asperate, serrations on anterior margin usually small, indefinite; disc almost smooth, shining, very obscurely reticulate,

punctures small, widely spaced; glabrous except for sparse hair near anterior and lateral margins. Elytra 2.1 times as long as wide, 1.6 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed, punctures small, uniseriate; interstriae almost smooth, shining, four to five times as wide as striae, punctures half as large as those of striae, uniseriate. Declivity gradual, broadly, rather deeply sulcate, lateral margins subacutely elevated, its crest armed by 3–5 denticles, about 2 of them moderately large, others much smaller; posterior profile obtusely emarginate on median third of elytra width; punctures on striae 1 and 2 clearly impressed to near apex, in rows, larger than on disc, interstitial punctures minute, obscure to obsolete. Mostly glabrous; sparse, interstitial, hairlike setae on declivity and on sides (often to base).

Distribution: Mexico (Veracruz) and Trinidad to Argentina.

Argentina: San Ignacio.

Brazil: Cepec, Ilheus, Bahia, 1966–1968, at light; Anacru, Espirito Santo, No. 7394, at light; Parque Esala, Piracicaba, Sao Paulo, 2-IV-1987, *Mangifera indica*, C.A.H. Flechtmann; Agudos, Duraflora, V-1984, ethanol trap in *Pinus* stand, Flechtmann.

Colombia: Arauquíl, San Andern, VII-1935, No. X457, M. Murillo; La Sofia, Valle de Cauca, 22-VIII-1955, cacao, M. Benevides; Punto Tejada, Valle de Cauca, 22-VIII-1955, cacao, No. 6886, M. Benevides; Palmira, Valle de Cauca, 3-III-1956, cacao, C. Carmona; Andolucia, V-1943, ramas, B. Lasada.

Venezuela: Rancho Grande, Aragua, 9-IV-1970, tree limb, SLW; Finca Monasterios, Cagagua, Miranda, 1971, *Theobroma cacao*, J.L. Saunders.

Hosts: *Theobroma cacao*, "tree limbs," "branches."

Biology: Boring in wood of limbs and stumps.

Notes: The above treatment was based on 3 specimens from Trinidad, 6 from Costa Rica, 3 from Brazil, 10 from Colombia, and 13 from Venezuela. Two females were compared directly by me to the female holotype of *Coptoborus emarginatus* Hopkins, *Xyleborus corniculatus* Schedl, *X. corniculatulus* Schedl, and *X. vespatorius* Schedl.

Coptoborus nudulus Wood, n. sp.

Coptoborus nudulus Wood: Holotype ♀; Sao Nicolau Farm, Cotriguacu, Mato Grosso, Brazil; ZMUSP, Sao Paulo, designated below

Diagnosis: Distinguished from *spicatus* Wood and *exilis* Wood by the slightly larger body size; by the absence of tubercles on declivital interstriae 1 and 3; and by the absence of elytral setae (one specimen with one to three minute tubercles on 1 and 3).

Female: Length 2.6 mm, 2.6 times as long as wide; color dark reddish brown. Frons moderately convex eye to eye from vertex to slightly above epistoma; surface above upper level of eyes minutely granulate, lower frons more finely subgranulate; sparse setae of moderate length on lower half, epistomal brush of sparse setae. Pronotum 1.1 times as long as wide; widest on middle third of pronotum length, sides feebly arcuate and subparallel on basal two-thirds; narrowly rounded in front; anterior slope steep; asperities rather coarse, close, confused; posterior areas and areas between asperities strongly reticulate, punctures very small, obscure, moderately numerous; glabrous except for a few short setae on asperate area. Elytra 1.5 times as long as wide, 1.3 times as long as pronotum; disc occupying 60 percent of elytra length; disc almost smooth, shining; striae not impressed, punctures very small, shallow; interstriae four to five times as wide as striae, almost smooth, mostly shining, punctures mostly uniseriate, about one-third as large as those of striae. Declivity rather gradual, somewhat broadly, shallowly bisulcate; sutural interstriae weakly elevated from base to near apex; interstriae 2 wider than 1 or 3, shallowly impressed from base to near apex; 3 weakly elevated, about as high as 1 on basal half, slightly lower below; 1 and 3 with zero to three very minute tubercles present; apical margin weakly elevated from suture to apex of interstriae 3 and armed by three to four weak serrations; punctures on striae 1 and 2 almost entirely obsolete. Glabrous.

Distribution: Brazil (Mato Grosso).

Type material: The female holotype and 1 female paratype were taken at Sao Nicolau farm, Cotriguacu, Mato Grosso, Brazil, VI-2002, ethanol trap in Amazon rain forest, O. Peres Filho. The holotype is in the Museum de Zoologie, Universidade de Sao Paulo, Sao Paulo. The paratype is in the U.S. National Museum, Washington.

Coptoborus schulzi Wood, n. sp.

Coptoborus schulzi Wood: Holotype ♀; Camp 8, Joden savanne, Suriname; USNM, Washington, designated below

Diagnosis: Distinguished from *vespatorius* Schedl by having the base of declivital interstriae 1 armed by a row of small tubercles; by the elevation of interstriae 3 limited to the lower third of the declivity, its crest armed by a row of small tubercles of equal size.

Female: Length 2.4 mm, 2.6 times as long as wide; color yellowish brown except reddish brown on declivity. Frons as in *vespatorius*. Pronotum 1.1 times as long as wide; resembling *vespatorius* except indefinite summit near middle, asperities smaller, more numerous, extending to a point slightly behind middle; glabrous, except sparse hair on anterior and lateral margins. Elytra 1.5 times as long as wide, 1.3 times as long as pronotum; disc occupying slightly more than basal half of elytra length; striae not impressed, punctures small, distinct, in rows; interstriae about four times as wide as striae, smooth, shining, except with impressed irregular lines, punctures two-thirds as large as those of striae, confused. Declivity moderately steep; posterior profile shallowly, obtusely emarginate on less than median third; shallowly sulcate on lower half; striae 1 distinct, punctures in rows, 2 obscure, obsolete below; interstriae 1 and 2 each with a row of fine tubercles almost to apex, 3 on lower half moderately, obtusely elevated, crest with small confused tubercles. Vestiture mostly confined to declivity, consisting of rows of fine, short striae hair and stout interstitial scales, each scale about six to eight times as long as wide; all setae hairlike to base near lateral margins.

Distribution: Suriname.

Type material: The female holotype was taken at Joden savanne, Suriname, Camp 8, No. 55, light trap, Schulz. The holotype is in the U.S. National Museum, Washington.

Coptoborus spicatus Wood, n. sp.

Plate XC

Coptoborus spicatus Wood: Holotype ♀; Docsbury, Suriname; USNM, Washington, designated below

Diagnosis: Distinguished by declivital interstriae 2 being unarmed; profile of apex of elytral declivity more broadly rounded (not emarginate); and by the dull, subreticulate surface of the declivity.

Male: Length 2.0–2.1 mm, 2.6 times as long as wide; color yellowish brown. Head with frons as in female except shallowly sulcate in median area. Pronotum 1.3 times as long as wide; anterior 40 percent rather broadly,

deeply concave, anterior margin subacutely costate, a median obtuse point at median line, lateral obtuse points at ends of anterior costa, lateral margins above broadly rounded; surface of concave area reticulate, with small, confused punctures; disc reticulate, rather coarsely punctured; glabrous except for sparse hair near lateral margins.

Female: Length 2.1–2.2 mm, 2.7 times as long as wide; color yellowish brown. Frons as in *vespatorius* (Schedl). Pronotum 1.1 times as long as wide; summit at middle, asperities on anterior slope broad, coarse, profile of anterior margin obtusely subangulate, armed by 2 median serrations on margin and 4 submarginal serrations; disc reticulate, punctures minute; sparse hair on sides and anterior margin. Elytra 1.4 times as long as wide, 1.3 times as long as pronotum; disc occupying slightly more than basal half; striae not impressed, punctures small, shallow, in rows; interstriae about three times as wide as striae, shining, surface not entirely smooth. Declivity moderately steep, shallowly bisulcate; punctures of striae 1 and 2 impressed, twice as large as those of disc, interstriae dull, subreticulate, 2 shallowly impressed, 1 and 2 weakly convex on basal half, 2 more strongly below, 1 and 2 with sparse tubercles above; apical margin distinctly elevated and serrate from suture to junction with 3, a few minute tubercles in lateral areas. Vestiture hairlike, short, sparse on lower declivity, longer on sides to base.

Distribution: Suriname.

Type material: The female holotype, male allotype, and 1 male and 9 female paratypes were taken at Docsbury, Suriname, 1932, LP199, LD199. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington. The holotype is mounted in the upright (dorsal view) of 2 females mounted on 1 pin. The allotype is mounted with a female on the same pin.

Notes: A "holotype" found in the British Museum, London, labeled *Xyleborus spicatus* Sampson, appears to be a nomen nudum. No mention of this name was found in published literature.

Coptoborus exilis (Schedl)

Coptoborus exilis (Schedl), 1934:209 (*Xyleborus*). Holotype ♀; Halbinsel Osa, Costa Rica; NHMW, Wien (References in Wood & Bright c1992:664)

Diagnosis: Distinguished from *pseudotenuis* (Schedl) by the larger size; by the more strongly, more acutely elevated apical margin of the declivity; by the longer, more abundant declivital setae; by the more distinctly impressed declivital interstriae 2; and by the strongly reticulate pronotum disc.

Female: Length 2.3 mm, 2.9 times as long as wide; mature color dark brown. Frons essentially as in *vespatorius* (Schedl). Pronotum 1.1 times as long as wide; about as in *pseudotenuis* except anterior margin more coarsely serrate, disc rather strongly reticulate. Elytra 1.6 times as long as wide, 1.4 times as long as pronotum;

disc occupying slightly more than basal half; striae not impressed, punctures shallow, small; interstriae about four times as wide as striae, smooth, shining, punctures minute, a third as large as those of striae, uniseriate. Declivity rather steep, essentially convex; striae 1 and 2 slightly impressed, punctures rather small; interstriae 1 and 3 weakly convex, 2 weakly impressed on lower half, tubercles mostly smaller and restricted to basal half, 3 with minute tubercles to apex except one moderately large tubercle near middle of declivity. Vestiture mostly restricted to declivity, of minute strial hair and much more abundant interstitial setae of two kinds, many short, confused, others in obscure rows much longer, some twice as long as distance between rows. Apical margin from suture to level of striae 2 much more acutely elevated.

Distribution: Costa Rica to Panama: Canal Zone, at light.

Notes: The above treatment was based on 2 females from Panama. One of these was compared by me directly to the type of *exilis* (Schedl). This species was removed from possible synonymy (Wood 1982:802) after authentic specimens were found and compared to the type. It probably occurs in Colombia but has not yet been recognized from South America.

Coptoborus subtilis (Schedl)

Coptoborus subtilis (Schedl), 1970:96 (*Xyleborus*). Holotype ♀; Nova Teutonia, Santa Catarina, Brazil, 300–500 m; NHMW, Wien (References in Wood & Bright c1992:777)

Diagnosis: Distinguished from *exilis* (Schedl) by the less strongly elevated subapical margin of the elytral declivity; and by the smaller size. Distinguished from *pseudotenuis* (Schedl) as indicated in the above key.

Female: Length 1.8 mm, 2.8 times as long as wide; color reddish brown. Frons mostly covered by pronotum; lower fourth broadly convex; surface reticulate, setiferous punctures rather small, setae fine, long, rather abundant. Pronotum 1.1 times as long as wide; sides straight and parallel on more than basal half, rather broadly rounded in front; anterior margin very weakly serrate; summit at middle of pronotum length, anterior slope coarsely, closely asperate; posterior areas very weakly reticulate, punctures small to obsolete, rather sparse. Elytra 1.6 times as long as wide; disc occupying basal 60 percent of elytra length; striae not impressed, punctures small, distinct; interstriae three times as wide as striae, smooth, shining, punctures minute to obsolete. Declivity steep, convex; striae 1–3 about as on disc, punctures in rows; interstriae almost smooth, shining, 2 unarmed except one to three minute tubercles at base, 1 and 3 each armed by about four to six rather small, pointed tubercles about equally spaced from base to apex (punctures obsolete), a few minute tubercles in lateral areas. Ventrolateral margin rather narrowly rounded from suture to striae 3, crest not armed by tubercles. Vestiture of very minute strial hair on declivity, and of moderately long, slender interstitial setae, each seta slightly shorter than distance between rows.

Distribution: Brazil: Nova Teutonia, 27°11'B, 52°23'L, VII-1966, 300–500 m, F. Plaumann.

Notes: The above treatment was based on the female holotype.

Coptoborus pseudotenuis (Schedl)

Plate LXXXIX

Coptoborus pseudotenuis (Schedl), 1936:109 (*Xyleborus*). Holotype ♀; Brazil; NHMW, Wien (Synonymy and references in Wood & Bright c1992:664)

Xyleborus tenuis Schedl, 1948:269. Holotype ♀; Cordova (presumably Veracruz, Mexico)

Diagnosis: Distinguished from *spicatus* Wood by the more slender body form; by the more broadly rounded anterior margin of the pronotum with obscure serrations; and by the more evenly convex, very different elytral declivity.

Female: Length 1.8–2.2 mm, 3.1 times as long as wide; color yellowish brown. Frons about as in *vespatorius* (Schedl). Pronotum 1.2 times as long as wide; sides subparallel and weakly arcuate on basal two-thirds, broadly rounded and subserrate on anterior margin; summit indefinite, at middle, rather coarsely, closely asperate on anterior margin; disc almost smooth, obscurely subreticulate, punctures minute. Elytra 1.7 times as long as wide, 1.4 times as long as pronotum; disc occupying slightly more than basal half; striae not impressed, punctures small, shallow, in rows; interstriae about four times as wide as striae, smooth, shining, punctures minute (half as large as those of striae, uniseriate). Declivity moderately steep, convex; striae 1–3 weakly impressed, punctures deeper and slightly larger than on disc; interstriae about twice as wide as striae, 1–3 weakly convex, smooth, shining, each armed by about four to eight small, pointed tubercles of variable size; subapical margin subacutely elevated from near suture to level of striae 2, rounded toward base, crest with two to five indefinite tubercles. Vestiture mostly confined to declivity, of rather stout interstitial setae, longest equal in length to distance between rows.

Distribution: Mexico (San Luis Potosi, Veracruz) to Colombia and Venezuela.

Colombia: Montegrande, Caicedonia, Valle de Cauca, 19-VI-1959, en guamo y café, J. Restrepo.

Venezuela: Ocumare, Aragua, 1967, cacao, B. Mendoza; 13 km SW El Vigia, Merida, 22-X-1969, 100 m, in log, SLW; 20 km SW El Vigia, 21-XI-1969, 50 m, No. 144, *Cecropia* limb, SLW.

Hosts: *Cecropia* sp., *Coffea* sp., *Theobroma cacao*, etc.

Biology: Specimens were removed from the wood of limbs and from a log.

Notes: The above treatment was based on 8 females from Mexico, 7 from Costa Rica, 1 from Colombia, and 11 from Venezuela. Two of my females were compared directly by me to the female holotypes of *Xyleborus pseudotenuis* Schedl and *X. tenuis* Schedl.

Coptoborus cuneatus (Eichhoff)

Coptoborus cuneatus (Eichhoff), 1878:380 (*Xyleborus*). Holotype ♀; Varinas, Nova Grenada (presumably Barinas, Venezuela); NHMW, Wien (References in Wood & Bright c1992:663)

Diagnosis: Distinguished from *catulus* (Blandford) by the more narrowly, evenly convex declivital interstriae 1 and 3; by the ventrolateral margin of the declivity armed by a row of three to four small denticles from margin of sutural emargination to interstriae 3 (not at all subacutely costate); and by the smaller striae and interstitial punctures on the disc.

Female: Length 1.6–1.7 mm, 3.0 times as long as wide; color reddish brown. Frons about as in *vespatorius* (Schedl). Pronotum 1.2 times as long as wide; sides almost straight and parallel on basal two-thirds; anterior margin armed by about eight serrations; summit slightly anterior to middle; disc smooth, shining, punctures minute. Elytra 1.8 times as long as wide, 1.5 times as long as pronotum; disc occupying slightly more than basal half; striae not impressed, punctures moderately large, rather deep; interstriae twice as wide as striae, smooth, shining, punctures less than half as large as those of striae, uniseriate. Declivity rather steep, basically convex; punctures of striae 1–3 clearly impressed, small; interstriae 1–3 feebly convex, smooth, shining, 1 and 3 unarmed, 2 armed by a moderately large tubercle near middle of declivity length; ventrolateral margin rounded and armed by a row of three moderately large tubercles on crest, one small tubercle on 4 and two or three smaller ones on 8. Vestiture mostly confined to declivity, consisting of rather coarse interstitial hair, longest setae slightly longer than distance between rows.

Distribution: Panama, "Colombia," Peru, Venezuela.

Colombia: Although cited anciently from Colombia, the type almost certainly came from modern Barinas, Venezuela (Wood & Bright c1992:663), ancient "Colombie" included modern Venezuela.

Peru: Monson Valley, Tingo Maria, 10-XI-1954, E.I. Schlinger, E.S. Ross.

Venezuela: Varinas, Nova Grenada (presumably = Ciudad Barinas).

Biology: Specimens were taken at light.

Notes: The above treatment was based on 1 specimen from Panama, 1 from Peru, and on the "Varinas" holotype of *Xyleborus cuneatus* Eichhoff (see Wood & Bright c1992:3) that was compared directly by me to the specimen from Peru.

Coptoborus solitariformis (Schedl), n. comb.

Coptoborus solitariformis (Schedl), 1976:77 (*Xyleborus*). Holotype ♀; Xingu, Mato Grosso, Brazil; NHMW, Wien (References in Wood & Bright c1992:658)

Diagnosis: Allied to *catulus* (Blandford), distinguished by the stouter body form; by the presence of 6–8 much larger serrations on the anterior margin of the pronotum; declivital interstriae 1 with about six minute denticles.

Female: Length 1.75 mm, 1.6 times as long as wide; color yellowish brown. Frons with a weak transverse impression above epistoma, apparently convex above (upper half concealed by pronotum on type), surface smooth, with a few minute punctures; vestiture of very sparse, short hairlike setae. Pronotum 1.03 times as long as wide; widest on basal half, sides on basal half subparallel, feebly arcuate; rather broadly rounded in front; anterior margin armed by about six to 10 moderately coarse serrations, median pair larger; summit at middle of pronotum length; asperities on anterior slope rather coarse, close, confused; disc mostly smooth, shining, with feeble reticulation at base, punctures minute, sparse; hairlike vestiture very sparse on anterior and lateral margins, a few short setae on disc. Elytra 1.5 times as long as wide, 1.4 times as long as pronotum; disc occupying basal 57 percent of elytra length; striae not impressed, punctures rather small; interstriae smooth, shining, slightly more than twice as wide as striae, punctures very small (very slightly larger than in *catulus*). Declivity rather steep, somewhat narrowly convex; apex of suture (from dorsal aspect) feebly emarginate, apical margin near suture with three basally contiguous serrations; striae 1 and 2 not impressed; interstriae 1 with about three minute tubercles on basal half, 2 with three similar tubercles on upper half, 3 with about six similar tubercles. Vestiture mostly abraded, a few short setae on sides and declivity.

Distribution: Brazil (Mato Grosso): Xingu, Mato Grosso, XI-1961, Alvarenga & Warner.

Notes: The above treatment was based on the female holotype of *Xyleborus solitariformis* Schedl. It is here transferred to the genus *Coptoborus*.

Coptoborus catulus (Blandford)

Plate LXXXIX

Coptoborus catulus (Blandford), 1898:215 (*Xyleborus*). Holotype ♀; Volcan de Chiriqui, Panama; BMNH, London (Synonymy and references in Wood & Bright c1992:663)

Xyleborus intricatus Schedl, 1948:274. Holotype ♀; Santa Catarina, Brazil; NHMW, Wien

Diagnosis: Distinguished from *cuneatus* (Eichhoff) by the more weakly convex declivital interstriae 1 and 3; by the short, distinctly elevated subapical margin of the declivity that includes no denticles from suture to level of striae 2; and by the minute interstitial punctures on the disc.

Female: Length 1.6–1.9 mm, 3.0 times as long as wide; color yellowish brown. Frons essentially as in *vespatorius* (Schedl). Pronotum 1.2 times as long as wide; summit slightly anterior to middle of pronotum length; asperities on anterior slope rather small, numerous, anterior margin unarmed by serrations; disc weakly reticulate, punctures very small; glabrous except for a few hairlike setae at margins. Elytra 1.7 times as long as wide, 1.5 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed, punctures rather small, in rows; interstriae twice as

wide as striae, smooth, shining, punctures less than half as large as those of striae, uniseriate. Declivity rather steep, convex; striae 1 and 2 weakly impressed, punctures in rows, distinctly impressed; interstriae 1 and 3 very weakly convex, 2 almost flat; 1 and 3 each armed by three to four small, pointed tubercles, 2 usually with one or two smaller tubercles on basal third, about six smaller tubercles in lateral areas of each side; subapical margin weakly, subacutely elevated from suture to level of striae 2, its crest with one to three weak serrations, last tubercle on 3 separate from crest. Vestiture consisting of hairlike interstitial setae on sides and declivity, those on declivity slightly stouter; longest setae on declivity almost equal to length to distance between interstitial rows.

Distribution: Panama and Venezuela to Suriname and Brazil.

Brazil: Santa Catarina.

Suriname: Cited in Wood & Bright (c1992:663).

Venezuela: 9 km S Barrancas, Barinas, 5-XI-1969, 150 m, No. 140, *Guasuma ulmifolia*, SLW; 20 km SE El Vigia, Merida, 21-XI-1969, 50 m, No. 144, tree limb, SLW.

Notes: The above treatment was based on four females, 2 from Panama, 2 from Venezuela. The Panama specimens were compared by me directly to the holotype of *Xyleborus catulus* (Blandford).

Coptoborus neosphenos (Schedl)

Coptoborus neosphenos (Schedl), 1976:76 (*Xyleborus*). Holotype ♀; Villena, Rondonia, Brazil; NHMW, Wien (References in Wood & Bright c1992:663)

Diagnosis: Distinguished from *catulus* (Blandford) by the larger, more numerous denticles on declivital interstriae 1–3 from base to apex; and by the very large elevations at the apex of the suture on the subapical margin; and by the numerous, confused, minute interstitial punctures on the basal half of the disc.

Female: Length 1.7–1.8 mm, 3.0 times as long as wide; anterior half yellowish brown, reddish brown behind. Frons essentially as in *vespatorius* (Schedl) but more strongly convex. Pronotum 1.15 times as long as wide; about as in *catulus* except anterior margin more broadly rounded, disc smooth, shining, minute punctures more numerous. Elytra 1.8 times as long as wide, 1.5 times as long as pronotum; striae not impressed, punctures minute, in rows; interstriae four to six times as wide as striae, smooth, shining, punctures minute, half as large as those of striae, rather numerous and confused on basal half, uniseriate toward declivity. Declivity rather steep, weakly convex on central half; striae 1 and 2 weakly impressed except obsolete before apex; interstriae 1–3 weakly convex, each armed from base to apex by a uniseriate row of closely set small tubercles, 4–7 at base armed by sparse rows of transversely broad, rather coarse cusps (acute crenulations), those on 7 continue to subapical margin at suture, sutural cusp larger, higher. Vestiture

mostly confined to declivity, hairlike, moderately long (partly abraded on specimen at hand), somewhat abundant.

Distribution: Brazil: Vilhena, Rondonia, XI-1973, M. Alvarenga (type); Mato Grosso, RS/RGS Expedition, 12°31'S, 51°46'W, 9-XII-1968, E78, R.A. Beaver.

Notes: The above treatment was based on the female holotype, 2 female paratypes, and 1 other female, all from Brazil.

Coptoborus gentilis (Schedl)

Coptoborus gentilis (Schedl), 1972:70 (*Xyleborus*). Holotype ♀; Corcovado, Guanabara, Brazil; NHMW, Wien (References in Wood & Bright c1992:663)

Diagnosis: Distinguished from *neosphenos* (Schedl) and *exutus* (Wood), from Central America, as indicated in the above key.

Female: Length 2.2 mm, 2.8 times as long as wide; color dark reddish brown. Frons broadly convex, apparently reticulate (obscured by host resins), punctures small; vestiture of fine, short hair, mostly on epistomal brush. Pronotum 1.1 times as long as wide; sides on basal half weakly arcuate, rather broadly rounded in front; anterior margin rather coarsely serrate; summit at middle of pronotum length, anterior slope rather coarsely, closely asperate; posterior areas strongly reticulate, punctures minute, sparse. Elytra 1.6 times as long as wide, 1.4 times as long as pronotum; disc occupying basal 60 percent of elytra length; striae not impressed, punctures small, distinct; interstriae about four times as wide as striae, smooth, shining, a few impressed lines, punctures small to minute. Declivity steep, rather narrowly convex; profile of suture rather strongly convex on lower half; striae 1–3 punctured as on disc; interstriae 1–3 each armed by a row of six to ten small pointed tubercles, tubercles almost absent in lateral areas; ventrolateral margin moderately, acutely elevated from suture to apex of interstriae 3, apex of 3 rounded but joining subapical crest. Vestiture of sparse striae hair on declivity, and erect interstitial setae on disc and declivity, length of longest setae 1.5 times greater than distance between rows, shorter on disc.

Distribution: Brazil: Corcovado, Guanabara, X-1969, Alvarenga & Seabra.

Notes: The above treatment was based on the female holotype from Brazil.

Coptoborus puertoricensis Bright

Coptoborus puertoricensis Bright, 2005: p.?. Holotype ♀; 12 mi. E Mayaguez, Puerto Rico; CNCI, Ottawa

Diagnosis: Distinguished from *bellus* Bright by the slightly larger size; by the dull, subreticulate declivity, with punctures on striae 1 and 2 uniseriate from base to apex, interstriae 1–3 each with a row of small tubercles, apex of elytra more broadly rounded, not acuminate.

Female: Length 2.3–2.4 mm, 2.9 times as long as wide; color reddish brown. Frons broadly convex, mostly

rugose-reticulate, punctures sparse, obscure, sparse vestiture mostly on epistoma. Pronotum 1.08 times as long as wide; sides on basal two-thirds weakly arcuate, obtusely angulate in front; anterior margin with a pair of rather small, slender serrations; summit at middle, anterior slope steep, asperities rather coarse, numerous, spaces between asperities mostly reticulate; many setae of moderate length on and near anterior and lateral margins. Elytra 1.7 times as long as wide, 1.4 times as long as pronotum; disc occupying basal 67 percent of elytra length; disc smooth, shining; striae not impressed, punctures rather small, moderately impressed; interstriae three times as wide as striae, interstitial punctures minute, uniseriate on posterior half of elytra length, obscure to obsolete toward base. Declivity broadly convex, rather steep; reticulate; punctures on striae 1 and 2 rather small, as on disc; interstriae 1–3 each armed by a row of about six small pointed tubercles, lower fourth of 3 feebly elevated and joining weak crest from 8 then continuing to suture; dorsal profile of apex much more broadly rounded than in *bellus* and not at all acuminate. Vestiture on sides near declivity longer, erect, on declivity from suture to striae 3 short, semirecumbent.

Distribution: Puerto Rico: 12 mi. E Mayaguez, 9-II-1969, L. & C.W. O'Brien.

Notes: The above treatment was based on 3 female paratypes.

Coptoborus bellus Bright

Coptoborus bellus Bright, 2005: (p. ?). Holotype ♀; 12 mi. E Mayaguez, Puerto Rico; CNCI, Ottawa

Diagnosis: Similar to *puertoricensis* Bright except body slightly smaller, declivity dull, shagreened (not reticulate), punctures on striae 1 and 2 in rows on basal half, confused below, granules minute to obsolete; apex of elytra more narrowly, more strongly subacute.

Female: Length 2.2 mm, 2.8 times as long as wide; color reddish brown. Frons about as in *puertoricensis*. Pronotum 1.08 times as long as wide; sides feebly arcuate on basal two-thirds, obscurely, very obtusely subangulate in front; anterior margin with a median pair of stout serrations; as in *puertoricensis* except disc more nearly rugose-reticulate, with many minute, obscure punctures; vestiture as in *puertoricensis*. Elytra 1.7 times as long as wide, 1.7 times as long as pronotum; disc occupying basal 60 percent of elytra length; disc mostly smooth, shining, many impressed lines, striae punctures minute, shallow, obsolete before base, interstitial punctures not evident. Declivity rather broadly convex, rather steep; apical profile narrowly subacuminate; surface dull, shagreened; striae punctures 1 and 2 small (larger than on disc), shallow, in rows on basal half, confused below; interstriae 1, 3, and 4 each with about three very minute tubercles. Vestiture mostly on sides, almost obsolete on declivity from suture to striae 5.

Distribution: Puerto Rico: 12 mi. E. Mayaguez, Puerto Rico, 9-II-1969, L. & C.W. O'Brien.

Notes: The above treatment was based on 2 female paratypes.

Coptoborus tolimanus (Eggers)

Plate XC

Coptoborus tolimanus (Eggers), 1928:97 (*Xyleborus*). Lectotype ♀; Tolima, Colombia; USNM, Washington (References in Wood & Bright c1992:664)

Diagnosis: Elytra apex, armed at suture by a single large apical cusp, with a row of four or more tubercles continuing from cusp toward apex of interstriae 3; declivital interstriae 1–3 each armed by a row of closely set, pointed tubercles.

Male: Length 1.4 mm, 2.2 times as long as wide; head and pronotum as in male *spicatus* Wood; elytra as in female.

Female: Length 1.8–2.2 mm, 3.1 times as long as wide; color reddish brown. Frons about as in *vespatorius* (Schedl). Pronotum 1.2 times as long as wide; sides almost straight and parallel on basal two-thirds, rather narrowly rounded in front, anterior margin indefinitely subseriate in median area. Elytra 1.7 times as long as wide, 1.4 times as long as pronotum; disc occupying slightly less than basal two-thirds; striae not impressed, punctures small, in rows; interstriae three to four times as wide as striae, smooth, shining, punctures small, two-thirds as large as those of striae, uniseriate. Declivity rather steep, transversely, moderately convex, longitudinally less strongly arched; striae 1 and 2 not impressed, punctures distinctly impressed almost to apex; interstriae 1–3 feebly convex, smooth, shining, each armed by a row of numerous small, pointed tubercles; subapical margin acute, armed by a rather large cusp at suture, one to three smaller cusps connect to tubercles on 3. Vestiture confined to declivity, some on sides, consisting of minute striae hair and rows of longer interstitial setae, longest setae equal in length to one and one-half times distance between rows.

Distribution: Costa Rica and Panama to Colombia, Venezuela, and Brazil.

Brazil: Cepec, Ilheus, Bahia, 1966–1968, at light, Kaston; Agudos, *Duraflora*, Sao Paulo, 20-III-1984, ethanol trap, *Pinus c. caribaca* stand, C.A.H. Flechtmann.

Colombia: Ibaque, Tolima, *Theobroma cacao*, H/6, L.M. Murillo; Punto Tajada, Valle de Cauca, 1-XII-1955, cacao, M. Benevides; Los Mangos, Palermo, Huila, 30-IV-1959, cacao, B. Herrera; Merida, San Vicente, Santander Sur, 26-VI-1959, cacao, J. Bentacourt.

Venezuela: 3 km NE Creole, Barinas, 18-XII-1969, 150 m, No. 203, *Inga*, SLW; 17 km SE Miri, Barinas, 17-XII-1969, 150 m, No. 199, *Bombacopsis quintata*, SLW.

Hosts: *Bombacopsis quintata*, *Gutteria* sp., *Inga* sp., *Protium* sp., *Theobroma cacao*.

Biology: Boring in wood of limbs and branches.

Notes: The above treatment was based on 16 specimens from Central America, 8 from Brazil, and 4 from Colombia. One female was compared by me directly to the holotype of *Xyleborus tolimanus* Eggers.

Coptoborus inornatus Wood, n.sp.

Coptoborus inornatus Wood: Holotype ♀; Sao Nicolau Farm, Cotriguacu, Mato Grosso, Brazil; MZUSP, Sao Paulo, designated below.

Diagnosis: Distinguished from *carumbensis* Wood and *attenuatus* Wood by the slightly larger size and stouter body form; by the smaller, less numerous interstitial tubercles on the elytral declivity; and by the absence of tubercles on the raised attenuate part of the elytral apex.

Female: Length 1.8 mm, 2.8 times as long as wide; color yellowish brown, becoming reddish brown toward declivity. Frons rather strongly convex; surface somewhat reticulate below upper level of eyes, rugose-reticulate or minutely granular above; lower area above epistoma with more than a dozen confused, minute tubercles, glabrous above, with many hairlike setae on and near epistoma; both antennal clubs missing on type. Pronotum 1.12 times as long as wide; sides feebly arcuate and subparallel on basal two-thirds, rather narrowly arcuate in front; anterior margin armed by four weak serrations on median area; summit slightly behind middle of pronotum length; anterior slope steep, asperities rather coarse, close, confused; posterior areas mostly shining, weakly reticulate toward base; moderately long, hairlike setae on sides and asperate area. Elytra 1.6 times as long as wide, 1.4 times as long as pronotum; disc occupying about 60 percent of elytra length; disc smooth, shining; striae not impressed, punctures small; interstriae two to three times as wide as striae, punctures uniseriate, half as large as those of striae. Declivity narrowly, transversely arched; weakly arched longitudinally; mostly with sculpture as on disc on interstriae 1–3 except each with several minute tubercles of irregular size; interstriae 9 feebly elevated (type with glue and resin on left elytron, also visible on right elytron) and extending to a weakly flared attenuation at apex; this attenuation unarmed by tubercles. Vestiture mostly on or near declivity; a few minute striae setae present; longer, conspicuous hairlike setae in rows on interstriae, longest setae about 1.5 times as long as distance between rows.

Distribution: Brazil (Mato Grosso).

Type material: The female holotype was taken at Sao Nicolau Farm, Cotriguacu, Mato Grosso, Brazil, VI-2002, ethanol trap in rain forest, O. Peres Filo; 10 paratypes are from Aracruz, Espirito Santo, Brazil, 18-XI-1992, 4926. The holotype and 7 paratypes are in the Museum de Zoologie, Universidade de Sao Paulo, Sao Paulo. Three paratypes are in the U.S. National Museum, Washington.

Brazil (non-types): Aracruz, Espirito Santo, 5-I-1981, No. 2051 (2 specimens).

Coptoborus carumbensis Wood, n. sp.

Coptoborus carumbensis Wood: Holotype ♀; Carumba, San Pedro, Paraguay; USNM, Washington, designated below

Diagnosis: Apex of elytra moderately attenuate, bearing on its dorsal and lateral surfaces of attenuate process

six to eight confused tubercles; body rather stout for this genus.

Female: Length 2.2 mm, 2.5 times as long as wide; color reddish brown. Frons about as in *vespatorius* (Schedl). Pronotum 1.02 times as long as wide; summit at or slightly behind middle; sides weakly arcuate on basal two-thirds, anterior margin broadly rounded and armed by two median serrations; asperities rather coarse, numerous; disc moderately reticulate, punctures rather small. Elytra 1.6 times as long as wide, 1.5 times as long as pronotum; disc occupying basal half; striae not impressed, punctures very small, in rows; interstriae about four times as wide as striae, smooth, shining, punctures two-thirds as large as those of striae, partly confused on 2 and 3, uniseriate elsewhere. Declivity rather steep, convex, apex moderately produced on median third; striae 1–3 distinctly impressed, punctures distinctly impressed; interstriae weakly convex, shining, not smooth, 1–6 each armed by a uniseriate row of rather closely set, pointed tubercles from base to base of apical process; apical process moderately produced, armed on dorsal and lateral surfaces by eight or more confused, pointed tubercles. Vestiture confined to declivity, sparse, very short, consisting of minute striae hair, interstitial setae including some equally short hair and sparse erect scales, some scales about three times as long as wide.

Distribution: Paraguay.

Type material: The female holotype was taken at Carumbe, San Pedro, Paraguay, I-1971, R. Golbach. The holotype is in the U.S. National Museum, Washington.

Brazil (non-type): Aracruz, Espirito Santo, 18-V-1984, also 19-X-1995, No. 7274.

Coptoborus attenuatus Wood, n. sp.

Coptoborus attenuatus Wood: Holotype ♀; Mato Grosso, Brazil; BMNH, London, designated below

Diagnosis: Distinguished from *carumbensis* Wood by the acutely attenuate apex of the elytra that bears numerous, confused tubercles; by the greatly reduced declivital tubercles; and by the expanded summit of the pronotum.

Female: Length 2.0 mm, 2.5 times as long as wide; color brown. Frons about as in *vespatorius* (Schedl). Pronotum 1.1 times as long as wide; summit conspicuous, well behind middle; sides straight and parallel on basal two-thirds, broadly rounded in front, anterior margin armed by two median serrations; disc strongly reticulate, punctures minute in median area, moderately large laterally. Elytra 1.5 times as long as wide, 1.3 times as long as pronotum; disc occupying basal 40 percent of elytra length; striae not impressed, punctures small, in rows; interstriae about three times as wide as striae, smooth, shining, punctures almost two-thirds as large as those of striae, uniseriate except very slightly confused on 2. Declivity convex on basal half, lower half on median

half strongly, acutely attenuate; striae continued to base of attenuate extension, interstriae of this area as on disc except punctures replaced by minute tubercles; attenuation at its apex as wide as interstriae 1, its apex armed by about three moderately large cusps, dorsal and lateral faces of attenuate area armed by many small, confused tubercles; interstriae 8 moderately elevated from base of declivity to base of attenuate area, its surface smooth, unarmed. Vestiture of very small striae hair and rows of longer interstitial setae; interstitial setae on disc about one and one-half times as long as distance between rows, those on declivity shorter, about two-thirds as long as distance between rows.

Distribution: Brazil (Mato Grosso).

Type material: The female holotype was taken at Mato Grosso, RS/RGS Expedition 12°31'S, 51°46'W, 13-XI-1968, C76, R.A. Beaver. The holotype is in the British Museum, Natural History, London.

Coptoborus cracens Wood, n. sp.

Coptoborus cracens Wood: Holotype ♀; Anacruz, Espirito Santo, Brazil; MZUSP, Sao Paulo, designated below

Diagnosis: Distinguished from *attenuatus* Wood by the smaller body size; by the more slender body form; by the absence of cusps or tubercles on the tip of the elytral apex; and by the near absence of punctures on the basal third of the elytra disc.

Female: Length 1.8 mm, 3.0 times as long as wide; color yellowish brown. Frons broadly convex eye to eye, weakly convex from epistoma to vertex, surface minutely rugose-reticulate, becoming somewhat reticulate near epistoma, punctures obsolete, epistoma smooth, shining; glabrous except for sparse epistomal brush; antennal club longer than scape, subcircular in outline, corneous area occupying slightly less than basal half. Pronotum 1.1 times as long as wide; sides almost straight and parallel on basal half, somewhat broadly rounded in front; about 4 feeble serrations on anterior margin; summit at middle of pronotum length; anterior slope steep, asperities very small, close, confused; posterior areas weakly rugose-reticulate, punctures obsolete. Elytra 1.9 times as long as wide, 1.6 times as long as pronotum disc occupying basal 50 percent of elytra length; disc smooth, shining, striae punctures very small, shallow behind, obsolete on basal fourth, interstitial punctures obsolete except near base of declivity. Declivity gradual, profile of suture weakly convex; striae punctures 1–3 small, weakly impressed, confused; sutural interstriae with two to four minute tubercles, 2 with tubercles almost obsolete, 3 with about three minute tubercles, lowest one slightly larger and positioned three-fourths declivity length from base, two or three minute tubercles laterad from interstriae 3, none on very narrow unarmed apex. Sparse setae on odd-numbered interstriae of declivity, continued on and near costal margin to base of elytra.

Distribution: Brazil (Espirito Santo).

Type material: The female holotype and 2 female paratypes were taken at Aracruz, Espirito Santo, Brazil, the holotype 6-V-1993, No. 5164, the paratype 11-IX-1995, No. 7323. The holotype is in the Museum de Zoologie, Universidade de Sao Paulo, Sao Paulo. The paratype is in the U.S. National Museum, Washington.

Coptoborus gracilens Wood, n. sp.

Coptoborus gracilens Wood: Holotype ♀; Aracruz, Espirito Santo, Brazil; MZUSP, Sao Paulo, designated below

Diagnosis: Distinguished from *cracens* Wood by the larger body size; by the more slender body form; and by the clearly impressed stria and interstitial punctures on the basal fourth of the elytral disc.

Female: Length 2.2–2.5 mm, 2.8 times as long as wide; color reddish brown. Frons and antennae as in *cracens* except antennal scape slightly longer than club. Pronotum 1.1 times as long as wide, as in *cracens* except asperities on anterior slope distinctly larger and punctures on disc minute but visible. Elytra 2.2 times as long as wide, 1.7 times as long as pronotum; disc occupying 44 percent of elytra length; disc smooth, brightly shining, small stria punctures and minute interstitial punctures clearly impressed from base of disc to near apex of declivity on striae 1 and 2; interstriae 1 and 2 each armed by about five minute tubercles, 3 armed by about three small tubercles, one of these slightly larger. Vestiture of sparse, minute stria setae, and moderately long, erect interstitial setae on all interstriae from base of disc to apex of declivity.

Distribution: Brazil (Espirito Santo).

Type material: The female holotype and 1 female paratype were taken at Aracruz, Espirito Santo, Brazil, 6-V-1993, No. 5179, moth scales suggest that they were taken at light; 1 female paratype was taken at the type locality 22-V-1995, No. 6744, also at light. The holotype is in the Museum de Zoologie, Universidade de Sao

Paulo, Sao Paulo, the paratype in in the U.S. National Museum, Washington.

Species Not Seen

Coptoborus artetenius (Schedl)

Coptoborus artetenius (Schedl), 1973:372 (*Xyleborus*). Holotype ♀; Guayaramerin, Beni, Bolivia; NHMB, Budapest (References in Wood & Bright c1992:662), actually in MZUSP, Sao Paulo

GENUS *AMBROSIODMUS* HOPKINS

Ambrosiodmus Hopkins, 1915:55. Type-species: *Xyleborus tachygraphus* Zimmermann, original designation (Synonymy and references in Wood & Bright c1992:670)

Phloeotrogus Motschulsky, 1863:512. Type-species: *Phloeotrogus obliquecaudata* Motschulsky, subsequent designation by Hopkins 1914: 127, name rejected by Plenary Powers in ICZN 1979:151

Brownia Nunberg, 1963:37. Type-species: *Xyleborus illepidus* Schedl = *Pityophthorus obliquus* LeConte, original designation

Diagnosis: Antennal club segment 2 on anterior face usually conspicuous, often rather large, apical margin of segment 1 on both faces rounded (often obscure on anterior face); procoxae contiguous, intercoxal piece longitudinally emarginate, its posterior element never inflated or armed.

Description: Female length 1.9–4.2 mm, mostly rather stout; color reddish brown to almost black. Antennal club segment 2 rather large, apical margin of segments 1 and 2 rounded (crest not acute), suture 2 usually present but obscure on posterior face. Pronotum with asperities of anterior slope continued to or near basal margin in the American species, anterior margin never armed by a definite row of serrations. Elytra striate; declivity rather steep, convex to moderately sulcate. Protibia armed by 7–8 socketed denticles on lateral margin, metatibia by 8–11 denticles.

Distribution: Wood & Bright (c1992:670–681) list 93 species worldwide, of which 10 occur in South America.

Key to the Species of *Ambrosiodmus*

- 1. Antennal club large, longer than scape, 2 sutures visible on posterior face; summit of pronotum at or anterior to middle of pronotum length, anterior slope steeper; elytral declivity slightly impressed on interstriae 2, with 2 either unarmed or granules smaller than on 1 or 3; smaller species 2
- Antennal club smaller, shorter than scape, only one suture visible on posterior face; summit behind middle of pronotum length, profile more evenly arched from base, anterior slope less abrupt; elytral declivity impressed or not, interstriae 2 with tubercles as large or larger than those of 1 or 3; larger species 4
- 2(1). Strial and interstitial punctures on disc rather coarse, deeply impressed; declivital interstriae 1 not elevated and without any tubercles; discal interstriae twice as wide as striae; USA (Florida) to Puerto Rico; 1.8–2.1 mm *devexulus* (Wood)
- Strial and interstitial punctures on disc weakly impressed, interstriae on disc three to four times as wide as striae; declivital interstriae 1 weakly elevated and armed by a row of small tubercles ... 3

SCOLYTIDAE OF SOUTH AMERICA

- 3(2). Declivital interstriae 2 flat, smooth, punctures minute, not at all granulate (one or two granules at base sometimes present); striae setae mostly obsolete, interstitial setae uniseriate, shorter; color almost black; Costa Rica; 1.8–1.9 mm *paucus* Wood
- Declivital interstriae 2 usually irregular; punctures replaced by small to minute tubercles (smaller than on 1 or 3); short striae setae usually present; interstitial setae confused on disc, almost uniseriate on declivity, mostly as long or slightly longer than distance between rows; color reddish brown; E USA to Mexico (Veracruz) and Antilles Islands to Colombia and Brazil; 2.0–2.4 mm *obliquus* (LeConte)
- 4(1). Declivital interstriae more evenly convex, 1–3 each armed by a row of regularly placed tubercles from near base to near apex 5
- Declivity often impressed in median area, tubercles usually absent on 1, tubercles in lateral areas sparse, usually not in regular rows 12
- 5(4). Ventrolateral margin of elytral declivity broadly rounded, with no indication of an elevated costa; rugosities on basal third of pronotum present but very weakly developed; pronotum longer than wide; Costa Rica to Suriname; 4.0–4.3 mm *scalaris* (Schedl)
- Ventrolateral margin of declivity narrowly rounded, its summit subacutely costate from apex of suture to interstriae 7; rugosities on basal third of pronotum rather well developed; pronotum wider than long 6
- 6(5). Interstitial punctures on disc fine, shallow, interstriae three to four times as wide as striae; elytral declivity shallowly bisulcate, punctures fine, fine granules on basal half only; El Salvador; *Quercus*; 2.7 mm *devexus* (Schedl)
- Interstitial punctures on disc rather coarse, deep, interstriae two to four times as wide as striae; declivital punctures larger, granules larger and more generally distributed 7
- 7(6). Discal interstriae 2 with tubercles in a uniseriate row; body color reddish brown; Asia to Australia, introduced into E USA, Mexico (Veracruz), and Colombia; 2.4–2.6 mm *rubricollis* (Eichhoff)
- Discal interstriae 2 with punctures or tubercles strongly confused; body color almost black 8
- 8(7). Strial punctures on disc and declivity each containing a small tubercle within floor of puncture; Colombia; 3.5–3.6 mm *ocellatus* (Wood)
- Strial punctures normal, their interiors either smooth or partly reticulate (never with a tubercle) 9
- 9(8). Interstitial punctures on disc small, clearly indicated, each accompanied on its margin by a small tubercle; body rather stout, 2.0 times as long as wide; Venezuela; *Quercus*; 2.7 mm *alexae* Wood
- Discal interstriae rather coarsely punctured, punctures not accompanied by a tubercle; body 2.45 times as long as wide 10
- 10(9). Elytral declivity less strongly convex, not as steep on lower half; punctures of declivital striae 1–3 larger, twice as large as those on disc; declivital interstriae 1–3 with tubercles averaging larger; ventrolateral margin of declivity more strongly, more acutely elevated; Mexico (Durango) to El Salvador; 3.5–3.7 mm *rusticus* Wood
- Elytral declivity steeper, more strongly convex on lower half, declivital striae 1 and 3 with punctures smaller, about equal in size to those on disc; declivital interstriae 1–3 with tubercles averaging distinctly smaller; ventrolateral margin of declivity less strongly, less acutely elevated 11

- 11(10). Surface of frons smooth, shining between punctures; punctures on basal third of discal interstriae 3 with central row of punctures armed on their anterior margin by a minute tubercle; declivital interstriae 1–3 each armed by a row of 10–20 small, closely set tubercles; Brazil (Sao Paulo); 3.5 mm *pardous* (Eggers)
- Surface of frons reticulate between punctures; punctures on basal third of interstriae 2 on disc (apparently) without a tubercle on their anterior margin; declivital interstriae 1–3 with tubercles larger, not as close, each armed by 6–10 tubercles; Brazil; 3.5 mm *funbris* (Schedl)
- 12(4). Elytral declivity broadly convex, shallowly impressed on interstriae 2, with 1–3 sometimes with a row of very fine granules, without any denticles; Mexico (Veracruz) to Honduras; Quercus; 2.6–2.8 mm *ferus* Wood
- Elytral declivity with interstriae 1 feebly to moderately impressed, 2 armed by two or more denticles of moderate or larger size 13
- 13(12). Discal interstriae 2 and 3 with punctures uniseriate to base; smaller species 14
- Discal interstriae 2 (and usually 3) with punctures strongly confused; larger species 16
- 14(13). Declivital interstriae 1 feebly or not at all impressed, striae 1 rather coarsely punctured, interstriae 1 moderately rugose; body 2.3 times as long as wide; USA (Florida) and Brazil (Bahia, Espirito Santo); 2.5–2.9 mm *opimus* (Wood)
- Declivital interstriae 1 more distinctly, moderately impressed, punctures on striae 1 either small or rather large; body more slender, at least 2.5 times as long as wide 15
- 15(14). Strial punctures on disc small, interstriae three to four times as wide as striae; declivital striae 1 with punctures small, those on interstriae 1 mostly obsolete; Mexico (Veracruz) to Colombia and Venezuela to Brazil; 2.5–3.0 mm *hagedorni* (Iglesias)
- Strial punctures on disc coarse at base, very coarse near declivity, interstriae less than twice as wide as striae; punctures on declivital striae 1 coarse, deeply impressed, interstriae 1 almost smooth, its punctures small; USA (Florida, Louisiana) and Bahama Islands to Puerto Rico; 2.7–3.0 mm *lecontei* Hopkins
- 16(13). Strial punctures on disc of moderate size, very shallowly impressed, interstitial punctures minute (less than one-fifth as large as a strial puncture); declivital impression not as deep, denticles slightly smaller; mature color almost black; E USA; 3.4–3.7 mm *tachygraphus* (Zimmermann)
- Strial punctures on disc much deeper, slightly larger, interstitial punctures about one-third as large as those of striae; declivital impression slightly deeper; color reddish brown 17
- 17(16). Discal interstriae 2 and 3 with punctures moderately confused, 4 and 5 with punctures uniseriate; declivital interstriae 1 with a row of small tubercles from base to near apex; Mexico (Veracruz) to Colombia; Quercus; 3.6–3.8 mm *coffeicus* (Schedl)
- Discal interstriae 2–5 with punctures strongly confused; declivital interstriae 1 with one small tubercle near base, smooth or with transverse lines (associated with punctures) to apex; Mexico (Puebla) to Guatemala; Quercus; 4.5–4.6 mm *rugicollis* (Blandford)

Ambrosiodmus scalaris (Schedl)

Plate XCV

Ambrosiodmus scalaris (Schedl), 1935:95 (*Xyleborus*). Holotype ♀; Turrialba, Costa Rica; NHMW, Wien (References in Wood & Bright c1992:680)

Diagnosis: Distinguished from *devexus* (Schedl) and *rubricollis* (Eichhoff) by the broadly rounded ventrolateral margin of the declivity (no indication of a costa); by the weak, poorly developed rugosities on the basal third of the pronotum; and by the pronotum being longer than wide.

Female: Length 3.9–4.3 mm, 2.5 times as long as wide; color reddish brown. Frons broadly convex; reticulate; sparse, small, obscure punctures uniformly distributed; sparse, short setae on epistomal margin. Pronotum 1.1 times as long as wide; sides weakly arcuate on basal two-thirds, rather narrowly rounded in front; anterior margin unarmed; summit well behind middle of pronotum length; anterior slope closely, coarsely asperate; posterior third weakly reticulate, punctures mostly replaced by weak asperities to base; lateral fourths and anterior margin with moderately abundant, rather long setae. Elytra 1.5 times as long as wide, 1.4 times as long as pronotum; disc occupying basal 80 percent of elytra length; disc smooth, shining; striae feebly impressed, punctures very small, in rows; interstriae about three to four times as wide as striae, punctures half to two-thirds as large as those of striae, uniseriate except confused on interstriae 2–3. Declivity broadly, evenly convex, very steep; striae not impressed, punctures on 1–3 twice as large as those on disc; interstriae 1 to about 7 each with a uniseriate row of up to 12 or more very small tubercles. Vestiture of moderately abundant hair from base to apex, those on declivital interstriae 1–3 in rows.

Distribution: Costa Rica to Suriname.

Costa Rica: Moravia, Cartago, 11-III-1964, log, SLW; Turrialba, Cartago; La Selva, Heredia, at light.

Suriname: Zanderij I. Boven, Para D, 24-IV-1927.

Notes: The above treatment was based on my female homotype from Moravia. The female holotype and 1 female from La Selva, and 1 from Suriname were also examined.

Ambrosiodmus obliquus (LeConte)

Plate XCIII

? *Xyleborus dichrous* Eichhoff, 1868:331–332. Holotype ♀; America meridionalis, Brazil; presumed synonymy, type lost with loss of Hamburg Museum (References in Wood & Bright c1992:724)

Ambrosiodmus obliquus (LeConte), 1878:432 (*Pityophthorus*). Holotype ♀; Enterprise, Florida; MCZ, Cambridge (Synonymy and references in Wood & Bright c1992:677–678)

Xyleborus gilvipes Blandford, 1898:205. Holotype ♀; Zapote, Guatemala; BMNH, London

Ambrosiodmus linderiae Hopkins, 1915:56. Holotype ♀; Rosslyn, Virginia, USA; USNM, Washington

Xyleborus brasiliensis Eggers, 1928:96. Lectotype ♀; Blumenau, Santa Catarina, Brazil; USNM, Washington, designated by Anderson & Anderson 1971:7

Xyleborus mexicanus Eggers, 1931:19. Holotype ♀; Maravatio [presumably Michoacan, Mexico]; MNB, Berlin

Xyleborus pseudobrasiliensis Eggers, 1941:101. Holotype ♀; Courbeyre, Guadeloupe Island; NHMW, Wien

Xyleborus illepidus Schedl, 1941:402. Holotype ♀; Deutsch-Ostafrika; NHMW, Wien

Xyleborus melanarius Schedl, 1978:307. Holotype ♀; Nova Teutonia, Santa Catarina, Brazil, 300–500 m; NHMW, Wien

Diagnosis: Distinguished from *paucus* Wood by the presence of small to minute tubercles on declivital interstriae 2; and by the confused interstitial setae on the disc.

Male: Length 1.3–1.4 mm, 1.7 times as long as wide. Head reduced and mostly hidden by pronotum on my male, lower frons convex. Pronotum 0.72 times as long as wide; dorsal profile almost straight, weakly arched; surface mostly reticulate, central two-thirds with small, rather numerous asperities. Elytra 0.88 times as long as wide; dorsal profile strongly arched from base, very steep behind; surfaces shining, irregular in sculpture; striae punctures minute, partly in poorly defined rows; interstitial punctures poorly defined, small, confused; ventrolateral margin of declivity broadly rounded (not at all carinate); vestiture rather sparse, of fine, moderately long hair; confused.

Female: Length 2.0–2.4 mm, 2.4 times as long as wide; color dark reddish brown. Frons broadly convex, weakly reticulate, punctures moderately abundant, rather small; vestiture of fine, rather long hair, sparse above, more numerous below; antennal club large for this genus, longer than scape. Pronotum 1.0 times as long as wide; sides weakly arcuate, subparallel on basal two-thirds, broadly rounded in front, anterior margin unarmed; summit at middle of pronotum length, coarsely, closely asperate on anterior slope, slightly lower crenulations continue to base. Elytra 1.4 times as long as wide, 1.6 times as long as pronotum; striae not impressed, punctures small, in rows; interstriae about three times as wide as striae, smooth, shining, punctures confused near suture and declivity, often uniseriate, an indefinite central row on each often weakly granulate to anterior margin. Declivity broadly convex, steep, confined to posterior third of elytral length; striae punctures more strongly impressed than on disc to near apex; interstriae 1 weakly elevated, armed by a row of about eight pointed tubercles, 2 shallowly impressed, unarmed or with sparse minute granules; 3 as high as 1 and similarly armed; subapical ventrolateral margin costate, subacutely elevated from suture to 7 at base of declivity. Vestiture of rather short striae hair and longer interstitial hair, most interstitial setae slightly longer than distance between rows, on declivity a few setae twice this length.

Distribution: E USA, Mexico (Veracruz), and Antilles Islands to Colombia and Brazil, introduced into or endemic in tropical Africa.

Brazil: Aracruz, Espirito Santo, 30-V-1980, No. 2038, at light; Telemaco Borba, Parana, 9-XI-1999-28-XIII-2003, baited funnel trap, *Pinus taeda* stand, C.A.H. Flechtmann; Blumenau, Santa Catarina; Nova Teutonia, Santa Catarina; Agudos, Duraflora, Sao Paulo, 15-IV-

1984, ethanol trap, *Pinus c. durensis* stand, C.A.H. Flechtmann; Tres Logoas, 12-VII-1993, *Eucalyptus grandis* bole, C.A.H. Flechtmann.

Colombia: El Bosque, Caicedonia, Valle de Cauca, VI-1959, en guamo seco, #10; La Cuchilla, Seville, Valle de Cauca, 9-VI-1959, cafe, J.H. Lasso; Palogrande, Caicedonia, Valle de Cauca, VI-1959, cafe, J. Restrepo; Chinchina, Caldas, 20-V-1959, cafe, J. Prieto; Manzanillo, Flandes, Sevilla, Valle de Cauca, 4-V-1959, guamo, M. Gomez; Finca La Belleza, Topdipi, Cund., 29-IV-1959, A. Diaz; Guiche, Siberia, Caldona, Valle de Cauca, 8-V-1959, cafe, C.M. Sanchez.

Hosts: *Acacia* sp., *Albizia* spp., *Betula* sp., *Carya* spp., *Castania dentata*, *Celtis* spp., *Cinchona* sp., *Citrus* sp., *Coffea* sp., *Croton* sp., *Entandrophragma* sp., *Grevillea* sp., *Hoshindia* sp., *Lindera* sp., *Persea* sp., *Strombosia* sp.

Biology: Boring in wood of limbs and small stumps.

Notes: The above treatment was based on 7 specimens from the USA, 3 from Africa, several from Brazil, and 35 (12 males, 23 females) from Colombia. One female was compared directly by me to the holotype of *Xyleborus illepidus* Schedl, *X. gilvipes* Blandford, *X. brasiliensis* Eggers, and *X. pseudobrasiliensis* Eggers.

Eichhoff (1868:145) named *Xyleborus dichrous* (long. $1\frac{2}{3}$ lin = 2.4 mm) from Brazil. The description is very brief and gave no comparative notes to related species. Eichhoff (1878:331–332) later cited this species in his description of *X. rubricollis*, from Japan, and his re-description of *dichrous*. From these descriptions it is apparent that *dichrous* belongs to the *Ambrosiodmus* and it resembles *rubricollis*. Because the type of *dichrous* was lost in 1944, it is now impossible to determine whether it is a senior synonym of *rubricollis* (known from Brazil in oral reports), *obliquus* LeConte (first reported from Brazil in 1928), or some other species. It is listed above under *obliquus* to call attention to its existence, not to suggest synonymy.

Ambrosiodmus rubricollis (Eichhoff)

Plate XCIV

Ambrosiodmus rubricollis (Eichhoff), 1875:202 (*Xyleborus*). Holotype ♀; Japan; IRSNB, Brussels (Synonymy and references in Wood & Bright c1992:679)

Xyleborus taboensis Schedl, 1952:65. Holotype ♀; Formosa, Tacho (Rato); NHMW, Wien

Xyleborus strohmeyeri Schedl, 1975:457. Holotype ♀; S'ghai (South India); NHMW, Wien

Diagnosis: Distinguished from *obliquus* (LeConte) by the smaller antennal club that is not longer than the scape; by the uniseriate tubercles on declivital interstriae 2; and by the reddish brown color.

Male: Length 1.6–1.8 mm, 2.1 times as long as wide. Head similar to *obliquus*. Pronotum 1.0 times as long as wide, dorsal profile strongly arched from base to anterior margin; a few feeble crenulations and punctures indicated but very poorly formed; surface irregularly reticulate; vestiture hairlike. Elytra 1.3 times as long as wide, 1.4 times as long as pronotum; somewhat resembling

female except ventrolateral margin of declivity broadly rounded.

Female: Length 2.4–2.6 mm, 2.3 times as long as wide; color dark reddish brown. Head resembling *obliquus*, except antennal club small, shorter than scape, club segment 2 greatly atrophied. Pronotum resembling *obliquus* except asperities slightly larger. Elytra 1.5 times as long as wide, 1.7 times as long as pronotum; striae not impressed, punctures rather coarse, deep, in rows; interstriae slightly more than twice as wide as striae, smooth, shining, punctures half as large as those of striae, mostly uniseriate. Declivity occupying posterior third of elytral length, very broadly convex, steep; striae 1–3 distinctly impressed, punctures slightly larger than on disc, deep; sutural interstriae weakly elevated, 2 very weakly impressed, 1–3 each equally armed by a row of 10–12 pointed tubercles of moderate size; ventrolateral margin from suture to 7 subacutely elevated, crest of elevation moderately serrate. Vestiture of fine hair about as in *obliquus*.

Distribution: E Asia to Australia, introduced into E USA, Mexico (Veracruz), and apparently Colombia.

Colombia: Oral report, not confirmed (possible error for *obliquus*).

Hosts: *Acacia* sp., *Carya* sp., *Castania* sp., *Cornus* sp., *Ilex* sp., *Hovea* sp., *Juglans nigra*, *Morus alba*, *Prunus* sp., *Quercus* sp., *Rhus* sp., *Terminalia myriocarpa*.

Biology: Boring in wood of limbs larger than 5 cm in diameter and stumps to 30 cm in diameter.

Notes: The above treatment was based on more than 30 specimens from Japan, and 9 males and 15 females from the USA. Specimens were compared to those of Nobuchi, Schedl, and the BMNH, London.

Ambrosiodmus ocellatus (Wood)

Ambrosiodmus ocellatus (Wood), 1974:36 (*Xyleborus*). Holotype ♀; 10 km NE Teziutlan, Puebla, Mexico; USNM, Washington (References in Wood & Bright c1992:680)

Diagnosis: Distinguished by the occurrence of a small tubercle within the floor of each striae puncture on the disc and declivity (giving the appearance of a vertebrate eye).

Female: Length 3.5–3.6 mm, 2.5 times as long as wide; color almost black. Frons broadly convex, epistoma weakly elevated, surface subshining, irregularly reticulate, coarsely, closely, deeply punctured from epistoma to above upper level of eyes, a weakly elevated obtuse median crest on upper half; sparse vestiture mostly on epistomal margin. Pronotum 1.0 times as long as wide; resembling *rubricollis* (Eichhoff) except anterior margin much more broadly rounded, asperities coarser to base. Elytra 1.6 times as long as wide, 1.6 times as long as pronotum; striae 1 and 2 weakly, others not impressed, punctures rather small, moderately impressed, centers of most punctures on disc and all of declivity with a small, rounded tubercle (giving vague impression of a

vertebrate eye); interstriae slightly more than three times as wide as striae, smooth, shining, punctures half as large as those of striae, many with anterior margin tuberculate, all confused. Declivity occupying almost posterior third of elytra length, broadly convex, very steep; striae 1 feebly, others not impressed; interstriae 1 feebly, others not elevated, each armed by a row of about 10–12 pointed tubercles, largest tubercles on basal half, mostly obsolete before apex; ventrolateral margin subacutely elevated from suture to interstriae 7, its crest subserrate. Vestiture mostly on sides and declivity, of fine, long strial and interstitial hair, longest setae up to three times as long as distance between obscure rows.

Distribution: Colombia: Piedras Blancas 10 km E Medellin, Antioquia, 15-VII-1970, 2500 m, No. 675, unidentified log, SLW.

Biology: Boring in the wood of a small log 15–20 cm in diameter.

Notes: The above treatment was based on the type series of 5 specimens.

Ambrosiodmus alexae Wood, n. sp.

Ambrosiodmus alexae Wood: Holotype ♀; Campamento Rio Grande 30 km E Palmar, Bolivar, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *rusticus* Wood by the clearly impressed punctures on the discal interstriae, each puncture accompanied by a small tubercle on margin of puncture; and by the smaller, stouter body form.

Female: Length 2.7 mm, 2.1 times as long as wide; color very dark reddish brown. Frons about as in *ocellatus* Wood. Pronotum 0.90 times as long as wide; about as in *rusticus* except asperities and crenulations slightly coarser. Elytra 1.3 times as long as wide, 1.5 times as long as pronotum; striae not impressed, punctures rather large, shallow, distinct; interstriae slightly more than twice as wide as striae, smooth, shining, punctures almost entirely replaced by small tubercles, in uniseriate rows on 1 and 3, confused on 2 and basal area of 4. Declivity very broadly convex, very steep, profile of posterior outline very broadly rounded; striae 1 and 2 feebly impressed, punctures distinctly larger than on disc, some of them with an internal elevation as in *ocellatus*; interstriae 1 to 3 as wide as striae, shining, very weakly convex and each armed by a row of about 12 moderately small, pointed tubercles; ventrolateral margin very acutely, moderately elevated from suture to interstriae 7 at base of declivity, its crest almost uniform, undulating slightly. Vestiture of fine hair, strial setae shorter, a few almost as long as distance between rows; and longer interstitial setae, some distinctly longer than distance between rows, from base to apex, slightly longer on declivity.

Distribution: Venezuela (Bolivar).

Type material: The female holotype was taken at Campamento Rio Grande 30 km E Palmar, Bolivar, Venezuela, 12-VI-1970, 200 m, No. 549, *Alexa impera-*

tricia, SLW. The holotype is in the U.S. National Museum, Washington.

Ambrosiodmus funebris (Schedl)

Ambrosiodmus funebris (Schedl), 1976:73 (*Xyleborus*). Holotype ♀; Brazil; NHMW, Wien (References in Wood & Bright c1992:674)

Diagnosis: Distinguished from *rusticus* Wood by the more strongly convex lower elytral declivity; by the smaller punctures of the declivital striae; and by the coarser tubercles on declivital interstriae 1–5.

Female: Length 3.5 mm, 2.6 times as long as wide; color black. Frons strongly convex above upper level of eyes, moderately impressed on median area below; surface reticulate, rather coarsely, closely punctured from epistoma to near vertex; vestiture hairlike, mostly on epistomal margin. Pronotum 1.0 times as long as wide; widest on basal two-fifths, broadly rounded in front; summit at middle, closely, coarsely asperate from anterior margin to base, asperities slightly smaller on basal half; spaces between asperities reticulate; vestiture of rather sparse, moderately long hair. Elytra 1.3 times as long as wide, 1.4 times as long as pronotum; disc occupying more than basal 60 percent of elytra length; striae 1 feebly, others not impressed, punctures small, rather deep; interstriae about four times as wide as striae, surface shining, somewhat irregular, punctures about two-thirds as large as those of striae, mostly uniseriate on 1 and 3, mostly confused on 2 and 4. Declivity very steep, broadly convex; striae about as on disc (of equal size), surface smooth, shining, 1–3 each armed by a row of six to ten small pointed tubercles (larger than in *rusticus*); ventrolateral margin subacutely elevated (less than in *rusticus*). Vestiture of fine, moderately long hair, rather abundant interstitial hair from base to apex; some shorter strial hair on declivity only.

Distribution: Brazil: "Alte Sammlg., Brasilien" (holotype)

Notes: The above treatment was based on the female holotype and 1 nontype from Brazil.

Ambrosiodmus pardous
(Eggers), n. comb.

Ambrosiodmus pardous (Eggers), 1943:247 (*Xyleborus*). Holotype ♀; Vale du Rio Pardo, Sao Paulo, Brazil; DEI Munchenberg (References in Wood & Bright c1992:758)

Diagnosis: Very similar to *funebris* (Schedl), apparently very slightly stouter; disc occupying 67 percent of elytra length; interstitial punctures on disc almost half as large as those of striae, punctures on 2 and 4 slightly confused, about half of them with a feeble tubercle on their anterior margin; declivital interstriae 1–3 each armed by 10–20 tubercles slightly smaller than in *rusticus* Wood; declivital setae apparently shorter, less abundant (type of *funebris* not at hand when diagnosis prepared).

Female: Length 3.5 mm, 1.5 times as long as wide;

color very dark reddish brown. Frons rather strongly convex, surface smooth, shining, somewhat irregular, punctures rather coarse, a few confluent; vestiture fine, sparse, moderately long; antennal club shorter than scape (not fully visible on type). Pronotum 1.0 times as long as wide; sides moderately arcuate, broadly rounded in front; summit near middle of pronotum length; asperities on anterior slope abundant, close, acute, rather small asperities from anterior margin to base; vestiture mostly on or near anterior and lateral margins, fine, long, moderately abundant. Elytra 1.56 times as long as wide, 1.5 times as long as pronotum; disc occupying 65 percent of elytra length; striae not impressed, punctures small, in rows; interstriae smooth, shining, about three to four times as wide as striae, punctures half as wide as those of striae, confused, median row each with a feeble tubercle on anterior margin. Declivity very steep, broadly convex; striae about as on disc, interstriae 2 slightly narrower than on disc and not impressed, 1–3 each armed by a row of closely set tubercles, about ten on 3, about sixteen to twenty on 2 and 3; lateral interstriae with tubercles less definite, fewer in number. Vestiture of fine setae, mostly abraded on disc, moderately abundant and longer on declivity and sides; ventrolateral costa subacute from suture to interstriae 7 at base of declivity.

Brazil: Vale do Pardo, Sao Paulo, XII-1998, E. Gounelle.

Notes: The above treatment was based on the female holotype and on 1 other female from Brazil.

Ambrosiodmus opimus (Wood)

Plate XCIV

Ambrosiodmus opimus (Wood), 1974:37 (*Xyleborus*). Holotype ♀; Sebring, Florida (USA); USNM, Washington (References in Wood & Bright c1992:678)

Diagnosis: Distinguished by the subacutely costate ventrolateral margin of the declivity; by the uniseriate interstitial punctures on the disc; by tubercles arming declivital interstriae 2; and by the small size.

Female: Length 2.5–2.9 mm, 2.4 times as long as wide; color dark reddish brown. Frons about as in *ocellatus* (Wood). Pronotum 0.92 times as long as wide; about as in *ocellatus* except anterior asperities larger near anterior margin; crenulations behind summit smaller, reticulation conspicuous on disc; vestiture hairlike, long, moderately abundant. Elytra 1.4 times as long as wide, 1.5 times as long as pronotum; striae not impressed, punctures rather small, in rows; interstriae about three times as wide as striae, shining, punctures almost as large as those of striae, close, confused. Declivity occupying posterior third of declivital length, broadly convex, very steep; striae not discernible, punctures coarse, confused, weakly impressed on area of interstriae 1 (unarmed), 2 armed on middle third by two moderately large, pointed tubercles, two or three additional minute tubercles sometimes present, lateral areas also with a few minute

tubercles; ventrolateral margin subacutely, subserrately, moderately elevated from suture to interstriae 7 at base of declivity. Vestiture mostly on sides and declivity, of rows of minute strial hair and longer interstitial setae, longest setae slightly shorter than distance between rows.

Distribution: SE USA (Florida) and Brazil.

Brazil: Nova Vicosia, Bahia, 3-IX-1997, ethanol trap in *Eucalyptus grandis* stand, C.A.H. Flechtmann; Espirito Santo, Aracruz, 11-XII-1991, No. 3577, C.A.H. Flechtmann.

Biology: The type was boring in a liana 3 cm in diameter.

Notes: The above treatment was based on the female holotype and on 3 females from Brazil that were compared by me directly to the holotype of *Xyleborus opimus* Wood. This is the first report of this species from South America, where it is presumed to be an endemic species.

Ambrosiodmus hagedorni (Iglesias)

Plate XCII

Ambrosiodmus hagedorni (Iglesias), 1914:128 (*Xyleborus*). Syntypes ♂ ♀; Butantan, Sao Paulo, Brazil; MZUSP, Sao Paulo (Synonymy and references in Wood & Bright c1992:674)

Ambrosiodmus guatemalensis Hopkins, 1915:56. Holotype ♀; Trece Aguas, Alta Verapaz, Guatemala; USNM, Washington
Xyleborus anisandrus Schedl, 1954:44. Syntypes ♀; Rio Claro, Brazil; NHMW, Wien

Diagnosis: Distinguished from *opimus* (Wood) by the more strongly impressed declivital striae 1; and by the more slender body form.

Female: Length 2.5–3.0 mm, 2.3 times as long as wide; color dark reddish brown. Frons resembling *ocellatus* (Wood), except more irregular in contour and more nearly subrugose. Pronotum 0.92 times as long as wide; sides moderately arcuate on basal two-thirds, subparallel, anterior margin rather broadly rounded; summit at middle, asperities and crenulations rather coarse to base, conspicuously reticulate between rugae; hairlike vestiture mostly on or near anterior and lateral margins. Elytra 1.4 times as long as wide, 1.6 times as long as pronotum; striae not impressed, small punctures mostly in rows; interstriae four to five times as wide as striae, punctures mostly in rows laterally, confused toward base and toward suture, almost as large as those of striae. Declivity confined to posterior third, broadly convex, rather steep; striae 1 and 2 indicated, 1 impressed; interstriae 1 weakly elevated, not as high as 3, with 1 not armed by tubercles, 2 armed on middle third by about two pointed tubercles, several smaller tubercles in lateral areas; ventrolateral margin subacutely, uniformly elevated from suture to interstriae 7 at base of declivity. Vestiture hairlike, consisting of rows of short strial and sparse, longer interstitial hair.

Distribution: Mexico (Veracruz) and Puerto Rico to Colombia, Venezuela, and Brazil.

Brazil: 69 km N Manaus, Amazonus, 7-XII-1979, G.

Stevens; Cepec, Ilheus, Bahia, 1966–1968, at light, Kaston; Aracruz, Espirito Santo, 15-VII-1987, No. 2183; Telemaco Borba, Parana, 4-II-2000-16-I-2000-16-I-2004, baited funnel trap, C.A.H. Flechtmann; Agudos, Duraflora, Sao Paulo, 27-III-1984, ethanol trap, *Pinus oocarpa*, C.A.H. Flechtmann.

Colombia: El Bosque, Caicedonia, Valle de Cauca, 20-VI-1959, cafe verde, J. Restrepo; 27 km NE Montoya, Santander, 2-VII-1970, 150 m, No. 584, *Vismia*, SLW.

Venezuela: Finca Monsterios, Cacaugua, Miranda, 1971, *Theobroma cacao*; 9 km S Barancas, Barinas, 5-XI-1969, 150 m, No. 116, *Inga*, SLW; 40 km SE Socopo, Barinas, 25-I-1970, 150 m, No. 252, *Inga*, SLW.

Hosts: *Acacia* sp., *Cedrela mexicana*, *Inga* sp., *Mangifera indica*, *Ochroma* sp., *Pinus elliotii*, *Terminalia* sp., *Theobroma cacao*, *Vismia* sp.

Biology: Boring in the wood of cut or broken branches, limbs, and stumps larger than 3–5 cm in diameter.

Notes: The above treatment was based on 12 specimens from Mexico and Central America, 1 from Puerto Rico, 2 from Brazil, 8 from Colombia, and 11 from Venezuela.

Ambrosiodmus coffeiceus (Schedl)

Plate XCII

Ambrosiodmus coffeiceus (Schedl), 1951:376 (*Xyleborus*). Holotype ♀; Suriname, Pt. Jagthust; NHMW, Wien (References in Wood & Bright c1992:672)

Diagnosis: Distinguished by the confused punctures and setae on discal interstriae 2 and 3, with 4 and 5 uniseriate; by the presence of a row of tubercles on declivital interstriae 1 from base to apex; and by the smaller size. Very similar to *camphorae* (Hagedorn) (Africa and Madagascar), except interstriae 1 entirely unarmed by tubercles in *coffeiceus*.

Female: Length 3.6–3.8 mm, 2.4 times as long as wide; color dark reddish brown. Frons broadly convex, surface mostly smooth, shining, weakly reticulate in some areas, punctures coarse, rather close, irregular, median line weakly subcostate on middle half; vestiture hair-like, sparse, mostly on epistomal margin. Pronotum 0.96 times as long as wide; sides on basal two-thirds weakly arcuate, converging slightly toward very broadly rounded anterior margin; summit at middle, anterior slope rather coarsely, closely asperate, slightly smaller asperities continue to base; vestiture of fine, long, moderately abundant hair. Elytra 1.5 times as long as wide, 1.5 times as long as pronotum; striae not impressed, punctures rather small; interstriae about three to four times as wide as striae, smooth, shining, punctures minute, about half as large as those of striae, confused on 2 and at base of 3 and 4, uniseriate toward declivity except on 2. Declivity occupying posterior third of elytra length; broadly convex, very steep; striae 2 moderately impressed, interstriae 3 higher than suture; striae 1 continued to apex, 2

to middle of declivity; interstriae 1 unarmed, except weakly at base (small tubercles), 2 weakly elevated and armed by a row of about six denticles, lower two or three distinctly larger; lateral areas with sparse, smaller denticles; ventrolateral margin obtusely elevated, its crest subacute, almost costate. Vestiture of fine hair; minute on striae, longer and more abundant on interstriae from base to apex, longest setae on declivity longer than width of an interstriae.

Distribution: Mexico (Veracruz) to Colombia and Suriname.

Colombia: El Cementerio, Caldon, Valle de Cauca, 14-V-1959, cafe, C.M. Sanchez; Los Volcanes, Ospina Perez, Palmero, Huila, 29-IV-1959, tronco de cafe, A. Ibarra; Guaiche Siberia, Caldon, Valle de Cauca, 8-V-1959, cafe, C.M. Sanchez.

Suriname: Pt. Jagtlust.

Hosts: *Coffea* sp., *Quercus* sp.

Biology: Boring in wood of bole and large limbs.

Notes: The above treatment was based on 5 females, 1 from Mexico, and 4 from Colombia.

GENUS EUWALLACEA HOPKINS

Euwallacea Hopkins, 1915:54. Type-species: *Xyleborus wallacei* Blandford, original designation (References in Wood & Bright c1992: 685–697)

Diagnosis: Members of this genus superficially resemble some groups of *Xyleborus*, but they are quite unrelated. In this genus antennal club segment 2 is rather conspicuous, the apical margin of segment 1 is rounded and visible on both faces (suture 2 visible on both faces in some species), the procoxae are contiguous, the mesocoxae are more widely separated (see key to genera).

Description: Antennal club as in above diagnosis. Pronotum commonly subquadrate, its anterior margin usually unarmed. Posterolateral margin of elytral declivity subacutely elevated from apex of suture to interstriae 7; striae and interstitial punctures usually in rows; vestiture usually sparse, confined to striae and interstitial rows. All South American representatives of this genus were introduced from the eastern hemisphere; there are no endemic American species. Males have the anterior slope of the pronotum convex and asperate. In those endemic American *Xyleborus* species that resemble *Euwallacea*, the male pronotum is concavely excavated and lacks asperities.

Distribution: Wood & Bright (c1992:695–697) list 53 species from Asia and Australia to Africa. The genus is represented in South America by 2 introduced species that appear to have been transported through commerce from southeastern Asia or adjacent islands. Both have significant economic importance. Their habits are treated below under each species.

Key to the Species of *Euwallacea*

1. Smaller; lateral margin of protibia armed by 8 socketed denticles, metatibia by 11; elytral declivity more strongly convex, interstitial tubercles averaging smaller; interstitial setae rarely longer than distance between rows; S Asia to New Guinea, introduced in Hawaii to Panama and Brazil; 1.9–2.5 mm *fornicatus* (Eichhoff)
- Larger; lateral margin of protibia armed by 9–10 socketed denticles, metatibia by 12–13; declivity less strongly convex particularly on median half, interstitial tubercles slightly larger, particularly on 2; interstitial setae mostly 1.5–2.0 times as long as distance between rows; India to Japan and Indonesia, introduced to E USA to Jamaica, and in Brazil; 3.4–3.8 mm *validus* (Eichhoff)

Euwallacea fornicatus (Eichhoff)

Plate XCV

- Euwallacea fornicatus* (Eichhoff), 1868:151 (*Xyleborus*). Syntypes, sex?; Ceylon; Hamburg Museum, lost (Synonymy and references in Wood & Bright c1992:688–690)
- Xyleborus fornicator* Eggers, 1923:184. Lectotype ♀; Peradeniya, Ceylon (Sri Lanka); USNM, Washington, designated by Anderson & Anderson 1971:13
- Xyleborus whitfordiodendrus* Schedl, 1942:189. Lectotype ♀; Malaya, Negri Sembilan, Pasoh, F.R.; NHMW, Wien, designated by Schedl 1979:269
- Xyleborus perbrevis* Schedl, 1951:59. Holotype ♀; Mt. Puro, Prov. Rizal, Philippines; NHMW, Wien
- Xyleborus schultzei* Schedl, 1951:68. Lectotype ♀; Mt. Makiling; Luzon, Philippines; NHMW, Wien, designated by Schedl 1979:222
- Xyleborus tapatapaensis* Schedl, 1951:152. Lectotype ♀; Upalu, Tapatapa, 800 ft.; NHMW, Wien, designated by Schedl 1979:250

Diagnosis: The contiguous procoxae and occurrence of 1 (rarely 2) sutures on the posterior face of the antennal club distinguish this species from superficially similar endemic *Xyleborus* species. From *validus* (Eichhoff) it is distinguished by the smaller size; by the more strongly procurved, more strongly serrate anterior margin of the pronotum; and by the different elytral declivity.

Male: Length 1.5 mm, 2.0 times as long as wide. Head similar to female. Pronotum 0.82 times as long as wide; quadrate, anterior slope convex, asperate. Elytra 1.2 times as long as wide; disc occupying basal fourth; declivity gradual, resembling female.

Female: Length 1.9–2.5 mm, 2.3 times as long as wide; color almost black. Frons broadly convex, surface mostly reticulate, punctures small, sparse, vestiture sparse, of rather long hair. Pronotum 1.0 times as long as wide, sides and serrate anterior margin moderately arcuate; summit at middle, anterior slope coarsely, closely asperate, disc reticulate, punctures minute, moderately close. Elytra 1.3 times as long as wide, 1.3 times as long as pronotum; striae not impressed, punctures moderately large, rather deep; interstriae three times as wide as striae, smooth, shining, punctures mostly replaced by small tubercles in uniseriate rows. Declivity occupying slightly more than posterior third; broadly convex, steep; striae very weakly impressed to apex; interstriae twice as wide as striae, smooth, shining denticles slightly larger and more widely spaced than on disc. Strial setae entirely absent; vestiture entirely of rows of erect interstitial

setae from base to apex, each hairlike seta about equal in length to distance between rows.

Distribution: E Asia and New Guinea to Hawaii and Panama to Brazil.

Brazil: Manaus, Amazonas.

Hosts: Wood & Bright (c1992:688) list 39 species worldwide, none from South America.

Biology: Adults bore into the wood of unthrifty, broken, or cut branches less than 10 cm in diameter where they establish their brood chambers. They have also been reported to kill healthy, vigorous plants under certain circumstances (see references in Wood & Bright c1992:688–690).

Notes: The above treatment was based on 51 female and 3 male specimens from Asia, Indonesia, New Guinea, Sri Lanka, and Hawaii, and on 1 from Panama. A series of more than 20 females was examined from Brazil, but voucher specimens with collection data were not kept by me.

Euwallacea validus (Eichhoff)

Plate XCVI

- Euwallacea validus* (Eichhoff), 1875:202 (*Xyleborus*). Syntypes ♀; Japan; IRSNB, Brussels (References in Wood & Bright c1992:694)

Diagnosis: Distinguished from superficially similar native American *Xyleborus* by the occurrence of 1 (rarely 2) sutures on the posterior face of the antennal club; by the conspicuous segment 2 on the anterior face of the antennal club; and by the protibia being armed by 12 socketed denticles. Males have the anterior slope of the pronotum convex and asperate, superficially similar American *Xyleborus* have this area strongly concave and devoid of asperities. From *fornicatus* (Eichhoff) it is distinguished by the larger size; by the subquadrate pronotum, the anterior margin is unarmed by serrations; and by the different elytral declivity.

Male: Length 2.4 mm, 2.1 times as long as wide. Head and pronotum about as in male *fornicatus*. Elytra 1.2 times as long as wide, 1.3 times as long as pronotum; disc occupying 40 percent of elytral length; declivity not as steep, resembling female.

Female: Length 3.4–3.8 mm, 2.5 times as long as wide; color dark brown to almost black. Head about as in *fornicatus* except segment 2 of antennal club much

smaller. Pronotum 1.0 times as long as wide; sides rather weakly arcuate, broadly procurved anterior margin weakly arcuate; similar to *fornicatus* except asperities on anterior slope distinctly smaller. Elytra 1.4 times as long as wide, 1.5 times as long as pronotum; striae not impressed, punctures rather large; interstriae three times as wide as striae, smooth, shining, punctures on most of basal half very small, replaced behind by rows of minute tubercles. Declivity occupying slightly less than posterior third of elytra length; tubercles smaller than in *fornicatus*.

Distribution: E Asia, introduced into E USA. Not yet reported from South America, but should arrive soon if not already present.

Hosts: Wood & Bright (c1992:694) report 32 host species worldwide.

Biology: Similar to *fornicatus*, but in larger stems, including large logs.

Notes: In eastern Asia this species is replaced in southern Japan to Sri Lanka and southward by *E. interjectus* (Blandford), with which it is easily confused. It is almost certain that both species will eventually reach South America.

GENUS *XYLEBORUS* EICHHOFF

Xyleborus Eichhoff, 1864:37. Type-species: *Bostrichus monographus* Fabricius, subsequent designation by Lacordaire (1866:381); Synonymy and references in Wood & Bright c1992:704–785)

Anisandrus Ferrari, 1867:24. Type-species: *Apate dispar* Fabricius, monobasic

Anaeretus Duges, 1887:141. Type-species: *Anaeretus guanajuatensis* Duges = *Bostrichus colvulus* Fabricius, monobasic

Progenius Blandford, 1896:20. Type-species: *Progenius fleutiauxi* Blandford = *Xyleborus subcostatus* Eichhoff, subsequent designation by Hopkins 1914:128

Mesoscolytus Broun, 1904:125. Type-species: *Apate inurbanus* Broun, monobasic, new status

Heteroborips Reitter, 1913:79, 82. Type-species: *Bostrichus cryptographus* Ratzeburg, monobasic

Boroxylon Hopkins, 1915:10, 58. Type-species: *Boroxylon stephegyus* Hopkins = *Phloeotrogus bidentatus* Motschulsky, original designation

Notoxyleborus Schedl, 1934:84. Type-species: *Notoxyleborus kalshoveni* Schedl, monobasic

Diagnosis: Apical margin of segment 1 of antennal club acutely elevated into a continuous costa (a com-

plete circle) extending from anterior face to apex, this suture almost never visible on posterior face; procoxae contiguous, intercoxal piece longitudinally emarginate; body more slender, more than 2.0 times as long as wide.

Description: Female length 1.7–5.9 mm, 2.0 or more times as long as wide. Antennal club obliquely truncate, basal area corneous, its apical margin acutely costate on a complete circle from the margin of the basal corneous piece on the anterior face to the apex, with no sutures visible on the posterior face. Pronotum and elytra variable.

Distribution: Several hundred species have been named in this genus from all tropical and subtropical areas of the world and extend into temperate districts of some regions. This is the largest and most diverse genus of Scolytidae. Wood & Bright (c1992:704–785) list 78 species recorded from South America; as seen below, many more species than this exist there. In tropical areas significant economic damage may be caused by these species through the destruction of sapwood both in the forest and at the mill. Newly felled logs are infested in the forest, usually within minutes after felling. These infested logs are then taken to the mill where they are decked until sawed into lumber. In many instances the entire sapwood is destroyed before the logs are processed.

Biology: Felled, broken, damaged, and unthrifty stems ranging in diameter from about 3 cm to more than 3 m are selected for attack. In broken or felled stems the attack may be massive and encompass most or all of the sapwood within a few days. Injury to standing trees may attract only a few beetles and progress chronically over a long period of time that may result in the death of the host. The galleries are usually of a simple branching type that may join other similar galleries of the same species. Eggs are usually placed in clusters at or near the end of branch tunnels. The larvae feed on the mycelium of ambrosial fungi, then pupate in these galleries. The brood emerges through the parent entrance tunnels.

Notes: The former synonym of *Xyleborus*, *Xyleborips* Reitter (1913:79, 111), has been transferred to synonymy under *Monarthrum*.

Key to the Species of *Xyleborus*, female only

- 1. Anterior margin of pronotum procurved and armed by several rather coarse serrations; posterolateral margin of elytral declivity usually rounded and frequently armed by tubercles or spines, if subacutely costate then costa extending from suture to interstriae 3–5, or forming a complete circumdeclivital costa; strial setae usually present 2
- Anterior margin of pronotum either procurved or straight, unarmed or weakly armed by serrations (subserrate in allies of *spathipennis*); posterolateral margin of elytral declivity either rounded or costate, costa never dentate, when present it extends from suture to interstriae 7; strial setae usually absent when pronotum quadrate 8

2(1).	Declivity steeper, flattened, ventrolateral costa acutely elevated and forming a complete circumdeclivital ring, a small tubercle at suture above, face shagreened, punctures mostly confused, a moderate tubercle on interstriae 1 rather widely separated from suture distinctly below middle; Suriname (?) to Brazil (Santa Catarina); 4.2 mm	<i>neotruncatus</i> (Schedl)	
—	Declivity more strongly convex, circumdeclivital costa not present on more than upper half . . .		3
3(2).	Declivity steeper, convex to moderately flattened, occupying posterior 30 percent of elytral length		4
—	Declivity more gradual, rather strongly excavated, occupying at least 40 percent of elytral length; declivital interstriae 1 unarmed except for one or two small denticles at base; declivital vestiture of slender to very stout scales		5
4(3).	Declivity evenly convex from suture to interstriae 9, each interstriae armed by a row of 9 to 11 minute tubercles; anterior margin of pronotum unarmed; French Guyane; 3.3 mm	<i>tonsus</i> (Hagedorn)	
—	Declivity distinctly flattened from suture to striae 3, evenly convex from interstriae 3–9, tubercles on 1 and 2 minute to obsolete except one to three moderately large tubercles at base of 1 and 2, tubercles on 3–9 with minute tubercles to near apex of each interstriae, tubercles at base of declivity larger on 3–5; anterior margin of pronotum armed by 2–4 small serrations; Mexico (Nayarit to Colima); 1.8–2.1 mm	<i>palatus</i> Wood	
5(3).	Punctures on elytral declivity very small, strongly confused, each bearing a short, broad scale; striae obsolete, face of declivity broadly concave, devoid of spines, a few small denticles on basal and lateral areas; Mexico (Chiapas) to Brazil; 1.7–2.3 mm	<i>squamulatus</i> Eichhoff	
—	Strial punctures on elytral declivity in rows; declivital vestiture of rather slender scales; margin of declivity armed by 2 or more pair of large spines		6
6(5).	Largest spine on lateral margin of elytral declivity less than twice as long as its basal width, about equal in length to width of one discal interstriae; declivity less strongly excavated, armed by two to five pair of spines (variable), although two pair usually predominate, and several smaller denticles; Mexico (Jalisco) and Antilles Islands to Brazil, Argentina, and Hawaii; 1.8–2.6 mm	<i>spinulosus</i> Blandford	
—	Largest declivital spine at least two and one-half times as long as its basal width, about equal in length to distance from suture to discal striae 3; declivity more strongly excavated, always armed by two pair of major spines and several minor denticles		7
7(6).	Lower declivity impressed from suture to near minor spines laterad to major spines 1 and 2, major spine 1 slightly below middle of declivity, profile of suture on lower declivity straight; setae on declivital interstriae 1 and 2 with setae longer, more slender (six to 10 times as long as wide) and each supported at its base by a small tubercle; Brazil (Sao Paulo); 2.5–2.7 mm	<i>pseudoferox</i> Wood	
—	Lower declivity more broadly impressed to bases of minor spines laterad to and between major spines 1 and 2, major spine 1 distinctly above middle of declivity, profile of suture on lower declivity distinctly concave; setae on interstriae 1 and 2 on declivity mostly to entirely obsolete, those present short, each about four times as long as wide, without a tubercle at their base; Costa Rica to Colombia; 2.4–2.9 mm	<i>ferox</i> Blandford	
8(1).	Elytral declivity rather strongly, broadly impressed on posterior half of elytra length; interstitial and sometimes strial punctures on declivity rather large, close, distinct, strongly confused, sutural interstriae either unarmed or armed by two to four stout denticles; rather large species		9
—	Striae distinct, punctures in definite rows, declivital interstriae 1 with minute granules equal in size to those of other interstriae		14

SCOLYTIDAE OF SOUTH AMERICA

9(7).	Striae 1 and 2 on declivity with small, often obscure punctures in rows; declivital tubercles very small, never present on 1	10
—	Declivital punctures confused, no indication of striae, tubercles present on interstriae 1, those on lateral areas larger	11
10(9).	Declivity occupying 55 percent of elytra length, its base rather abrupt; tubercles at base of declivital interstriae 2 and 3 very small, mostly uniseriate; Brazil (Amapa); 4.6 mm . . . <i>inferior</i> Schedl	
—	Declivity occupying 67 percent of elytra length, its base much more gradual; tubercles at base of declivital interstriae 2 and 3 conspicuously larger, strongly confused; Suriname; 5.9 mm <i>inopinatus</i> Schedl	
11(9).	Elytral declivity occupying at least half of elytral length, strongly impressed; declivital interstriae 1 unarmed by tubercles; ventrolateral margin subacutely elevated, increasing in height to form a strongly elevated, subacutely pointed spine slightly below middle of declivity length, margin above spine not elevated, broadly rounded; Bolivia; 6.3 mm <i>horridicus</i> Wood	
—	Elytral declivity steeper, occupying about one-third of elytra length; declivital interstriae 1 armed by two to four moderately large tubercles, lateral margin on lower half subacute, rather weakly elevated; smaller species	12
12(11).	Surface of declivity rugose-reticulate from suture to striae 3, punctures of striae 1 and 2 mostly obliterated except at base; declivity much steeper, more nearly convex, lateral margin on upper half rounded; Brazil (Mato Grosso); 3.1 mm <i>latipennis</i> Schedl	
—	Surface of declivity shining, with dense confused punctures; lateral margins of declivity subacutely elevated from apex of suture to near base of declivity, a weak predeclivital impression extending cephalad from base, larger species	13
13(12).	Predeclivital impression beginning at or posterior to middle of elytra; elytral pubescence abundant, particularly on declivity; denticles on interstriae 2 averaging larger; USA (S Texas) to Guatemala and El Salvador; 3.8–4.2 mm <i>horridus</i> Eichhoff	
—	Predeclivital impression beginning on basal fourth of elytra; elytral pubescence rather sparse, less abundant on declivity; denticles on declivital interstriae 2 averaging smaller; Costa Rica to Colombia; 3.4–4.0 mm <i>horridatus</i> Wood	
14(8).	Anterior margin of pronotum either procurved or straight (quadrate), armed or without coarse serrations; declivital interstriae 1–3 equal in sculpture (2 with several tubercles), ventrolateral margin either rounded or carinate	15
—	Anterior margin of pronotum procurved, never armed by coarse serrations; declivital interstriae 1 and 3 armed by tubercles, 2 unarmed (rarely one small tubercle at extreme base); ventrolateral margin of declivity narrowly rounded to subcostate (never with an acute costa of uniform height)	61
15(14).	Pronotum wider than long, anterior margin procurved and armed on median area by 2–8 coarse serrations; declivity occupying about 45 percent of elytra length, strongly convex, interstriae 1–3 of equal sculpture, tubercles very small, ventrolateral margin acutely, evenly costate	16
—	Pronotum longer than wide, anterior margin unarmed or costate (except irregular in <i>spathipennis</i> group)	18
16(15).	Ventrolateral costa of elytral declivity armed by three to five distinct denticles; interstitial punctures at base of disc and punctures on pronotum disc averaging slightly larger; Canada (Quebec) to NE USA; 2.8–3.5 mm <i>obesus</i> LeConte	
—	Ventrolateral costa of declivity of uniform height, undulating but not armed by denticles; punctures of pronotum disc and discal interstriae averaging distinctly smaller	17

17(16).	Anterior margin of pronotum armed by 6–8 subequal median serrations; strial punctures on declivity averaging larger, deeper, with interstriae on declivity 1.5 times as wide as striae; Europe, introduced to Canada, N USA; 2.8–3.5 mm	<i>dispar</i> (Fabricius)	
—	Anterior margin of pronotum armed by 2–6 serrations, median pair conspicuously larger; punctures of declivital striae smaller, less strongly impressed, declivital interstriae at least twice as wide as striae; E Canada to E USA; 2.3–2.6 mm	<i>sayi</i> (Hopkins)	
18(15).	Ventrolateral margin of declivity broadly rounded, face of declivity strongly convex, steep, with no indication of an impression on face or of a narrowly rounded or subcostate ventrolateral crest near apex		19
—	Ventrolateral area of declivity with a partial or complete narrowly rounded crest or subcarinate ventrolateral costa extending toward interstriae 7		23
19(18).	Body more slender, 3.0 times as long as wide; pronotum reticulate, summit narrow, higher; discal punctures smaller; strial punctures on declivity twice as large as those on disc; interstitial tubercles on declivity very small; Bolivia; 3.3 mm	<i>congruens</i> Schedl	
—	Body stouter, 2.6–2.7 times as long as wide; pronotum summit weak to moderate, not as high; punctures on declivity rather coarse, about equal in size to those on disc; declivital tubercles larger		20
20(19).	Elytral declivity more gradual, more evenly convex; basal margins of elytra rounded, with no indication of a transverse costa; body more slender, larger than 4.0 mm		21
—	Elytral declivity very steep, lower area subvertical; basal margins of elytra vertical, marked by a subacute transverse crest; 2.6 times as long as wide, smaller than 3.1 mm		22
21(20).	Strial and interstitial punctures on declivity of equal size, confused, on disc strial punctures in rows on some specimens, interstitial punctures mostly confused; vestiture of fine, rather short hair in abundant ground cover; a few long, hairlike setae present; Mexico to El Salvador; 4.4–4.7 mm	<i>imbellus</i> Blandford	
—	Strial and interstitial punctures in rows, those on striae larger; elytral ground setae absent, interstitial setae in rows; Brazil; 4.1 mm	<i>associatus</i> Schedl	
22(20).	Interstriae on disc twice as wide as striae; strial punctures on declivity small, shallow, vestiture distinctly longer; interstitial tubercles very small; Argentina, Brazil (Santa Catarina), Uruguay; 2.9–3.0 mm	<i>confluens</i> Schedl	
—	Interstriae on disc as wide as striae; strial punctures on declivity slightly larger, deeper, tubercles distinctly larger; vestiture distinctly shorter; Brazil (Mato Grosso, Parana); 2.8–2.9 mm	<i>subductus</i> Schedl	
23(18).	Ventrolateral crest of declivity more acutely, uniformly elevated from apex of suture to interstriae 7; declivital interstriae 1–3 about equally sculptured (tubercles within a row of equal size or not; pronotum usually more conspicuously quadrate)		24
—	Ventrolateral margin of declivity rounded to subacutely costate only near suture; declivital interstriae 1–3 usually unequally serrate; anterior margin of pronotum mostly, strongly procurved, less commonly pronotum subquadrate, anterior margin more strongly procurved		50
24(23).	Declivital interstriae 1–3 with tubercles comparatively small, regularly, rather closely spaced within a row		25
—	Declivital interstriae 1–3 with tubercles unequally spaced (a space may exceed distance equal to width of an interstriae), missing tubercles sometimes replaced by a puncture		53

- 25(24). Anterior margin of pronotum costate (no serrations); stria punctures small, about equal in size to those of interstriae (appearing superficially confused but in obscure rows) interstitial punctures replaced by small granules on posterior half of disc and continued on all declivital interstriae as small tubercles; ventrolateral costa acute, crest finely subserrate; elytral vestiture from base to apex rather abundant, moderately long; body 2.4 times as long as wide; French Guyane; 2.8 mm
 *asperipunctatus* Eggers
- Anterior margin of pronotum either unarmed or with distinct serrations; interstitial punctures on disc never granulate or tuberculate; ventrolateral costa on declivity never serrate; vestiture much less abundant 26
- 26(25). Discal sculpturing restricted to basal third of elytra, more deeply impressed striae and shagreened surface extending distinctly anterior to middle of elytral length; declivital profile clearly convex to apex; interstitial setae on declivity rather stout, each about as long as distance between rows; Costa Rica and Panama to Colombia, French Guyane, and Brazil; 2.7–2.8 mm *asper* Eggers
- Declivital sculpture restricted to conspicuously less than half of elytra length; profile of declivital suture either convex or concave 27
- 27(26). Elytral declivity more strongly convex, profile of suture on lower half clearly convex 28
- Elytral declivity weakly to moderately, transversely impressed, profile of suture on lower half straight or weakly to rather strongly concave 41
- 28(27). Smaller species, less than 2.3–3.7 mm; anterior margin of pronotum rather strongly procurved
 29
- Larger species, 2.8–4.3 mm; pronotum subquadrate, anterior margin almost straight; elytral declivity usually shorter, steeper; stria setae obsolete, interstitial setae longer, rather slender; female frons with a weak to distinct, longitudinal median carina (except absent in *commixtus*) 37
- 29(28). Disc of elytra occupying at least basal 60 percent of elytra length, declivity steeper, more strongly convex; stria setae present or absent; interstitial setae on declivity either hairlike, or stout, short, longest setae equal in length to about half distance between rows 30
- Disc of elytra shorter, elytral declivity attaining middle of elytra length; interstitial setae short on declivity, very stout, sometimes almost scalelike; length less than 2.3 mm 33
- 30(29). Body more slender; 3.0 times as long as wide; declivital interstriae 1–3 each armed by a row of 6–10 tubercles of equal size 31
- Body less slender, 2.6–2.7 times as long as wide; declivital interstriae each armed by about five denticles of about equal size 32
- 31(30). Declivital interstriae 1 not elevated; declivital setae much longer, as long or longer than distance between rows; anterior margin of pronotum armed by six rather large serrations; dorsal aspect of apical margin of elytra rather narrowly rounded; color yellowish brown; French Guyane; 2.5 mm
 *maronicus* Eggers
- Declivital interstriae 1 weakly elevated; declivital setae shorter, about half as long as distance between rows; serrations on anterior margin of pronotum less strongly elevated; Brazil (Santa Catarina); 2.3–2.5 mm *scaber* Schedl
- 32(30). Body 2.7 times as long as wide, pronotum 1.4 times as long as wide; interstitial setae on declivity stout, each four to six times as long as wide, each equal in length to half distance between rows; Suriname; 1.7 mm *foederatus* Schedl
- Body 2.6 times as long as wide, pronotum 1.0 times as long as wide; interstitial setae on declivity absent (abraded?, one fine seta on 4 of type); Guadeloupe Island to Venezuela; 3.8 mm
 *novagrenadensis* Eggers

- 33(29). Declivity restricted to posterior half of elytral length, profile of posterior margin seen from dorsal aspect rather broadly rounded, transition from discal to declivital sculpture gradual, obscure; declivital interstitial setae each about six to eight times as long as wide 34
- Declivity occupying at least half of elytral length, transition in sculpture rather definite; interstitial setae stouter, each two to four times as long as wide 36
- 34(33). Larger species, stouter, 2.5 times as long as wide; posterior margin more broadly rounded behind; interstitial tubercles on declivity very small; surface of declivity weakly shagreened; Brazil (Bahia); 2.8–3.1 mm *majusculus* Schedl
- Smaller species, very slender, 2.8–2.9 times as long as wide; posterior margin of elytra rather narrowly rounded; interstitial tubercles distinctly larger 35
- 35(34). Body stouter, 2.8 times as long as wide; striae punctures on disc smaller, less distinctly impressed, interstitial punctures minute, obscure, more widely spaced on anterior half; Guadeloupe to Suriname and Venezuela; 1.7 mm *pusio* Eggers
- Body more slender, 2.9 times as long as wide; striae punctures on disc slightly larger, deeper, closer, more regularly spaced to base; Guiana; 1.6 mm *parcellus* Wood
- 36(33). Pronotum 1.2 times as long as wide; declivity beginning at middle of elytra, apical profile of elytra from dorsal aspect narrowly rounded; Costa Rica to Colombia; 1.8–2.0 mm *demissus* Wood
- Pronotum less than 1.0 times as long as wide; declivity beginning well in front of middle of declivity length; apical profile of elytra from dorsal aspect rather broadly rounded; Guiana; 2.2–2.3 mm *deplanatus* Eggers
- 37(28). Striae distinctly impressed, striae punctures more strongly impressed; declivity more strongly convex; Antilles Islands and Costa Rica to Bolivia and Brazil; 3.2–3.8 mm *caraibicus* Eggers
- Striae not impressed, striae punctures very shallowly, less strongly impressed 38
- 38(37). Larger species, 4.0–4.3 mm; declivity steeper, occupying less than half of elytral length; interstitial setae on declivity more slender, longer 39
- Smaller species, 2.8–3.6 mm; declivity more gradual, occupying slightly more than half elytral length; interstitial setae on declivity stouter, usually much shorter 40
- 39(38). Elytral declivity usually shagreened (dull), profile of suture on lower half moderately convex, lower interstriae 3 convex, weakly elevated; area on lower declivity from striae 3 to crest of ventrolateral margin less strongly impressed, crest obtusely, less strongly elevated; disc of pronotum usually smooth, shining (weakly reticulate on part of lateral areas in some specimens); Colombia to Peru; 4.0–4.3 mm *peruvianus* Schedl
- Elytral declivity smooth, brightly shining, profile of suture on lower half straight to feebly convex, lower interstriae 3 flat, slightly impressed, area from interstriae 3 to ventrolateral crest more strongly concave, crest more strongly, acutely elevated; disc of pronotum almost entirely, moderately reticulate; Costa Rica to Panama; 3.9–4.0 mm *commixtus* Blandford
- 40(38). Body smaller, 2.7 times as long as wide; pronotum disc rather strongly reticulate, punctures minute (smaller than those of discal interstriae); elytral declivity occupying 33 percent of elytral length, steeper, more broadly convex; striae punctures on disc equal in size to those on declivity; tubercles on declivital interstriae smaller, closer, of more uniform size; Argentina, Paraguay, Brazil (Santa Catarina); 2.8 mm *adelographus* Eichhoff
- Body larger, stouter, 2.5 times as long as wide; pronotum disc obscurely reticulate, punctures rather small (much larger than interstitial punctures on disc); elytral declivity (38 percent of elytral length) not as steep, more strongly convex; striae punctures on 1 and 2 on declivity twice as large as those on disc; interstitial tubercles on declivity not as close, more irregular in size; Colombia to Brazil; 3.4–3.6 mm *vitiosus* Schedl

- 41(27). Profile of lower half of elytral declivity almost a straight line; body size smaller than 2.7 mm . . . 42
- Profile of lower half of elytral declivity distinctly concave; body size larger, 2.8–3.7 mm 44
- 42(41). Profile of suture on declivity feebly convex on lower half, crest of ventrolateral margin of declivity higher, narrower; Costa Rica to Colombia and French Guyane; 2.3–2.7 mm
. *parallelocollis* Eggers
- Profile of suture on elytral declivity straight to feebly concave on lower two-thirds; crest of ventrolateral margin of declivity not as high, more obtuse 43
- 43(42). Smaller; declivital bristles usually less than half as long as distance between rows; Costa Rica to Venezuela; 2.5–2.7 mm *concentus* Wood
- Larger; declivital bristles as long as distance between rows; Panama; 3.6 mm
. *quadratus* Blandford
- 44(41). Elytral declivity slightly steeper, transverse impression on lower third not as strong, tubercles on interstriae 1–3 distinctly larger, more widely spaced (about twelve tubercles on 2) 45
- Elytral declivity more gradual, transverse impression on lower third deeper, tubercles on interstriae 1–3 smaller, closer (about 18–20 tubercles on 2) 46
- 45(44). Ventrolateral margin of declivity less strongly elevated, its upper slope weakly concave near base, more nearly convex on apical half; discal interstriae twice as wide as striae, striae punctures rather coarse, separated in a row by less than half diameter of a puncture, interstitial punctures one-fourth as large; Mexico (Chiapas) to Venezuela, French Guyane, and Peru; 2.9–3.3 mm
. *discretus* Eggers
- Ventrolateral margin of declivity more strongly elevated, its upper slope clearly concave throughout its length; discal interstriae three times as wide as striae, striae punctures smaller, deeper; interstitial punctures mostly half as large as those of striae; Costa Rica to Venezuela and French Guyane; 3.4–3.7 mm *politus* Hagedorn
- 46(45). Declivital interstriae 1–3 each armed by 16 or more closely set, equally spaced small tubercles from base to apex; interstitial setae on declivity moderately long 47
- Declivital interstriae 1–3 each irregularly armed by fewer than 10 tubercles (mostly of unequal size); interstitial setae on declivity very short 48
- 47(46). Declivity occupying about half of elytral length; striae punctures on declivity only slightly larger than those of disc; Costa Rica to Colombia and Venezuela; 2.4–2.7 mm . . . *semipunctatus* Eggers
- Declivity more gradual, occupying at least 60 percent of elytral length, striae punctures on declivity about three times larger than those on disc; Costa Rica to Colombia; 3.5–4.0 mm
. *tribulatus* Wood
- 48(46). Declivity steeper, occupying less than half of elytral length, without shagreening; declivital interstriae 1–3 each armed by 6 to 10 small tubercles about equally spaced between tubercles, never marked by punctures; impression mesad from ventrolateral declivital costa conspicuous; declivital setae moderately sparse; Costa Rica; 4.1–4.2 mm *lacunatus* Wood
- Declivity more gradual, occupying 60 percent of elytral length and moderately to conspicuously shagreened 49
- 49(48). Declivital tubercles on interstriae 1–3 (1 with about 20, 2 and 3 each with about 10) more numerous, of small irregular size; declivity steeper, more strongly convex, setae shorter, more slender; French Guyane; 4.7–4.8 mm *longipennis* Eggers

- Declivital interstriae 1–3 each armed by two to four small tubercles, with sparse punctures between tubercles; declivital setae very sparse, rather short, stouter; Costa Rica to Colombia; 3.4–4.0 mm *schildi* Schedl
- 50(23). Body more slender, 2.5 times as long as wide, declivity confined to posterior 40 percent of elytral length; declivital interstriae one to two times as wide as striae; Nicaragua to Colombia and Ecuador; 5.1–5.9 mm *princeps* Blandford
- Body stouter, 2.1–2.3 times as long as wide, declivity occupying posterior half of elytral length; declivital interstriae at least four times as wide as striae 51
- 51(50). Punctures on pronotum disc distinctly larger; striae on elytral disc moderately to strongly impressed, interstriae usually shining, punctures small (each equal in diameter to about half diameter of a striae puncture); striae feebly impressed on declivity, punctures on declivity small, rather strongly impressed; interstitial tubercles on declivity more numerous, minor tubercles on 1–3 small, close, distinct, major tubercles on 1 and 3 twice as large, usually pointed; Guatemala to Panama and Colombia, French Guyane, Peru, and Brazil; 4.4–5.3 mm . . . *spathipennis* Eichhoff
- Punctures on pronotum disc distinctly smaller; striae on elytral disc weakly impressed, usually dull, interstitial punctures minute to obsolete (diameter less than one-fourth that of a striae puncture); striae on declivity not impressed, punctures rather small, very shallowly impressed; minor interstitial tubercles on 1–3 sparse, minute to obsolete, major tubercles smaller, more widely spaced, rounded (not pointed) 59
- 52(51). Frons with median carina extending from epistoma then ending abruptly at upper level of eyes; disc of pronotum smooth, shining (80X), punctures smaller (about equal in size to those on discal interstriae); body not as stout, 2.4 times as long as wide, profile of suture on disc less strongly, convexly arched; declivital interstriae 2 never with minute tubercles or setae; Peru; 5.1–5.9 mm *magnificus* Wood
- Median carina on frons much longer, a third of its length above upper level of eyes; pronotum disc weakly reticulate (80X), punctures deeper and twice as large as those of discal interstriae; body stouter, 2.2 times as long as wide; profile of suture on disc moderately arched; declivital interstriae 2 usually with several minor tubercles, usually with one to five setae on each; Peru; 4.6–4.8 mm *mimicus* Wood
- 53(24). Female pronotum entirely devoid of asperities, strongly impressed on median half of basal half or two-thirds, surface brightly shining, punctures rather dense, moderately impressed (North America, E USA) 54
- Pronotum normal, asperate on anterior half, punctures not strongly impressed on basal half 55
- 54(53). Female pronotum slightly impressed, weakly sulcate on basal half, sulcus one-fourth as wide as pronotum at base, half as wide near middle of pronotum length; elytral declivity somewhat flattened, its surface reticulate-granulate, interstriae 1–3 each with a row of fine granules; USA (Missouri to Pennsylvania); 2.3–2.4 mm *planicollis* Zimmermann
- Female pronotum rather strongly impressed, sulcus half as wide as pronotum and two-thirds as long; elytral declivity very strongly sulcate on median half, interstriae 3 much higher than 1, with 1 and 2 smooth, shining, unarmed by granules, 3 armed by two coarse tubercles; USA (Missouri to Pennsylvania and Tennessee to Florida); 2.0–2.5 mm *viduus* Blandford
- 55(53). Declivital interstriae 1–3 with tubercles about equal in size and number 56
- Declivital interstriae 2 with tubercles distinctly larger than those on 1 or 3; pronotum subquadrate 60
- 56(55). Anterior margin of pronotum more strongly procurved, sides on posterior two-thirds almost straight and parallel; elytral declivity more narrowly convex, always smooth, shining; Mexico (Puebla); 3.0–3.4 mm *titubanter* Schedl

SCOLYTIDAE OF SOUTH AMERICA

—	Pronotum somewhat subquadrate, anterior margin much less strongly procurved, sides weakly arcuate	57
57(56).	Elytral declivity narrowly convex, surface shining; interstitial punctures on 2 and 3 on disc very minute, never tuberculate	58
—	Elytral declivity more broadly convex; interstitial punctures on 2 and 3 on disc mostly half as large as those of striae or replaced by small tubercles on posterior half	59
58(57).	Declivity more strongly arched both transversely and longitudinally; declivital interstriae 1–3 feebly convex, tubercles slightly larger (base of each about as wide as an adjacent striae puncture), about five to seven tubercles in a row, ventrolateral crest of declivity more broadly rounded; interstitial setae fine, all abraded on type; anterior margin of pronotum more distinctly convex; Colombia; 2.8 mm <i>rufipes</i> Eggers	
—	Declivity less strongly convex both transversely and longitudinally; declivital interstriae 1–3 flat, tubercles smaller (base of each about half as wide as an adjacent striae puncture), about seven to nine in a row; ventrolateral margin of declivity more narrowly rounded; interstitial setae on declivity rather coarse, each equal in length to distance between rows; anterior margin of pronotum weakly convex; Venezuela; 2.9 mm <i>araguensis</i> Wood	
59(51).	Declivity more gradual, occupying posterior 40 percent of elytra length, its surface shining; declivital interstitial bristles largely obsolete, longest setae about half as long as distance between rows; Costa Rica; 2.2–2.3 mm <i>dissimulatus</i> Wood	
—	Declivity steep, occupying posterior 25 percent of elytra length, its surface usually dull; interstitial hair on declivity up to twice as long as distance between rows; Mexico (Veracruz) and Antilles Islands to Bolivia and Brazil; 2.2–2.5 mm <i>posticus</i> Eichhoff	
60(55).	Elytral declivity convex not impressed on lower half, profile of suture convex to apex; Panama to Venezuela; 3.1–3.4 mm <i>improvidus</i> Schedl	
—	Elytral declivity moderately impressed on lower half from suture to striae 3, profile of suture on lower half straight to feebly concave; Venezuela to Brazil; 3.8–4.5 mm <i>mutabilis</i> Schedl	
61(14).	Slender species, at least 3.0 times as long as wide; punctures of discal interstriae uniseriate, minute to obsolete, declivity gradual, occupying about 35–50 percent or more of elytra length; declivital interstriae 1–3 usually with very small, regular tubercles (obsolete on 1 and 2 in <i>prolatus</i>)	62
—	Body usually less slender, interstitial punctures on disc larger, clearly marked, uniseriate; declivity steeper, interstriae 1 and 3 armed, 2 unarmed except near base	67
62(61).	Elytral declivity occupying about 35 percent of elytra length, its surface brightly shining; tubercles on declivital interstriae regularly present to apex, smaller species	63
—	Elytral declivity occupying at least 50 percent of elytra length, its surface shagreened; interstitial tubercles on lower half of declivity partly to mostly obsolete; larger species	66
63(62).	Elytral declivity moderately, transversely impressed on lower half, profile of suture distinctly concave; declivital interstriae 1 and 2 armed by regularly placed, distinctly larger tubercles; Costa Rica to Venezuela (Aragua); <i>Vismia</i> , Guttiferae sp.; 3.3–3.6 mm <i>vismiae</i> Wood	
—	Elytral declivity more nearly flat, profile of suture straight (not concave); declivital interstriae 1 and 2 with tubercles smaller, less regularly spaced	64
64(63).	Elytral declivity more gradual, less strongly convex, posterior profile more narrowly rounded; interstitial punctures on disc more regular, impressed lines less distinct; striae punctures on declivity twice as wide as on disc; Costa Rica; 2.8–3.4 mm <i>meritus</i> Wood	

—	Elytral declivity steeper, more strongly convex, posterior profile more broadly rounded; interstitial punctures on disc more nearly obsolete	65
65(64).	Irregular lines on elytral disc more conspicuous; declivital tubercles on interstriae 2 much smaller than on 1; Panama; 3.9 mm	<i>praestans</i> Wood
—	Irregular lines on elytra disc weak to obsolete; elytral setae distinctly longer; Bolivia; 3.0 mm	<i>parvipunctatus</i> Eggers
66(62).	Elytral declivity occupying 50 percent of elytra length, transversely and longitudinally almost flat to striae 3; declivital interstriae 1 and 3 and basal half of 2 each with a row of fine tubercles, suture not elevated; Costa Rica to Panama; 4.0–4.4 mm	<i>costaricensis</i> Blandford
—	Elytral declivity occupying 60 percent of elytra length, moderately bisulcate, suture slightly elevated, impression extending to striae 3; declivital interstriae 1 and most of 2 (except near apex) devoid of granules or punctures; Costa Rica; 4.5–4.8 mm	<i>prolatus</i> Wood
67(61).	Declivital striae 1 normal, not conspicuously diverging away from suture, tubercles on interstriae (when present) in normal position about equally spaced between suture and striae 1	68
—	Declivital striae 1 on upper half conspicuously diverging away from suture (except in <i>volutus</i>), these punctures strongly confused to apex in some species, tubercles (usually two) on interstriae 1 moderately to strongly displaced laterad, sometimes appearing to be on striae 1 or in usual position of interstriae 2	93
68(67).	Elytral disc finely, closely punctured, striae distinguishable only on posterior half, striae and interstitial punctures confused on anterior half; pronotum disc strongly reticulate, closely, finely punctured	69
—	Striae and interstitial punctures uniseriate in rows; pronotum either reticulate or smooth, more sparsely punctured	70
69(68).	Smaller species; elytral declivity more strongly, evenly convex, interstriae 2 as high as in 1 and 3; color reddish brown; N China to Siberia, USA (California, Oregon, Maryland); 2.0–2.2 mm	<i>punctulatus</i> Kurenzov
—	Larger species; elytral declivity shallowly, distinctly impressed, interstriae 1 and 3 higher than 2; color reddish brown to almost black; N China, Ussuri, USA (Maryland, Pennsylvania); 3.0–3.3 mm	<i>pelliculosus</i> Eichhoff
70(68).	Elytral declivity more strongly convex, declivital interstriae 1–3 each with three or more tubercles; ventrolateral margin of elytral declivity much more broadly, evenly rounded; discal interstriae 1 and 3 never armed by small tubercles	71
—	Elytral declivity more broadly convex to impressed, interstriae 2 mostly devoid of tubercles, commonly with one tubercle on upper half, 3 and sometimes 1 armed by tubercles; ventrolateral margin of declivity much more narrowly rounded, rarely carinate; discal interstriae 1 and 3 on posterior half armed by small tubercles	77
71(70).	Interstitial punctures on disc uniformly small, deep, each less than half as large as those of striae	72
—	Some interstitial punctures on disc larger, almost as large as those of striae	75
72(71).	Posterior profile of elytra (dorsal aspect) narrowly rounded; declivital interstriae 1–3 each armed by about three tubercles; interstitial punctures on disc minute, very sparse; body slender, 2.9–3.0 times as long as wide, tropical species	73
—	Posterior profile of elytra rather broadly rounded; declivital interstriae 2 with no more than one or two tubercles; interstitial punctures on disc larger, regularly spaced; body 2.8 times as long as wide; North American species	74

- 73(72). Angle formed by profile (dorsal aspect) of posterior margin of elytra greater than 100 degrees; profile (dorsal aspect) of interstriae 7 at base of declivity undulating on crest of ventrolateral margin (four basally connected tubercles, not separate); erect setae on declivital interstriae 1 and 3 slightly longer, more slender, each about 8 to 10 times as long as wide; Venezuela; 2.0 mm *falsus* Schedl
- Angle formed by posterior profile of elytra narrower, about 90 degrees; profile of interstriae 7 at base of declivity formed by about 10 basally separate tubercles; erect setae on declivital interstriae 1 and 3 slightly shorter, stouter, each about five to six times as long as wide; Brazil (Amazonas); 2.6 mm *cacuminatus* Eggers
- 74(72). Elytral declivity reticulate, dull; pronotum disc mostly or entirely reticulate; declivity more broadly convex; interstitial tubercles on declivity very small; Canada (British Columbia), USA (Minnesota and Maine to Florida and E Texas), Antilles Islands; *Quercus*; 2.3–2.7 mm *xylographus* (Say)
- Elytral declivity smooth, shining, interstitial tubercles distinctly larger; disc of pronotum sometimes partly reticulate; Canada (Ontario) and USA (New Jersey to Florida, E Texas), Antilles Islands (Bahamas); Pinus; 2.3–2.7 mm *pubescens* Zimmermann
- 75(71). Ventrolateral margin of declivity subacutely raised from suture to about level of interstriae 4, interstriae 2 unarmed by tubercles; body very slender, 3.3 times as long as wide; profile of suture convex; declivity convex, without an impression; Brazil; 2.8 mm *altilis* Schedl
- Ventrolateral margin of declivity rounded, without a subacute crest 75
- 76(75). Profile of suture on declivity rather strongly convex, interstriae 2 as high as 1; pronotum disc at least partly reticulate; frons strongly reticulate; Canada (British Columbia) and USA (New York) to Honduras; 2.2–2.7 mm *intrusus* Blandford
- Profile of suture on declivity weakly convex, interstriae 2 slightly impressed, not as high as 1; pronotum disc smooth, brightly shining; frons brightly shining; Mexico (Baja California); 2.8–3.0 mm *vagabundus* Schedl
- 77(70). Elytral disc with punctures on one or more of interstriae 1–3 conspicuously more abundant and strongly confused, at least near declivity; species larger than 3.7 mm 78
- Elytral disc with striae and interstitial punctures on 1–3 in definite rows; species smaller than 3.3 mm 80
- 78(77). Interstitial punctures of 2 and 3 on disc strongly confused, commonly also confused on 1; declivital punctures on striae 1 and 2 subequal in size to those of interstriae 1 and 3 and confused with them; Costa Rica to French Guyane and Brazil; 3.5–3.8 mm *tumucensus* Hagedorn
- Interstitial punctures on discal interstriae 3 strongly confused, at least near declivity, rarely weakly confused on 1 or 2; declivital striae 1 and 2 in definite rows, striae punctures much larger; interstitial punctures on 1 and 2 half as large and moderately confused 79
- 79(78). Body more slender, 2.8 times as long as wide; pronotum disc smooth, punctured from summit to base on median two-thirds of pronotum; discal interstriae 1–3 with punctures uniseriate, confused only near base of declivity; declivity more strongly convex, interstitial setae short, not longer than distance equal to space between rows; Colombia; 5.2 mm *grandis* Eichhoff
- Body less slender, 2.3 times as long as wide; pronotum finely asperate to base behind summit; discal interstriae 1 and 2 with punctures moderately, 3 strongly confused; declivity much less strongly convex above, more strongly flattened below; Costa Rica; 4.2–4.4 mm *rugulosipes* Wood
- 80(77). Smaller, more slender species less than 2.7 mm in length; discal interstriae 1–3 with punctures rather weakly or not at all granulate 81

—	Larger, stouter species 2.8–3.3 mm; discal interstriae 1–3 with punctures rather coarsely granulate from base to margin of declivity	95
81(80).	Surface of elytral declivity dull, shagreened, surface contour more distinctly convex, interstitial tubercles on 1 and 3 smaller; almost worldwide in tropical and subtropical areas, including South America; 2.0–2.7 mm <i>affinis</i> Eichhoff	
—	Surfaces of elytral declivity usually smooth, brightly shining	82
82(81).	Profile of declivital suture feebly to moderately concave; profile of posterior margin of elytra obtusely subacute, suture near apex distinctly elevated, moderately produced; stria punctures on declivity twice as large as those on disc	83a
—	Profile of declivital suture straight to distinctly convex; profile of posterior margin of elytra broadly rounded, apex of suture neither elevated not produced; stria punctures on declivity normal, about as large as those on disc	85
83a(82).	Declivital interstriae 1 without any tubercles (or punctures at 40X) from base to apex, except one tubercle at base; declivital interstriae 2 distinctly impressed, smooth, shining as on 1; major spine on 3 at middle of declivity, moderately large; supplemental tubercles near apex of 5 and 7 smaller	83b
—	Declivital interstriae 1 with minute tubercles and occasional punctures clearly visible (40X); supplemental tubercles near apex of interstriae 5 and 7 larger	84
83b(83a).	Body distinctly larger, color black; erect declivital setae much longer particularly on interstriae 1; stria punctures on disc with their anterior margin elevated, almost subtuberculate; Colombia; 3.0–3.4 mm <i>grossmanni</i> Schedl	
—	Body distinctly shorter; color dark reddish brown; interstitial setae on declivity much shorter, particularly on interstriae 1; stria punctures on disc normal, anterior margin not elevated; Suriname; 2.6–2.7 mm <i>productus</i> Hagedorn	
84(83).	Frons evenly convex, devoid of a median carina; Brazil to Suriname; 3.0–3.1 mm <i>acuminatus</i> Schedl	
—	Frons with a subacutely elevated median carina from epistoma almost to upper level of eyes; Costa Rica to French Guyane; 2.5–2.7 mm <i>pseudoacuminatus</i> Wood	
85(82).	Elytral declivity with interstriae 1 and 2 unarmed by tubercles except one small tubercle sometimes at base of each	86
—	Elytral declivity armed by three or more tubercles on interstriae 1 and 3	88
86(85).	Declivital interstriae 1 and 2 each (usually) with a small tubercle at base, 3 with a rather large denticle near middle of declivity length, sometimes with one to three smaller denticles on 3; color reddish brown; almost circumtropical, including all South American countries; 2.0–2.3 mm <i>ferrugineus</i> (Fabricius)	
—	Declivital interstriae 2 never armed at base by a tubercle (a small granule on disc anterior to base), 1 armed at base by a rather large tubercle equal in size to tubercle at middle of 3	87
87(86).	Smaller species; declivital interstriae 3 armed by three small, pointed, widely spaced tubercles of somewhat equal size (lower one one-half as large), about equal in size to tubercle on 1; surface of declivity weakly shagreened; lower declivity weakly convex in area lateral to and below spine 3 on interstriae 3, stria punctures rather small, shallow; Bolivia (Cochabamba); 2.7 mm <i>subplanatus</i> Schedl	

- Larger species; declivital interstriae 3 armed by three tubercles, upper one at base large, blunt, middle tubercle equally large, blunt, lower tubercle minute (less than one-fifth as large, interstriae 1 at base with a large, blunt tubercle equal in size to those on upper 3; Argentina; 3.4 mm *sextuberculatus* Schedl
- 88(85). Sutural profile of elytral declivity conspicuously convex, especially on lower half; interstitial punctures on disc smaller, without minute tubercles 89
- Sutural profile of elytral declivity straight for at least two-thirds of length, especially on lower half; most interstitial punctures on disc finely tuberculate 90
- 89(88). Body color very dark brown to almost black; punctures on discal interstriae small, regularly, rather closely spaced; rare in Costa Rica in sour logs on ground; 2.7–2.9 mm *morulus* Blandford
- Body reddish brown; punctures on discal interstriae usually sparse, irregularly spaced; circum-tropical, abundant in all South American countries; sour logs; 2.1–2.8 mm *volvulus* (Fabricius)
- 90(88). As seen from dorsal aspect ventrolateral margin of declivity subacutely elevated, crest extending cephalad to a point anterior to level of major tubercles near middle of declivital interstriae 3; Jamaica; 2.9–3.2 mm *beckeri* Bright
- As seen from dorsal aspect subacutely elevated ventrolateral margin of declivity ending well behind (caudad) level of major tubercle near middle of declivital interstriae 3; smaller species 91
- 91(90). Pronotum almost subgranulate; body 3.1 times as long as wide; declivital interstriae 1 distinctly wider on lower third, curving slightly laterad above then curving strongly toward suture below denticle 3; declivital interstriae 1 armed by one small (above) and two moderately large tubercles (below), 3 armed by two small and one moderate tubercle (below); Puerto Rico to Venezuela; 4.2 mm *elevatus* Eggers
- Anterior margin of pronotum procurved; body less slender; declivital interstriae 3 normal, arrangement of tubercles on 1 and 3 different 92
- 92(91). Smaller, more slender species, 3.0 times as long as wide; pronotum with sides straight and parallel on basal two-thirds and 1.3 times as long as wide; elytral declivity steeper, occupying 33 percent of elytra length; Colombia (Tomaco); 1.7–1.8 mm *volutus* Wood
- Larger, less slender, 2.7 times as long as wide; pronotum 1.2 times as long as wide, with sides distinctly arcuate on more than basal half; color darker 93
- 93(92). Declivital interstriae 2 regularly, rather finely armed by granules, 1 and 3 with similar granules between larger tubercles; longest setae on discal interstriae 1 and 3 equal in length to twice width of an interstriae; color rather dark brown; Costa Rica and Panama to Colombia and French Guyane; 2.2–2.4 mm *sparsepilosus* Eggers
- Declivital interstriae 1 very minutely, irregularly marked by granules, an occasional larger granule on 1 and 3; longest setae on discal interstriae 1 and 3 about equal in length to width of one interstriae 94
- 94(93). Elytral declivity slightly steeper, less strongly, more broadly impressed (especially on lower half); upper tubercle on declivital interstriae 1 frequently largest, middle tubercle on 3 usually largest; Europe, N Africa, introduced to New Zealand, USA, S America; 2.8–2.9 mm *pfeili* (Ratzeburg)
- Elytral declivity slightly more gradual, more strongly impressed from suture to striae 2; tubercles on declivital interstriae 1 usually smaller, of equal size, lower tubercle on 3 usually largest; color dark brown, almost black; Costa Rica to Bolivia; 2.2–2.5 mm *bolivianus* Eggers
- 95(80). Declivital impression not as wide (extending almost to striae 3) or as deep; Colombia to Suriname and Brazil; 2.7–2.9 mm *incertus* Schedl

- Declivital impression wider (extending slightly laterad from interstriae 3), slightly deeper; Costa Rica and Colombia to French Guyane and Brazil; 2.9–3.3 mm *geayi* Eggers
- 96(67). Declivity rather steep, broadly convex, striae 1 and 2 with moderately large, distinctly impressed punctures in definite rows to apex, 1 deviating away from suture on lower half to avoid tubercles (one to three) on interstriae 1; pronotum weakly subquadrate; color reddish brown; Africa to SE Asia and Pacific Islands, introduced to Costa Rica and South America; 1.8–2.5 mm *similis* Ferrari
- Declivity not as steep, punctures (when present) sometimes confused below tubercle 1; color darker; size larger 97
- 97(96). Discal interstriae 1–3 regularly, conspicuously punctured; declivital striae 1 and 2 visible on lower half (or if confused then interstriae 1–3 each with a tubercle at base); body usually slightly stouter 98
- Discal interstriae 1–3 smooth, without any punctures; declivital striae 1 and 2 not visible below major tubercle 1 101
- 98(97). Declivital striae 1 and 2 with punctures in distinguishable rows, interstitial punctures absent; declivital interstriae 1 much wider; body more slender, 3.1 times as long as wide; North America (E USA); *Carya*; 3.6–4.5 *celsus* Eichhoff
- Declivital striae 1 and 2 either in rows and with numerous interstitial punctures or with all punctures confused 99
- 99(98). Declivital striae 1 and 2 distinguishable from smaller interstitial punctures; declivital vestiture in rows, less abundant, shorter; Colombia; 3.4–3.6 mm *caldensis* Wood
- Declivital punctures confused, not in rows; declivital setae confused, much more abundant 100
- 100(99). Interstitial punctures on disc uniseriate; lower major tubercle on declivital interstriae 1 mounted on a moderate protuberance; smaller; Argentina and Paraguay to Brazil; 2.8–3.2 mm *biconicus* Eggers
- Interstitial punctures on 1–3 of disc confused on at least anterior half; lower tubercles on declivital interstriae 1 smaller, about equal in size to upper tubercle; S Brazil; 3.7–4.3 mm *neivai* Eggers
- 101(97). Elytral declivity narrowly convex (especially transversely), tubercles in position of interstriae 1 separated from suture by basal width of tubercle or less; smaller species 102
- Elytral declivity more broadly convex (especially transversely), tubercles of interstriae 1 separated from suture by two or more times basal width of tubercle 103
- 102(101). Ventrolateral margin of declivity evenly, rather broadly rounded, not elevated; punctures of discal striae slightly larger, deeper; declivital interstriae 1 with two small tubercles on basal third, lower third slightly protuberant and armed by two or three small tubercles, 3 with three small tubercles about equally spaced; Brazil (Bahia); 3.1–3.3 mm *perlongus* Eggers
- Ventrolateral margin of declivity moderately, subacutely elevated from suture to interstriae 7; punctures of discal striae very small, shallow; declivity armed on basal fourth by a rather small pointed tubercle on 1 and 3, a larger tubercle on lower third of 1; Jamaica to Puerto Rico; 2.6 mm *simulatus* Bright
- 103(101). Elytral declivity moderately concave on central two-thirds of length and width, two pair of moderately large major denticles on lateral crest, interstriae 1 with another smaller pair near base and a pair near apex, other small denticles in lateral areas; punctures in concave area rather numerous, moderately large, distinctly impressed; Guatemala, Colombia to Suriname and Bolivia to Brazil; 3.3–4.6 *procer* Eichhoff

- Central half of elytral declivity flat to feebly concave, punctures on and near flattened area minute 103
- 104(103). Declivital tubercles laterad from those on interstriae 1 on lower half smaller, less numerous (about five to seven); elytral setae slightly less abundant, shorter, more slender; Antilles Islands (Puerto Rico) and Mexico (Veracruz) to Panama, Colombia and Venezuela; 3.2–3.4 mm *macer* Blandford
- Declivital tubercles laterad from those on 1 on lower half averaging larger, more numerous (about seven to 12); elytral setae less numerous, larger; Mexico (Veracruz) to Costa Rica and Guiana; 4.0–4.4 mm *declivis* Eichhoff

Xyleborus neotruncatus (Schedl)

Plate CXIII

Xyleborus neotruncatus (Schedl), 1979:307 (*Amasa*). Holotype ♀; Nova Teutonia, Santa Catarina, Brazil, 300–500 m, 27°11' B, 52°23' L; NHMW, Wien (References in Wood & Bright c1992:683)

Diagnosis: Distinguished from all American Xyleborini by the obliquely truncate elytral declivity, its margin acutely costate from denticle at base on interstriae 1 to sutural apex, a pointed denticle at middle of declivity face in position of interstriae 2, declivital punctures confused.

Male: Length 2.5–3.6 mm, 2.1 times as long as wide; color reddish brown. Head with deep median sulcus from vertex to center of frons, shining above; lower third somewhat convex, reticulate, with many small tubercles; vestiture of sparse hair on epistomal margin. Pronotum 1.2 times as long as wide; slightly less than anterior half deeply, broadly, concavely excavated, anterior margin of excavation acute on median two-thirds, median half forming a large acutely pointed spine, this crest on anterior margin of concave area well separated from anterior margin of pronotum; lateral margins of concavity subacute, then rounded behind; basal margin of concave area on median half of pronotum width forming a large protuberance slightly anterior to summit; surface of concavity almost smooth, brightly shining; summit slightly behind protuberance; protuberance to base closely asperate on more than median half; glabrous. Elytra 1.0 times as long as wide, 0.82 times as long as pronotum; disc occupying basal half of elytra length; striae punctures distinct, in rows; interstriae several times as wide as striae, smooth, shining, punctures minute, uniseriate; declivity obliquely truncate, margins obtusely rounded, spine at suture at base absent.

Female: Length 4.5 mm, 2.6 times as long as wide; color yellowish brown in front, reddish brown behind. Frons rather strongly convex; surface reticulate; punctures obscure, poorly formed; almost glabrous except on epistomal margin; antennal club subcircular; anterior face corneous on basal fourth, distal area concave, elements of segment 2 and suture not clearly evident, posterior face unmarked by a suture. Pronotum 1.0 times as long as wide; summit at middle, anterior slope coarsely, rather closely asperate, anterior margin armed by six

serrations; disc almost smooth, punctures not clearly evident. Elytra 1.46 times as long as wide, 1.46 times as long as pronotum; disc occupying basal two-thirds of elytral length; striae not impressed, punctures small, in rows; interstriae smooth, shining, punctures not clearly visible due to resin from host plant. Declivity obliquely truncate, acutely margined by a subcircular, acutely elevated circumdeclivital costate ring, costa interrupted at base by a small spine on interstriae 1 at suture; face shallowly concave, surface smooth, shining to weakly shagreened, punctures small, shallow, confused; a moderately large, acutely pointed denticle at middle in position of interstriae 2. Glabrous.

Distribution: Suriname to Brazil (Sao Paulo).

Brazil: Sao Paulo, Piracicaba, Parque Escala, 20-IV-1987, *Mangifera indica* ex madeira seca com blight, C.A.H. Flechtmann; Nova Teutonia, Santa Catarina, 27°11' B, 52°23' L, X-1974, 300–500 m, F. Plaumann.

Suriname: Two specimens from Suriname were removed from my collection, but are not now available to me.

Biology: Boring in dead wood.

Notes: The above treatment was based on the female holotype and on 1 female and 2 males from Brazil and 2 females from Suriname.

Xyleborus tonsus (Hagedorn)

Xyleborus tonsus (Hagedorn), 1905:412 (*Dryocoetes*). Holotype ♀; environs de Saint-Georges, Oyapock, French Guyane; MNHN, Paris (References in Wood & Bright c1992:779)

Diagnosis: Originally named in *Dryocoetes*, but the tibiae clearly place it in the Xyleborini. It most nearly resembles *X. palatus* Wood, from Mexico (Colima), but is not closely related. The elytral declivity is strongly, evenly convex, with the ventrolateral area evenly convex, with no indication of a ventrolateral costa. The punctures on declivital striae 1 and 2 are 1.5 times larger than those on the disc.

Female: Length 3.3 mm, 2.7 times as long as wide; color yellowish brown. Frons moderately convex, a slight median protuberance on lower two-thirds; surface shining, feebly reticulate on upper half, punctures small, obscure, most punctures replaced by a minute tubercle, vestiture sparse, short (mostly abraded). Both antennae,

labium, and maxillae missing on holotype. Pronotum 1.1 times as long as wide; widest near middle of pronotum length; sides feebly arcuate on basal two-thirds, rather broadly rounded in front; anterior margin unarmed by serrations; summit indefinite, at middle of pronotum length, asperities small (low), close, confused on median half from near anterior margin to summit; posterior areas almost smooth, shining, punctures small, rather close, not deep; glabrous (abraded?). Elytra 1.5 times as long as wide, 1.4 times as long as pronotum; disc occupying basal 75 percent of elytra length; disc almost smooth, shining; striae feebly to not at all impressed, punctures in rows, moderately small on basal half, almost twice as large at base of declivity on 1–3; interstriae less than twice as wide as striae on basal half of disc, as wide as striae near declivity, punctures very small, mostly in uniseriate rows. Declivity steep, strongly convex both longitudinally and transversely; punctures on striae 1–3 very large, strongly impressed in rows; interstriae as wide as striae, feebly convex, 1–7 each with a row of 8 to 11 minute tubercles; ventrolateral area uniformly rounded, with no indication of a crest. Glabrous. All tibiae rather broad and armed by typical Xyleborini row of small, closely set tubercles.

Distribution: French Guyane: Env. de St. Georges, Oyapock, 1900, F. Geay.

Notes: The above treatment was based on the female holotype.

Xyleborus squamulatus Eichhoff

Plate CXXII

Xyleborus squamulatus Eichhoff, 1869:282. Holotype ♀; Brazil; IRSNB, Brussels (Wood & Bright c1992:775–776)

Xyleborus squamulatus niger Numberg, 1971:61. Holotype ♀; Ilheus, Bahia, Brasil; MZUSP, Sao Paulo, preoccupied by Sampson 1912, an apparent aberration with no standing in nomenclature, not a geographical race

Diagnosis: Distinguished by the moderately, broadly concave elytral declivity, with striae obsolete and punctures confused, each declivital puncture bearing a small scalelike seta, each seta one to two times as long as wide; and by the absence of tubercles within the concave area, basal margins armed by small tubercles on interstriae 1–3.

Female: Length 1.7–2.3 mm, 2.5 times as long as wide; color very dark brown. Frons broadly convex, reticulate; moderately, finely punctured at upper level of eyes; vestiture hairlike, sparse, inconspicuous, short above, longer on epistoma. Pronotum 1.0 times as long as wide; sides on basal two-thirds weakly convex, rather strongly procurved in front, anterior margin armed by 6–12 serrations; summit at middle of pronotum length, anterior slope coarsely, rather closely asperate; disc reticulate, punctures small, not close; vestiture of minute hair except longer near anterior and lateral margins. Elytra 1.4 times as long as wide, 1.3 times as long as pronotum; disc occupying basal 60 percent of elytra length; striae

not impressed, punctures small; interstriae slightly more than three times as wide as striae, punctures about half as large as those of striae, uniseriate. Declivity broadly, moderately concave to striae 3 from its base to apex; basal margin armed by one or two small tubercles on 1 and 2, on 3 slightly larger, on 5 and 7 smaller; face with striae obsolete, surface smooth, shining, punctures small, close, confused, each bearing a small scalelike seta, each seta one to two times as long as wide. Disc with sparse hairlike setae consisting of minute striae and longer interstitial setae especially a base of declivity.

Distribution: Mexico (Chiapas) to Colombia, Guiana, and Brazil.

Brazil: “Brazil” (type); Ilheus, Bahia; Aracruz, Espirito Santo, 11-XII-1991, No. 3588; Nova Teutonia, Santa Catarina, X-1956, F. Plaumann; Instituto Florestal, Sao Paulo, 2-I-1977, E.P. Teixeira, Guapururu.

Colombia: El Bosque, Caicedonia, Valle de Cauca, 30-VI-1959, en cafe, J.H. Lasso; La Bretana-La Maria, Valle de Cauca, 28-V-1959, en cafe seco, N. Munoz; Sevilla, Valle de Cauca, 6-VIII-1959, *Coffea*, Duque; 24 km E Barbosa, Antioquia, 18-VII-1970, 1200 m, No. 699, *Inga*, SLW; Colombia, 15-VIII-1959d; El Bosque, Caicedonia, 30-VI-1959, cafeto.

Guiana: Cited in Wood & Bright (c1992:775).

Venezuela: Rancho Grande, Aragua, 2-IV-1970, 1100 m, No. 427 in tree bole, No. 431 in *Nectandra*, SLW; El Laurel Experimental Farm 12 km SW Caracas, 1-V-1970, 1300 m, No. 512, tree bole, SLW.

Hosts: *Coffea* sp., *Conostegia oerstediana*, *Eucalyptus paniculata*, *Inga* sp., *Nectandra* sp., *Theobroma cacao*.

Biology: Boring in large limbs and bole of cut or broken trees. Commonly attracted to light at night.

Notes: The above treatment was based on 34 females from Mexico to Costa Rica, 2 from Brazil, 8 from Colombia, and 44 from Venezuela. One female was compared directly by me to the holotype.

Xyleborus spinulosus Blandford

Plate CXXI

Xyleborus spinulosus Blandford, 1898:201. Lectotype ♀; San Gerónimo, Guatemala; BMNH, London (Synonymy and references in Wood & Bright c1992:775)

Xyleborus fusciseriatus Eggers, 1934:82. Holotype ♀; Costa Rica (La Caja: 8 km W San Jose; MNB, Berlin)

Xyleborus spinosulus Schedl, 1934:178. Holotype ♀; Honolulu, Hawaiian Islands; FC. Hadden Collection

Xyleborus artespinosulus Schedl, 1935:93. Lectotype ♀; Hamburg-farm [Rio] Reventazon, Ebene Limon, Costa Rica; NHMW, Wien, designated by Schedl 1979:27

Diagnosis: Distinguished from *squamulatus* Eichhoff by the narrower, shallowly concave elytral declivity, with striae present and scales in uniseriate rows; and by the different arrangement of spines on the margins of the elytral declivity.

Male: Length 1.4–1.5 mm, 2.3 times as long as wide; color yellowish brown to dark reddish brown. Head about as in female; eyes greatly reduced in size. Pronotum 1.2

times as long as wide; dorsal profile rather strongly, convexly arched from base to anterior margin; summit indefinite, anterior to middle; surface weakly reticulate, punctures small, moderately abundant, anterior slope convex and entirely devoid of asperities. Elytra 1.3 times as long as wide, 1.2 times as long as pronotum; disc about as in female; declivity more gradual than in female, convex, sculpture about as on disc, entirely devoid of tubercles (elytral declivity slightly concave in one specimen).

Female: Length 1.8–2.6 mm, 2.6 times as long as wide; color very dark reddish brown to almost black. Frons as in *squamulatus* except an indefinite median crest on middle half sometimes present. Pronotum 1.1 times as long as wide; about as in *squamulatus*. Elytra 1.6 times as long as wide, 1.4 times as long as pronotum; disc occupying slightly less than basal half of elytra length; striae not impressed, punctures very small, in rows; interstriae four times as wide as striae, smooth, shining, punctures two-thirds as large as those of striae. Declivity gradual, narrowly concave (transversely, almost straight longitudinally with no arch); striae 1 with punctures to apex, 2 punctured to middle; basal margin with one to three small denticles on 1 and 2, 3 with about two small and one medium denticles on basal fourth, 5 with a medium denticle at middle; ventrolateral margin armed in line with with 2 and 3 by two or three rather coarse, pointed denticles and basad from these several smaller denticles (apparently on 7). Vestiture on declivity of uniseriate rows of scalelike setae, each three to four times as long as wide on interstriae 1, 2, and apparently, lower half of 3; disc usually glabrous, sides with sparse, hairlike setae.

Distribution: Mexico (Jalisco) and Antilles Islands to Argentina, introduced to Hawaii.

Argentina: Cited in Wood & Bright (c1992:775).

Brazil: Rio Claro, Sao Paulo, III-1947, Mat. No. 10; Monte Alegre, Parana, 11-VII-1997, ethanol trap, *Eucalyptus grandis* stand, C.A.H. Flechtmann; Agudos, Duraflora, Sao Paulo, ethanol trap, *Pinus oocarpa* stand, Flechtmann; Itatinga, Frazenda, Ariona, Sao Paulo, 5-VII-1989, ethanol trap, *Eucalyptus grandis* stand, W.F. Wicken.

Colombia: Cited in Wood & Bright c1992:775).

Galapagos Islands: Cited in Wood & Bright c1992:775).

Venezuela: Ocomare, Aragua, 1967, caco, B. Mendoza; Finca Monasterios, Cacagua, Miranda, 1971, *Theobroma cacao*; 9 km S Barancas, Barinas, 5-XI-1969, 150 m, No. 116, Inga, SLW; 5 km W El Pino, Zulia, 20-X-1969, No. 139, Inga, SLW; 20 km SE El Vigia, Zulia, 10-XII-1969, No. 187, liana, SLW.

Hosts: *Acacia koa*, *A. polyphylla*, *Albizia* sp., *Bursera simarubra*, *Cecropia* sp., *Citrus* sp., *Gleditsia* sp., *Inga* sp., *Mangifera indica*, *Nicotiana tabacum*, *Ochroma* sp., *Pinus patula*, *Qualea ingens*, *Rudgea* cf. *amazonica*, *Samanga sanan*, *Terminalia* sp., *Theobroma cacao*.

Biology: Boring in wood of cut, broken, or unthrifty limbs and boles.

Notes: The above treatment was based on 9 specimens from Hawaii, 86 from Mexico and Central America (2 males), on 2 from Brazil, and on 44 from Venezuela.

Xyleborus pseudoferox Wood, n. sp.

Xyleborus pseudoferox Wood: Holotype ♀; Frazenda Ariona, Itatinga, Brazil; MZUSP, Sao Paulo, designated below

Diagnosis: Distinguished from *ferox* Blandford by the narrower, less strongly impressed elytral declivity, with setae on declivital interstriae 1 and 2 with setae and punctures regularly placed, these punctures often replaced by minute tubercles; and by longer, more slender scales on declivital interstriae 1 and 2.

Female: Length 2.5–2.7 mm, 2.5 times as long as wide; color very dark brown. Head and pronotum about as in *ferox*. Elytra 1.8 times as long as wide; resembling *ferox* except base of declivity less abrupt, slope more gradual, with profile of suture on declivity straight (not concave), declivity not as broadly impressed, not attaining minor tubercles lateral to major spines; major spine 1 placed distinctly below middle of declivity length; declivital interstriae 1 and 2 bearing scales from base to apex, most punctures on interstriae 1 and 2 bearing a minute tubercle on margin of puncture on more than basal two-thirds, scales longer and more slender than in *ferox* (each scale about six to 10 times as long as wide).

Distribution: Brazil (Sao Paulo).

Type material: The female holotype and 2 female paratypes were taken at Itatinga, Frazenda Ariona, Sao Paulo, Brazil, 5-VII-1989, ethanol trap in *Eucalyptus grandis* stand, C.F. Wicken; AGDB, C.A.H. Flechtmann. The holotype and 1 paratype are in the MZUSP, Sao Paulo; 1 paratype is in the collection of C.A.H. Flechtmann.

Xyleborus ferox Blandford

Plate CVI

Xyleborus ferox Blandford, 1898:201. Holotype ♀; Bugaba, Chiriqui, Panama; BMNH, London (References in Wood & Bright c1992:735)

Diagnosis: Distinguished from *spinulosus* Blandford by the larger body size; by the very different elytral declivity that includes two pair of very large spines.

Female: Length 2.4–2.9 mm, 2.6 times as long as wide; color dark reddish brown. Frons broadly convex, very strongly reticulate, punctures small, obscure, rather numerous, median line on middle half with a weak, obtuse elevation; vestiture hairlike, long, sparse except more numerous on epistoma. Pronotum 1.02 times as long as wide; sides almost straight and parallel on less than basal two-thirds, anterior margin rather strongly procurved, armed by about 12 serrations; summit at middle of pronotum length, anterior slope armed by numerous, close, rather small asperities; disc rather weakly reticulate, punctures irregular, of small to medium size, rather widely spaced; hairlike vestiture restricted

to areas near lateral and anterior margins. Elytra 1.6 times as long as wide, 1.5 times as long as pronotum; disc occupying basal half of elytra length; striae not impressed, punctures small, distinct; interstriae four times as wide as striae, surface shining, almost smooth, punctures very small, uniseriate. Declivity moderately steep, very broadly, subconvexly impressed; striae 1 and 2 indicated by punctures; margin of declivity from suture above to near suture below by a row of small, pointed tubercles of variable, moderate size, 3 armed at middle by a very large, pointed spine three times as long as its basal width, a similar spine on ventrolateral margin in line with interstriae 3; face of declivity smooth, shining between punctures. Vestiture on declivity of uniseriate rows of interstitial scales, each scale about four times as long as wide; sides to base with sparse interstitial hair.

Distribution: Costa Rica and Panama to Colombia.

Colombia: Montegrande, Caicedonia, Valle de Cauca, 19-VI-1959, guamo y cafe, J. Restrepo.

Hosts: *Coffea arabica*, *Ochroma* sp., *Theobroma cacao*.

Biology: Boring in the wood of large limbs and boles in the rain forest.

Notes: The above treatment was based on 30 females from Costa Rica and Panama and on 1 from Colombia.

Xyleborus inferior Schedl

Xyleborus inferior Schedl, 1976:74. Holotype ♀; Serra Lombart (Lima), Amapa, Brazil; NHMW, Wien (References in Wood & Bright c1992:675)

Diagnosis: Allied to *horridus* Eichhoff. Distinguished from *inopinatus* Schedl by the smaller size; by the shorter, more abrupt elytral declivity; and by the different details in sculpture of the elytral declivity.

Female: Length 4.6 mm, 2.45 times as long as wide; color dark reddish brown. Frons broadly convex; surface minutely reticulate; punctures obscure, of moderate size; vestiture very sparse, mostly on epistoma. Pronotum 1.05 times as long as wide; widest on basal third, converging toward broadly rounded anterior margin; anterior margin unarmed; summit at middle, anterior slope rather coarsely, closely asperate; posterior areas smooth, shining, punctures minute, rather sparse; vestiture hair-like, short, somewhat sparse. Elytra 1.4 times as long as wide, 1.4 times as long as pronotum; disc occupying 45 percent of elytra length; striae not impressed, punctures very small, in rows; interstriae smooth, shining, punctures almost as large as those of striae, uniseriate on 1 and 3, moderately confused on 2 and 4. Declivity rather abrupt at base, steep, broadly, concavely impressed; ventrolateral margin subacutely elevated, margins above rounded, crest not armed; striae 1 to 3 with very small punctures clearly impressed from base to apex; interstriae 1 near middle with suture weakly elevated (a row of small punctures at suture), 2 smooth, shining, a row of small granulate punctures on lateral half, 3 rising to rounded lateral crest, with punctures replaced by a confused compound row of small tubercles from base to

apex, 4 (on crest) about as 3, lateral areas with similar small tubercles. Vestiture mostly restricted to declivital interstriae, of short, rather stout, suberect setae.

Distribution: Brazil: Serra Lombart (Lima), Amapa, 17-VIII-1961, J. Bechyne.

Notes: The above treatment was based on the female holotype from Brazil.

Xyleborus inopinatus Schedl

Xyleborus inopinatus Schedl, 1970:94. Holotype ♀; Nied. Guayana (Suriname), Para Distr. NHMW, Wien (References in Wood & Bright c1992:675)

Diagnosis: Distinguished from *inferior* Schedl by the larger size; by the longer, more gradual elytral declivity; and by details of the elytral declivity, as described below.

Female: Length 5.9 mm, 2.36 times as long as wide; color reddish brown. Frons about as in *inferior*. Pronotum 1.0 times as long as wide; widest slightly behind middle, sides moderately arcuate, broadly rounded in front; anterior margin feebly serrate; disc occupying 33 percent of elytra length; striae not impressed, punctures small, distinct, in rows; interstriae four to six times as wide as striae, punctures half as large as those of striae, uniseriate on 1 and 3, confused on 2 and 4. Declivity similar to *inferior* except more gradual, especially at and near base; tubercles at base and near margins distinctly larger, smaller on lower half within impressed area. Vestiture as in *inferior* except shorter.

Distribution: Suriname: Niederl. Guyana, Para Distr.

Notes: The above treatment was based on the female holotype from Suriname.

Xyleborus horridicus Wood

Plate CIX

Xyleborus horridicus Wood, 1967:136. Holotype ♀; Reyes, Bolivia; USNM, Washington (References in Wood & Bright c1992:743)

Diagnosis: A large species allied to *horridus* Eichhoff, but distinguished by the very different elytral declivity described below.

Female: Length 6.3 mm, 2.6 times as long as wide; color reddish brown. Frons broadly convex from epistoma to vertex, punctures replaced by abundant, uniformly distributed small, rounded tubercles from epistoma to vertex, shining, an impunctate shining median line on lower half; vestiture of sparse, moderately long, fine hair from upper level of eyes to epistoma, longer and more numerous on epistoma. Pronotum 1.1 times as long as wide; sides on basal two-thirds weakly arcuate and converging moderately toward rather narrowly rounded anterior margin; summit at middle of pronotum length, anterior slope closely, rather finely asperate to unarmed anterior margin; disc smooth, shining, punctures minute, moderately close; vestiture of fine, rather long hair, sparse on disc, longer and more numerous on anterior and lateral areas. Elytra 1.5 times as long as wide, 1.4 times as

long as pronotum; disc confined to basal half of elytral length; striae not impressed, punctures small, in rows; interstriae about three times as wide as striae, smooth, shining, punctures small, mostly uniseriate, punctures on 1, 2, and posterior half of 3 replaced by rounded tubercles. Declivity rather gradual, broadly, shallowly subconcave above, more strongly below; a small tubercle on 2 slightly below basal margin, a minute tubercle on 3 at or slightly below tubercle 1, ventrolateral margin with crest rounded from suture and increasing in height to a major, subacutely pointed process (ending abruptly on its anterior face) on lower third of declivity; face of declivity smooth, shining, punctures rather numerous, confused, glabrous. Vestiture of interstitial hair on disc and sides.

Distribution: Bolivia: Reyes, W.M. Mann, Mulford Biological Exploration 1921–1922.

Notes: The above treatment was based on the female holotype.

Xyleborus latipennis Schedl

Plate CX

Xyleborus latipennis Schedl, 1976:75. Holotype ♀; V. Vera, Mato Grosso, Lon. 55°35', Lat 12°46' [Brazil]; NHMW, Wien (References in Wood & Bright c1992:747)

Diagnosis: Distinguished from *horridus* Eichhoff by the smaller size; by the rugose-reticulate elytral declivity from striae 3 to the suture, without dense, confused punctures; and by the steeper, more nearly convex declivity, with the lateral margin rounded on the upper half.

Female: Length 3.1 mm, 2.6 times as long as wide; color yellowish brown, declivity darker. Frons broadly, moderately convex, a moderate transverse impression at smooth, shining epistoma; convex area strongly reticulate, rather coarsely, obscurely punctured from vertex to near epistoma; vestiture of very sparse fine hair; more numerous at epistoma. Pronotum about as in *horridus* except punctures on disc slightly smaller, not as close. Elytra 1.5 times as long as wide, 1.3 times as long as pronotum; disc occupying about 62 percent of elytra length; striae not impressed, punctures in rows, moderately coarse; interstriae about three times as wide as striae, mostly smooth, shining, punctures uniseriate, each about a third as wide as those of striae; without a predeclivital impression as in *horridus*. Declivity very broadly convex, steep; surface from suture to interstriae 3 rugose-reticulate, a few punctures of striae 2 obscurely present; interstriae 1 armed by three widely spaced tubercles about as in *horridus* but smaller, 2 with two small tubercles at base, 3 with four smaller tubercles (two on upper half, two on lower half); lateral margin broadly rounded except subacute on lower fourth. Vestiture of rows of erect, rather short interstitial setae on disc, sparse, stouter setae at tubercles on declivity.

Distribution: Brazil: V. Vera, Mato Grosso, 55°36'W, 12°46'S, X-1973, M. Alvarenga.

Notes: The above treatment was based on the holotype.

Xyleborus horridatus Wood

Plate CVIII

Xyleborus horridatus Wood, 1967:135. Holotype ♀; San Isidro del General, San Jose Prov., Costa Rica; USNM, Washington (References in Wood & Bright c1992:742–743)

Diagnosis: Distinguished from the closely allied *horridus* Eichhoff by the predeclivital impression beginning on the basal fourth of the elytra; by the less abundant vestiture; by the smaller denticles on declivital interstriae 2; and by the distribution.

Male: Length 3.3–3.5 mm, 2.2 times as long as wide; color reddish brown. Head with a strong median sulcus from vertex to middle of frons, lower frons weakly convex; surface reticulate, sparsely punctured, almost glabrous. Pronotum 1.1 times as long as wide; summit at middle of pronotum length, anterior 40 percent broadly, deeply concave, surface of concave area smooth, shining, minutely punctured; anterior margin of concave area acutely costate and extended to form a large, median, subacute process; lateral areas behind concavity to summit finely, closely subasperate; disc to base smooth, shining, finely rather closely punctured. Elytra 1.1 times as long as wide, 0.95 times as long as pronotum; disc as in female; declivity entirely unarmed by tubercles, punctures numerous, confused, shallowly, broadly sulcate, shallowly, transversely concave, sulci extending from near apex to basal fourth.

Female: Length 3.4–4.0 mm, 2.5 times as long as wide; color dark reddish brown. Frons broadly convex, reticulate, rather coarsely, closely punctured; vestiture sparse except on epistomal margin. Pronotum 1.05 times as long as wide; as in *horridus* Wood except anterior margin more broadly rounded. Elytra 1.4 times as long as wide, 1.4 times as long as pronotum; disc occupying basal half except weak predeclivital impression extending to basal fourth; striae not impressed, punctures small; interstriae four times as wide as striae, punctures minute, about a fourth as large as those of striae, confused. Declivity broadly, shallowly subconcave to apex; lateral margin subacutely costate on lower half, more nearly rounded above, armed on basal half by two to four pointed denticles, two to four similar tubercles on basal third of 1, a slightly larger tubercle on 1 at middle. Vestiture hairlike, mostly confined to sides.

Distribution: Costa Rica and Panama to Colombia.

Colombia: El Encanto, La Platta, Huila, 28-IV-1959, naranjo dulce, B. Humides.

Hosts: *Citrus sinensis*, *Theobroma cacao*.

Biology: Unthrifty limbs 5–10 cm in diameter were attacked. The mature gallery system consisted of a mass of bifurcately branched and rebranched tunnels. The entire system was rather compact, with none of the short branches extending more than a few centimeters from the original entrance tunnel (Wood 1982:797).

Notes: The above treatment was based on the type series of 30 specimens from Costa Rica, 1 from Panama, and 8 from Colombia.

Xyleborus congruens Schedl

Plate CIV

Xyleborus congruens Schedl, 1966:114. Holotype ♀; Bolivia; NHMW, Wien (References in Wood & Bright c1992:719)

Diagnosis: Distinguished by the slender body form; by the reticulate pronotum; by the rather narrowly convex, steep, elytral declivity; by the very small, regular declivital tubercles on interstriae 1–3; and by the rounded ventrolateral margin of the declivity.

Female: Length 3.3 mm, 3.0 times as long as wide; color very dark reddish brown. Frons broadly convex, reticulate, punctures sparse, rather small; vestiture of sparse hair; mostly on epistoma. Pronotum 1.2 times as long as wide; sides almost straight and parallel on more than basal half, rather narrowly rounded in front; summit slightly behind middle, narrowly elevated; surface reticulate from base to anterior area between coarse, close asperities; punctures on basal area rather small, not close. Elytra 1.8 times as long as wide, 1.5 times as long as pronotum; disc occupying basal three-fourths of elytral length; striae not impressed, punctures small, shallow; interstriae almost three times as wide as striae, smooth, shining, punctures minute, regularly spaced, punctures replaced by minute tubercles on 1 on posterior half, on 2 on posterior third, on 3 on posterior fourth of disc length. Declivity moderately convex, suture weakly convex to apex; striae 1–3 not impressed, punctures twice as wide as on disc; interstriae 1–3 about twice as wide as striae, each armed by a row of very small tubercles; ventrolateral margin evenly rounded. Vestiture of sparse interstitial hair in rows from base to apex, longest setae about 1.5 times as long as distance between rows.

Distribution: Bolivia: “Bolivien.”

Notes: The above treatment was based on the holotype. This species is very closely allied to *X. inurbanus* (Broun), from New Zealand, but differs by several sets of minor characters.

Xyleborus associatus Schedl

Plate C

Xyleborus associatus Schedl, 1976:73. Holotype ♀; Brazil; NHMW, Wien (References in Wood & Bright c1992:713)

Diagnosis: Distinguished from *imbellus* Blandford by having the striae and interstitial punctures in uniseriate rows, the interstitial punctures conspicuously smaller; and by the absence of elytral ground setae.

Female: Length 4.1 mm, 2.6 times as long as wide; color reddish brown. Frons broadly, evenly convex eye to eye, from epistoma to vertex; surface reticulate, punctures small, sparse; vestiture of long, fine hair, mostly on and near epistoma. Pronotum 1.15 times as long as wide; widest on basal half, sides feebly arcuate

on basal half, very slightly converging toward broadly rounded, unarmed anterior margin; summit at middle, anterior slope armed by numerous small asperities; posterior areas reticulate, punctures very small, deep, moderately close; vestiture short, sparse (abraded?). Elytra 1.7 times as long as wide, 1.5 times as long as pronotum; disc occupying 72 percent of elytra length; striae not impressed, punctures in rows, moderately impressed; interstriae twice as wide as striae, smooth, shining, punctures a third as large as those of striae, uniseriate except moderately confused on posterior half of 1 and 3. Declivity broadly, strongly convex, steep; striae 1–3 not as deep as on disc; interstriae 1–6 not as wide as on disc, almost smooth, punctures replaced by minute rows of very small tubercles; ventrolateral area broadly rounded, with no indication of a crest. Vestiture of interstitial rows of fine, rather stout hair, each seta slightly shorter than distance between rows.

Distribution: Brazil: “Alte Sammlg., Brasilien.”

Notes: The above treatment was based on the female holotype.

Xyleborus confluens Schedl

Plate CIII

Xyleborus confluens Schedl, 1966:113. Holotype ♀; Prov. Buenos Aires, Argentina; NHMW, Wien (References in Wood & Bright c1992:719)

Diagnosis: Distinguished from *associatus* Schedl by the stouter body and steeper declivity; by the smooth, shining pronotum disc; and by the much longer interstitial hair.

Male: Length 2.8 mm, 2.8 times as long as wide; color yellowish brown; head not visible on specimen at hand; pronotum almost as long as elytra, median half of anterior half concavely impressed, median sixth of anterior margin produced into a blunt spine almost as long as wide, lateral summits on anterior half weakly subasperate, posterior half smooth, shining; elytra similar to female except declivity not as steep, all characters poorly formed.

Female: Length 2.9–3.0 times as long as wide, 2.6 times as long as wide; color reddish brown. Frons strongly convex eye to eye from epistoma to vertex; surface strongly reticulate, minute rather numerous punctures on vertex gradually replaced toward epistoma by very small granules; vestiture of fine long hair of moderate abundance from upper level of eyes to epistoma. Pronotum 1.1 times as long as wide; about as in *associatus* except posterior areas smooth, shining, punctures moderately small, rather close, deep; vestiture of fine hair, rather short on discal area, twice as long and more numerous toward lateral and anterior margins. Elytra 1.5 times as long as wide, 1.3 times as long as pronotum; disc occupying basal three-fourths of elytra length; basal margin abruptly vertical, forming an obscure, raised transverse crest; disc about as in *associatus* except all interstitial punctures in uniseriate rows. Declivity more

broadly convex and steeper than in *associatus*; striae and interstriae similar to *associatus* except interstitial tubercles slightly larger and not as close. Vestiture of minute strial hair on declivity, and rows of erect, much longer interstitial setae, longest setae on declivity equal in length to twice distance between rows.

Distribution: Argentina, S Brazil, Uruguay.

Argentina: Buenos Aires, H. Richter (type).

Brazil: Nova Teutonia, 1946, F. Plaumann (allotype).

Uruguay: Montevideo (Penaral), 24-XI-1930 (paratype).

Notes: The above treatment was based on the female holotype from Argentina, the male allotype from Brazil (Santa Catarina), and a female paratype from Uruguay.

Xyleborus subductus Schedl

Xyleborus subductus Schedl, 1976:78. Holotype ♀; V. Vera, Mato Grosso, Lon. 55°36', Lat 12°46', Brazil; NHMW, Wien (References in Wood & Bright c1992:777)

Diagnosis: Distinguished from *confluens* Schedl by the more protuberant frons, with larger tubercles; by the more coarsely, closely punctured pronotum disc; by the much more sharply, evenly costate basal margin of the elytra; and by the slightly larger interstitial tubercles on the declivity.

Female: Length 2.8–2.9 mm, 2.7 times as long as wide; color reddish brown. Frons similar to *confluens* except lower half moderately protuberant, tubercles more numerous, slightly larger. Pronotum similar to *confluens* except asperities on anterior slope each more than twice as wide, slightly higher; punctures on posterior area distinctly larger, closer; vestiture less abundant. Elytra similar to *confluens* except costa on basal margin more uniformly, acutely elevated; interstitial tubercles on declivity slightly larger, closer. Longest setae on declivity only slightly longer than distance between rows.

Distribution: Brazil: V. Vera, Mato Grosso, 55°36'W, 12°46'S, X-1973, M. Alvarenga; Agudos, Sao Paulo, 14-V-1985, Duraflora SA forest, ethanol trap, *Pinus oocarpa-P. caribea hondurensis* stand, C.A.H. Flechtmann.

Notes: The above treatment was based on the female holotype and 1 female paratype, both from Brazil.

Xyleborus asperipunctatus Eggers

Xyleborus asperipunctatus Eggers, 1933:35. Holotype ♀; Riviere Lunier, Tomuc Humac, French Guyane; MNHN, Paris (References in Wood & Bright c1992:713)

Diagnosis: A moderately primitive *Xyleborus* with a unique combination of characters that are summarized for this species in the above key. The costate anterior margin of the pronotum, the acutely serrate ventrolateral crest of the elytral declivity, and the pseudo-confused punctures/granules on interstriae of the elytral disc distinguish this species from all other known species of this genus.

Female: Length 2.8 mm, 2.4 times as long as wide; color reddish brown. Frons convex, surface shining, with

partial reticulation in some areas, punctures small, some of those near center appearing in obscure longitudinal rows; a few short setae on lower half, more numerous and longer on epistoma. Pronotum 1.06 times as long as wide; procurved anterior margin mostly costate, with indications of partial serration; summit at middle of pronotum length, anterior slope steep, with asperities small, numerous, confused; posterior areas smooth, shining, punctures very small, moderately close; area near summit partly reticulate between punctures; vestiture of rather abundant moderately long setae on lateral margins and asperate area. Elytra 1.4 times as long as wide, 1.3 times as long as pronotum; disc occupying basal 70 percent of elytra length; disc smooth, shining, strial punctures distinct, mostly in strial rows; interstriae about four times as wide as striae, punctures on basal half of disc similar in size and close spacing to striae, punctures gradually replaced by small granules on posterior half of disc. Declivity steep, broadly convex; strial punctures on basal half larger than on disc, decreasing in size below; interstriae about three times as wide as striae, smooth, shining, 1–7 each armed by a row of about 10 small, pointed tubercles of about uniform size from base to apex. Vestiture from base to apex of rather abundant hairlike setae consisting of slightly shorter semirecumbent setae and longer mostly erect interstitial setae, longest setae in lateral areas equal in length to almost one and one-half times distance between interstitial rows.

Distribution: French Guyane: Riviere Lunier, Tumuc Humac, 1899, F. Geay.

Notes: The above treatment was based on the female holotype.

Xyleborus asper Eggers

Plate XCIX

Xyleborus asper Eggers, 1933:30. Holotype ♀; Nouveau Chantier, French Guyane; MNHN, Paris (Synonymy and references in Wood & Bright c1992:713)

Xyleborus amoenus Schedl, 1948:282. Holotype ♀; Hamburgfarm, [Rio] Reventazon, Ebene Limon, Costa Rica; NHMW, Wien

Diagnosis: Pronotum outline essentially quadrate; ventrolateral margin of declivity subacutely elevated from apex of suture to declivital interstriae 7, declivital interstriae 1–3 about equally sculptured; discal sculpture restricted to basal third of elytral length; declivity shagreened.

Male: Length 2.1 mm, 2.3 times as long as wide; color yellowish brown. Head with vertex slightly flattened (not sulcate); frons profile longitudinally straight, transversely, weakly convex, surface smooth, shining, punctures minute, obscure; hairlike vestiture restricted to epistoma. Pronotum 1.1 times as long as wide; anterior 60 percent of length broadly, moderately concave, basal and lateral margins of impressed area rounded, anterior margin more narrowly rounded with median third produced into a median, acutely pointed spine, concave area smooth, shining, finely punctured, punctures in lateral

areas usually granulate; disc shining, obscurely reticulate, punctures sparse, minute. Elytra 1.3 times as long as wide; resembling female but features poorly formed.

Female: Length 2.7–2.8 mm, 2.5 times as long as wide; color reddish brown. Frons broadly convex, reticulate, coarsely, obscurely punctured, a median, subacute crest from epistoma to above upper level of eyes; vestiture hairlike, very sparse. Pronotum 1.1 times as long as wide; outline subquadrate, anterior and lateral margins weakly arcuate, summit at middle, anterior slope rather coarsely, closely asperate, anterior margin weakly subserrate; disc smooth, shining, some areas of obscure reticulation, punctures minute, not close; glabrous except sparse hair at margins. Elytra 1.4 times as long as wide, 1.4 times as long as pronotum; disc restricted to basal third of elytral length; striae not impressed, punctures small at base, larger toward declivity; interstriae about three to four times as wide as striae, smooth, shining, uniseriate punctures minute to obsolete. Declivity moderately sloping on its basal half, rather steep on apical half; surface usually shagreened; striae punctures twice as large as on disc, some confluent on basal half; interstriae weakly convex, each equally armed by a central row of small, closely spaced, pointed tubercles from base of declivity to apex; ventrolateral margin subacutely, moderately elevated, its crest finely subserrate. Vestiture of interstitial setae mostly on declivity, sparse, a few rather stout on declivity in some specimens, longest equal in length to distance between rows.

Distribution: Costa Rica to Colombia, French Guyane, and Brazil.

Brazil: Cited in Wood & Bright (c1992:713).

Colombia: Depto. Caldas, Region eliomí y Romos, 544, B. Losada S.; Arauquii, San Ander M, VII-1935, X-457, M. Murillo; Carton de Colombia forest 8 km S Colonia near Buenaventura, Valle de Cauca, 9-VII-1970, 30 m, No. 621, *Couma macrocarpa*, SLW.

French Guyane: Nouveau Chantier.

Venezuela: 10 km SE Miri, Barinas, 8-II-1970, 150 m, No. 274, legume tree, SLW; 40 km SE Socopo, Barinas, 25-I-1970, 150 m, No. 544, *Pithecolobium pinnatum*, No. 246, Moraceae, SLW; Campamento Rio Grande 30 km E Palmar, Bolivar, 12-VI-1970, 200 m, No. 545, *Toulicia pulvinata*, SLW.

Hosts: *Couma macrocarpa*, *Pithecolobium pinnatum*, *Theobroma cacao*, *Toulicia pulvinata*, *Virola warburgii*.

Biology: Boring in the wood of larger branches, limbs, and bole.

Notes: The above treatment was based on 17 females and 1 male from Central America, 6 from Colombia, 1 from French Guyane, and 11 from Venezuela. Two females were compared directly to the holotype by me.

Xyleborus maronicus Eggers

Xyleborus maronicus Eggers, 1933:35. Holotype ♀; Charvein, Bas Maroni, French Guyane; MNHN, Paris (References in Wood & Bright c1992:658)

Distinguished from *scaber* Schedl by the more coarsely armed anterior margin of the pronotum; and by the longer interstitial setae, particularly on the declivity.

Female: Length 2.5 mm, 3.0 times as long as wide; color yellowish brown. Frons broadly convex, reticulate, punctures small, inconspicuous, lower fourth with 20 or more minute tubercles, mostly near epistoma; vestiture sparse, of rather long setae. Pronotum 1.15 times as long as wide; sides on basal two-thirds feebly arcuate, subparallel, broadly rounded in front; anterior margin armed by six rather coarse serrations on less than median half; summit slightly behind middle of pronotum length, anterior slope steep, asperities rather small numerous; posterior areas smooth and shining on disc, very weakly reticulate on lateral thirds; vestiture of moderate length, somewhat sparse from base to apex. Elytra 1.8 times as long as wide, 1.5 times as long as pronotum; disc occupying basal 60 percent of elytra length; surface smooth, shining, striae punctures distinct, in rows, interstriae about four times as wide as striae, punctures mostly in rows, each about half as large as those of striae. Declivity rather steep, convex; striae 1 and 2 weakly impressed, interstriae 1–3 each with a row of 9 to 11 small equally spaced tubercles, 4–7 with similar equally large tubercles; ventrolateral crest finely serrate from suture to base of declivity. Vestiture on posterior half of elytra with short recumbent striae setae, and fine, long, semi-recumbent interstitial setae, longest setae about equal in length to one and one-half times distance between rows.

Distribution: French Guyane; Bas Maroni, Charvein, collection of Le Moul, 1909.

Notes: The above treatment was based on the holotype of *Xyleborus maronicus* Eggers. Based upon a misidentified female in the Schedl collection (NHMW, Wien), this species was transferred to *Dryocoetoides* by me (Wood & Bright c1992:658). The holotype is clearly a *Xyleborus*.

Xyleborus scaber Schedl

Xyleborus scaber Schedl, 1948:273. Lectotype ♀; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien, designated by Schedl 1979:220 (Synonymy and references in Wood & Bright c1992:770)
Xyleborus jamaicensis Bright, 1972:79. Holotype ♀; Hardwar Gap, 4000 feet, St. Andrew Parish, Jamaica; CNCI, Ottawa

Diagnosis: Distinguished from the *deplanatus* Eggers group of species by the shorter, steeper, more strongly convex elytral declivity; by the absence of striae setae; and by the much more slender, hairlike interstitial setae on the declivity.

Male: Length 2.5 mm, 3.0 times as long as wide; color yellowish brown. Frons only partly visible on allotype, vertex moderately sulcate, median sulcus decreasing below, very shallow at epistoma. Pronotum 1.5 times as long as wide; sides almost straight and parallel on basal nine-tenths; anterior half very deeply, concavely excavated; interior of excavation smooth, shining, obscure punctures rather coarse, lateral areas and crests without

asperities; lateral crests rather narrowly rounded, each ending anteriorly in an acutely produced spine; anterior margin very strongly produced into an acute median spine twice as long as lateral spines, conspicuously longer than distance equal to its basal width. Elytra 1.6 times as long as wide, very slightly shorter than pronotum; about as in female.

Female: Length 2.3–2.5 mm, 3.0 times as long as wide; color very dark reddish brown. Frons broadly convex; surface strongly reticulate, punctures very sparse, rather coarse; vestiture of very sparse, rather long hair above, more numerous on epistoma. Pronotum 1.3 times as long as wide; sides very weakly arcuate on subparallel basal two-thirds, broadly rounded in front; anterior margin feebly subserrate, closely, rather coarsely asperate on anterior slope, summit slightly anterior to middle; posterior areas moderately reticulate, punctures rather small, sparse; vestiture very sparse, restricted to anterior and lateral margins, hairlike. Elytra 1.7 times as long as wide, 1.35 times as long as pronotum; disc occupying basal 60 percent of elytra length; striae not impressed, punctures small; interstriae three to four times as wide as striae, smooth, shining, punctures less than half as wide as those of striae. Declivity very broadly convex, steep; striae 1–3 with punctures strongly impressed, about twice as large as those on disc; interstriae 1 weakly elevated, 2 and 3 about equal, shining, each with a row of about six to 10 small tubercles of equal size. Vestiture with striae setae absent; interstitial setae of fine, short hair, longest equal in length to less than half distance between rows.

Distribution: Brazil: Nova Teutonia, Santa Catarina, 15-VII-1937 (type and allotype), 17-VII-1937 (paratype), F. Plaumann.

Notes: The above treatment was based on the female lectotype, male lectoallotype, 1 female and 1 male lectoparatype, and 3 other females from southern Brazil. Bright (1972:79) named *jamaicensis* (2.7 mm) then later (Bright 1985:174) placed it in synonymy under *scaber*. The larger body size, slightly concave declivity (profile of suture?), and presence of striae setae on the declivity suggest it may be a different species. The setae on the declivital interstriae were not described or illustrated.

Xyleborus foederatus Schedl

Plate CVII

Xyleborus foederatus Schedl, 1963:58. Holotype ♀; Suriname, Dirkshoop; NHMW, Wien (References in Wood & Bright c1992:740)

Diagnosis: Distinguished from *scaber* Schedl by the smaller size; by the steeper declivity; and by the stouter, shorter interstitial setae on the declivity.

Female: Length 1.7 mm, 2.7 times as long as wide; color dark reddish brown. Frons as in *congruens* Schedl. Pronotum 1.1 times as long as wide; sides feebly arcuate, subparallel on basal half, rather narrowly rounded in front; anterior margin feebly serrate; summit at middle,

anterior slope rather coarsely, closely asperate; posterior areas mostly smooth, shining, small areas of obscure subreticulation near asperities; vestiture of sparse hair on asperate area. Elytra 1.7 times as long as wide, 1.4 times as long as pronotum; disc occupying 67 percent of elytra length; striae not impressed, punctures small, shallow; interstriae smooth, shining, punctures very small, uniseriate. Declivity broadly convex, steep, profile of suture feebly convex; punctures on interstriae 1–3 twice as wide as those of striae, distinctly impressed; interstriae less than twice as wide as striae, smooth, shining, each armed on upper three-fourths by about five rather small, pointed denticles. Vestiture of minute striae hair on declivity, and interstitial rows of erect setae, those on disc slender, each as long as distance between rows, much shorter, stout on declivity, each four to six times as long as wide, each equal in length to half distance between rows.

Distribution: Suriname: Dirkshoop, V-1959, van der Drift; Maripaheuvel, IX-1959, van der Drift.

Notes: The above treatment was based on the female holotype and one female paratype from Suriname.

Xyleborus novagrenadensis Eggers

Xyleborus novagrenadensis Eggers, 1941:103. Holotype ♀; Venezuela (Neu Granada); USNM, Washington (References in Wood & Bright c1992:755)

Diagnosis: Although allied to *scaber* Schedl and *foederatus* Schedl, this species is larger and differs by several characters as indicated in the above key and the following description.

Female: Length 3.8 mm, 2.7 times as long as wide; color dark reddish brown. Frons as in allied species, apparently more finely punctured; vestiture of very sparse hair. Pronotum 1.0 times as long as wide; sides rather weakly arcuate on basal two-thirds, rather broadly rounded in front; summit at middle of pronotum length, anterior slope rather coarsely, closely asperate; posterior areas finely reticulate, punctures minute to obsolete, replaced by minute granules behind summit. Elytra 1.5 times as long as wide, 1.6 times as long as pronotum; disc occupying about half or slightly more of elytra length; striae not impressed, punctures moderately coarse, distinctly impressed; interstriae three times as wide as striae, surface smooth, shining, punctures uniseriate, half as large as those of striae, those on posterior half of disc partly to entirely replaced by a small tubercle. Declivity moderately steep, broadly convex; profile of suture feebly convex on lower two-thirds; striae 1–3 with punctures slightly larger than on disc; surface smooth, brightly shining; interstriae 1–4 each armed by about three small, pointed tubercles on basal half, 3 with two or three additional minute tubercles on lower half, additional uniseriate tubercles extending onto disc. Vestiture absent (abraded on type?) except for one hair near apex

of interstriae 1 and 5 on left elytron. There was no evidence of broken setae.

Distribution: Antilles Islands (Guadeloupe) to Venezuela.

Venezuela: "N. Grenada." [Incorrectly identified prior to Eggers (1941:103) as *X. adelographus*].

Notes: The above description was based on the female holotype.

Xyleborus majusculus Schedl

Plate CXI

Xyleborus majusculus Schedl, 1951:124. Lectotype ♀; Cachoeirinha-Una, Bahia, Brazil; NHMW, Wien (References in Wood & Bright c1992:749)

Xyleborus cachoeirinhae Schedl, 1951:125. Lectotype ♀; Cachoeirinha-Una, Bahia, Brazil; NHMW, Wien (References in Wood & Bright c1992:716). *New synonymy*

Diagnosis: Superficially resembling *discretus* Eggers except anterior margin of pronotum broadly, rather strongly procurved; much stouter than in *pusio* Eggers.

Female: Length 2.8–3.1 mm, 2.5 times as long as wide; color dark reddish brown. Frons as in allied species. Pronotum 1.0 times as long as wide; obscurely subquadrate, anterior margin moderately procurved, finely serrate; anterior slope finely, closely asperate; posterior areas weakly reticulate, almost smooth, punctures very minute, most obscure; sparse vestiture restricted to asperate area. Elytra 1.4 times as long as wide, 1.4 times as long as pronotum; disc occupying more than basal half of elytra length; striae not impressed, punctures small, very shallow; interstriae two to three times as wide as striae, almost smooth, punctures minute, uniseriate. Declivity broadly convex, moderately steep; weakly shagreened; profile of suture convex, a transverse impression on lower half not indicated; striae punctures twice as large as on disc, much deeper, 1–3 near apex curve toward suture; interstriae smooth, each armed by a uniseriate row of very minute, rather closely set setiferous granules. Strial setae absent; vestiture of rows of erect interstitial setae, hairlike on disc and equal in length to distance between rows, on declivity stout and much shorter, each equal in length to two-thirds distance between rows.

Distribution: Brazil: Cachoeirinha-Una, Bahia.

Notes: The above treatment was based on the female holotype and two female paratypes of *majusculus* Schedl and on the syntype of *cachoeirinhae* Schedl that Schedl had labeled as the holotype. Schedl named both species from syntypic series and subsequently selected and labeled a syntype of each as holotype for their respective species. Because the two "holotypes" bear identical labels and are identical except for minor variation of minute detail, I here designate the "holotype" of *majusculus* Schedl as the lectotype of that species and designate the "holotype" of *cachoeirinhae* Schedl as the lectotype of its species, in order to meet the requirements of the Code of Nomenclature.

Xyleborus pusio Eggers

Plate CXVIII

Xyleborus pusio Eggers, 1941:105. Holotype ♀; Guadeloupe (Trois-Rivieres); MNHN, Paris (References in Wood & Bright c1992:767)

Diagnosis: This species and the three that follow it (below) are small, slender, and with the anterior margin of the pronotum strongly procurved, and all have striae setae on the declivity and the interstitial setae on the declivity are unusually stout. In *pusio* the body is stouter, the discal striae are smaller, not as deep, and the interstitial punctures are minute, obscure, and more widely spaced.

Female: Length 1.7 mm, 2.8 times as long as wide; color very dark reddish brown. Frons broadly convex, reticulate, obscure punctures sparse, moderately coarse; subglabrous. Pronotum 1.2 times as long as wide; sides weakly arcuate on basal two-thirds, rather narrowly rounded in front; summit at middle, coarsely, closely asperate on anterior slope, anterior margin weakly subserrate; disc almost smooth (obscure lines present), punctures minute to obsolete; a few hairlike setae at margins. Elytra 1.6 times as long as wide, 1.5 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed, punctures very small, shallow; interstriae three to four times as wide as striae, smooth, shining, punctures minute to obscure, rather widely spaced, a few impressed lines present. Declivity broadly convex, steep; striae punctures larger and deeper than on disc, not in definite rows; interstriae as wide as striae, each armed by a row of small, pointed tubercles in rows on basal half, irregular below. Vestiture of minute striae hair and rows of erect interstitial setae on and near declivity, each seta stout, about six to eight times as long as wide, its length slightly shorter than distance between rows.

Distribution: Guadeloupe Island to Suriname and Venezuela.

Suriname: Cited in Wood & Bright (c1992:767).

Venezuela: 30 km E Palmar, Bolivar, 12-VI-1970, 200 m, rain forest, No. 540, *Pouteria egregia*, SLW.

Biology: Boring in the wood of a small, broken tree in the rain forest.

Notes: The above treatment was based on 1 female from Venezuela that was compared to the holotype of *pusio* Eggers by me.

Xyleborus parcellus Wood

Plate CXIV

Xyleborus parcellus Wood, 1968:2. Holotype ♀; Bartica triangle, Guiana; BMNH, London (References in Wood & Bright c1992:758)

Diagnosis: Distinguished from *pusio* Eggers by the more slender body form; and by the larger, deeper, more regularly spaced interstitial punctures, with those on posterior third of disc granulate (in *pusio* granules occur on only the posterior one-sixth and these are conspicuously smaller).

Female: Length 1.7 mm, 2.9 times as long as wide; color dark reddish brown. Frons and pronotum about as in *pusio*, except disc of pronotum much smoother, punctures distinctly impressed. Elytra 1.64 times as long as wide, 1.5 times as long as pronotum; as in *pusio* except discal interstitial punctures almost as large as those of striae, regularly, rather closely punctured to base, those on posterior third of disc with anterior margin elevated to form a tubercle, punctures on discal striae more regularly, clearly impressed; interstitial setae on declivity six to 10 times as long as wide.

Distribution: Guiana: Mile 27-Potaro Road, X-1948 to III-1949, *Esperus falcata*, D.J. Atkinson.

Notes: The above treatment was based on 1 female from Guiana that was compared by me directly to the female holotype.

Xyleborus demissus Wood

Plate CIV

Xyleborus demissus Wood, 1974:40. Holotype ♀; Rincon de Osa, Puntarenas, Costa Rica; USNM, Washington (References in Wood & Bright c1992:723)

Diagnosis: Distinguished from *parcellus* Wood by the distinctly larger size; by the more gradual elytral declivity that occupies half of the elytral length; and by the shorter, stouter declivital setae.

Female: Length 1.8–2.0 mm, 3.0 times as long as wide; color very dark reddish brown. Frons as in *pusio* Eggers. Pronotum 1.2 times as long as wide; as in *parcellus* except anterior margin variable, very narrowly rounded in some specimens. Elytra 1.8 times as long as wide, 1.6 times as long as pronotum; disc occupying basal third of elytra length, transition gradual; striae not impressed, punctures small, shallow; interstriae about three times as wide as striae, smooth, shining, punctures minute, regularly spaced, none granulate near declivity. Declivital sculpture weakly indicated on middle third of elytra length by feebly tuberculate punctures, each bearing a stout, long bristle; moderately declivous on posterior third, rather gradual, convex; striae not impressed, punctures twice as large as those of disc, in rows, distinct; interstriae each armed by a row of fine, pointed tubercles, some obsolete near apex; ventrolateral margin subacutely costate. Vestiture of fine, short striae hair and rows of erect, rather stout interstitial setae, each seta three to four times as long as wide, its length equal to half distance between rows.

Distribution: Costa Rica to Colombia.

Colombia: Carton de Colombia forest 8 km S Colonia (near Buenaventura), Valle de Cauca, 9-VII-1970, 30 m, No. 649, *Sloania multiflora*, SLW; San Isidro, Valle de Cauca, 10-IX-1977, *Dialyanthera gordonifolis*, H. Schmutzenhofer.

Hosts: *Dialyanthera gordonifolis*, *Pentaclethra macroloba*, *Sloania multiflora*.

Biology: Boring in wood of a log.

Notes: The above treatment was based on 8 females, 4 from Costa Rica and 4 from Colombia.

Xyleborus deplanatus Eggers

Plate CV

Xyleborus deplanatus Eggers, 1933:32. Holotype ♀; Charvein, Nouveau Chantier, Guiana St. Laurent du Maroni, Les Hattes; MNHN, Paris (Synonymy and references in Wood & Bright c1992:724)
Xyleborus longideclivis Wood, 1968:1. Holotype ♀; Bartica triangle, Guiana; BMNH, London

Diagnosis: Distinguished from *demissus* Wood by the larger body size; by the stouter pronotum; and by the more narrowly rounded profile of the posterior margin of the elytra. Declivital sculpture begins well in front of middle of elytral length.

Female: Length 2.2–2.3 mm, 2.7 times as long as wide; color dark reddish brown. Frons about as in *pusio* Eggers. Pronotum 1.0 times as long as wide; about as in *pusio*. Elytra 1.55 times as long as wide, 1.55 times as long as pronotum; disc sculpture restricted to basal third of elytral length, transition moderately abrupt; striae not impressed, punctures small; interstriae four times as wide as striae, smooth, shining, punctures half as large as those of striae, uniseriate. Declivity more distinctly impressed at base, rather weakly declivous on middle third of elytral length, descending more strongly on posterior third; striae punctures on declivity distinctly larger than on disc, interstitial punctures replaced by closely set, small tubercles (a few apparently pointed) from base to apex. Vestiture on interstriae 1 of erect, stout setae, each about four to six times as long as wide, equal in length to about one-fourth to one-half distance between rows. Vestiture on disc and sides sparse, hairlike, length of setae equal to two-thirds distance between rows.

Distribution: Guiana: Bartica triangle, X-1948-III-1949, *Talisia* sp., D.J. Atkinson.

Notes: The above treatment was based on 4 female paratypes from Guiana.

Xyleborus caraibicus Eggers

Plate CII

Xyleborus caraibicus Eggers, 1941:103. Holotype ♀; Guadeloupe; USNM, Washington (Synonymy and references in Wood & Bright c1992:717)
Xyleborus variabilis Schedl, 1948:281. Syntypes ♀; Colomb. W. Coc., Rio Aguacatal, Bolivia; NHMW, Wien (?)
Xyleborus trinidadensis Schedl, 1961:530. Holotype ♀; Trinidad, River Estate; BMNH, London

Diagnosis: Distinguished from *adelographus* Eichhoff by the shallowly impressed discal striae, with the striae punctures more distinctly impressed; and by the more strongly convex declivity.

Female: Length 3.2–3.8 mm, 2.7 times as long as wide; color very dark brown. Frons broadly convex, with an obtuse carina from epistoma to well above eyes; surface reticulate, punctures rather close, variable, small to moderately large. Pronotum 1.04 times as long as wide; subquadrate, sides and anterior margin weakly arcuate, summit at middle, anterior slope rather coarsely, closely asperate; posterior areas smooth, shining, punctures

small, rather close; vestiture of sparse hair on anterior and lateral margins. Elytra 1.6 times as long as wide, 1.6 times as long as pronotum; disc occupying basal two-thirds of elytral length; striae distinctly, rather weakly impressed, punctures rather small, distinctly impressed; interstriae twice as wide as striae, smooth, shining, punctures small, a fourth as large as those of striae, uniseriate except weakly confused on 1 and 2. Declivity moderately, broadly convex; sculpture about as on disc except striae punctures distinctly larger, interstitial punctures replaced by small tubercles (bristle-bearing tubercles slightly larger). Vestiture of sparse interstitial setae on sides and declivity hairlike, rather stout (about four to six in a row), longest setae equal in length to distance between rows.

Distribution: Costa Rica and Antilles Islands to Colombia and Bolivia to Brazil.

Bolivia: Cited in Wood & Bright (c1992:717).

Brazil: Cited in Wood & Bright (c1992:717).

Colombia: Araquilla, San Ander Norte, VII-1935, M. Murillo; Carton de Colombia forest, 8 km S Colonia, near Buenaventura, 9-VII-1970, Valle de Cauca, 30 m, No. 621, *Couma macracarpa*, SLW.

Venezuela: 9 km S Barrancas, Barinas, 1-X-1969, 150 m, No. 40, tree stump, and 5-XI-1969, No. 112, *Mellococcus bijugata*, SLW.

Biology: Boring in wood of logs in forest.

Notes: The above treatment was based on 15 females from Costa Rica and Panama, 2 females from Trinidad, 12 females from Colombia, and 3 females from Venezuela.

Xyleborus peruvianus Schedl

Plate CXV

Xyleborus peruvianus Schedl, 1951:123. Holotype ♀; Chanchamajo, Peru; NHMW, Wien (References in Wood & Bright c1992:762)

Diagnosis: Distinguished from *commixtus* Blandford (Wood 1982:814) by the larger size; by the smooth, shining disc of the pronotum; by the shagreened surface of the elytral declivity; by the weakly elevated lower declivital interstriae 3; and by other characters described below.

Male: Length 3.4 mm, 2.2 times as long as wide. Frons weakly convex below, shallowly sulcate on vertex; eye greatly reduced in size. Pronotum 1.1 times as long as wide; sides almost straight and parallel on basal five-sixths, then abruptly narrowed to a conspicuous, acute, moderately projecting spine on median two-fifths of anterior margin; anterior half broadly, strongly, concavely excavated; asperities obsolete; concave area smooth, subshining, a few minute granules in lateral areas; basal half obscure, apparently smooth, shining, punctures obsolete; vestiture sparse, hairlike, mostly on or near anterior and lateral margins. Elytra 1.3 times as long as wide, 1.03 times as long as pronotum; obscurely as in female except all features poorly formed.

Female: Length 4.0–4.3 mm, 2.7 times as long as wide; color very dark brown. Frons and pronotum about as in

caraibicus Eggers except posterior areas of pronotum smooth, shining, punctures very small. Elytra 1.7 times as long as wide, 1.7 times as long as pronotum; disc occupying 60 percent of elytral length; striae not impressed, punctures rather small; interstriae twice as wide as striae, smooth, brightly shining, except shagreened near declivity, punctures very small, uniseriate. Declivity rather steep, broadly convex; suture mostly straight, slightly convex on lower third; surface shagreened to apex; striae 1 weakly impressed, punctures as small as on disc; interstriae 3 weakly convex just below middle; interstitial tubercles small, some pointed, several obsolete on lower third; ventrolateral margin obscurely, moderately elevated, not serrate. Vestiture of slender interstitial setae mostly on declivity and sides; longest setae equal in length to distance between rows.

Distribution: Panama to Peru.

Colombia: Fresno, Tolima, XII-1939, 1490 m, X-509, H. Barcia; Punto Trejada, Valle de Cauca, 1-IX-1955, *Theobroma cacao*, M. Benavides.

Peru: Chanchamajo (holotype); Tingo Maria, Monson Valley, 18-IX-1954, E.S. Schlinger & E.S. Ross; Junin, 1-IX-1979, EESC 4-80, S. Paucar.

Notes: The above treatment was based on 2 females from Panama, 1 male and 6 females from Colombia, and 6 females from Peru. The female holotype was also examined and compared to all of the above specimens. Reports of *X. commixtus* Blandford from Central America, occurring in Colombia, are probably errors in identification of *peruvianus* Schedl, a very closely allied species.

Xyleborus adelographus Eichhoff

Xyleborus adelographus Eichhoff, 1868:400. Syntypes ♀; Brazil; Hamburg Museum, lost (Synonymy and references in Wood & Bright c1992:706)

Xyleborus accomodatus Schedl, 1966:112. Holotype ♀; Rio de Janeiro; NHMW, Wien

Diagnosis: Distinguished from *caraibicus* Eggers by the smaller size; by the reticulate pronotum disc; by the less strongly impressed discal striae; by the less strongly convex elytral declivity; and by other characters discussed below.

Female: Length 2.8 mm, 2.8 times as long as wide; color dark brown. Frons essentially as in *caraibicus*. Pronotum 1.15 times as long as wide; about as in *caraibicus*, except posterior surface weakly reticulate. Elytra 1.5 times as long as wide, 1.6 times as long as pronotum; declivity occupying 33 percent of elytral length; striae not impressed, punctures small, distinctly impressed; interstriae twice as wide as striae, smooth, shining, punctures very small, uniseriate. Declivity shorter, steeper, less strongly convex; declivital interstriae 1 and 2 each with about three pointed tubercles, one or two small punctures on each space between these tubercles. Vestiture of sparse interstitial setae, mostly abraded on type, length of longest setae on declivity apparently shorter than distance between rows.

Distribution: Brazil: Santa Catarina; Telemaco, Borba, Para, KLABIN, 15-I-1993, *Pinus taeda*, Pedrosa-Macedo.

Notes: The above treatment was based on a Chapuis female syntype (labeled "type"). This syntype is here designated as the female lectotype of *Xyleborus adelographus* Eichhoff. If this syntype proves to be the only surviving syntype of this species, it will automatically become the holotype of this species. The other known syntypes were lost with the Hamburg Museum in 1944.

Xyleborus vitiosus Schedl, n. stat.

Plates XCVII, CXXIV

Xyleborus vitiosus Schedl, 1940:367. Holotype ♀; Mexico; NHMW, Wien (Synonymy and references in Wood & Bright c1992:706)

Diagnosis: Distinguished from *adelographus* Eichhoff by the larger size; by the stouter body form; by the obscurely reticulate pronotum disc; by the more gradual, more distinctly convex elytral declivity; and by the larger strial punctures on the declivity.

Female: Length 3.4–3.6 mm, 2.5 times as long; color dark brown. Frons essentially as in *caraibicus* Eggers. Pronotum 1.08 times as long as wide; about as in *caraibicus* except posterior areas distinctly reticulate. Elytra 1.7 times as long as wide, 1.4 times as long as pronotum; declivity occupying 38 percent of elytra length; interstriae twice as wide as striae, smooth, shining, punctures very small, uniseriate. Declivity more gradual, longer, more strongly convex; declivital interstriae 1 and 2 each with four to eight tubercles, without any punctures in spaces between tubercles. Vestiture of interstitial setae, regularly placed, longest setae on declivity equal in length to distance between rows.

Distribution: Brazil: Telemaco Borba, Parana, 10-XII-1999-31-X-2003, Klabin Papel e Cellulose, baited traps in *Pinus taeda* forest, C.A.H. Flechtmann; Recanto Champagnat, Mato Grosso do Sul, ethanol traps in *Eucalyptus grandis* stand; Nova Teutonia, Santa Catarina, 6-I-1954, 300 500 m, F. Plaumann.

Notes: The above treatment was based on the female holotype from "Mexico," 1 female from Nova Teutonia that was compared by me to Schedl's holotype of *vitiosus*. It was also compared to the lectotype of *adelographus*, and it is definitely not the same species. It is not known from Mexico or Central America. The type apparently was an interception in Mexico or an error in labeling.

Xyleborus parallelocollis Eggers

Plate CXIV

Xyleborus parallelocollis Eggers, 1933:33. Holotype ♀; Nouveau Chantier, French Guyane; MNHN, Paris (References in Wood & Bright c1992:758)

Diagnosis: Profile of suture on lower declivity straight to feebly convex; very similar to *adelographus* Eichhoff except crest on ventrolateral margin of declivity

slightly higher; narrower, slope of declivity more gradual, body slightly stouter.

Female: Length 2.3–2.7 mm, 2.6 times as long as wide; color very dark brown. Frons almost as in *caraibicus* Eggers. Pronotum about as in *adelographus*. Elytra 1.6 times as long as wide, 1.7 times as long as pronotum; disc occupying basal half of elytral length; striae not impressed, punctures rather small, distinct; interstriae twice as wide as striae, smooth, shining, punctures minute, uniseriate. Declivity rather steep, broadly convex, profile of suture straight on lower half; profile of posterior margin shallowly emarginate on median one-eighth; striae 1 and 2 weakly impressed, punctures larger than on disc; interstriae slightly less than twice as wide as striae, almost smooth, shining, 1–3 each armed by a uniseriate row of tubercles, with no punctures, tubercles on basal half of 1 and 3 mostly slightly larger; ventrolateral margin rather narrowly costate, its crest weakly subserrate. Vestiture of rows of erect interstitial setae on sides and declivity, setae on declivity rather stout, each equal in length to distance between rows, spacing within a row slightly greater.

Distribution: Costa Rica and Colombia to French Guyane

Colombia: Cited in Wood & Bright (c1992:758).

French Guyane: Nouveaux Chantier.

Hosts: *Theobroma cacao*.

Biology: Boring in wood of cut and broken limbs.

Notes: The above treatment was based on 18 females from Costa Rica. Two of these were compared to the female holotype from French Guyane.

Xyleborus concentus Wood

Plate CIII

Xyleborus concentus Wood, 1974:39. Holotype ♀; Tapanti, Cartago, Costa Rica; USNM, Washington (References in Wood & Bright c1992:719)

Diagnosis: Distinguished from *parallelocollis* Eggers by the more distinctly concave sutures on the lower declivity; by the less strongly elevated, more obtuse ventrolateral margin of the declivity; and by the much shorter interstitial setae on the declivity.

Female: Length 2.5–2.7 mm, 3.0 times as long as wide; color dark brown. Frons, pronotum, and elytral disc about as in *parallelocollis*. Declivity similar to *parallelocollis*, except profile of suture distinctly concave on lower half; ventrolateral margin more obtuse, less strongly elevated, with crest more strongly serrate. Interstitial tubercles on declivity averaging smaller, setae much shorter, each equal in length to about a third of distance between rows.

Distribution: Costa Rica to Venezuela.

Venezuela: Campamento Rio Grande 30 km E Palmar, Bolivar, 12-VI-1970, 200 m, No. 556, *Alexa imperatricia*, SLW.

Hosts: *Alexa imperatricia*, *Phoebe mexicana*.

Biology: Boring in wood of broken limbs in coastal rain forest.

Notes: The above treatment was based on the female holotype and 4 female paratypes from Costa Rica, and 5 female paratypes from Venezuela.

Xyleborus discretus Eggers

Plate CV

Xyleborus discretus Eggers, 1933:29. Holotype ♀; Marcapata, Peru; USNM, Washington (Synonymy and references in Wood & Bright c1992:725)

Xyleborus usticus Wood, 1968:3. Holotype ♀; Bartica District, Guiana; USNM, Washington

Diagnosis: Distinguished from *concentus* Wood by the larger size; by the shorter, steeper elytral declivity, with the suture profile more strongly concave; and by the lower obtuse ventrolateral margin, with its crest unarmed.

Female: Length 2.9–3.3 mm, 2.6 times as long as wide; color very dark brown. Frons and pronotum about as in *concentus*. Elytra 1.6 times as long as wide, 1.7 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed, punctures rather large; interstriae less than twice as wide as striae, almost smooth (some impressed, irregular lines often present), shining, punctures minute, those bearing a seta larger. Declivity rather steep, broadly convex, emargination at apex of suture weak to obsolete; profile of suture shallowly concave on lower half; punctures on striae 1 and 2 larger than on disc; interstriae 1–3 slightly wider than striae; tubercles on interstriae 1–3 rather small, often pointed (interstitial punctures between tubercles never present); ventrolateral margin rather strongly, subacutely elevated (usually distinctly concave on its mesal face), crest of uniform height, very weakly serrate in some specimens. Vestiture of rows of short interstitial bristles, each about equal in length to one-fourth distance between rows (Mexican specimens with some setae almost as long as distance between rows); sparse setae on sides.

Distribution: Mexico (Veracruz) to Costa Rica, and Venezuela to Guiana.

Guiana: Bartica District, IV-1957, B.M. 1957-394, E.J. Duffy.

Venezuela: El Laurel Experimental Farm 12 km SW Caracas, I-V-1970, 1300 m, No. 467, in log, SLW; 30 km E Palmar, Bolivar, 12-VI-1970, 200 m, No. 533, Pilon Negro, same except No. 556 *Alexa imperitricia*, SLW; Rancho Grande, Aragua, 9-IV-1970, 1100 m, No. 444, tree pole, SLW.

Hosts: *Alexa imperitricia*, "Pilon Negro," both identified by Balbino Rodriguez.

Biology: Boring in wood of logs and limbs in the rain forest.

Notes: The above treatment was based on 2 females from Mexico (Veracruz), 1 female from Guiana, 1 female from Costa Rica, and 63 females from Venezuela. I compared the female from Costa Rica directly to the holotype of *discretus* Eggers.

Xyleborus politus Hagedorn

Plate CXV

Xyleborus politus Hagedorn, 1905:413. Lectotype ♀; Placers du Carsevenne, French Guyane; MNHN, Paris, designated by Wood 1982:815 (References in Wood & Bright c1992:764)

Diagnosis: Distinguished from *discretus* Eggers by the larger size; by the more strongly elevated ventrolateral margin of the elytra (its upper slope clearly concave throughout its length); by the discal interstriae being three times as wide as the striae; and by the longer interstitial setae on the declivity.

Female: Length 3.4–3.7 mm, 2.7 times as long as wide; color very dark brown. Frons rather strongly convex from epistoma to vertex; vertex reticulate, smooth, shining below, punctures sparse, indefinite, a median bulla above upper level of eyes; vestiture hairlike, sparse. Pronotum about as in *caraiibicus* Eggers except posterior areas mostly smooth, shining. Elytra 1.6 times as long as wide, 1.4 times as long as pronotum; disc occupying slightly more than half of elytral length; striae not impressed, punctures small, distinct; interstriae about three times as wide as striae, smooth, shining, punctures about a third as large as those of striae, uniseriate. Declivity moderately steep, rather broadly convex; profile of suture rather shallowly concave on lower third; punctures on striae 1 and 2 considerably larger than on disc, interstriae 1 and 2 twice as wide as striae; tubercles on 1 and 2 considerably larger than on disc, interstriae 1 and 2 almost twice as wide as striae; tubercles on 1 and 3 small, pointed, some obsolete on lower third. Vestiture of sparse interstitial setae on sides and declivity; declivital setae rather stout, in sparse rows, each equal in length to slightly less than distance between rows.

Distribution: Costa Rica and Panama to Venezuela and French Guyane.

French Guyane: Placers du Carsevenne.

Venezuela: Campamento Rio Grande 30 km E Palmar, Bolivar, 12-VI-1970, 200 m, No. 545, *Toulicia pulvinata*, SLW.

Biology: Specimens were removed from a large, broken limb of the host.

Notes: The above treatment was based on 17 females from Costa Rica, 1 female from Panama, and 29 females from Venezuela. The specimen from Panama was compared by me directly to the lectotype of *Xyleborus politus* Hagedorn.

Xyleborus semipunctatus Eggers

Xyleborus semipunctatus Eggers, 1933:30. Holotype ♀; St. Laurent du Maroni, Nouveau Chantier, French Guyane; MNHN, Paris (References in Wood & Bright c1992:771)

Diagnosis: Distinguished from *tribulatus* Wood by the smaller size; by the much smaller striae punctures on the declivity; and by the steeper elytral declivity.

Female: Length 2.4–2.7 mm, 2.5 times as long as wide; color very dark brown. Frons about as in *caraiibicus*

Eggers. Pronotum as in *caraibicus* except posterior areas mostly smooth, shining. Elytra 1.6 times as long as wide, 1.6 times as long as pronotum; disc occupying basal half of elytral length; striae very feebly impressed, punctures rather small, distinct; interstriae about three times as wide as striae, smooth, shining, punctures small, each about a third as large as those of striae, rather closely, regularly set in uniseriate rows. Declivity rather steep; broadly convex above, a moderate transverse impression on lower third, profile of suture distinctly concave; striae distinctly impressed, punctures slightly larger than on disc; interstriae 1–3 weakly convex, smooth, shining, each armed by a uniseriate row of regularly, closely set, small, pointed tubercles from base to apex (about 16–22 in a row); ventrolateral margin moderately, subacutely elevated, its crest of uniform height. Vestiture of uniseriate rows of erect interstitial setae, each seta very short, equal in length to less than one-fourth distance between rows.

Distribution: Costa Rica to Colombia and Venezuela.

Colombia: San Marcos, Valle de Cauca, VIII-1959, 500 m, ramos.

Venezuela: 30 km E Palmar, Bolivar, 12-VI-1970, 200 m, No. 556, *Alexa imperatrixia*, SLW.

Biology: Taken from tunnels in the wood of broken limbs and branches.

Notes: The above treatment was based on 1 female from Costa Rica, 7 females from Colombia, and 2 females from Venezuela. The Venezuela specimens were compared by me directly to the type of *Xyleborus semipunctatus* Eggers

Xyleborus tribulatus Wood

Plate CXXIII

Xyleborus tribulatus Wood, 1974:39. Holotype ♀; Rio Damitas, Dota Mts., San Jose, Costa Rica; USNM, Washington (References in Wood & Bright c1992:779)

Diagnosis: Distinguished from *semipunctatus* Eggers by the larger size; by the more gradual declivity; by the much larger strial punctures on the declivity; and by other characters described below.

Female: Length 3.5–4.0 mm, 2.53 times as long as wide; color very dark brown. Frons and pronotum about as in *caraibicus* Eggers. Elytra 1.55 times as long as wide, 1.55 times as long as pronotum; disc occupying basal 40–45 percent of elytral length; striae feebly impressed, punctures rather small; interstriae about 2.5 times as wide as striae, smooth, shining, with many fine, impressed, irregular lines, punctures small, about a third as large as those of striae, mostly uniseriate, some slightly confused. Declivity rather gradual, very broadly convex, transversely impressed on lower half, profile of suture weakly concave; punctures on striae 1 and 2 large, three times as large as those on disc; interstriae 1–3 shining, each with about sixteen to twenty-two small, pointed tubercles closely spaced, some on 2 slightly confused, 3 feebly elevated on middle third. Vestiture mostly confined to declivity, of short interstitial setae each equal in length

to about a fourth distance between rows; a few longer setae on sides.

Distribution: Costa Rica to Colombia.

Colombia: San Isidro, Valle de Cauca, 10-IX-1977, 0–200 m, *Brosimum utile*, H. Schmutzenhofer.

Notes: The above treatment was based on the female holotype from Costa Rica, and on 3 females from Colombia.

Xyleborus longipennis Eggers

Xyleborus longipennis Eggers, 1933:25. Holotype ♀; Riviere Lumier, Tumuc Humac, French Guyane; MNHN, Paris (References in Wood & Bright c1992:748)

Diagnosis: Superficially resembling *princeps* Blandford which lacks tubercles on declivital interstriae 2 and 4. Distinguished from *lacunatus* Wood, from Costa Rica, by the larger size; by the shagreened surface of the declivity; and by the minute to obsolete declivital setae.

Female: Length 4.7–4.8 mm, 2.6 times as long as wide; color dark reddish brown. Frons convex, lower third of area below upper level of eyes weakly, transversely impressed to epistoma, median line of impressed area weakly subcarinate; surface reticulate, punctures rather small, closer on convex area above, sparse on impressed area; setae short and sparse above, longer and more numerous on epistomal margin. Pronotum 0.90 times as long as wide; quadrate, sides weakly arcuate and subparallel, weakly arcuate in front; anterior margin weakly subserrate; summit at middle of pronotum length; anterior slope steep; asperities small, numerous, close, confused; posterior areas weakly reticulate, punctures small (twice as large as in *lacunatus*), distinct, rather close; mostly glabrous, sparse and short on asperate area. Elytra 1.7 times as long as wide, 1.7 times as long as pronotum; disc occupying 72 percent of elytra length; surface smooth, shining on basal third of elytral disc at suture and on sides to base of declivity, interstriae 1–3 to apex (including all of declivity) shagreened; striae weakly impressed, punctures very small, interstriae about six times as wide as striae, punctures half as large as those of striae, uniseriate except confused on 3. Declivity moderately steep and broadly convex on basal half, shallowly, transversely impressed on lower half, profile of suture weakly concave; interstriae 1–4 each armed by a row of nine to eleven small, pointed tubercles, a few confused on 1. Sparse interstitial setae on declivity arise from some tubercles, length of each seta equal to about half width of an interstriae.

Distribution: French Guyane: Riviere Lunier, Tumuc Humac, 1899, F. Geay (holotype); St. Laurent du Maroni, IV-1909, E. Le Moul (paratype); Charvein bas Maroni, VII-1909, E. Le Moul (pin of paratype, specimen not on pin); Nouveau Chantier, IX-1909, E. Le Moul (paratype).

Notes: The above treatment was based on the female holotype and 2 female paratypes (USNM), data from the empty pin of a third paratype are also included.

Xyleborus schildi Schedl

Plate CXIX

Xyleborus schildi Schedl, 1935:94. Holotype ♀; Turrialba, Costa Rica; NHMW, Wien (References in Wood & Bright c1992:770)

Diagnosis: Distinguished from *lacunatus* Wood from Costa Rica, by the longer, more gradual elytral declivity; and by the presence of small, distinct punctures on declivital interstriae 1–3 between the sparse tubercles.

Female: Length 3.4–4.0 mm, 2.6 times as long as wide; color very dark brown. Frons resembling *caraibicus* Eggers, but narrower. Pronotum similar to *caraibicus*, 1.0 times as long as wide. Elytra 1.4 times as long as wide, 1.4 times as long as pronotum; disc occupying about 60 percent of elytral length; striae feebly impressed, punctures rather small, deep; interstriae about four times as wide as striae, smooth, shining, punctures small, about half as large as those of striae, uniseriate. Declivity gradual at base, steeper below, broadly convex; striae not impressed, punctures small, distinct, as large as on disc; interstriae almost flat, weakly elevated at suture, smooth, shining, 1–3 each armed by two to four small, pointed tubercles, spaces between tubercles from base to apex each with a row of uniseriate punctures, punctures slightly smaller than those of striae; ventrolateral margin moderately, subacutely elevated, crest armed by a sparse row of about six or seven small pointed tubercles. Vestiture very sparse, of slender interstitial setae, most shorter than distance between rows, 1 and 3 each with about six setae, 3 with one or two setae.

Distribution: Costa Rica to Colombia.

Colombia: Carton de Colombia forest 8 km S Colonia, near Buenaventura, Valle de Cauca, 9-VII-1970, 30 m, No. 647, *Rheedia madruno*, SLW; San Isidro, Valle de Cauca, 10-IX-1977, *Brosimum utile*, H. Schmutzenhofer.

Biology: Boring in wood of small broken trees.

Notes: The above treatment was based on 4 females from Colombia, 1 of which I compared directly to the holotype of *schildi* Schedl.

Xyleborus princeps Blandford

Plate CXVII

Xyleborus princeps Blandford, 1898:208. Lectotype ♀; Volcan Chiriqui, Chiriqui, Panama; BMNH, London, designated by Wood 1982: 812 (Synonymy and references in Wood & Bright c1992:765)

Diagnosis: Distinguished from *spathipennis* Eichhoff by the more slender body form; by the shorter, steeper declivity; and by the declivital interstriae being only one to two times as wide as the striae.

Female: Length 5.1–5.9 mm, 2.5 times as long as wide; color dark reddish brown. Frons broadly convex from epistoma to vertex; surface finely reticulate, a short, obtuse median carina at and near epistomal margin; punctures rather small, moderately abundant above eyes, sparse below. Pronotum 1.5 times as long as wide; subquadrate, obscure serrations on anterior margin; anterior slope closely, rather finely asperate; posterior half shining,

almost smooth, obscure subreticulation present, punctures very small, moderately close. Elytra 1.6 times as long as wide, 1.6 times as long as pronotum; disc occupying slightly more than basal half; striae distinctly impressed, except not impressed at extreme base, punctures small, very shallow; interstriae smooth, shining, about three times as wide as striae except very narrow on basal half, punctures very small, uniseriate on 1 and 2, moderately confused on 3–5. Declivity rather steep, broadly convex; striae punctures slightly larger; interstriae 1 and 3 weakly elevated, with tubercles distinctly larger, 2 and 4 not elevated, with tubercles very much smaller; ventrolateral margin subacutely costate, its crest weakly serrate. Vestiture sparse, mostly on declivital interstriae 1 and 3, of erect interstitial hair.

Distribution: Nicaragua to Colombia and Ecuador.

Colombia: Dep. Caldes, Region Chami, I-1944, ramas, B. Losada S.

Ecuador: Pichincha, Puerto Quito, 5-XII-1983, L. Santamar; Pucay.

Biology: Apparently similar to *spathipennis*.

Notes: The above treatment was based on 4 females from Costa Rica, 1 of which I compared to the female lectotype, 5 females from Colombia, and 1 female from Ecuador.

Xyleborus spathipennis Eichhoff

Plate CXXI

Xyleborus spathipennis Eichhoff, 1868:145. Syntypes ♀; Peru, Brazil; Hamburg Museum, lost (Synonymy and references in Wood & Bright c1992:774)

Xyleborus coronatus Eichhoff, 1878:348. Holotype ♂; Brazil interior; IRSNB, Brussels

Xyleborus burgdorfi Hopkins, 1915:59. Holotype ♀; Costa Rica; USNM, Washington

Xyleborus curtus Eggers, 1928:94. Lectotype ♀; Cachabe, Ecuador; USNM, Washington, designated by Anderson & Anderson 1971:11

Xyleborus femoratus Eggers, 1928:95. Lectotype ♀; Bahia, Brazil; MNB, Berlin, designated by Wood 1982:810

Diagnosis: Distinguished from *princeps* Blandford by the stouter body form; by the much larger punctures on the basal half of the pronotum; by the presence of definite crenulations on the anterior margin of the pronotum; and by the much smaller tubercles on the elytral declivity.

Male: Length 3.8–4.5 mm, 2.3 times as long as wide. Head rather strongly, broadly sulcate from epistoma to vertex; eye greatly reduced. Pronotum 1.14 times as long as wide; sides almost straight and parallel on basal 94 percent; anterior half broadly, deeply concave, anterior margin bearing three lobes (median lobe on median third of pronotum width, quadrate, lateral lobes slightly shorter, pointed, each on lateral one-sixth of width); cavity of excavation smooth, closely, rather finely punctured; glabrous except sparse setae near lateral margins. Elytra 1.1 times as long as wide, 1.0 times as long as pronotum; similar to female except all features poorly formed.

Female: Length 4.4–5.3 mm, 2.3 times as long as wide; color very dark brown. Frons as in *princeps*, except punctures larger; median carina more distinct. Pronotum 1.0 times as long as wide; about as in *princeps*, except anterior margin more coarsely serrate (about 8 serrations); punctures on posterior half distinctly larger, closer. Elytra 1.25 times as long as wide, 1.3 times as long as pronotum; disc occupying basal 40 percent of elytra length; striae narrowly, rather strongly impressed to base; interstriae smooth, shining, four or more times as wide as striae, 1 much narrower on basal half of disc, punctures rather small, uniseriate, weakly confused on 3. Declivity moderately steep, broadly convex, usually dull (dried products from host?); striae less strongly impressed; interstriae 1, 3, and 5 with three to five slightly larger (but rather small), widely spaced tubercles, 1–6 with several additional minute, uniseriate tubercles; ventrolateral margin moderately, subacutely elevated, its crest weakly subserrate. Vestiture sparse, hairlike, mostly confined to declivity, consisting of erect, sparse hair of moderate length on declivital interstriae 1, 3, and 5, one or two setae often at base of 2, 4, and 6.

Distribution: Guatemala to Panama and Colombia to French Guyane, Brazil, and Bolivia.

Bolivia: Cosincho Regn. Beni, G.L. Harrington.

Brazil: "Brazilia" (Eichhoff 1868:145).

Colombia: Carton de Colombia forest, 8 km S Colonia, near Buenaventura, Valle de Cauca, 9-VII-1970, *Sloania multiflora*, SLW.

French Guyane: Cayenne.

Guiana: Moraballi, X-1948-III-1949, *Eschweilera sagotiana*.

Peru: Monson Valley, Tingo Maria, 23-XII-1954, E.J. Schlinger & E.S. Ross; Paucartambo, Prn., Cosnipita Valley, Dep. Cusco, 10-I-1952, 1700 m, F. Woytkowski.

Venezuela: Campamento Rio Grande 30 km E Palmar, Bolivar, 12-VI-1970, 200 m, No. 544, *Pithecolobium pinnatum*, SLW.

Hosts: *Bursera simarubra*, *Copaifera* sp., *Cratilia floribunda*, *Eschweilera sagatiana*, *Pithecolobium pinnatum*, *Sloania multiflora*, a palm log.

Biology: This species occurs in the wet rain forest boring in the wood of logs in contact with the ground on the forest floor. The elongate galleries branch and rebranch and anastomose with adjacent galleries. Few Scolytidae tolerate the wet, souring conditions where this species lives.

Notes: The above treatment was based on the male holotype of *coronatus* Eichhoff, 2 females from Colombia, 1 male and 1 female from Guiana, 4 females from Peru, 1 male and 29 females from Venezuela, and 5 males and 74 females from Central America. Five females in the Chapuis Collection from French Guyane taken by Deyrolle and identified by Eichhoff as *spathipennis* Eichhoff subsequent to 1868 were also examined and are correctly placed.

Xyleborus magnificus Wood

Plate CXI

Xyleborus magnificus Wood, 1992:87. Holotype ♀; Junin [presumably Peru]; USNM, Washington (References in Wood & Bright c1992:749)

Diagnosis: Distinguished from *spathipennis* Eichhoff by the weakly impressed discal striae; by the much smaller interstitial punctures; and by the smaller, minute to obsolete minor tubercles on the declivital interstriae and by the more widely spaced major tubercles.

Female: Length 5.5–5.9 mm, 2.4 times as long as wide; mature color dark brown to almost black. Frons broadly convex, surface shining, rather coarsely, very closely punctured; a weak, obtuse, median, subcarinate elevation from epistoma to slightly above upper level of eyes, its upper end broad; vestiture hairlike, mostly on epistoma. Pronotum 0.94 times as long as wide; serrations on anterior margin smaller; disc smooth, shining, punctures on basal half of pronotum very small. Elytra 1.4 times as long as wide, 1.5 times as long as pronotum; disc distinctly longer than declivity, profile of suture weakly convex; striae narrowly, shallowly impressed, punctures small, partly confluent; interstriae four times as wide as striae, surface smooth, shining, punctures minute, a fourth as large as those of striae, uniseriate. Declivity rather steep, very broadly convex; surface rather dull; striae not impressed, punctures distinctly larger than on disc, not confluent; interstriae dull, about five times as wide as striae, smooth, 2 never with minute tubercles or setae (except at base), 1 and 3 each with about two to six small tubercles; ventrolateral margin subacutely, moderately elevated, crest very feebly irregular. Vestiture confined to declivity, of very sparse interstitial hair of moderate length, in rows on interstriae 1, 3, 5, and 7, about two to seven setae in each row.

Distribution: Peru: Junin, 1-IX-1979, EESC 5-80, S. Paucor.

Notes: The above treatment was based on the female holotype and 5 female paratypes, all from Peru.

Xyleborus mimicus Wood, n. sp.

Xyleborus mimicus Wood: Holotype ♀; Junin, Peru; USNM, Washington, designated below

Diagnosis: Distinguished from *magnificus* Wood by the smaller size; by the much more strongly convex profile of the suture on both disc and declivity; by the much longer, subacute median carina on the frons; and by the presence of minute granules and setae on declivital interstriae 2.

Female: Length 4.6–4.8 mm, 2.2 times as long as wide; mature color black. Frons about as in *magnificus*, except median carina longer; more acutely elevated, at least a third of its length above upper level of eyes. Pronotum 0.96 times as long as wide; resembling *magnificus*, except disc much more distinctly, almost uniformly reticulate, punctures on disc much larger, each about twice as large

as those of discal interstriae. Elytra 1.26 times as long as wide, 1.5 times as long as pronotum; profile of disc and declivity at suture much more strongly convex than in *magnificus*; striae more deeply impressed to base than *magnificus*; interstriae almost three times as wide as striae, more strongly convex, punctures distinctly larger than in *magnificus*, those on 2 strongly confused. Declivity occupying half of elytral length, steep, broadly convex; about as in *magnificus*, except interstriae 2–6 each with a uniseriate row of about one to three small, pointed tubercles, and also with a dozen or more minute granules in each row; ventrolateral margin more strongly, acutely elevated than in *magnificus*, its crest distinctly, closely serrate. Vestiture consisting of sparse, uniseriate rows of interstitial hair on 1–7 on posterior disc to declivity.

Distribution: Peru.

Type material: The female holotype and 4 female paratypes were taken at Junin, 1-IX-1979, EESC 3-80, S. Paucor. The type and paratypes are in the U.S. National Museum.

Xyleborus rufipes Eggers

Xyleborus rufipes Eggers, 1933:31. Holotype ♀; Colombia; USNM, Washington (References in Wood & Bright c1992:768)

Diagnosis: Distinguished from *araguensis* Wood by the more strongly arched elytral declivity; and by the slightly larger, less numerous tubercles on declivital interstriae 2.

Female: Length 2.8 mm, 2.7 times as long as wide; color dark reddish brown. Frons broadly convex as in allied species; surface weakly reticulate, punctures moderately large, obscurely impressed. Pronotum 1.07 times as long as wide; as in *araguensis*, except anterolateral angles less abrupt, anterior margin more distinctly procurved. Elytra 1.6 times as long as wide, 1.5 times as long as pronotum; about as in *araguensis*, except declivity steeper, more strongly convex, profile of posterior margin more narrowly curved (but more broadly than *sparsepilosus*), interstitial tubercles about twice as large, 2 and 3 each with about five to seven tubercles, base of each tubercle about equal in diameter to an adjacent striae puncture. Vestiture abraded, apparently more slender and shorter than in *araguensis*.

Distribution: Colombia: "Columbia, Oberthur."

Notes: The above treatment was based on the holotype from Colombia.

Xyleborus araguensis Wood, n. sp.

Xyleborus araguensis Wood: Holotype ♀; Rancho Grande, Aragua, Venezuela; USNM, Washington, designated below

Diagnosis: Closely resembling *titubanter* Schedl, but probably not closely related. Distinguished from *titubanter* by the subquadrate pronotum; by the more coarsely sculptured frons that includes a low, obtuse

median carina from the epistoma almost to the vertex; by the strongly reticulate, more closely punctured pronotum disc; by the more distinctly, more regularly punctured discal interstriae; and by the more nearly carinate ventrolateral margin of the declivity.

Female: Length 2.9 mm, 2.5 times as long as wide; color rather dark reddish brown. Frons rather broadly convex; surface rather strongly reticulate, punctures rather coarse, deep, close; an obtuse, low median carina from epistoma to well above upper level of eyes, half of its length above upper level of eyes; vestiture of sparse hair, more abundant on epistoma. Pronotum 1.1 times as long as wide; subquadrate, summit at middle; anterior slope rather finely, closely asperate, posterior half moderately reticulate, punctures small, moderately close; vestiture sparse, restricted to margins. Elytra 1.1 times as long as wide, 1.6 times as long as pronotum; disc occupying 40 percent of elytral length; striae not impressed, punctures rather small, distinct; interstriae three times as wide as striae, smooth, shining, punctures uniseriate, half as large as those of striae. Declivity rather steep, narrowly convex; striae 1 feebly impressed, punctures on 1 and 2 almost twice as large as those on disc; interstriae slightly wider than striae, smooth, shining, 1–3 each armed by a uniseriate row of about ten to twelve small tubercles of variable size (some of these pointed); ventrolateral margin rather obtuse, moderately elevated, crest weakly acute, its course undulating slightly from side to side. Vestiture mostly confined to declivity, of stout interstitial hair on 1–7 (four to eight setae in each row).

Distribution: Venezuela (Aragua).

Type material: The female holotype was taken at Rancho Grande, Aragua, Venezuela, 9-IV-1970, 1100 m, No. 437, Moraceae host, S.L. Wood. The holotype is in the U.S. National Museum, Washington.

Biology: Boring in the wood of a broken limb.

Xyleborus posticus Eichhoff

Plate CXVI

Xyleborus posticus Eichhoff, 1869:281. Lectotype ♀; Caracas, Venezuela; IRSNB, Brussels, present designation (Synonymy and references in Wood & Bright c1992:765)

Xyleborus novateutonicus Schedl, 1954:47. Lectotype ♀; Rondon, Parana, Brazil; NHMW, Wien, designated by Schedl 1979:172

Xyleborus posticoideus Schedl, 1948:281. Holotype ♀; Cochabamba, Bolivia; NHMW, Wien (References in Wood & Bright c1992:764)

Diagnosis: Distinguished from *araguensis* Wood by the smaller size; by the broadly convex elytral declivity, with the surface usually (not always) shagreened; by the discal punctures on interstriae 2 and 3 mostly half as large as those of striae (or replaced by tubercles). It is noted that among those species in this genus having a subquadrate pronotum, this is the only species known to me in which the male vertex and anterior pronotum are convex, not flat to concavely excavated. This character will have significant bearing on the phylogenetic position of this species (not yet analyzed).

Male: Length 1.5–1.7 mm, 2.7 times as long as wide; color yellowish to reddish brown; eye greatly reduced in size, frons convex as in female; anterior slope of pronotum convex, asperities reduced to small tubercles, summit indefinite; elytra similar to female but poorly formed.

Female: Length 2.2–2.5 mm, 2.5 times as long as wide; color very dark reddish brown to almost black. Frons broadly convex; surface strongly reticulate, a few obscure punctures on upper half; no indication of a median carina. Pronotum 1.1 times as long as wide; subquadrate, summit at middle; anterior slope rather coarsely, closely asperate, posterior half weakly reticulate, shining, punctures minute, rather sparse. Elytra 1.5 times as long as wide, 1.4 times as long as pronotum; disc occupying 55 percent of elytra length; striae feebly impressed, punctures rather large, shallow, interstriae twice as wide as striae, smooth, shining, punctures uniseriate, those on 2 and 3 half as large as those of striae, some near declivity replaced by tubercles. Declivity steep, very broadly convex, surface usually shagreened, shining in a few specimens; punctures on striae 1 and 2 slightly larger, deeper than on disc; interstriae 1 on middle third of declivity length distinctly wider; feebly elevated, 1–6 each with a row of small, pointed tubercles of equal size except obsolete near apex; ventrolateral margin weakly, obtusely elevated, two or three tubercles at base of 7. Vestiture of erect interstitial hair, shorter and often abraded on disc, longer on declivity, setae equal in length or longer than distance between rows, similarly spaced within a row.

Distribution: Mexico (Veracruz) and Antilles Islands to Bolivia and Brazil.

Bolivia: Cited in Wood & Bright (c1992:764).

Brazil: RA, Missiones, 14-XII-1980, ex Erva Mate, C.A.H. Flechtmann; Cepec, Ilheus, Bahia, 1966–1968, at light.

Colombia: Valdivia, 5-II-1930, cacao, C.H. Ballou; Antioquia, 1930, cacao; Manzanillo, Sevilla, Valle de Cauca, 20-VI-1959, guamo semiverde, J.H. Casso; El Tapocillo, Palermo, Huila, 27-IV-1959, ramas verde de cacao, B. Herrera; Delicias, Quinche, Tamana, Huila, 29-IV-1959, ramas de cafe, Z. Solano; El Encanto, La Plata, Huila, 28-IV-1959, naranjo dulce, B. Humides.

Guiana: Cited in Wood & Bright c1992:764.

Peru: Monson Valley, Tingo Maria, 10-X-1954, E.I. Schlinger & E.S. Ross; Las Minas, 20 km SW Rioja, Dep. San Martin, 3-IX-1936, F. Woytkowski.

Venezuela: "Venezuela" (type); Rancho Grande, Aragua, 9-IV-1970, 1100 m, No. 411, tree limb, SLW; Campamento Rio Grande 30 km E Palmar, Bolivar, 12-VI-1970, 200 m, No. 543, Jacaranda copaia, SLW.

Hosts: *Erythrina costaricensis*, *Ficus* spp., *Jacaranda copaia*, *Spondias purpurea*, *Theobroma cacao*.

Biology: Common in injured, broken, or felled limbs, trees, or logs in moist or wet forest. Frequently attracted to light at night.

Notes: The above treatment was based on the lectotype of *Xyleborus posticus* Eichhoff, 7 males and 54 fe-

males from Mexico and Central America, 1 female from Bolivia, 2 females from Brazil, 15 females from Colombia, 6 females from Peru, and 1 male and 42 females from Venezuela. Two female syntypes are in the Chapuis Collection. The first of these syntypes is here designated as the female lectotype of *Xyleborus posticus* Eichhoff, as indicated above. The synonymy of *X. posticoideus* Schedl is based on Kirkendall ex 2005, in press.

Xyleborus improvidus Schedl

Xyleborus improvidus Schedl, 1935:92. Lectotype ♀; Venezuela; NHMW, Wien, present designation, below (Synonymy and references in Wood & Bright c1992:744)

Xyleborus aclinis Wood, 1974:38. Holotype ♀; Cerro Punta near Volcan de Chiriqui (Baru), Chiriqui, Panama; USNM, Washington

Diagnosis: Distinguished from *mutabilis* Schedl by the larger size; by the more slender body form; and by the convex profile of the declivital suture to its apex, not impressed on lower half.

Female: Length 3.1–3.4 mm, 3.0 times as long as wide; color very dark brown. Frons broadly convex; surface above upper level of eyes strongly reticulate, weakly, irregularly reticulate below, punctures rather coarse, not close, somewhat uniformly distributed. Pronotum 1.1 times as long as wide; subquadrate, summit at middle, anterior slope rather coarsely, closely asperate, posterior areas almost smooth, very obscurely reticulate, punctures minute, rather sparse; glabrous except a few setae on margin. Elytra 1.8 times as long as wide, 1.7 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed, punctures moderately coarse; interstriae about twice as wide as striae, shining, almost smooth, a few irregular impressed lines present, punctures small, a third as large as those of striae, uniseriate. Declivity steep, broadly convex; striae 1–3 with punctures distinctly larger than those on disc, interstriae 2 slightly wider than 1 or 3, very feebly elevated on lower half, armed by one (rarely two) moderately coarse tubercles, minute tubercles usually on 1–4 on basal area; ventrolateral margin obtusely rounded, crest usually with one to three very small tubercles. Vestiture hairlike, very sparse, of erect interstitial setae on declivity, only one to three short setae on an interstriae.

Distribution: Panama to Venezuela.

Venezuela: "Venezuela."

Notes: The above treatment was based on the female holotype and 3 female paratypes of *aclinis* Wood from Costa Rica. This holotype I compared directly to the female "holotype" of *improvidus*, and they are considered to be the same species (Wood 1979:36). Because Schedl's "holotype" is a subsequently designated syntype, it is necessary to designate a lectotype from his syntypic series. I here designate Schedl's syntype, labeled by him as a holotype, as the lectotype for *Xyleborus improvidus* Schedl.

Xyleborus mutabilis Schedl

Plate CXII

Xyleborus mutabilis Schedl, 1935:92. Holotype ♀; Venezuela; NHMW, Wien (Synonymy and references in Wood & Bright c1992:754)

Xyleborus itatiayaensis Schedl, 1936:100. Lectotype ♀; Sierra Itatiaya, Sudabhang, Waldregion; NHMW, Wien, designated by Schedl 1979:128

Xyleborus meridensis Wood, 1974:38. Holotype ♀; La Carbonera Experimental Forest 50 km NW Merida, Merida, Venezuela; USNM, Washington

Diagnosis: Distinguished from *improvidus* Schedl by the larger size; by the moderately impressed lower declivity from the suture to striae 3; and by the larger declivital tubercles.

Male: Length 3.5 mm, 2.5 times as long as wide; color yellowish brown. Frons rather strongly sulcate from epistoma to vertex; surface shining, small punctures very sparse; eye greatly reduced in size. Pronotum 1.2 times as long as wide; sides straight and parallel on full length; slightly less than anterior half deeply, broadly concave, anterior margin bisinuate truncate, a short, obtuse, median tubercle on margin, margin acute to anto-lateral angles; disc smooth, irregularly punctured. Elytra resembling female, all features poorly formed.

Female: Length 3.8–4.5 mm, 2.7 times as long as wide; color very dark brown. Frons broadly convex, strongly reticulate, punctures fine, sparse; vestiture hairlike, very sparse, mostly on epistoma. Pronotum 1.1 times as long as wide; about as in *improvidus*, except posterior areas weakly reticulate, punctures very small, sparse. Elytra 1.8 times as long as wide, 1.8 times as long as pronotum; disc occupying basal two-thirds of elytral length; striae not impressed, punctures rather small, distinct; interstriae three times as wide as striae, almost smooth, a few impressed lines present, punctures minute, a fourth as large as those of striae, uniseriate. Declivity narrowly convex, rather steep; punctures on striae 1 and 2 about one and one-half times larger than on disc, distinctly impressed; interstriae 1 armed by several (about eight) minute tubercles and by one slightly larger, 2 armed by two moderate (on middle third) and several minute tubercles, 3 with several small tubercles. Vestiture very sparse, confined to declivity, consisting of erect interstitial hair, fewer than five in a row, very short (length about equal to one-fourth distance between rows).

Distribution: Venezuela to Brazil and Ecuador.

Brazil: Sierra Itatiaya, Rio de Janeiro (type of *itatiayaensis*).

Ecuador: Colonia La Reunion, Tungurahua, 21-I-1993, 1300 m, L. Nada.

Venezuela: Colonia Tovar, Aragua, 4-V-1970, 1700 m, No. 503, log, SLW; Rancho Grande, Aragua, 9-IV-1970, 1100 m, No. 434, tree limb, SLW; La Carbonera Experimental Forest 50 km NW Merida, Merida, 23-IV-1970, No. 451, log, SLW (type of *meridensis*).

Hosts: Broken tree limbs and prostrate logs.

Biology: Boring in the wood of large stems.

Notes: The above treatment was based on the female holotype of *mutabilis*, on the female holotype, 3 male

and 22 female paratypes of *meridensis*, and the female holotype of *itatiayaensis*, and on 13 other females from Brazil.

Xyleborus vismiae Wood

Xyleborus vismiae Wood, 1974:39. Holotype ♀; Rio Damitas, Dota Mts., San Jose, Costa Rica; USNM, Washington (References in Wood & Bright c1992:780)

Diagnosis: Distinguished from *meritus* Wood, from Costa Rica, by the slightly larger size; by the more strongly, transversely impressed lower declivity (profile of suture distinctly concave); by the regularly placed, distinctly larger tubercles on declivital interstriae 1 and 2.

Female: Length 3.3–3.6 mm, 3.0 times as long as wide; color very dark brown. Frons about as in *mutabilis* Schedl. Pronotum 1.1 times as long as wide; about as in *mutabilis*, except anterior margin much more strongly procurved (pronotum not subquadrate); posterior areas weakly reticulate, punctures minute, sparse. Elytra 1.8 times as long as wide, 1.6 times as long as pronotum; disc occupying 60 percent of elytral length; striae not impressed, punctures small, distinct; interstriae three times as wide as striae, surface smooth, shining, punctures minute, uniseriate, each about a fourth as large as on striae. Declivity rather steep, broadly convex above, lower half moderately, transversely impressed, profile of suture distinctly concave on lower half; striae 1–3 with punctures deeper and about twice as large as those on disc, interstriae feebly convex, almost twice as wide as striae, smooth, shining, 1–3 each with a row of about eight fine tubercles (sometimes obsolete on lower fourth), those on 2 often slightly larger; ventrolateral margin subacutely rounded from suture toward 7, crest with a few isolated, minute granules. Vestiture of sparse, erect hair of moderate length, mostly on or near declivity.

Distribution: Costa Rica to Venezuela.

Venezuela: Rancho Grande, Aragua, 9-IV-1970, 1100 m, No. 433, felled Guttiferae tree, SLW.

Hosts: Piper sp., *Vismia guianensis*, Guttiferae sp.

Biology: Boring in broken limbs and small bole of felled trees.

Notes: The above treatment was based on the female holotype of *vismiae* and 10 female paratypes.

Xyleborus uncatatus Schedl

Xyleborus uncatatus Schedl, 1970:96. Holotype ♀; Jacupiranga, Sao Paulo, Brazil, 40 m, 24°45', 47°56'; NHMW, Wien (References in Wood & Bright c1992:780)

Diagnosis: This species is not in the above key. In the above key this species goes to couplet 60-A, then to couplet 66. It appears to be allied to *X. orientalis* Eggers (1933:54) in the *pelliculosus* group of species from the Russian Far East. It differs from *punctulatus* Kurenzov (= *californicus* Wood) by the more distinctly impressed punctures of the discal striae; by the uniseriate punctures on the discal interstriae; and by the shorter, stouter interstitial setae on the declivital interstriae.

Female: Length 1.9 mm, 2.7 times as long as wide; color reddish brown. Frons very broadly convex; surface strongly reticulate; punctures on upper areas obscurely, rather coarsely punctured, finely granulate near epistoma; vestiture of fine, rather long hair, sparse above, more abundant near epistoma. Pronotum 1.1 times as long as wide; sides almost straight and parallel on basal two-thirds, very broadly rounded in front; anterior margin feebly serrate, anterior slope closely, rather coarsely asperate; summit at middle, posterior areas irregularly reticulate, punctures fine, obscure; vestiture of fine, moderately long hair on asperate area and on sides behind. Elytra 1.5 times as long as wide, 1.4 times as long as pronotum; disc occupying basal 60 percent of elytra length; striae not impressed, punctures moderately large; interstriae about 2.5 times as wide as striae, punctures somewhat obscure, half as large as those of striae, uniseriate. Declivity broadly convex, steep; striae weakly, distinctly impressed; interstriae 1–4 weakly convex, each armed by a uniseriate row of fine, pointed tubercles of equal size, about eight to fourteen tubercles in a row; ventrolateral margin abruptly, weakly elevated from suture to level of interstriae 3, crest with about two weak serrations. Vestiture of minute strial hair on and near declivity, and rows of erect interstitial setae; interstitial setae rather stout on declivity, of uniform length, finer on disc; those on declivity equal in length to two-thirds distance between rows.

Distribution: Brazil: Jacupiranga (Sao Paulo), 24°45', 47°56', 40 m, X-1963, F. Plaumann.

Notes: The above treatment was based on the female holotype. Because no similar species of *Xyleborus* exist in South America and because several similar, related species occur in northern China and the Russian Far East, it is presumed that this species might be an introduction to the Sao Paulo area via packing crates used in commerce. Two other species from that area, *punctulatus* Kurenzov and *pelliculosus* Eichhoff, were introduced to the USA through similar means.

Xyleborus parvipunctatus Eggers

Xyleborus parvipunctatus Eggers, 1943:357; Cochabamba, Bolivia; USNM, Washington (References in Wood & Bright c1992:758)

Diagnosis: Distinguished from *praestans* by the much smaller size; by the slightly more slender body form; by the smaller denticles at the base of declivital interstriae 2; and by the longer setae on the elytra.

Female: Length 3.0 mm, 3.0 times as long as wide. Frons partly concealed on type, apparently more convex and not as smooth as in *meritus* Wood. Pronotum similar to *meritus* except minute punctures on pronotum disc more distinctly impressed. Elytra 1.6 times as long as wide, 1.5 times as long as pronotum; declivity occupying 30 percent of elytra length; disc almost smooth, shining; strial punctures small, shallow, in slightly staggered rows; interstriae four times as wide as striae,

punctures small, somewhat irregular, more distinct than in *meritus*. Declivity much steeper and more strongly convex than in *meritus*, profile of suture straight; punctures on striae 1 and 2 slightly larger than on disc; interstriae 2 weakly impressed, with two very small tubercles at or near base, 1 and 3 weakly, equally elevated, each with about four small tubercles (two on each row distinctly larger than those on 2). Setae longer, most equal in length to width of a discal interstriae, a few twice as long.

Distribution: Bolivia: Cochabamba.

Notes: The above treatment was based on the female holotype. Could this be *X. pfeili* (Ratzeburg)? See also *X. bolivianus* Eggers, below and p. 453.

Xyleborus falsus Schedl

Plate CVI

Xyleborus falsus Schedl, 1966:116. Holotype ♀; Venezuela, Moritz [presumably Colonia Tovar, Aragua]; NHMW, Wien (References in Wood & Bright c1992:735)

Diagnosis: Distinguished from the closely allied *cacuminatus* Eggers by the smaller size; by the less strongly produced posterior profile of the elytra apex; by the confluence of tubercles on the crest of interstriae 7 at the base of the declivity; and by the slightly longer, more slender interstitial setae on the declivity.

Female: Length 2.0 mm, 2.86 times as long as wide; color rather dark yellowish brown. Frons broadly convex from eye to eye from epistoma to above upper level of eyes; surface reticulate, punctures sparse, small. Pronotum 1.3 times as long as wide, as in *altilis* Schedl. Elytra 1.7 times as long as wide, 1.5 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed, punctures distinctly impressed in rows, rather small; interstriae twice as wide as striae, surface smooth, shining, punctures very sparse, almost as large as those of striae (those near declivity very slightly granulate). Declivity broadly convex, moderately steep, narrowly rounded behind (profile somewhat subangulate, about 100 degrees), produced very slightly; striae 1–3 with punctures slightly deeper than on disc; interstriae shining, 1 and 3 each armed by a row of five to seven small, pointed tubercles, 2 armed by two or three smaller tubercles near base and one or two near apex; ventrolateral margin weakly subacutely elevated, its crest irregular (not as isolated tubercles). Vestiture mostly restricted to and near disc, each rather slender, about eight to ten times as long as wide, length equal to width of an interstriae, setae on declivital interstriae 2 and 4 mostly obsolete.

Distribution: Venezuela: "Venezuela, Moritz" (apparently taken near the Moritz home at Colonia Tovar, Aragua).

Notes: The above treatment was based on the female holotype from Venezuela.

Xyleborus cacuminatus Eggers

Plate CI

Xyleborus cacuminatus Eggers, 1928:98. Holotype ♀; Amazonas, Brazil; NHMW, Wien (References in Wood & Bright c1992:716)

Diagnosis: Distinguished from *falsus* Schedl by the larger size; by the more strongly, subacutely produced posterior profile of the elytra as seen from the dorsal aspect; by the row of separate tubercles on the ventrolateral crest of interstriae 7 at the base of the declivity; and by the shorter, stouter interstitial setae on the declivity.

Female: Length 2.6 mm, 3.1 times as long as wide; color rather dark yellowish brown. Head and pronotum as in *falsus*. Elytra 1.9 times as long as wide, 1.4 times as long as pronotum; about as in *falsus*, except interstitial punctures near declivity not granulate. Declivity resembling *falsus*, except apex much more strongly produced, forming an angle of about 90 degrees, tubercles similar. Vestiture resembling *falsus*, except stouter, long on disc, shorter on declivity, those on declivity about four to six times as long as wide, almost obsolete on 2 and 4.

Distribution: Brazil: "Amazones, Oberthir."

Notes: The above treatment was based on the female holotype.

Xyleborus altilis Schedl

Plate XCVIII

Xyleborus altilis Schedl, 1966:115. Holotype ♀; Campo Grande, Dept. Cainguas, Misiones, Brazil; ZSSM, Muenchen (References in Wood & Bright c1992:710)

Diagnosis: Distinguished from *pubescens* Zimmermann by the weak, subacutely elevated ventrolateral margin of the declivity; by the absence of tubercles on declivital interstriae 2; by the very slender body form; and by the slightly larger size. It may be allied to *falsus* Schedl and *cacuminatus* Eggers.

Female: Length 2.8 mm, 3.3 times as long as wide; color dark reddish brown. Frons convex eye to eye, from epistoma to vertex; surface reticulate, punctures small, rather sparse, uniformly distributed. Pronotum 1.3 times as long as wide; widest on basal half, sides straight and parallel on more than basal half, anterior margin broadly rounded, unarmed; summit distinctly anterior to middle of pronotum length, anterior slope closely, rather coarsely asperate; posterior areas almost smooth, obscurely subreticulate, punctures sparse, minute. Elytra 1.8 times as long as wide, 1.4 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed, punctures small, distinct, in rows; interstriae twice as wide as striae, smooth, shining, punctures sparse, very small. Declivity steep, broadly convex; striae 1–3 with punctures slightly larger than on disc, their centers reticulate, 1 armed by about five small tubercles (middle one largest), 2 with

two very minute tubercles, 3 with about seven small tubercles (two of them slightly larger); ventrolateral margin subacute from suture to level of striae 3, crest obtuse to 7. Vestiture of sparse, erect interstitial setae, long on disc, short on declivity, mostly obsolete on lower 2 and 4.

"Male": [Not this species, see Notes, below.] Length 2.4 mm, 3.0 times as long as wide, color yellowish brown. Head not clearly visible on specimen at hand. Pronotum 1.06 times as long as wide; summit at middle, median half of anterior half shallowly, subconcavely impressed from summit to anterior margin; anterior margin obtusely subangulate, unarmed; surface of impressed area and its lateral margins finely, not closely rugose (subasperate); basal areas smooth, brightly shining, punctures sparse, minute. Elytra 1.7 times as long as wide, 1.4 times as long as pronotum; disc occupying basal two-thirds of elytra length, striae and interstriae poorly formed. Declivity oblique, rather broadly flattened, base rather abrupt; features poorly formed, one or more minute tubercles on basal margin on interstriae 1–4, also two or more similar tubercles on interstriae 1 and 3 on face of declivity. Vestiture sparse, long, slender on disc, short, stout on declivity. This male almost certainly represents a species different from the female paratype described above.

Distribution: Argentina: Campo Grande, Dep. Cainguas, Misiones, XI-1954.

Notes: The above treatment was based on 1 female paratype and 1 male "paratype," both from the type locality. The male is quite different and does not appear to represent this species.

Xyleborus tumucensis Hagedorn

Plate CXXIII

Xyleborus tumucensis Hagedorn, 1905:414. Lectotype ♀; Riviere Lunier, Tumac-Humac, French Guyane; MNHN, Paris, designated by Wood 1982:820 (Synonymy and references in Wood & Bright c1992:779)
Xyleborus guayanensis Eggers, 1933:26. Syntypes ♂ ♀; Nouveaux Chantier, French Guyane; MNHN, Paris

Diagnosis: Distinguished from *rugulosipes* Wood by the smaller size; and by the strongly confused striae and interstitial punctures on the disc and declivity.

Female: Length 3.5–3.8 mm, 2.5 times as long as wide; color dark reddish brown.

Frons and pronotum about as in *grandis* Eichhoff; pronotum 1.07 times as long as wide, anterior margin more strongly procurved. Elytra 1.4 times as long as wide, 1.4 times as long as pronotum; disc occupying basal 40 percent of elytral length; striae not impressed, punctures very small, distinct on 4–9, 1 and 2 moderately confused to base of declivity; interstriae 3–9 smooth, shining, punctures small, uniseriate, 2 and 3 with punctures confused with those of striae. Declivity rather steep, somewhat impressed on mesal half; area from suture to interstriae 2 with punctures twice as large as those on disc, shallow, their centers appearing reticulate or with a small internal granule, punctures

close, strongly confused; position of interstriae 1–3 each armed by about three moderate, pointed denticles, occasional minute granules sometimes present; profile of suture straight from near base to apex, a weak impression on base at interstriae 2, spreading below from 1 to ventrolateral margin. Vestiture of minute strial hair and uniseriate rows of erect interstitial hair from base to apex, finer and longer on disc, stouter and shorter on declivity (partly abraded or obsolete on lower declivity?).

Distribution: Costa Rica to French Guyane.

French Guyane: Riviere Lunier, Tumac-Humac; “MNHN, Paris”; Nouveau Chantier.

Hosts: *Bursera simarubra* logs, etc.

Biology: Apparently found only in the rain forest in logs 30 to more than 100 cm in diameter.

Notes: The above treatment was based on 7 females from Costa Rica; these were compared by me to the holotype of *Xyleborus guayenensis* Eggers and to the lectotype of *X. tumucensis* Hagedorn (Wood 1982:820).

Xyleborus grandis Eichhoff

Xyleborus grandis Eichhoff, 1869:281. Holotype ♀; Colombia; IRSNB, Brussels (References in Wood & Bright c1992:741)

Diagnosis: Distinguished from *rugulosipes* Wood by the more broadly rounded anterior margin of the pronotum; by the weakly reticulate pronotum disc, with punctures very small, rather close, with no crenulations from summit to base on median two-thirds; and by the more strongly convex declivity, with a few more major tubercles and much shorter setae.

Female: Length 5.2 mm, 2.8 times as long as wide; color dark brown. Frons as in *rugulosipes*. Pronotum 1.0 times as long as wide; widest near base, sides weakly arcuate on basal two-thirds, much more broadly rounded in front than *rugulosipes*; summit at middle, disc weakly reticulate from summit to base on median two-thirds and finely, rather closely punctured; vestiture sparse, restricted to margins. Elytra 1.8 times as long as wide, 1.8 times as long as pronotum; disc occupying basal half of elytra length; striae weakly impressed, punctures small; interstriae three times as wide as striae, smooth, shining, punctures very small, uniseriate on 1–3 except confused near declivity. Declivity rather strongly convex, steep, profile of suture distinctly convex; striae not impressed, punctures on 1 and 2 almost twice as large as on disc; interstriae 1–3 almost equally sculptured, surface smooth, shining, each with a row of about three to five moderately coarse tubercles, with several minute granules in space between larger tubercles, all uniseriate except granules confused near base. Vestiture confined to sides and declivity, of rows of erect interstitial hair, each seta about equal in length to two-thirds distance between rows, spacing within a row twice this distance, about four to seven setae in a row.

Distribution: Colombia: “Colombie, Thomson.”

Notes: The above treatment was based on the *Xyleborus grandis* Eichhoff “type” in the Chapuis col-

lection at Brussels. This specimen is considered to be the female holotype.

Xyleborus rugulosipes Wood, n. sp.

Xyleborus rugulosipes Wood: Holotype ♀; Tapanti, Cartago, Costa Rica; USNM, Washington, designated below

Diagnosis: Distinguished from *tumucensis* Hagedorn by the larger size; by the reduced confusion of punctures on discal interstriae 1 and 2; by the larger, uniseriate declivital punctures on striae 1 and 2; and by the smaller, slightly confused interstitial punctures on 1 and 2 on the declivity.

Male: About 3.7 mm, about 2.3 times as long as wide. Pronotum with anterior sixth badly damaged; sides straight and parallel from base to near anterior margin; median third of anterior half strongly concave (apparently similar to male *mutabilis*). Elytra resembling female except all features poorly formed.

Female: Length 4.2–4.4 mm, 2.6 times as long as wide; mature color very dark brown. Frons broadly convex; surface reticulate above upper level of eyes, smooth, shining below, a low, obtuse, median, subcarinate crest from epistoma to well above upper level of eyes, smooth, shining below; moderately numerous, rather small punctures in lateral areas. Pronotum 1.03 times as long as wide; widest on basal half, sides slightly arcuate on basal two-thirds, anterior margin rather strongly procurved, broadly rounded, finely serrate; summit at middle, anterior slope closely, rather finely asperate; asperities continuing in lateral areas to base, then along basal margin to median area; disc on median half from summit to near base finely punctured, posterior margin of each puncture with a minute crenulation (rather finely asperate to base); vestiture of sparse hair on margins. Elytra 1.7 times as long as wide, 1.7 times as long as pronotum; disc occupying slightly more than basal half; striae very weakly impressed, punctures rather large, very shallow; interstriae smooth, shining, about twice as wide as striae, punctures small, uniseriate near base, weakly confused on 1 and 2, rather strongly on 3 on posterior half of disc. Declivity rather gradual, broadly convex, profile of suture almost straight on lower half; striae 1–3 about as on disc; interstriae 1–3 with confused punctures near base gradually replaced by minute tubercles, 1–3 each with one to three moderately large, pointed tubercles widely spaced on upper half; ventrolateral margin rather narrowly rounded, crest armed by numerous, confused very small denticles. Vestiture of sparse, erect interstitial setae mostly on and near declivity, most setae equal in length to twice distance between rows.

Distribution: Costa Rica.

Type material: The female holotype, male allotype, and 5 female paratypes were taken at Tapanti, Cartago, Costa Rica, 17-IX-1969, 1300 m, No. 181, S.L. Wood; 1 paratype is from San Jose, Costa Rica, M. Valerio. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Xyleborus affinis Eichhoff

Plate XCVIII

Xyleborus affinis Eichhoff, 1868:401. Syntypes ♀; America bor., Cuba; syntypes in Hamburg Museum, lost, 1 in USNM, Washington (Synonymy and references in Wood & Bright c1992:709)

Xyleborus affinis parvus Eichhoff, 1878:372. Syntypes ♀; data not given; Hamburg Museum, lost

Xyleborus affinis mascarensis Eichhoff, 1878:372. Syntypes ♀; St. Mauritio insula Africana; Hamburg Museum, lost

Xyleborus affinis fuscobrunneus Eichhoff, 1878:372. Lectotype ♀; Brazil; NHMW, Wien, designated by Schedl 1979:34

Xyleborus sacchari Hopkins, 1915:64. Holotype ♀; St. Vincent, West Indies; USNM, Washington

Xyleborus subaffinis Eggers, 1933:36. Holotype ♀; Nouveau Chantier, French Guyane; MNHN, Paris

Xyleborus societatis Beeson, 1935:129. Holotype ♀; Papenoo Valley, Tahiti; BPBM, Honolulu

Xyleborus proximus Eggers, 1943:66. Holotype ♀; Leopoldville, Lomami-Kamiema Bangwela, Congo; MRCB, Tervuren

Diagnosis: In tropical and subtropical areas of the world this is probably 1 of the 4 most abundant scolytid species on earth. It is distinguished from *volvulus* (Fabricius) declivity distinctly more gradual than in *volvulus*, by the shagreened elytral declivity; by the much smaller declivital tubercles and finer sculpture. Among many tens of thousands of specimens examined, I have seen only 1 male, and it is in very poor condition.

Male: Length about 1.7 mm, grossly shriveled; color pale yellowish brown. Frons broadly, deeply concave from epistoma to vertex (natural or from shriveling?). Pronotum as long as elytra; anterior slope occupying at least one-third of pronotum length, rather strongly impressed, shallowly concave, anterior margin rather narrowly rounded and moderately projecting cephalad into an obtuse, median point; concave area mostly smooth, shining, minute punctures obscure, a few obscure subcrenulate granules on lateral elevations; disc obscurely, irregularly reticulate, shining, punctures almost obsolete. Elytra obscurely resembling female, all features poorly formed.

Female: Length 2.0–2.7 mm, 2.8 times as long as wide; color yellowish brown to pale reddish brown. Frons broadly convex from epistoma to vertex; surface strongly reticulate, punctures rather sparse, not clearly defined; vestiture hairlike, rather long, mostly on epistomal margin. Pronotum 1.1 times as long as wide; sides almost straight and parallel on slightly more than basal half, rather narrowly rounded in front, anterior margin armed by about eight to twelve low serrations; summit at middle, anterior slope rather coarsely asperate; posterior half smooth, shining, punctures small, distinct, rather sparse; sparse hairlike vestiture largely restricted to margins. Elytra 1.7 times as long as wide, 1.5 times as long as pronotum; disc occupying basal two-thirds of elytral length; striae not impressed, punctures rather small, deep; interstriae twice as wide as striae, smooth, shining, punctures rather sparse, each almost half as large as those of striae. Declivity rather steep, broadly convex; surface shagreened (rarely shining); striae 1–3 about as on disc, except punctures not as deep; interstriae 2 feebly

bly impressed, 1 and 3 feebly elevated; interstriae 1, 3, 5 each armed by about four small, pointed tubercles, 2 and 4 usually unarmed except for one small tubercle at base. Vestiture hairlike, mostly on sides and declivity, of sparse uniseriate rows on declivital interstriae, each seta rather stout, length of setae equal to distance between rows except shorter or mostly obsolete on 2.

Distribution: Of tropical American origin, introduced to tropical Africa, S India, Sri Lanka, Indonesia, Australia, Micronesia, Japan, etc. Endemic from S USA and Antilles Islands to N Argentina. Because it is abundant in logs, broken limbs, etc., in every country of South America (except at very high altitudes and cold southern areas), no attempt was made here to list localities. Greater detail on distribution is given in Wood (1982:830–833) and Wood & Bright (c1992:706–709).

Hosts: Hundreds of hosts are cited in Wood & Bright (c1992:706–709) and other works cited there. Added from the present study are *Sacoglothis procer*, *Icica altissima*, *Eschweilera corrugata*, *Lecythis* sp., *Theobroma cacao*, *Coffea* sp., and arbol de uba.

Biology: The habits and behavior of this species are very similar to those of *ferrugineus* (Fabricius) and *volvulus* (Fabricius). They occur in the same habitats and usually occupy the same trees, except that *affinis* is usually less aggressive and less abundant. The galleries are similar to those of *ferrugineus*, except that the surface tunnels on the xylem surface are exposed under peeled bark and are usually more extensive in *ferrugineus* and of different patterns (Schedl 1962:364–365; Wood 1982:832). Moisture overabundance apparently determines whether or not these surface tunnels are formed. It is commonly attracted to light at night in large numbers.

Notes: The above treatment was based on the presumed syntypes of *affinis* Eichhoff, on the holotypes of *sacchari* Hopkins and *subaffinis* Eggers, on a syntype of *fuscobrunneus* Eichhoff, on cotypes of *proximus* Eggers, on Eggers' homotypes of *parvus* Eichhoff and *mascarensis* Eichhoff, and on more than 5000 specimens from South America. These specimens represent all South American countries.

Xyleborus grossmanni Schedl

Xyleborus grossmanni Schedl, 1952:362. Holotype ♀; in Holzern aus Columbien nach Hamburg importiert; NHMW, Wien (References in Wood & Bright c1992:741)

Diagnosis: Distinguished from *acuminatus* Schedl by the larger size; by the smooth declivital interstriae 1 that lacks tubercles or punctures from base to apex; and by the more coarsely punctured discal striae and interstriae.

Female: Length 3.0–3.4 mm, 2.9 times as long as wide; mature color black. Frons broadly convex; surface strongly reticulate, rather obscurely, coarsely punctured above, a weak subcarinate, median crest on lower third; vestiture sparse, mostly on epistoma, of fine, long hair. Pronotum 1.1 times as long as wide; sides on basal half almost

straight and parallel, rather broadly rounded in front, anterior margin obscurely serrate; summit distinctly behind middle of pronotum length, anterior slope rather gradual, closely, coarsely asperate; posterior areas weakly, irregularly reticulate, punctures minute, rather sparse; vestiture sparse, of rather long, coarse hair on asperate area and lateral margins. Elytra 1.7 times as long as wide, 1.5 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed, punctures rather large, their anterior margins weakly, subtuberculate elevated; interstriae twice as wide as striae, smooth, shining, punctures almost as large as those of striae, their anterior margin slightly elevated, subtuberculate. Declivity rather steep, shallowly impressed between interstriae 3; profile of suture feebly concave from base to apex; striae 1 and 2 not impressed, punctures rather strongly impressed, some twice as large as those on disc, their anterior margin not elevated; interstriae 2 slightly wider than striae, very weakly impressed, 1 and 2 smooth, impunctate, each with one or two minute tubercles at base, one at apex; 3 armed by a conical spine of moderate size near middle of declivity, about three small granules above and below major spine, a few small tubercles in lateral areas; ventrolateral margin broadly rounded, an occasional granule on its crest. Vestiture of interstitial rows of moderately long, fine hair on disc and margins of declivity.

Distribution: Colombia: "Colombien."

Notes: The above treatment was based on the female holotype and on 2 female paratypes, all from Colombia.

Xyleborus productus Hagedorn

Plate CXVIII

Xyleborus productus Hagedorn, 1905:414. Lectotype ♀; Bas Mahury, French Guyane; MNHN, Paris (References in Wood & Bright c1992:765)

Diagnosis: Distinguished from *grossmanni* Schedl by the smaller body size; by the dark reddish brown body color; and by the shorter declivital vestiture; punctures on discal striae with anterior margin normal, not at all elevated; outline of posterior margin of declivity much more obtuse than on *acuminatus* Schedl or *pseudoacuminatus* Wood.

Female: Length 2.6–2.7 mm, 2.9 times as long as wide; color dark reddish brown. Frons broadly convex, a weak, transverse impression above epistoma; surface mostly reticulate, punctures rather small, moderately numerous; vestiture very sparse, short, except longer and more numerous on epistoma. Pronotum 1.05 times as long as wide, similar to *acuminatus* Schedl. Elytra 1.65 times as long as wide, 1.5 times as long as pronotum; similar to *grossmanni* except most striae punctures without anterior margin elevated (except feebly on 1 near declivity). Declivity similar to *grossmanni*, except sutural profile straight, not at all concave on basal three-fourths of declivity length, feebly concave near apex, supplemental

minor granules (not major spines on 3) apparently smaller, less numerous. Vestiture much shorter than on *grossmanni*, especially on sutural interstriae.

Distribution: Suriname (from Eichhoff Collection record): Bas Mahury.

Notes: The above treatment was based on 2 females from the Eichhoff Collection compared by Eggers to the original type before it was lost with the Hamburg Museum. The lectotype was not seen; it bears the same data as the above specimen.

Xyleborus acuminatus Schedl, n. status

Plate XCVII

Xyleborus acuminatus Schedl, 1970:94. Holotype ♀; Nied. Para Distr., Suriname; NHMW, Wien (Synonymy and references in Wood & Bright c1992:741)

Diagnosis: Distinguished from *productus* Hagedorn by the absence of a median carina on the female frons; by the profile of the declivital suture being straight to very feebly concave; by the punctures on declivital striae 1 and 2 being in straight rows; and by the major tubercle on declivital interstriae 3 being slightly below the middle of the declivity.

Female: Length 2.9 mm, 2.7 times as long as wide; color dark reddish brown. Frons similar to *productus*, except median carina absent. Pronotum about as in *grossmanni* Schedl, with summit well behind middle. Elytra similar to *grossmanni*, except interstitial punctures on disc distinctly larger, some of them replaced by small tubercles to base. Declivity resembling *productus*, profile of suture straight to feebly concave, transverse impression weak; punctures of striae 1 and 2 in straight rows; base of interstriae 1 with a row of about five small tubercles, basal third of 2 with about six small tubercles, 3 with major denticle slightly below middle, about six small, uniseriate denticles on basal half; apical protuberance at suture not as strong, more obtuse. Vestiture similar to *productus*, except averaging slightly shorter.

Distribution: Suriname to Brazil.

Brazil: Intercepted in wood from Brazil, 21-III-1967 at Mobile, Alabama (USA), Lot No. 67-6969, *Virola* logs.

Suriname: Para District.

Biology: Boring in wood of imported logs in Alabama.

Notes: The above treatment was based on the holotype of *Xyleborus acuminatus* Schedl from Suriname and on 1 female from Brazil I compared to it. This species is here removed from synonymy with *X. grossmanni* Schedl.

Xyleborus pseudoacuminatus

Wood, n. sp.

Xyleborus pseudoacuminatus Wood: Holotype ♀; Rincon, Osa Peninsula, Costa Rica; USNM, Washington, designated below

Diagnosis: Distinguished from *ferrugineus* (Fabricius) by the slightly produced sutural apex of the elytra; by

the weakly concave profile of the suture; and by the darker color of the elytral declivity.

Female: Length 2.5–2.7 mm, 2.7 times as long as wide; color dark reddish brown, declivity usually much darker. Frons broadly convex, surface weakly reticulate, coarsely punctured; an acutely elevated median carina present from epistoma to upper level of eyes. Pronotum 1.1 times as long as wide; sides feebly arcuate and subparallel on basal two-thirds, obtusely subangulate in front; summit at middle, anterior slope coarsely asperate; posterior areas strongly reticulate, punctures obscure; vestiture rather sparse, mostly on margins. Elytra 1.7 times as long as wide, 1.6 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed, punctures rather large, distinctly impressed; interstriae twice as wide as striae, almost smooth, punctures a fourth as large as those of striae, uniseriate. Declivity steep, broadly convex above, distinctly, transversely impressed on lower half, apex distinctly, obtusely produced; profile of suture distinctly concave on lower half; punctures on striae 1 and 2 much larger than on disc, very slightly confused; interstriae 1 with one moderate tubercle (rarely two) on upper third, one or two minute granules on lower third, 2 with two or three small granules near base, one on lower half, 3 with two or three granules near base, a moderate, pointed tubercle slightly above middle, an occasional granule on lower third; apex of elytra moderately, obtusely produced at suture; ventrolateral margin weakly elevated, two or three very small tubercles on its crest. Vestiture hairlike, of minute strial hair and long, erect interstitial setae in uniseriate rows, those near base of disc mostly equal in length to distance between rows, many on declivity twice as long.

Distribution: Costa Rica to Panama.

Type material: The female holotype and 27 paratypes were taken at Rincon, Osa Peninsula, Costa Rica, 11-VIII-1966, 100 ft., *Rhizophora mangle*, S.L. Wood. One paratype is from Summit Gardens, Canal Zone, Panama, 9-V-1971, E.G. Riley. The holotype and paratypes are in the U.S. National Museum, Washington.

Hosts: *Rhizophora mangle*.

Biology: Boring in wood of a dying bole 20 cm in diameter, the galleries resembling those of *ferrugineus*.

Xyleborus ferrugineus (Fabricius)

Plate CVII

Xyleborus ferrugineus (Fabricius), 1801:388 (Bostrichus). Lectotype ♀; America meridionali; UZMC, Copenhagen, designated by Wood 1982:827 (Synonymy and references in Wood & Bright c1992:735–739)

Tomicus trypanaeoides Wollaston, 1867:114. Syntypes ♀; S. Iago et Fogo, Cape Verde Islands; BMNH, London

Xyleborus fuscatus Eichhoff, 1868:400. Syntypes ♀; Carolina (USA) and Colombia; Hamburg Museum, lost

Xyleborus impressus Eichhoff, 1868:400. Syntypes ♀; Amer. Bor. (Massachusetts); Hamburg Museum, lost

Xyleborus confusus Eichhoff, 1868:401 (Lectotype ♀; Valli do Caracus, Venezuela; IRSNB, Brussels, designated by Wood 1982:16

Xyleborus retusicollis Zimmermann, 1868:146. Holotype ♀; Maryland; MCZ, Cambridge

Xyleborus bispinatus Eichhoff, 1868:146. Syntypes, 8 ♀♀; Brazil; IRSNB, Brussels

Xyleborus amplicollis Eichhoff, 1869:280. Syntypes ♂; Puerto Rico; those in Hamburg Museum lost, 1 in IRSNB, Brussels

Xyleborus insularis Sharp, 1885:193. Syntypes ♀; Hawaii; BMNH, London

Xyleborus tanganus Hagedorn, 1910:8. Syntypes ♀; Tanga, Deutsch-Ostafrika; Hamburg Museum, lost

Xyleborus soltaui Hopkins, 1915:66. Holotype ♀; New Orleans, Louisiana; USNM, Washington

Xyleborus nyssae Hopkins, 1915:66. Holotype ♀; Nichols, South Carolina; USNM, Washington

Xyleborus hopkinsi Beeson, 1929:246. Holotype ♀; Upolu, Malololelei, Samoa; BMNH, London

Xyleborus argentinensis Schedl, 1931:345. Holotype ♀; Argentina: San Ignacio; NHMW, Wien

Xyleborus rufopiceus Eggers, 1932:303. Holotype ♀; Elisabethville, Congo; MRCB, Tervuren

Xyleborus schedli Eggers, 1934:83. Holotype ♀; 12 km from Atlantic Ocean, Limon, Costa Rica; USNM, Washington

Xyleborus nesianus Beeson, 1940:200. Holotype ♀; Mt. Aorai Trail, Taohiri, Tahiti, Society Islands; BPBM, Honolulu

Xyleborus notatus Eggers, 1941:107. Holotype ♀; 3-Riv., Guadeloupe; USNM, Washington

Xyleborus subitus Schedl, 1948:280. Holotype ♀; Chiapas, Mexico; NHMW, Wien

Diagnosis: Distinguished from *affinis* Eichhoff by the shining declivity, with declivital interstriae 1 and 2 without tubercles except at extreme base, 3 with a moderately large tubercle near middle. This a very common species at light and it is one of the most destructive to logs in the forest and at the mill. It is considered to be 1 of the 4 most abundant scolytids in South America.

Male: Length 1.6–1.9 mm, 2.5 times as long as wide; color yellowish brown to reddish brown. Frons weakly convex on lower half, shallowly, broadly sulcate in median area of vertex; surface strongly reticulate, punctures almost obsolete. Pronotum 1.2 times as long as wide; sides almost straight on basal two-thirds, converging very slightly cephalad; summit at middle; anterior slope on more than anterior third, shallowly concave on median three-fifths, lateral and basal margins with sparse, low asperities; anterior margin narrowly rounded, extending to a weakly projecting, obtuse point. Elytra resembling female, except all features poorly formed.

Female: Length 2.0–3.3 mm, 2.7 times as long as wide; mature color dark reddish brown. Frons and pronotum about as in *affinis*, pronotum more brightly shining. Elytra 1.7 times as long as wide; disc confined to anterior two-thirds; striae not impressed to feebly impressed, punctures moderately coarse, rather deep; interstriae twice as wide as striae, surface smooth, shining, punctures uniseriate, rather sparse, about as large as those of striae, some near declivity partly or entirely replaced by tubercles. Declivity steep, shallowly sulcate to moderately flattened between interstriae 3; striae 1 and 2 with punctures larger than on disc, interstriae 1 and 2 shallowly impressed, as wide as striae, punctures and tubercles almost obsolete except one small tubercle at base of each; 3 weakly elevated on basal half, about two or three

small tubercles on basal half, one moderately large tubercle at middle of declivity length, lower half usually unarmed, 4, 5, and 6 each with two or three small tubercles; ventrolateral margin subacutely elevated from suture to level of striae 3, crest irregular, not serrate. Vestiture of rows of erect, interstitial, hairlike setae of moderate length on disc and declivity (often abraded on declivity, etc.).

Distribution: Southern USA and Antilles Islands to northern Argentina, introduced to tropical Africa, S India and Sri Lanka to Micronesia, mostly since 1940. It is common in all South American countries in tropical and subtropical areas. It is very commonly found at light in large numbers. Records are too numerous to list.

Hosts: Large numbers of host species are cited or listed by Schedl (1962:446–454), Wood (1982:829), and Wood & Bright (c1992:735–739). New South American hosts encountered in this study include: *Coffea* sp., *Couma macrocarpa*, *Eschweilera corrugata*, *Lonchocarpus margaritensis*, *Mellococcus bijugatum*, *Pithecolobium pinnatum*, *Protium* sp., *Sacoglothis procera*, *Swietenia macrophylla*.

Biology: This species aggressively attacks recently felled logs in the forest as well as in decking areas and at the mill. Sapwood may be destroyed entirely. It is probably the most destructive species in forested areas of South America in harvested timber. It is quite rare in undisturbed natural forest. It commonly attacks small stems as well as large logs and has been reported from sugar cane. It is also important as a principal vector of *Ceratocystis fimbriata*, which causes a wilt disease of cacao (*Theobroma cacao*).

Newly emerged mated or unmated females fly to seek a new host, usually in early evening. They form multi-branching tunnels that penetrate deep into the sapwood (Schedl 1962:453–455, Wood 1982:830–831), regardless of the depth of the sapwood (2 or more than 30 cm in depth). Tunnels rarely penetrate the heartwood. Surface tunnels at the cambium may be exposed when bark is peeled; these are more commonly formed in very wet habitats and are rare in dry habitats.

This species was successfully cultured on an artificial medium by Saunders and Knoke (1967).

Notes: The above treatment was based on several thousand specimens from S USA to N Argentina. Several of my specimens were compared by me directly to the lectotype of *Xyleborus ferrugineus* (Fabricius), and to the holotype or syntypes of the synonyms listed above (Wood 1982:830–831). DNA studies now in progress suggest that the species treated here may be a complex of several distinct, undetermined species.

Xyleborus subplanatus Eggers

Plate CXXII

Xyleborus subplanatus Eggers, 1943:386. Holotype ♀; Cochabamba, Bolivia; NHMW, Wien (References in Wood & Bright c1992:777)

Diagnosis: Distinguished from *ferrugineus* (Fabricius) by the absence of a tubercle at the base of declivital interstriae 2; by the unarmed declivital interstriae 1, except for two small tubercles at the base; and by two small tubercles on the basal third of interstriae 3 and one or two minute tubercles on the lower third of 3 (on left elytron only on type).

Female: Length 2.7 mm, 3.0 times as long as wide; color dark reddish brown. Frons concealed by pronotum on type. Pronotum 1.2 times as long as wide; sides almost straight and parallel on basal half, anterior margin broadly procurved; summit at middle, anterior slope rather coarsely, closely asperate; posterior areas smooth, shining, punctures very small; vestiture mostly abraded on type, of sparse, hairlike setae on asperate area, appearing mostly obsolete on basal areas. Elytra 1.8 times as long as wide, 1.5 times as long as pronotum; striae not impressed, punctures rather small, in rows; interstriae almost three times as wide as striae, not impressed, punctures very small, regularly spaced. Declivity rather steep, almost flat on median half of lower two-thirds; profile of suture straight; striae 1–3 with shallow punctures slightly larger than on disc; interstriae 1 on basal fourth armed by two small tubercles, 2 entirely unarmed, 3 armed by two small tubercles on basal fourth, one at middle (lower half with two small granules near apex on left elytron, unarmed on right); surface of declivity slightly shagreened. Vestiture of erect interstitial setae, sparse, longer at base of declivity, minute to absent on face of declivity.

Distribution: Bolivia: Cochabamba [Woytkowski].

Notes: The above treatment was based on the holotype.

Xyleborus sextuberculatus Schedl

Plate CXIX

Xyleborus sextuberculatus Schedl, 1952:461. Holotype ♀; Chaco de Santiago del Estero, Rio Dulce, Argentina; NHMW, Wien (References in Wood & Bright c1992:771)

Diagnosis: Distinguished from *ferrugineus* (Fabricius) by the much larger size; by the presence of two pair of moderately large tubercles at the base of the declivity and a third pair on interstriae 3 at the middle of the declivity; and by other details described below.

Female: Length 3.4 mm, 3.0 times as long as wide; color reddish brown. Frons convex eye to eye from epistoma to vertex; surface reticulate, punctures rather small above, very small and obscure below; vestiture sparse, hairlike, mostly on epistoma. Pronotum 1.26 times as long as wide; sides almost straight and parallel on more than basal half, rather narrowly rounded in front; summit at middle, anterior slope rather coarsely, closely asperate; posterior areas smooth, brightly shining, punctures sparse, minute; vestiture consisting of a few setae on asperate area. Elytra 1.6 times as long as wide, 1.3 times as long as pronotum; disc occupying basal three-fourths of elytra length; striae not impressed, punctures

small, deep; interstriae almost twice as wide as striae, punctures very sparse, small. Declivity steep, broadly impressed; suture straight; interstriae unarmed except one moderately coarse tubercle at base of 1, with 2 entirely unarmed, 3 with a moderately large tubercle at base, a moderately large tubercle at middle, and a very small tubercle just before subacuate apical margin, 4 unarmed, 5 and 6 each with one or two minute granules. Vestiture sparse, rather short, on sides and on and near margin of declivity.

Distribution: Argentina: Chaco de Santiago, Del Estero-Rio Dulce, LeMoult.

Notes: The above treatment was based on the female holotype.

Xyleborus volvulus (Fabricius)

Plate CXXIV

Xyleborus volvulus (Fabricius), 1775:454 (Bostrichus). Lectotype ♀; America ligno Dom v. Rohr. [presumably Cuba]; UZMC, Copenhagen, designated by Wood 1982:833 (Synonymy and references in Wood & Bright c1992:780–783)

Xyleborus torquatus Eichhoff, 1868:146. Lectotype ♀; IRSNB, Brussels, designated by Wood 1982:833

Xyleborus alternans Eichhoff, 1869:280. Syntypes ♀♀; Santo Domingo; those in Hamburg Museum lost, 1 in IRSNB, Brussels

Xyleborus badius Eichhoff, 1869:280. Syntypes ♀♀; St. Mauritius; probably Hamburg Museum, lost

Xyleborus interstitialis Eichhoff, 1878:375; Syntypes ♀♀; Mexico; Hamburg Museum, lost

Xyleborus guanajuatensis Duges, 1887:141. Lectotype ♀; Mexico; IRSNB, Brussels, present designation, see notes below

Xyleborus hubbardi Hopkins, 1915:62, 65. Holotype ♀; Biscayne Bay, Florida; USNM, Washington

Xyleborus schwarzi Hopkins, 1915:62, 65. Holotype ♀; Key West, Florida; USNM, Washington

Xyleborus rileyi Hopkins, 1915:65. Holotype ♀; Capron, Florida; USNM, Washington

Xyleborus grenadensis Hopkins, 1915:61, 65. Holotype ♀; Grenada, West Indies; USNM, Washington

Xyleborus silvestris Beeson, 1929:241. Holotype ♀; Molololelei, Upolo, Samoa; BMNH, London

Xyleborus granularis Schedl, 1950:898. Lectotype ♀; Brisbane, Australia ex imported Borneo cedar; NHMW, Wien

Diagnosis: This is 1 of the 4 most commonly found scolytids in South America. It is a member of the *affinis* group of species and is distinguished with great difficulty from *morulus* Blandford (Costa Rica) and *perforans* Wollaston (Africa to Micronesia). Although I have an amber fossil of *perforans* (Wollaston) from the Sudan (Africa) dated 15,000 BP, it is suspected that this group is of American origin. This species is distinguished from *affinis* Eichhoff by the smooth, shining, steeper elytral declivity, with larger tubercles; the ventrolateral margin of the declivity is short and poorly elevated as in *productus* Hagedorn, etc.

Male: Length 1.4–1.8 mm, 2.7 times as long as wide; color yellowish brown; very similar to male *affinis* and *ferrugineus*, with anterior 40 percent of pronotum concavely excavated, median spine on anterior margin of pronotum much longer; elytra about as in female but all characters poorly formed (1 male without any tubercles on declivity).

Female: Length 2.1–2.8 mm, 2.9 times as long as wide; mature color reddish brown. Frons convex, surface coarsely, closely reticulate, median line feebly, obtusely elevated from epistoma to upper level of eyes; vestiture sparse, hairlike, mostly on epistomal margin. Pronotum 1.2 times as long as wide; widest at base, sides on basal two-thirds weakly arcuate, converging very slightly toward rather narrowly rounded anterior margin; anterior margin weakly armed by 16 or more low serrations; summit at middle, anterior slope coarsely, closely asperate; posterior areas smooth, brightly shining, punctures very small, rather sparse; glabrous except a few hairlike setae near margins. Elytra 1.7 times as long as wide, 1.5 times as long as pronotum; disc occupying basal two-thirds of elytral length; striae not impressed, punctures rather coarse, deep; interstriae twice as wide as striae, smooth, shining, punctures uniseriate, half as large as those of striae. Declivity steep, broadly convex; profile of suture weakly convex; striae 1–3 with punctures very slightly larger than on disc, in rows; interstriae shining, wider than striae, 1 armed by three to five pointed tubercles of medium size (unarmed on middle third), 2 armed on basal fourth by two or three pointed tubercles of medium size and one or two near apex of same size, 3 armed by three widely spaced medium, pointed tubercles on lower three-fourths, three or more small tubercles on basal fourth; ventrolateral margin moderately elevated, crest narrowly rounded and armed by eight or more crenulations from suture to end of interstriae 7. Vestiture of minute strial hair on and near declivity, and rows of erect interstitial setae, slender on disc, stouter on declivity, most slightly longer than distance between rows, a few significantly longer.

Distribution: Circumtropical, including S USA and Antilles Islands to N Argentina. Because of the abundance of this species in all South American countries, no attempt was made here to list all localities. For more detail see Wood (1982:833–835) and Wood & Bright (c1992:780–783).

Hosts: Many hosts are listed by Browne (1961:144), Schedl (1962:417–422), Wood (1982:834). Host records from the present study include *Ficus* sp., *Bursera simarubra*, *Terminalia guianensis*, *Inga alba*, *Eschweilera* sp., *Jacaranda copaia*, *Brownia* sp., *Astronium graveolens*.

Notes: The above treatment was based on several thousand specimens from all South American countries, including specimens compared directly by me to the lectotype of *volvulus* (Fabricius), and on the holotype, syntypes, or neotypes of all of the synonyms listed above (except *badius* Eichhoff). Among the material in the Chapuis Collection (IRSNB, Brussels) was found a specimen of *Anaeretus guanajuatensis* Duges labeled “Mexique, Don M. Pfaff, Soc. Ent. Belge, type, det. E. Duges 1887,” glued over the original microcard is a subsequent label “*Xyleborus guanajuatensis* Duges, Type.” A search for a Duges type was made in Mexican museums for this species, but none was found. This specimen is presumed to be that missing type. The specimen is

covered by more than a century of accumulated dust, resins, etc., and it is in very poor condition, but it appears to be a specimen of *volvulus*.

It is my opinion that *volvulus*, an endemic, anatomically, and ecologically diversified American taxon, is different from *perforans* Wollaston of Africa to Micronesia, etc., a more uniform, less diversified taxon. The only consistent character I have found to support this view is the much longer, more sharply defined ventrolateral margin of the elytral declivity. The diversity of *volvulus* and uniformly consistent structural appearance of *perforans* suggests that this entity is of American origin, where most other members of this group occur, and that *perforans* is a minor variant of it. However, the occurrence of fossils in amber from the Sudan (dated 15,000 BP) clearly show that *perforans* was fully defined long before modern commerce began. If future DNA studies fail to show a distinctive genetic code, one must seriously consider the transport of this "species" by ancient mariners. That such a possibility may have existed as early as 22,000 BP has been suggested in semiscientific literature, although adequate scientific documentation has not yet been found.

Xyleborus elevatus Eggers

Xyleborus elevatus Eggers, 1931:21. Holotype ♀; Caracas, Venezuela; probably NHMW, Wien, not found [see Notes, below] (References in Wood & Bright c1992:732)

Diagnosis: This unusual species has the pronotum almost subquadrate, declivital interstriae 1 somewhat resembling *perlongus* Eggers (*neivai* group of species), but it is placed in the above key near *volvulus* (Fabricius). The comparatively large size, slender form, subquadrate pronotum, and declivital sculpture distinguish it.

Female: Length 4.2 mm, 3.3 times as long as wide; color very dark reddish brown. Frons very broadly convex; surface finely reticulate and rather coarsely, not closely punctured from epistoma to vertex, vestiture hairlike, long, very sparse, mostly on or near epistoma. Pronotum 1.2 times as long as wide; outline subquadrate; summit about at middle of pronotum length, anterior slope closely, rather finely asperate; posterior areas smooth, shining, punctures very small, moderately numerous; vestiture sparse, restricted to and near lateral and anterior margins. Elytra 2.0 times as long as wide, 1.6 times as long as pronotum; disc occupying basal 72 percent of elytra length; striae not impressed, punctures small, distinct; interstriae about three times as wide as striae, punctures very minute, rather close, uniseriate. Declivity steep, broadly convex; striae 1–3 with punctures slightly larger and deeper than on disc; interstriae 1 distinctly wider on lower half, striae 1 and 2 moderately curved toward suture near apex; interstriae 1 armed at base by a small tubercle, a moderate tubercle one-third declivity length from base, another slightly larger, moderate tubercle on lower fourth, 2 weakly im-

pressed, unarmed except for one to four small granules at base, 3 weakly elevated and armed by four to five rather small tubercles equally spaced, lower one or two slightly larger; ventrolateral margin from apex to interstriae 7 on lower third of declivity length subacutely elevated. Vestiture sparse, abraded (except for one hair at lowest tubercle on interstriae 1 on left elytron of type).

Distribution: Venezuela: "Gotorico, Moritz" (cotype).

Notes: The above treatment was based on a female cotype at USNM, Washington. The locality label appears to say "Gotorico, Moritz." This is apparently a minor local site near the Moritz home at Colonia Tovar, Aragua, Venezuela, where I collected for a week in 1970. Colonia Tovar, Aragua, Venezuela, is much more likely to be the type locality than is Caracas.

Xyleborus volutus Wood, n. sp.

Xyleborus volutus Wood: Holotype ♀; Bojo Calima, Valle de Cauca, Colombia; USNM, Washington, designated below

Diagnosis: Distinguished from *volvulus* (Fabricius) by the much smaller body size and slender form; by the almost straight profile of the suture on the declivity; and by the larger, sparse, widely spaced punctures on the discal interstriae.

Female: Length 1.7–1.8 mm, 3.0 times as long as wide; color reddish brown. Frons broadly convex, surface reticulate, punctures obscure; median line not marked by an elevation. Pronotum 1.24 times as long as wide; summit slightly in front of middle, similar to *volvulus*, except anterior margin much more finely serrate. Elytra 1.8 times as long as wide, 1.4 times as long as pronotum; disc occupying slightly more than basal two-thirds of elytral length; striae feebly impressed, punctures rather large, deep; interstriae about twice as wide as striae, punctures almost half as large as those of striae, about three to five punctures in each row on 2–4. Declivity steep, broadly convex, profile of suture almost straight on central two-thirds; striae 1 and 2 with punctures slightly larger than on disc, slightly irregular, shallow; interstriae shining, mostly smooth, 1 with one or two medium to small, pointed tubercles at base, a similar, smaller tubercle on apical third, 2 with one or more small tubercles at extreme base (none below), 3 as on 1 except also with a slightly larger, pointed tubercle at middle of declivity length; ventrolateral margin more subacutely elevated over a longer distance, crest more definite, crenulations on basal half more definite, slightly larger. Vestiture about as in *volvulus*, except less abundant, slightly shorter.

Distribution: Colombia (Valle de Cauca).

Type material: The female holotype and 6 paratypes were taken at Bajo Calima, Valle de Cauca, 20-X-1977, 0–200 m, *Protium neglectum*, H. Schmutzenhofer. Three paratypes are from Estacion Biologica La Selva, Heredia, Costa Rica, 50–150 m, 5-V-1999, Inbio. The holotype

and paratypes are in the U.S. National Museum, Washington.

Xyleborus sparsipilosus Eggers

Plate CXX

Xyleborus sparsipilosus Eggers, 1933:34. Holotype ♀; Nouveau Chantier, French Guyane; MNHN, Paris (Synonymy and references in Wood & Bright c1992:774)

Xyleborus inconueniens Schedl, 1948:577. Holotype ♀; Hamburgfarm, Rio Reventazon, Limon, Costa Rica; NHMW, Wein

Diagnosis: Distinguished from *bolivianus* Eggers by the confused granules on declivital interstriae 2; by the very long, fine setae on declivital interstriae 1 and 3; by the more widely spaced interstitial tubercles on the disc; and by the more gradual elytral declivity.

Female: Length 2.2–2.4 mm, 2.6 times as long as wide; color dark reddish brown. Frons as in *bolivianus*, a weak median crest on some specimens. Pronotum 1.1 times as long as wide; about as in *bolivianus*. Elytra 1.7 times as long as wide, 1.5 times as long as pronotum; disc occupying basal 60 percent of elytral length; striae not impressed, punctures rather small; interstriae about twice as wide as striae, smooth, shining, punctures uniseriate, of two kinds: (1) minute, more numerous punctures and (2) sparse, larger punctures with their anterior margin elevated to partly or entirely replace puncture, interstriae 1–3 each with three to five tubercles. Declivity moderately steep, broadly convex; striae 1–3 with punctures twice as large as on disc, rows not entirely straight; interstriae 1–3 as wide as striae, 2 with numerous very small tubercles, mostly to entirely confused; 1 with about six small, pointed tubercles, 3 feebly elevated on lower half, a medium-sized, pointed tubercle near middle, also one or two near apex, and about six on basal half; a few small tubercles in lower areas; profile of suture almost straight; ventrolateral margin subacute from suture to interstriae 7. Vestiture of minute strial hair on declivity, and uniseriate rows of erect interstitial setae on disc and declivity, those on disc and on 1 and 3 on declivity fine, very long, at least twice as long as distance between rows, usually shorter on 2 and 4 of declivity.

Distribution: Costa Rica and Panama to Colombia and French Guyane.

Colombia: Carton de Colombia forest 8 km S Colonia, near Buenaventura, Valle de Cauca, 9-VII-1970, 30 m, No. 626, at light, SLW; Campo Capote 27 km NE Montoyas, Santander, 2-VII-1970, 150 m, No. 632, *Cespidesia macrophylla*, SLW.

French Guyane: Nouveau Chantier.

Hosts: *Cespidesia macrophylla*, *Ficus* sp., *Viola warburgi*.

Biology: Specimens were taken in wood of stems 10–60 cm in diameter.

Notes: The above treatment was based on 21 specimens from Costa Rica, 1 of which was compared to the holotype of *Xyleborus sparsipilosus* Eggers, and 2 females from Colombia.

Xyleborus pfeili (Ratzeburg)

Xyleborus pfeili (Ratzeburg), 1837:168 (Bostrichus). Syntypes ♀ ♀; Luneburgschen und Bayern; apparently DEI, Munchenberg (Synonymy and references in Wood & Bright c1992:762–763)

Bostrichus alni Mulsant & Rey, 1856:111. Syntypes ♀ ♀; Environs de Lyon, France; not located

Xyleborus vicarius Eichhoff, 1875:203. Holotype ♀; Japan; IRSNB, Brussels

Xyleborus adumbratus Blandford, 1894:115. Syntypes ♀ ♀; Nagasaki, Hitoyoshi, Oyama, and Subashiri, Japan; BMNH, London

Diagnosis: Distinguished from *bolivianus* Eggers by the larger size; by the slightly steeper elytral declivity; and by details of the elytral declivity as described below.

Female: Length 2.8–2.9 mm, 3.0 times as long as wide; color yellowish brown to dark reddish brown. Frons about as in *bolivianus* Eggers. Pronotum 1.08 times as long as wide, very similar to *bolivianus*. Elytra 1.9 times as long as wide, 1.7 times as long as pronotum; disc occupying basal three-fourths of elytra length; striae not impressed, punctures small (smaller than in *bolivianus*); interstriae almost three times as wide as striae, punctures regularly spaced, each half as large as those of striae. Declivity steeper than in *bolivianus*, very convex, especially on lower half; profile of suture straight (feebly convex on several specimens), almost flat on lower half from suture to striae 3; interstriae 3 unarmed except at extreme base, 1 armed by three tubercles (upper one usually larger), 3 armed by three tubercles (lowest one usually largest). Vestiture similar to *bolivianus*, except slightly longer.

Distribution: Europe, northern Asia, and north Africa, introduced to USA, New Zealand, and, apparently, southern South America.

Biology: Collected from boles and logs of the host.

Notes: The above treatment was based on 5 females from Europe, identified by Pfeffer, and 3 females from the Andaman Islands that were identified by Beeson and compared by him to the type of *vicarius* Eichhoff. See also *X. parvipunctatus* Eggers, above. Several specimens intercepted at ports of entry in southern Brazil were compared to my specimens from Europe. Unfortunately, collection data were not with the specimens.

Xyleborus bolivianus Eggers

Plate CI

Xyleborus bolivianus Eggers, 1943:385. Holotype ♀; Bolivia; USNM, Washington (References in Wood & Bright c1992:716)

Xyleborus parvipunctatus Eggers, 1943:387. Holotype ♀; Cochabamba, Bolivia; USNM, Washington (References in Wood & Bright c1992:758). See p. 444. *New synonymy*

Xyleborus rugosipennis Schedl, 1963:61. Holotype ♀; Dirkshoop, Suriname; NHMW, Wien (References in Wood & Bright c1992:769). *New synonymy*

Diagnosis: Distinguished from *ferrugineus* (Fabricius) by the darker color; by the absence of a median carina on the lower female frons; by the shorter crest on the ventrolateral margin of the declivity; by the coarser,

usually shorter elytral setae; and by the punctures on the discal interstriae being partly replaced by tubercles.

Female: Length 2.2–2.5 mm, 2.7 times as long as wide; color dark brown, parts of pronotum and declivity almost black. Frons broadly convex, surface reticulate, punctures of moderate, irregular size above, smaller below, with no indication of a median carina; vestiture of sparse hair, mostly on epistomal margin. Pronotum 1.1 times as long as wide; about as in *ferrugineus*. Elytra 1.6 times as long as wide, 1.4 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed, punctures moderately large, distinctly impressed; interstriae twice as wide as striae, surface almost smooth, shining, punctures small, uniseriate, their anterior margin elevated to form a small tubercle or entirely replaced by a tubercle. Declivity steep, broadly convex; striae punctures on 1 and 2 slightly larger than on disc, in rows; interstriae 1 and 3 about as wide as striae, 1 with a medium tubercle near middle and three or more smaller tubercles on basal fourth, 2 unarmed below, with about three small tubercles on basal fourth, 3 unarmed on lower half, a medium tubercle at middle and about four smaller tubercles on basal third. Vestiture of minute striae hair on declivity; and rows of erect interstitial setae on disc and declivity (stouter on declivity), most distinctly longer than distance between rows, spaced within a row by similar distance; usually partly or entirely abraded on declivity.

Distribution: Costa Rica to Bolivia.

Bolivia: "Bolivia."

Hosts: *Cynometra hemitomophylla*, *Pentaclethra macroloba* (both in Costa Rica).

Biology: Boring in wood of recently broken limbs.

Notes: The above treatment was based on my examination of the holotype of *bolivianus* Eggers and on 16 females from Costa Rica, on the holotype of *parvipunctatus* Eggers that was compared to my series of *bolivianus* females, and on the female holotype and 6 female paratypes of *rugosipennis* Schedl that were compared directly by me to my homotype of *bolivianus* Eggers.

Xyleborus incertus Schedl, n. status

Plate CIX

Xyleborus rugosipennis incertus Schedl, 1963:63. Syntypes ♀; Dirkschoop, Maripahuvel and Poeroe Man Kemisa, Suriname; NHMW, Wien (References in Wood & Bright c1992:769). A valid species
Xyleborus oneratus Schedl, 1976:76. Holotype ♀; V. Vera, Mato Grosso, Brasil, Lon. 55°36', Lat. 12°48'; NHMW, Wien (References in Wood & Bright c1992:757). *New synonymy*

Diagnosis: Allied to *bolivianus* Eggers, distinguished by the larger size; by the weaker, transverse impression on the elytral declivity; by the smaller discal punctures on the striae; and by the closer interstitial tubercles on the disc.

Female: Length 2.7–2.9 mm, 2.7 times as long as wide; color dark reddish brown. Frons as in *bolivianus*. Pronotum 1.2 times as long as wide; about as in *bolivianus*. Elytra 1.6 times as long as wide, 1.2 times as long as pronotum; disc occupying basal two-thirds of elytra

length; striae punctures rather small, distinct; interstriae slightly more than twice as wide as striae, smooth, shining, most punctures replaced by small tubercles (a few on basal half unmodified). Declivity steep, broadly convex; profile of suture on middle half straight to feebly concave, transverse impression on lower half stronger, extending at least to striae 3; striae 1 and 2 with punctures in normal rows; ventrolateral margin more broadly rounded, its summit unarmed; interstriae 1 armed by two to three rather small, pointed tubercles (positions not constant), 2 with two or three small tubercles at base, 3 with about three moderate, pointed tubercles (middle one usually slightly larger). Vestiture of very minute striae hair on declivity, and rows of rather coarse, erect interstitial setae, length of most about equal to distance between rows, a few distinctly longer, often abraded.

Distribution: Colombia and Suriname to Brazil.

Brazil: Cited in Wood & Bright (c1992:767); V. Vera, Mato Grosso 56°36' Lon., 12°48' Lat.

Colombia: Carton de Colombia forest 8 km S Colonia, near Buenaventura, Valle de Cauca, 9-VII-1970, 30 m, No. 649, *Sloania multiflora*, SLW; San Isidro, Valle de Cauca, 10-IX-1977, 0–200 m, *Dialyanthera gordonifolia*, F. Schmutzenhofer.

Suriname: Dirkschoop, XI-1969, J. van der Drift.

Biology: Boring in the wood of broken limbs.

Notes: The above treatment was based on the female holotype and 6 paratypes of *Xyleborus rugosipennis incertus* Schedl from Suriname, and on 4 females from Colombia. It is now clear that this is a valid species; consequently, it is elevated from subspecies to species rank. The female holotype of *X. oneratus* Schedl was also examined and compared directly by me to the holotype of *incertus*. They are of the same species.

Xyleborus geayi Hagedorn

Plate CVIII

Xyleborus geayi Hagedorn, 1905:413. Lectotype ♀; Camopi, French Guyane; MNHN, Paris (References in Wood & Bright c1992:740–741)

Diagnosis: Distinguished from *rugosipennis* Schedl by the larger size and stouter body form; by the weakly to moderately confused punctures on declivital striae 1 and 2; and by the wider, slightly stronger, transverse impression on the declivity.

Female: Length 2.9–3.3 mm, 2.5 times as long as wide; color dark reddish brown. Frons as in *bolivianus* Eggers. Pronotum 1.1 times as long as wide; about as in *bolivianus*. Elytra 1.5 times as long as wide, 1.4 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae punctures small, distinct; interstriae about three times as wide as striae, smooth, shining, punctures replaced by regularly spaced tubercles of moderate size. Declivity steep, broadly convex; profile of suture feebly convex from base to apex, transverse impression rather weak, extending to interstriae 3; striae 1 and 2 with punctures weakly to strongly confused; ventrolateral

margin with crest more narrowly rounded, its summit usually armed by two or three serrations; positions of tubercles about as in *rugosipennis* but slightly smaller. Vestiture about as in *rugosipennis*.

Distribution: Costa Rica and Colombia to Suriname and Brazil.

Brazil: Cited in Wood & Bright (c1982:740–741).

Colombia: Carton de Colombia forest 8 km S Colonia, near Buenaventura, Valle de Cauca, 9-VII-1970, 30 m, No. 649, *Sloania multiflora*, SLW; San Isidro, Valle de Cauca, 10-IX-1977, *Dialyanthera gordonifolia*, H. Schmutzenhofer.

French Guyane: Comopi; Ikuribisi, X-1948-III-1949, at light, D.J. Atkinson.

Guiana: Georgetown, IX-1922, C.D. Cleare.

Venezuela: Campamento Rio Grande 30 km E Palmar, Bolivar, 12-VI-1970, 200 m, *Trichilia propingua*, No. 536 in *Caimito amarillo*, SLW.

Hosts: *Caimito amarillo*, *Dialyanthera gordonifolia*, *Sloania multiflora*, *Trichilia propingua*.

Biology: Boring in wood of broken limbs in rain forest.

Notes: The above treatment was based on 3 females from Costa Rica, 9 females from Colombia, 2 females from Guiana, and 27 females from Venezuela (3 of which were compared directly by me to the lectotype of *Xyleborus geayi* Hagedorn).

Xyleborus similis Ferrari

Xyleborus similis Ferrari, 1867:23. Holotype ♀; Insula Keelingo; NHMW, Wien (Synonymy and references in Wood & Bright c1992:772–774)

Bostrichus ferrugineus Boheman, 1858:152. Holotype ♀; Insula Keelingo; NHMW, Wien, preoccupied by Fabricius 1801:388

Xyleborus parvulus Eichhoff, 1868:152. Holotype ♀; Ceylon; Hamburg Museum, lost

Xyleborus dilatatus Eichhoff, 1878:393. Syntypes ♀; Africae Insula St. Mauritzius; Hamburg Museum, lost

Xyleborus submarginatus Blandford, 1896:223. Syntypes ♀; India, Belgaum, Ceylon, Celebes, New Guinea, Dorey; BMNH, London

Xyleborus bucco Schaufuss, 1897:212. Syntypes ♀; Sechellen, La Digue; Hamburg Museum, lost

Xyleborus capito Schaufuss, 1897:215. Syntypes ♀; Philippines; those in Hamburg Museum lost, 1 in USNM, Washington, 1 in NHMW, Wien

Xyleborus novaguineanus Schedl, 1936:530. Holotype ♀; New Guinea; NHMW, Wien

Xyleborus dilatatus Schedl, 1953:127. Lectotype ♀; Saigon; NHMW, Wien, designated by Schedl 1979:80

Diagnosis: Although commonly intercepted in Central and South America, permanent breeding populations of this species apparently have not been established. It is superficially similar to *posticus* Eichhoff and may be distantly related. It is distinguished from all South American *Xyleborus* species by the strongly widened lower half of declivital interstriae 1 that bears one moderately large tubercle on the lower half, in most specimens the declivity is shagreened.

Female: Length 1.8–2.5 mm, 2.7 times as long as wide; color reddish brown. Frons broadly convex from epistoma to vertex; surface reticulate, punctures rather large, moderately coarse above, a weak, obtuse, subcarinate

crest from epistoma almost to upper level of eyes; vestiture hairlike, very sparse, mostly on epistomal margin. Pronotum 1.1 times as long as wide, almost subquadrate, anterior margin broadly procurved, weakly serrate; summit at middle, anterior slope rather coarsely, closely asperate; posterior areas weakly, irregularly reticulate, punctures minute, sparse. Elytra 1.7 times as long as wide, 1.5 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed, punctures moderately coarse, rather shallow; interstriae about twice as wide as striae, smooth, shining, punctures uniseriate, less than half as large as those on striae. Declivity steep, broadly convex, surface usually shagreened; striae 1 strongly diverging from suture on lower half to double basal width, punctures of striae 1–3 clearly marked, rather shallow; interstriae 1 armed by one to three small tubercles at or near base, a moderately large, conical tubercle slightly below middle, a small granule sometimes present near apex, 2 unarmed except for one or more minute granules near base, 3 usually armed by five or six widely spaced small tubercles; ventrolateral margin moderately, acutely elevated from suture to interstriae 7, crest weakly subserrate. Vestiture of rows of erect interstitial hair on disc and declivity (usually partly abraded), most setae equal in length to distance between rows.

Distribution: Africa, tropical Asia and N Australia to Micronesia, intercepted in Central and South America, but probably not yet established. Intercepted specimens were examined from Mexico, Costa Rica (in virgin forest), Panama, Brazil (Deyr., Chapuis Collection), Venezuela (Coche, Deyr., Chapuis Collection).

Hosts: Many (Schedl 1962:467–471, Wood & Bright c1992:772–774).

Biology: Breeds in wood of limbs and logs in moist to wet forest.

Notes: The above treatment was based on 64 females from India, Sri Lanka, and Micronesia, and on the specimens cited above from the Chapuis Collection. Specimens intercepted in southern Brazil were seen but are not now at hand. None were seen from natural forests or mills.

Xyleborus catharinensis Eggers

Xyleborus catharinensis Eggers, 11928:98. Syntypes ♀♀; Joinville, Santa Catarina, Brazil; SMTD, Dresden, and Eggers Collection (References in Wood & Bright c1992:672)

Diagnosis: Not in the above key. It appears to be near *X. neivai* Eggers or possibly *X. celsus* Eichhoff. Distinguished from allied species by the broadly rounded ventrolateral margin of the elytra declivity (not subacutely costate); by the unique elytral declivity (described below); and by the comparatively large size. It is definitely a *Xyleborus*.

Female: Length 4.2 mm, 2.6 times as long as wide; color reddish brown. Frons moderately convex, smooth, shining, upper and median areas finely, rather closely

punctured, in lower and lateral areas small tubercles replace punctures; vestiture of sparse, long hair. Pronotum 1.16 times as long as wide; sides very weakly arcuate and converging cephalad on basal two-thirds, rather narrowly rounded on unarmed anterior margin; summit at middle of pronotum length; anterior slope rather finely, closely asperate; disc smooth, shining, punctures rather small, close; vestiture of fine hair of moderate abundance, except sparse to obsolete on disc. Elytra 1.6 times as long as wide, 1.4 times as long as pronotum; striae not impressed, punctures very small; interstriae smooth, shining, three or more times as wide as striae, punctures minute, about a third as large as those of striae, moderately confused. Declivity occupying slightly more than posterior fourth, rather broadly convex, steep; striae indicated only on basal third, punctures confused with those of interstriae laterally and below; a moderately large, pointed tubercle on 1 one-third declivity length from base, a slightly larger, pointed tubercle on 1 one-third distance from apex but displaced laterad from 1, a smaller tubercle on 3 (?) one-third declivity length from base. Vestiture hairlike, sparse on disc and sides, rather abundant on declivity.

Distribution: Brazil: Nova Teutonia, Santa Catarina, 8-IX-1939, F. Plaumann.

Notes: The above treatment was based on a Schedl specimen in the NHMW, Wien.

Xyleborus caldensis Wood, n. sp.

Plate CII

Xyleborus caldensis Wood: Holotype ♀; Anserma, Caldas, Colombia; USNM, Washington, designated below

Diagnosis: Distinguished from *neivai* Eggers by the punctures of declivital striae 1 and 2 being larger and in definite rows, interstriae 1 and 2 with punctures minute, in rows; by the declivital vestiture being in definite rows; and by the slightly smaller body size.

Male: Length 2.8–3.0 mm, 2.2 times as long as wide; color reddish brown. Frons broadly convex below upper level of eyes, vertex moderately sulcate on median half, sulcus decreasing and obsolete by upper level of eyes; surface mostly reticulate, very small punctures moderately abundant; vestiture of sparse, fine hair on lower half. Pronotum 1.1 times as long as wide; widest near base, sides arcuately converging to strongly produced, acute spine on anterior margin; summit behind middle of pronotum length, anterior 40 percent strongly, concavely excavated on median half, floor of excavation smooth, shining, sparsely punctured; anterior margin transversely, acutely costate on less than median half, strongly produced into an acute median spine; lateral areas of excavation and summit to base closely, finely asperate; lateral areas smooth, shining, punctures small, rather abundant. Vestiture of fine, rather long, rather abundant hair.

Female: Length 3.4–3.6 mm, 2.6 times as long as wide; dark reddish brown. Frons broadly convex, median two-

thirds from epistomal margin to upper level of eyes modestly protuberant and densely punctate-granulate, punctures without granules continue to vertex; part of median line smooth, shining, impunctate; vestiture of fine, long, abundant hair. Pronotum 1.06 times as long as wide; widest at base, sides weakly converging on basal two-thirds, broadly rounded in front, anterior margin feebly serrate; summit at middle, anterior slope closely, rather coarsely asperate; disc smooth, shining, finely, rather closely punctured; vestiture hairlike, moderately abundant near anterior and lateral margins, mostly abraded on disc. Elytra 1.5 times as long as wide, 1.4 times as long as pronotum; disc occupying basal three-fourths of elytral length; striae not impressed, punctures small, shallow, distinct; interstriae three times as wide as striae, smooth, shining, with several impressed lines, punctures uniseriate, a third as large as those of striae. Declivity very steep, very broadly convex; striae 1 and 2 distinctly marked by shallow punctures equal in size to those on disc, 1 diverging from suture near middle then curving back to near suture at apex; interstriae 1 armed by a moderate tubercle at middle of declivity length, one smaller tubercle above and one below central one, 2 unarmed except one small tubercle near base, 3 with a row of four to six small tubercles; interstriae 1–3 each with a uniseriate row of minute punctures in addition to tubercles; ventrolateral margin obtusely rounded, subacute crest not clearly defined. Vestiture of interstitial rows of fine, erect hair of moderate length on disc and declivity.

Distribution: Colombia.

Type material: Female holotype, male allotype, and 1 male and 4 female paratypes were taken at Anserma, Caldas, Colombia 15-IV-1959, en naranjo seco #5, J.A. Solaro; 4 female paratypes are from Aguadas, Caldas, with the same date, host, and collector; 4 female paratypes are from El Paraiso, Aguadas, Caldas, 4-V-1959, tronco de naranjo, V. Alzarte.

Hosts: *Citrus* sp.

Biology: Boring in wood of limbs and bole.

Notes: The type series was deposited in the U.S. National Museum, Washington.

Xyleborus biconicus Eggers

Plate C

Xyleborus biconicus Eggers, 1928:97. Holotype ♀; Brazil; USNM, Washington (References in Wood & Bright c1992:714–715)

Diagnosis: Distinguished from *neivai* Eggers by the much smaller size; by the very different frons; by the uniseriate interstitial punctures on the elytral disc; and by the very different elytral declivity.

Female: Length 2.8–3.2 mm, 2.6 times as long as wide; color dark reddish brown. Frons broadly convex, surface almost smooth, shining, punctures small, obscure, sparse, with small, sparse granules also present; vestiture hairlike, sparse. Pronotum 1.1 times as long as wide; sides almost straight and parallel on basal two-thirds,

broadly rounded in front, anterior margin feebly serrate; anterior slope coarsely, closely asperate; posterior areas smooth, shining, punctures very small, rather close; vestiture restricted to margins. Elytra 1.7 times as long as wide, 1.5 times as long as pronotum; disc occupying basal three-fourths of elytral length; striae distinctly impressed, except not impressed near base, punctures rather small, moderately deep; interstriae 1–3 weakly convex, about three times as wide as striae, smooth, shining, punctures half as large as those of striae, 1 and 3 uniseriate, 2 moderately confused. Declivity very steep, face very broadly convex, base abrupt, armed at margin on interstriae 1, 3, 4, and 5 by a pointed tubercle; striae 1 and 2 with punctures moderately confused, interstriae 1–3 with numerous small, confused punctures; interstriae 1 with a small, pointed tubercle slightly above middle, a larger tubercle on a protuberant base on lower third, 2 unarmed except for a minor tubercle near base, 3 with two minor tubercles on basal half; ventrolateral margin modestly elevated, subacute from suture to level of striae 3. Vestiture sparse on disc and sides; of rather abundant, confused, short hair on declivity.

Distribution: Argentina, S Brazil, and Paraguay.

Argentina: Cited in Wood & Bright (c1992:715).

Brazil: Jacareacanga, Para; Cepec, Ilheus, Bahia, 1966–1968, at light; Aracruz, Espirito Santo, 18-IV-19984, No. 2277, 5-I-1972, 3501, 10-XI-1995, 7182; Monte Alegre, Para, 5-I-1996, ethanol trap, *Pinus taeda* stand, C.A.H. Flechtmann; Mario Xavier National Forest, Seropedica, Rio de Janeiro, 6-III-2003, Atlantic forest; Agudos, Duraflo, Sao Paulo, 2-VIII-1986, ethanol trap, *Pinus c. balaricis*, C.A.H. Flechtmann; Lencois, Paulista, Duraflo, 1-II-1989, ethanol trap, *Eucalyptus grandis* stand, C.A.H. Flechtmann; Piracicaba, Parque Esalq., Sao Paulo, 20-IV-1997, *Mangifera indica*, C.A.H. Flechtmann; intercepted in Brazilian nuts at Miami, Florida, 10-III-1967, 67-8981.

Hosts: *Guettarda* sp., *Mangifera indica*.

Notes: The above treatment was based on 2 females from Brazil; both were compared to the female holotype of *biconicus* Eggers.

Xyleborus neivai Eggers

Plate CXIII

Xyleborus neivai Eggers, 1928:96. Lectotype ♀; Hampstadt, Sao Paulo, Brazil, USNM, Washington, designated by Anderson & Anderson (References in Wood & Bright c1992:755)

Diagnosis: Distinguished from *caldensis* Wood by the larger size; by the confused punctures on interstriae 1 and 2 on both disc and declivity; by the more abundant, confused declivital setae; and by the less protuberant lower frons, with punctures and tubercles more generally distributed.

Female: Length 3.7 mm, 2.5 times as long as wide; color dark reddish brown. Frons broadly, evenly convex; area from epistoma to upper level of eyes closely, deeply, rather finely punctured, rather numerous, rounded gran-

ules interspersed between punctures; vestiture of fine, long, rather sparse hair. Pronotum 1.1 times as long as wide, about as in *caldensis*. Elytra 1.5 times as long as wide, 1.3 times as long as pronotum; disc occupying basal three-fourths; striae not impressed, punctures rather small, distinct; interstriae almost three times as wide as striae, almost smooth, punctures about half as large as those of striae, partly to mostly confused. Declivity very steep, broadly convex; basically as in *caldensis*, except striae punctures mostly smaller, interstriae 1 and 2 with numerous, minute, strongly confused punctures; vestiture rather abundant on declivity, strongly confused.

Distribution: Brazil: Rondon, Para, 24°38'B, 54°07'L, 195_, 500 m, F. Plaumann.

Hosts: *Citrus* sp.

Notes: The above treatment was based on 1 female that was compared to a cotype at NHMW, Wien.

Xyleborus perlongus Eggers

Plate CXV

Xyleborus perlongus Eggers, 1943:386. Holotype ♀; Cochabamba, Bolivia; NHMW, Wien (Synonymy and references in Wood & Bright c1992:762)

Xyleborus pulcherrimus Schedl, 1948:38. Holotype ♀; Peru; NHMW, Wien

Xyleborus pulchripes Schedl, 1958:46. Holotype ♀; Misiones, Argentina; NHMW, Wien

Diagnosis: Allied to *simulatus* Bright, Antilles Islands, distinguished by the more weakly elevated, rounded ventrolateral margin of the elytral declivity; and by other characters cited in the above key.

Female: Length 3.1–3.3 mm, 3.1 times as long as wide; color dark reddish brown. Frons broadly convex, reticulate, punctures rather small, moderately numerous; a weak, median callus at upper level of eyes; vestiture hair-like, sparse. Pronotum 1.2 times as long as wide; sides almost straight and parallel on basal two-thirds, broadly rounded in front; anterior margin weakly serrate; summit indefinite, anterior to middle of pronotum length; anterior slope coarsely, closely asperate; posterior half smooth, shining, punctures very small, sparse; vestiture hairlike, mostly in asperate area and lateral margins. Elytra 1.8 times as long as wide, 1.5 times as long as pronotum; disc occupying slightly more than basal two-thirds of elytra length; striae not impressed, punctures small, distinct; interstriae twice as wide as striae, smooth, shining, punctures almost as large as those of striae, very sparse. Declivity steep, rather strongly convex; striae 1 and 2 with punctures in rows on basal half, confused below; interstriae 1 armed by about five small, pointed denticles (also one small granule between denticles), 2 with two smaller denticles on basal third and one below middle, 3 with about six small, pointed denticles equally spaced. Vestiture confined to and near declivity, of sparse, erect interstitial setae rather sparse, hairlike, long, longest 1.5 times as long as distance between rows.

Distribution: Bolivia to Brazil.

Bolivia: Cochabamba.

Brazil: Cepec, Ilheus, Bahia, 1966–1968, at light, #1884.

Notes: The above treatment was based on the holotype of *Xyleborus perlongus* Eggers, and on 4 females from Brazil in my collection that were compared directly by me to the holotypes of *perlongus*, *X. pulcherrimus* Schedl, and *X. pulchripes* Schedl. All appear to represent the same species.

Xyleborus procer Eichhoff

Plate CXVII

Xyleborus procer Eichhoff, 1878:402. Holotype ♀; America meridionalis (Colombia); Hamburg Museum, lost (References in Wood & Bright c1992:765)

Diagnosis: Distinguished from *declivis* Eichhoff by having the central area of the declivity moderately concave, with the punctures in the impressed area much larger.

Female: Length 3.3–3.4 mm, 3.2 times as long as wide; color dark reddish brown. Frons broadly convex; surface rugose-reticulate above upper level of eyes, reticulate below, with rounded granules on and near epistomal area; vestiture sparse, hairlike, mostly on epistomal margin. Pronotum 1.4 times as long as wide; sides straight and parallel on basal three-fourths, broadly rounded in front, anterior margin weakly serrate; summit anterior to middle, anterior slope coarsely, closely asperate; posterior areas smooth and shining on some specimens, minutely, irregularly etched on others, punctures very small, sparse. Elytra 2.0 times as long as wide; disc occupying basal three-fourths of elytra length; striae feebly or not impressed, punctures small, distinct; interstriae three times as wide as striae, surface smooth, shining, impunctate (rarely with one or two punctures). Declivity steep, broadly, subconcavely impressed between interstriae 3; punctures of striae 1 and 2 usually confused, rarely discernible; interstriae 1 unarmed except for one pointed tubercle at base, 2 entirely unarmed, 3 armed by two rather large, conical denticles (one on basal third, one on apical third), lateral margin with about six small, rounded tubercles evenly scattered along crest; ventrolateral margin rounded. Vestiture hairlike, on interstriae, mostly on sides and lateral margins of declivity.

Distribution: Guatemala, Colombia, and Suriname to Bolivia and Brazil.

Bolivia: Cited by Wood & Bright (c1992:765).

Brazil: Aracruz, Espirito Santo, 18-XI-1992, 4919; Belem, Para, XI-1977, O. Ohashi; Cepec, Ilheus, Bahia, 11-III-1981, blacklight, Kaston.

Colombia: “America meridionalis” (area now in Colombia).

Peru: Dep. Huanuco, vic. Leonpampa, 11-30-XII-1937, 800 m, jungle, No. 3811, F. Woytkowski; 23-IX-1935, F. Woytkowski; Monson Valley, Tingo Maria, 18-IX-1954, E.I. Schlinger, E.S. Ross.

Suriname: “712,” “1961,” “42.”

Venezuela: Venezuela: Finca Monesterios, Caucahua, Miranda, 1971, *Theobroma cacao*, J.L. Saunders; 40 km

E Canton, Barinas, 8-III-1970, 70 m, No. 345, *Lonchocarpus margaritensis*, SLW.

Biology: Boring in limbs and stumps of dying and broken stems.

Notes: The above treatment was based on 3 females from Peru that were compared by me to Eggers cotypes, 11 females from Brazil, 2 females from Suriname, and 5 females from Venezuela.

Xyleborus macer Blandford

Plate CX

Xyleborus macer Blandford, 1898:218. Lectotype ♀; El Tumbador, Guatemala; BMNH, London, designated by Wood 1982:84 (References in Wood & Bright c1992:748–749)

Diagnosis: Distinguished from *declivis* Eichhoff by the smaller size; by the more nearly flattened declivity; and by other characters cited below.

Female: Length 3.2–3.4 mm, 3.4 times as long as wide; color dark reddish brown. Frons broadly convex; surface rugose-reticulate from epistoma to vertex, several small, shining granules uniformly distributed from epistoma to upper level of eyes. Pronotum 1.3 times as long as wide; about as in *procer* Eichhoff. Elytra 2.0 times as long as wide, 1.4 times as long as pronotum; disc about as in *procer*. Declivity in central area between four major denticles almost flat, all denticles averaging smaller; punctures in central area slightly larger than in *procer*. Vestiture restricted to declivity, sparse on sides, interstitial setae finer, averaging shorter.

Distribution: Mexico (Veracruz) and Antilles Islands to Colombia and Venezuela.

Colombia: Anchicaya, 27-VII-1970, J.M. Campbell.

Venezuela: Finca Monasterios, Caucahua, Miranda, 1971, *Theobroma cacao*.

Hosts: *Theobroma cacao*, *Trochis racemosa*.

Biology: Boring in logs and limbs of felled, broken, and unthrifty trees.

Notes: The above treatment was based on 3 females from Costa Rica, 1 of which I compared to the holotype of *macer* Blandford.

Xyleborus declivis Eichhoff

Xyleborus declivis Eichhoff, 1869:280. Holotype ♀; Teapa, Tabasco, Mexico; Hamburg Museum, lost (Synonymy and references in Wood & Bright c1992:723)

Xyleborus pseudoprocer Schedl, 1948:279. Holotype ♀; Guatemala; NHMW, Wien

Diagnosis: Distinguished from *macer* Blandford by the larger size; by the feebly concave elytral declivity; by the larger lateral tubercles on the declivity; and by the less numerous elytral setae.

Female: Length 4.0–4.4 mm, 3.2 times as long as wide; color dark reddish brown. Frons broadly convex, rugose-reticulate on upper half to vertex, reticulate on lower half, with several (2 dozen?) moderately large, shining, rounded tubercles from epistoma to upper level of eyes.

Pronotum 1.3 times as long as wide; about as in *procer* Eichhoff. Elytra 2.0 times as long as wide, 1.4 times as long as pronotum; disc about as in *procer*. Declivity between four major denticles feebly concave, all denticles (major and minor) distinctly larger, punctures in central area slightly smaller. Vestiture more numerous on sides and lateral declivity, coarser, averaging distinctly longer.

Distribution: Mexico (Veracruz) to Guiana.

Guiana: Cited in Wood & Bright (c1992:723).

Notes: The above treatment was based on 2 females from Costa Rica, both of which I compared directly to the Eggers homotypes, 2 females from Guatemala, 3 females from Panama, 1 female from Colombia, and 18 females from Venezuela.

Species Not Seen

Xyleborus aurilegulus Schaufuss

Xyleborus aurilegulus Schaufuss, 1897:112. Holotype ♀; Amazonas: Bragance (Oberthur); Hamburg Museum, lost (References in Wood & Bright c1992:714)

Xyleborus dichrous Eichhoff

Xyleborus dichrous Eichhoff, 1868:144. Holotype ♀; Brazil; Hamburg Museum, lost (References in Wood & Bright c1992:724). A possible synonym of *Ambrosiodmus obliquus* (LeConte)

Xyleborus iheringi Iglesias

Xyleborus iheringi Iglesias, 1914:129. Syntypes ♀; Butantan, Sao Paulo, Brazil; not given (References in Wood & Bright c1992:743)

Xyleborus vicinus Eichhoff

Xyleborus vicinus Eichhoff, 1878:394. Holotype ♀; Venezuela; not at IRSNB, Brussels (References in Wood & Bright c1992:780). Apparently lost with the Hamburg Museum in 1944.

GENUS *TAURODEMUS* WOOD

Taurodemus Wood, 1980:96. Type-species: *Xyleborus sharpi* Blandford, original designation (References in Wood & Bright c1992:785)

Diagnosis: Distinguished from *Xyleborus* by the rather widely separated procoxae; by the distinctive, strongly impressed declivity; by the lateral margin of the protibia armed by 9–12 socketed denticles; and by the stout body form (less than 2.2 times as long as wide).

Description: Female body 2.4–4.5 mm, stout, about 1.9–2.2 times as long as wide; procoxae moderately separated; pronotum wider than long, anterior margin armed by six or more serrations; elytral declivity beginning anterior to middle of declivity length near base, strongly, broadly sulcate, lateral margins armed by at least one large (often blunt) spine, usually supplemented by additional smaller spines. Protibia armed on lateral margin by 9–12 socketed denticles. Male dwarfed, deformed, flightless; anterior slope of pronotum convex.

Distribution: Wood & Bright (c1992:787–801) list 13 species from Mexico to Brazil, 7 of these occur in South America.

Key to the Species of *Taurodemus*,
females only

- 1. Elytral declivity deeply, rather broadly sulcate from base to apex, lateral margins equally, rather strongly elevated throughout, their summits armed by a series of 3–8 coarse denticles of sub-equal size 2
- Upper half of declivity deeply, rather broadly sulcate, lower half much more broadly, shallowly excavated with lateral margins much less strongly elevated than basal half; margins on upper half armed by one pair of coarse, submammiform or spinose prominences (see also *splendidus*), a series of smaller denticles variously distributed above and below major spine 3
- 2(1). Declivital face with interstriae densely, very minutely punctured, striae punctures shallow, moderately coarse, close, spaced by less than diameter of a puncture; Guatemala and Panama to Colombia, Venezuela, and Brazil; 2.3–2.8 mm *flavipes* (Fabricius)
- Declivital face smooth, shagreened to shining interstitial punctures absent, striae punctures small, obscure, spaced by more than diameter of a puncture; Costa Rica to Panama; 3.2–3.6 mm *salvini* (Blandford)
- 3(1). Elytral declivity with major spine stout, usually smaller, positioned slightly above middle of declivity, lower declivity more broadly flattened, ventrolateal margin armed by a row of 10 or more small, pointed denticles 4
- Elytral declivity with major spine distinctly on lower half of declivity, spine usually larger, more slender, ventrolateral margin armed by about 1–5 irregularly placed denticles 9

- 4(3). Strong sulcus on median half of declivity, continued on lower half almost to apex; major spine on declivity very large, very blunt (not obtusely pointed), except very small, acutely pointed in *varians*; larger species 5
- Lower half of declivity almost flat, sulcus on basal half not continued below; major spine on lateral margin of declivity pointed 8
- 5(4). Major spine on margin of declivity small, pointed; surface of declivity in impressed area with punctures rather coarse, confused, their interiors smooth, shining, spaces between punctures densely micropunctate (80X); obtuse ventrolateral margin of declivity armed by a row of 10 or more pointed denticles; Costa Rica and Panama to Venezuela, Suriname and Brazil; 3.0–3.6 mm *varians* (Fabricius)
- Major spine on margin of declivity larger, its apex obtusely pointed to rounded, surface of impressed area smooth, shining (80X); ventrolateral margin of declivity more narrowly rounded, armed by about 4–8 smaller denticles 6
- 6(5). Largest denticle anterior to major spine on declivity closer to major spine than to suture, excavated area posterior to major spine wider than area anterior to major spine; sulcus on lower half of declivity wider and conspicuously deeper; Costa Rica to Panama; 3.8–4.3 mm *godmani* (Blandford)
- Largest denticle anterior to major spine closer to suture than to major spine, excavated area posterior to major spine distinctly narrower than excavated area anterior to major spine; sulcus on lower half of declivity slightly narrower and not as deep 7
- 7(6). Surface of excavated area on declivity smooth, shining, transverse impressed lines often present; denticles on 4 and 5 lateral to major spine smaller, less numerous; Mexico (Chiapas to Veracruz); 3.3–3.9 mm *lenis* Wood
- Surface of excavated area on declivity densely micropunctate (80X); denticles on interstriae 4 and 5 lateral to major spine slightly larger and more numerous; Costa Rica to Panama; 3.4–3.8 mm *sharpi* (Blandford)
- 8(4). Declivital surface between punctures on lower declivity with surface smooth, shining; denticles on margin of declivity from major spine to suture at base larger, regularly placed; Colombia to Venezuela; 2.8–3.1 mm *varulus* Wood
- Declivital surface between punctures on lower declivity densely micropunctate to rugose-reticulate; denticles on margin of declivity from major spine to suture (at base) smaller to obsolete, irregular in position; Costa Rica to Panama; 2.7–3.0 mm *pandulus* Wood
- 9(3). Interstriae 3 armed at and immediately below middle of declivity by two (rarely 3) major, sharply pointed spines; Venezuela and Trinidad to Brazil; 4.3–4.6 mm, male 3.1 mm *splendidus* (Schaufuss)
- Interstriae 3 armed at middle of declivity by one major spinelike denticle 10
- 10(9). Mature color of prothorax reddish brown, elytra black; declivital surface dull, densely covered by minute micropunctures; striae punctures rather obscure; Costa Rica to Panama; 3.5–3.8 mm *sanguinicollis* (Blandford)
- Mature body color uniformly dark brown to black, including prothorax; surface of declivity smooth, shining 11
- 11(10). Ventrolateral margin of elytral declivity narrowly rounded, crest unarmed by tubercles; margin of declivity armed by one sharply pointed, moderately long tubercle at base of declivity on interstriae 1, a moderately large, conical major tubercle on margin at middle, and a slightly smaller tubercle on margin distinctly below major spine; Colombia; 2.5 mm *colombianus* Wood

- Crest of ventrolateral margin of declivity armed by one to five small denticles; base of declivity with minute granules on 1, a minor tubercle on 2, unarmed below major major spine; larger species 12
- 12(11). Smaller; major declivital spine slightly smaller; interstriae 5 from major spine cephalad armed by four to five pointed tubercles, interstriae 6 in same area armed by two to four smaller tubercles; Costa Rica and Panama to Colombia; 3.4–3.8 mm *ebenus* Wood
- Larger; major declivital spine similar similar but distinctly larger; interstriae 5 from major spine cephalad armed by seven to nine or more slightly larger spines, interstriae 6 in same area armed by six to nine tubercles of about equal size; Colombia to Venezuela; 3.9–4.1 mm *bicornutus* Wood

Taurodemus flavipes (Fabricius)
Plate CXXVI

Taurodemus flavipes (Fabricius), 1801:388 (*Bostrichus*). Syntypes, 3 ♀♀; America meridionalis; UZMC, Copenhagen (References in Wood & Bright c1992:785)
Amphicranus perebeae Ferrari, 1868:252. Holotype ♀; Colombia; NHMW, Wien (References in Wood & Bright c1992:785). *New synonymy*

Diagnosis: Distinguished from *salvini* (Blandford) by the smaller body size; by the dense micropunctures on the subshining elytral declivity; and by the smaller average size of spines on the basal half of the elytral declivity.

Female: Length 2.3–2.8 mm, 2.04 times as long as wide; color dark reddish brown. Frons very broadly convex; surface strongly reticulate, punctures small, rather numerous, obscurely impressed; vestiture of fine hair, mostly on epistomal area. Pronotum 0.94 times as long as wide; widest slightly behind middle, sides weakly arcuate on basal two-thirds, rather narrowly rounded in front, anterior margin armed by 6–8 rather coarse, median serrations; summit at middle, anterior slope rather closely asperate; posterior areas rather strongly reticulate, punctures very small, distinct, moderately abundant. Elytra 1.06 times as long as wide, 1.14 times as long as pronotum; disc occupying 38 percent of elytra length; striae not impressed, punctures small, shallow, distinct; interstriae about six times as wide as striae, smooth, shining, punctures minute, half as large as those of striae, rather numerous, confused. Declivity strongly sulcate between moderately elevated left and right interstriae 3 from base to apex; lateral crests much higher than suture, armed by coarse, acutely pointed spines, spines on basal third mostly smaller, about six in addition to minor tubercles, about four spines on middle third, uniseriate, mostly larger, about two to four spines on lower third of declivital length, uniseriate, averaging smaller; several smaller denticles in lateral areas; excavated area with punctures of striae 1 and 2 distinctly larger than on disc, in uniseriate rows; interstriae densely micropunctate, subshining, punctures obscure to obsolete. Vestiture of rows of interstitial setae of moderate length on sides and on and near base of declivity.

Distribution: Guatemala and Panama to Colombia and Venezuela.

Colombia: Montegrande, Caicedonia, Valle de Cauca, 19-VI-1959, guamo de cafe, J. Restrepo.

Venezuela: Valle de Churoni, 3-IV-1964, *Theobroma cacao*, J.L. Saunders; 7 km NW Socopo, Barinas, 13-II-1970, No. 324, *Protium*, SLW; 30 km E Palmar, Bolivar, 12-VI-1970, 200 m, No. 549 in *Alexa imperatricia*, No. 578 in *Parinari excelsa*, SLW; Finca Monasterios, Cacaugua, Mir., Ticacaco, J.L. Saunders; 7 km S Barrancas, Barinas, 2-XII-1969, 150 m, No. 169, palito negro, SLW.

Biology: Stems 3–8 cm in diameter were attacked. The entrance tunnel penetrated the wood about 1 cm then branched, each arm cut across the grain of the wood and followed a growth ring toward the opposite side of the branch. These arms usually joined, thus forming a complete ring-tunnel. The larvae were reared within the tunnel on the ambrosial fungus until growth forced them to enlarge the original tunnel. The wood was apparently ingested with the fungus mycelium as growth continued.

Notes: The above treatment was based on female specimens as follows: 91 from Central America, 1 from Colombia, and 15 from Venezuela. Three Venezuelan specimens were compared by me directly to the type of *Bostrichus flavipes* Fabricius.

Taurodemus varians (Fabricius)
Plates CXXVII, CXXVIII

Taurodemus varians (Fabricius), 1801:386 (*Bostrichus*). Syntypes, 5 ♀♀; published as *America meridionali*, syntypes labeled [Rio] Essequeibo [Guiana]; UZMC, Copenhagen (Synonymy and references in Wood & Bright c1992:786–787)

Bostrichus serratus Fabricius, 1801:388. Syntypes, 2 ♀♀; published as *America meridionali*, syntypes labeled [Rio] Essequeibo [Guiana]; UZMC, Copenhagen

Bostrichus unidentatus Fabricius, 1801:386. Syntypes, 3 ♀♀; published as *America meridionali*, syntypes labeled [Rio] Essequeibo [Guyana]; UZMC, Copenhagen

Xyleborus insignis Eichhoff, 1869:282. Holotype ♀; [French Guyane] Cayenne; IRSNB, Brussels

Xyleborus perversus Hagedorn, 1905:414. Holotype ♂; Guiana; MNHN, Paris

Diagnosis: Distinguished from *lenis* Wood, *new status*, a good species from Mexico, by the presence of dense micropunctures on the excavated area of the declivity;

by the smaller, conical, acutely pointed major spine on the declivity; and by the obtusely elevated, less coarsely serrate ventrolateral margins of the declivity.

Male: Length 2.7–3.3 mm, 1.9 times as long as wide; color reddish brown. Frons about as in female except a median fovea on vertex; eye half as large as in female. Pronotum 0.96 times as long as wide; summit at or near basal margin, basal margin on median one-fifth sharply, transversely carinate; sides on basal three-fifths subparallel, weakly asperate, anterior margin broadly, evenly rounded; median 40 percent on middle third of length somewhat flattened, minutely punctured, anterior margin of punctures feebly elevated into a minute tubercle, similar but slightly coarser sculpture continuing almost to anterior margin; basal and lateral areas feebly reticulate, punctures rather small, moderately close. Elytra about as in female, all characters less perfectly formed.

Female: Length 3.0–3.6 mm, 2.1 times as long as wide; color very dark reddish brown. Frons broadly convex; surface finely rugose-reticulate, a weak median crest from epistoma to upper level of eyes. Pronotum 1.0 times as long as wide; as in *flavipes* (Fabricius) except surface finely rugose-reticulate, including areas between punctures. Elytra 1.2 times as long as wide, 1.26 times as long as pronotum; disc occupying basal 46 percent of elytral length, sculpture as in *flavipes*. Declivity on basal half strongly sulcate between interstriae 3, much more broadly impressed on lower half; lateral margin armed by a major, pointed, conical spine at two-fifths of declivity length from anterior margin; area anterior to major spine armed to suture by a row of five moderately large, pointed spines as in *flavipes*; 3 unarmed and moderately convex below major spine; interstriae 4 (lateral to major spine) armed by a row of six small spines; ventrolateral margin from near sutural apex to near spines on interstriae 4, armed by a row of about 12 small, pointed spines; area within ring of spines densely micropunctate between punctures, punctures rather coarse, confused, numerous. Vestiture as in *flavipes* except shorter.

Distribution: Costa Rica and Panama to Venezuela, Trinidad, and Brazil.

Brazil: Cited in Wood & Bright (c1992:786).

French Guyane: “Cayenne” (type of *insignis* Eichhoff).

Guiana: Rio Essequibo; “Guiana” (types of *varians* Fabricius and *serriatus* Fabricius).

Venezuela: 30 km E Palmar, Bolivar, 12-VI-1970, 200 m, No. 578, *Parinari excelsa*, SLW.

Hosts: *Parinari excelsa*, *Paritricia excelsa*, *Pseudoolmedia laevigata*, *Theobroma cacao*.

Notes: The above treatment was based on 42 specimens from Costa Rica, 10 females from Panama, 1 male and 14 females from Trinidad, 1 female from French Guyane, 3 females from Guiana, and 2 females from Venezuela. The type of *Bostrichus varians* Fabricius and of all synonyms, listed above, were examined by me and compared to my Venezuelan specimens.

Taurodemus varulus (Wood)

Plate CXXVIII

Taurodemus varulus (Wood), 1974:35 (*Xyleborus*). Holotype ♀; 13 km SW El Vigia, Merida, Venezuela; USNM, Washington (References in Wood & Bright c1992:787)

Diagnosis: Distinguished from *pandulus* Wood (Costa Rica-Panama) by the smooth, shining surface between punctures on the lower declivity; and by the larger, more regularly placed denticles on the ventrolateral margin of the declivity from the suture to the lateral margins.

Female: Length 2.8–3.1 mm, 2.0 times as long as wide; very dark reddish brown. Frons broadly convex, surface finely reticulate, punctures small, somewhat obscure, rather numerous, an indefinite median fovea on area slightly below upper level of eyes; vestiture hairlike, very sparse except on epistomal margin. Pronotum 1.0 times as long as wide; sides on basal half subparallel, feebly arcuate; anterior margin rather narrowly rounded, armed by about six median crenulations; summit at middle, anterior slope rather coarsely, closely asperate; posterior areas reticulate, finely rather closely punctured. Elytra 1.0 times as long as wide, 1.0 times as long as pronotum; disc occupying basal half of elytra length; striae not impressed, minute punctures in obscure rows; interstriae almost smooth, shining, punctures minute, confused, almost as large as those of striae. Declivity abrupt, almost subtruncate; a major conical, pointed spine (as high as wide) at basal margin on interstriae 1, margin armed from suture at base above to suture at apex below by a uniseriate row of about 26 small, pointed denticles; face of declivity more strongly impressed on less than basal half, punctures rather small, confused, surface dull, densely micropunctate. Vestiture mostly obsolete except margin of declivity with a row of short, very stout, flattened setae.

Distribution: Colombia to Venezuela.

Colombia: Campo Capote 27 km NE Montoyas, Santander, 2-VII-1970, 150 m, No. 583, pole, SLW; Carton de Colombia forest, 8 km S Colonia, near Buenaventura, Valle de Cauca, 9-VII-1970, 30 m, No. 676, *Protium nervosum*, SLW.

Venezuela: 13 km SW El Vigia, Merida, 22-X-1969, 100 m, No. 76, *Inga*, SLW; 20 km SW El Vigia, Merida, 10-X-1969, 50 m, No. 107, liana, SLW.

Biology: As in *varians*.

Notes: The above treatment was based on the type series of 3 females of *Xyleborus varulus* Wood from Colombia and on 1 female from Venezuela.

Taurodemus splendidus (Schaufuss)

Plates CXXVI, CXXVII

Taurodemus splendidus (Schaufuss), 1897:111 (*Xyleborus*). Holotype ♀; Amazonas; Hamburg Museum, lost (Synonymy and references in Wood & Bright c1992:786)

Xyleborus camopinus Hagedorn, 1903:549. Syntypes ♀; Camopi, [French] Guyane; Hamburg Museum, lost

Diagnosis: Distinguished from all other members of the genus by the large size; and by having two pair of major spines on the elytral declivity.

Male: Length about 2.5 mm, about 2.0 times as long as wide. Frons about as in male *varians* (Fabricius), fovea on vertex obscure. Pronotum as in *varians* except flattened area on disc less definite. Elytra vaguely resembling female except lateral margins armed on each side by six rather large denticles, upper three larger.

Female: Length 4.3–4.6 mm, 2.0 times as long as wide; color black. Frons and pronotum about as in *varians*. Elytra 1.2 times as long as wide, 1.2 times as long as pronotum; disc occupying basal 40 percent of elytra length; striae not impressed, obscurely marked by rows of minute punctures; interstriae smooth, shining, minute punctures smaller than those of striae, confused. Declivity abrupt at basal margin, rather gradual below, deeply sulcate between striae 3; basal margin (basal sixth of declivity length) armed by a row of about six small, pointed tubercles and one distinctly larger spine at base of interstriae 2; lateral margin armed (clearly below middle of declivity length) by two large, pointed major spines; excavated area mostly smooth, shining, striae 1 indicated by an indefinite row of fine punctures, punctures in lateral areas small, confused; ventrolateral margin subacute, its crest armed by about seven pointed serrations. Vestiture sparse, present near base of declivity and on sides near declivity.

Distribution: Venezuela and Trinidad to Brazil.

Brazil: "Brazil," J.L. Saunders.

French Guyane: Comopi; Cayenne.

Venezuela: Campamento Rio Grande 30 km E Palmar, Bolivar, 12-VI-1970, 200 m, in rain forest, No. 578 in *Parinari excelsa*, SLW.

Hosts: *Brownia* sp., *Guatteria* sp., *Ocotea guianensis*, *Parinari excelsa*, *Pouteria* sp., *Pseudoolmedia laevigata*, *Theobroma cacao*.

Biology: Boring in wood of stems 5–10 cm in diameter.

Notes: The above treatment was based on 3 females from Brazil, 9 females from Venezuela, and 1 male and 9 females from Trinidad. One female from Trinidad was compared by me directly to the Eggers homotype of *Xyleborus splendidus* Schaufuss. The type of *Xyleborus ruber* Schaufuss (1897:111) almost certainly is this species; it was lost with the Hamburg Museum in 1944.

Taurodemus colombianus Wood, n.sp.

Taurodemus colombianus Wood: Holotype ♀; Palmira [Valle de Cauca], Colombia; USNM, Washington, designated below

Diagnosis: Distinguished from other species in this genus by the small size; by the longer elytral disc; and by the declivity that has a vague resemblance to *splendidus* (Schaufuss).

Female: Length 2.5 mm, 2.2 times as long as wide; color reddish brown (mature?). Frons broadly convex; surface finely rugose-reticulate from epistoma to vertex, lower third with a few weak granules; a shining, longi-

tudinally elongate median fovea at upper level of eyes; hairlike vestiture restricted to sparse epistomal brush. Pronotum 1.0 times as long as wide; widest near base, sides on posterior two-thirds weakly arcuate, rather narrowly rounded in front; anterior margin armed by six median serrations, middle pair largest; summit slightly behind middle; anterior slope rather coarsely, closely asperate; posterior areas weakly asperate to densely micropunctate, punctation continuing to surface between asperities; almost glabrous. Elytra 1.3 times as long as wide, 1.3 times as long as pronotum; disc occupying 60 percent of elytra length; striae not impressed, punctures rather small, in rows; interstriae smooth, shining, punctures a third as large as those of striae, rather numerous, confused. Declivity rather abruptly rounded at base, gradual below; concavity excavated from base to apex between interstriae 3; base armed on interstriae 1 by a long, pointed denticle (twice as long as basal width), about three to five minute granules on margin from interstriae 2–4; a major spine on lateral crest slightly below middle of declivity length, this spine stouter but equal in length to spine at base (on interstriae 1), another slightly smaller major spine on crest a third of declivital length from apex; concave area shining, with numerous, rather large, confused punctures from suture to near lateral crest; ventrolateral margin narrowly rounded, crest with about eight minute granules. Glabrous except for a few minute setae on lateral slope of crest on declivity.

Distribution: Colombia (Valle de Cauca).

Type material: The female holotype was taken at Palmira [Valle de Cauca], Colombia, Abril, #1-942, B. Losada S., 3-246. The holotype is in the U.S. National Museum, Washington.

Taurodemus ebenus (Wood)

Plate CXXV

Taurodemus ebenus (Wood), 1971:39 (*Xyleborus*). Holotype ♀; Guapiles, Limon, Costa Rica; USNM, Washington (References in Wood & Bright c1992:785)

Diagnosis: Distinguished from *bicornutus* (Wood) by the smaller body size; and by the different arrangement of minor tubercles lateral to major spine of declivity.

Male: Length 3.1 mm, 2.1 times as long as wide. Frons and pronotum as in *varians* (Fabricius) except anterior third of pronotum finely, distinctly asperate on median half. Elytra resembling female except major spine present, minor tubercles absent except one on ventrolateral margin near suture.

Female: Length 3.4–3.8 mm, 2.1 times as long as wide; mature color almost black. Frons and pronotum about as in *varians* (Fabricius). Elytra 1.1 times as long as wide, 1.3 times as long as pronotum; disc occupying slightly less than basal half of elytra length; striae not impressed, punctures minute, distinct, in rows; interstriae almost smooth, shining, punctures mostly obsolete, minute, confused. Declivity abrupt at base, gradual below, strongly excavated between interstriae 3; basal margin armed by

six pointed minor denticles and one larger, small spine (on interstriae 2); major spine slightly below middle of declivity length, pointed, about as high as its basal width; surface of excavated area smooth, brightly shining, punctures small, representing striae 1 and 2 but moderately confused; ventrolateral margin rather obtuse, its crest armed by one small denticle near suture (on 3), about three very weak serrations near this apical denticle; interstriae 4–6 each with about two or three weak denticles lateral to major spine. Vestiture sparse, limited to base and sides of declivity, short.

Distribution: Costa Rica and Panama to Colombia.

Colombia: Carton de Colombia forest 8 km S Colonia, near Buenaventura, Valle de Cauca, 9-VII-1970, 30 m, *Protium nervosum*, *Pouteria*, SLW.

Hosts: *Pouteria* sp., *Protium nervosum*, *Theobroma cacao*.

Biology: Boring in wood of broken branches and tree seedlings 2–7 cm in diameter. The tunnel was radial into the wood about 1 cm, then it branched, the branches turned transversely across the grain of wood and followed a growth ring to the opposite side of the branch where they usually anastomosed to form a complete ring-tunnel. Masses of eggs were deposited in the tunnel. The larvae fed communally on the ambrosia mycelium and, eventually, on the wood as they expanded the original tunnel. About 20–50 larvae were produced in each gallery system examined.

Notes: The above treatment was based on the type series of 1 male and 24 females from Costa Rica and Panama, and on 26 specimens from Colombia.

Taurodemus bicornutus (Wood)

Plate CXXV

Taurodemus bicornutus (Wood), 1974:33 (*Xyleborus*). Holotype ♀; 17 km SE Miri, Barinas, Venezuela; USNM, Washington (References in Wood & Bright c1992:785)

Diagnosis: Distinguished from *ebenus* (Wood) by the larger body size; and by the different arrangement of minor denticles lateral to major spine.

Male: Length 3.3–3.6 mm, 2.0 times as long as wide. Frons and pronotum as in male *ebenus*. Elytra about as in *ebenus* except lower half of lateral margin of declivity armed by a row of four coarse, pointed major spines.

Female: Length 3.9–4.1 mm, 2.0 times as long as wide; color black. Frons as in female *ebenus*, with a weak median callus slightly below upper level of eyes. Pronotum 0.93 times as long as wide; essentially as in *varians* (Fabricius). Elytra 1.03 times as long as wide, 1.1 times as long as pronotum; as in *ebenus* except interstriae 4 with six or seven pointed tubercles lateral to and anterior to major spine, 5 with six pointed tubercles lateral to and behind major spine. Vestiture as in *ebenus*.

Distribution: Colombia to Venezuela.

Colombia: Campamento Capote 27 km NE Montoya, Santander, 2-VII-1972, 150 m, No. 596, tree pole, SLW.

Venezuela: Rancho Grande, Aragua, 9-IV-1970, 1100 m, No. 440, tree pole, SLW; 40 km E Canton, Barinas, 2-III-1970, 70 m, No. 348, tree seedling, SLW; 30 km N Canyon Zancudo, Zulia, 4-VI-1970, 10 m, No. 515, tree pole, SLW; 17 km SE Miri, Barinas, 11-XII-1969, 150 m, No. 195, *Protium*, SLW; 7 km NW Socopo, Barinas, 13-II-1970, 200 m, No. 324, *Protium*, SLW; 20 km SW El Vigia, Merida, 21-XI-1969, 50 m, No. 145, *Jacaranda*, SLW.

Hosts: *Brownia* sp., *Hirtella trianda*, *Inga* sp., *Jacaranda* sp., *Nectandra* sp., *Protium* sp., *Rheedia madruno*.

Biology: As in *ebenus*.

Notes: The above treatment was based on the type series of 3 males and 49 females from Venezuela, and 3 females from Colombia.

GENUS *XYLOSANDRUS* REITTER

Xylosandrus Reitter, 1913:80, 83. Type-species: *Xyleborus morigerus* Blandford, monobasic (Synonymy and references in Wood & Bright c1992:787–801)

Apoxyleborus Wood, 1980:90. Type-species: *Xyleborus mancus* Blandford, original designation

Diagnosis: Distinguished from *Taurodemus* by the very widely separated procoxae; by the very stout body; by the convex elytral declivity; and by the lateral margin of the protibia being armed by 4–7 socketed denticles.

Description: Female body 1.3–5.0 mm, 1.9–2.1 times as long as wide; color pale brown to black. Eye deeply emarginate, finely faceted; antennal club with corneous area occupying basal third of club length, apical margin acutely costate on a continuous circle as in *Xyleborus*, wider than long; anterior margin of pronotum armed by serrations. Elytra stout, slightly longer than pronotum, weakly striate; declivity commencing anterior to middle of declivity length, broadly convex, unarmed, ventrolateral margin acutely costate from apex of suture to interstriae 7. Males rare, dwarfed, deformed, flightless, head sometimes withdrawn into prothorax, anterior slope of male pronotum convex, its anterior margin not armed by a denticle, ventrolateral margin of elytral declivity not costate.

Biology: All are xylomycetophagous and inbreeding. They breed in small stems about 1–15 cm in diameter. Some species, such as *compactus* (Eichhoff), have enormous economic importance. The female bores a radial entrance tunnel 0.5–3 cm directly into the wood. She then makes a narrow tabular expansion cavity above and/or below the entrance tunnel where she deposits clusters of eggs. The larvae expand the tabular cavity as they feed on the ambrosial fungus mycelium. Occasionally the female will extend the entrance tunnel and produce a second or third tabular cavity within the same gallery system. Mating occurs among siblings in the brood chamber. The young adults in the brood chamber exit the chamber through the parent entrance hole. See *compactus*, below, for a different mode of gallery pattern.

Distribution: Wood & Bright (c1992:787–801) list 52 and Central American species were included in the key species from tropical and subtropical areas of the world, because of the high probability that they will eventually six of these were recorded from South America. North be found in South America.

Key to the Species of *Xylosandrus*,
females only

- 1. Smaller species; anterior margin of pronotum armed by 6–10 serrations; punctures on interstriae sparse, uniseriate (except punctures in *crassiusculus*); declivity more strongly convex, its ventrolateral margin acutely costate from suture to interstriae 7 2
- Larger species; anterior margin of pronotum armed by 2–4 serrations; punctures on discal interstriae numerous, confused; declivity more strongly flattened, ventrolateral margin either ending at interstriae 7 or costa extended dorsad 6
- 2(1). Strial punctures obsolete, interstitial punctures scattered on disc, obsolete on declivity; declivity dull, surface with dense, confused small tubercles uniformly distributed from base to apex; color reddish brown; tropical Asia, Africa, Hawaii, SE USA; 2.1–2.9 mm *crassiusculus* (Motschulsky)
- Strial and interstitial punctures in uniseriate rows at least on disc 3
- 3(2). Declivity commencing one-third elytral length from base, elytra 1.0 times as long as wide, sides of elytra sometimes devoid of punctures; body color yellowish or reddish brown; SE Asia and Australia to Africa, Central America to Colombia, Venezuela, and Brazil; 1.4–1.7 mm *morigerus* (Blandford)
- Declivity commencing one-half elytra length from base, elytra 1.1–1.2 times as long as wide; body color brown to black 4
- 4(3). Larger species, 2.3 times as long as wide; strial setae on declivity absent; mature color reddish brown; Japan, E USA; 2.0–2.3 mm *germanus* (Blandford)
- Smaller species, body 2.0–2.1 times as long as wide; small strial hair present on declivity 5
- 5(4). Elytra more slender, 1.2 times as long as wide, more evenly arched from middle of disc to apex; setae on pronotum disc more evenly distributed, slightly more abundant on a transverse row in median area at base; interstitial setae on declivity pointed; Africa, SE Asia (etc.), SE USA, Antilles Islands to Brazil and Peru; 1.4–1.7 mm *compactus* (Eichhoff)
- Elytra stouter, 1.1 times as long as wide, elytra much more strongly arched from base of declivity to middle of declivity; pronotum disc glabrous except for a rather dense tuft of setae in median area, its long axis longitudinal and extending from base half distance to summit; S USA and Guadeloupe to Brazil; 1.3–1.5 mm *curtulus* (Eichhoff)
- 6(1). Anterior margin of pronotum armed by two serrations; basal third of pronotum densely, deeply, very closely punctured; elytra 1.1 times as long as wide, base of declivity gradually rounded, ventrolateral costa extending from suture to interstriae 7; strial punctures in rows on posterior half of disc and declivity; lower interstriae 1 moderately elevated; Peru; 3.0 mm *peruanus* Wood
- Anterior margin of pronotum armed by 2–4 serrations; pronotum without a tuft of hair on base of median area from summit to base; punctures on pronotum disc less coarsely, less closely impressed; elytra wider than long, base of declivity abrupt, elytral punctures confused, striae not distinguishable, ventrolateral costa continued dorsad (above interstriae 7) toward suture above 7
- 7(6). Elytral disc about equal in length to half length of declivity; punctures on pronotum disc small, spaced by two or more diameters of a puncture, surface weakly to rather strongly reticulate 8

- Elytral disc very short, equal in length to about one-third length of declivity; punctures on pronotum disc slightly larger, mostly spaced between punctures by less than two diameters of a puncture, surface between punctures smooth, shining 9
- 8(7). Smaller species; pronotum disc reticulate in median area, weakly, closely subrugose-reticulate, punctures very small, close, mostly spaced by distance equal to two diameters of a puncture; declivity brightly shining, punctures much larger, spaced by less than diameter of a puncture, circumdeclivital costa more abrupt; sutural interstriae on declivity moderately elevated on lower fifth and armed from apex to base by a row of minute granules; Brazil (Maranhao); 2.4–2.6 mm **retifer** Wood
- Larger species; pronotum disc weakly, at least partly reticulate on median area, punctures mostly spaced by one to two diameters of a puncture; declivity weakly reticulate, punctures much smaller, mostly spaced by distance equal to four diameters of a puncture; basal margin of declivity less abruptly, less distinctly elevated on basal third of circumdeclivital ring; sutural interstriae not elevated near apex, about four to six minute tubercles sometimes present near apex; Argentina to southern Brazil; 3.7–4.1 mm **retusus** (Eichhoff)
- 9(7). Declivital striae 1 clearly marked by a definite impressed row of small, close punctures, striae 2 less clearly indicated by a row of smaller punctures, entire face of declivity with all interstriae armed by numerous, confused tubercles; USA (Alabama) probably from Asia; *Quercus*; 3.3–3.5 mm **mutilatus** (Blandford)
- Declivity with no indication of striae or granules, surface very obscurely reticulate; Venezuela; 3.2–3.6 mm **laticeps** (Wood)

Xylosandrus morigerus (Blandford)

Plate CXXXI

Xylosandrus morigerus (Blandford), 1894:264 (*Xyleborus*). Syntypes ♀; probably New Guinea; BMNH, London (Synonymy and references in Wood & Bright c1992:797–799)

Xyleborus coffeae Wurth, 1908:199 (*Xyleborus*). Syntypes ♀; Java, not located

Xyleborus luzonicus Eggers, 1923:174 (*Xyleborus*). Lectotype ♀; Mt. Makiling, Insel Luzon, Philippinen; USNM, Washington

Diagnosis: Distinguished by the very short elytral disc and strongly arched elytral suture; and by the yellowish brown color.

Female: Length 1.4–1.7 mm, 2.0 times as long as wide; color yellowish to reddish brown. Frons broadly convex; surface reticulate, sparsely punctured, a few minute granules on lower third; a weakly elevated median callus from epistoma to upper level of eyes; vestiture hair-like, mostly on epistomal brush. Pronotum 1.0 times as long as wide, somewhat subcircular in outline; summit at middle, anterior slope closely, coarsely asperate, anterior margin armed by eight serrations; posterior areas smooth, shining, punctures mostly obsolete; vestiture hairlike, restricted to margins. Elytra 1.0 times as long as wide, 1.1 times as long as pronotum; disc occupying basal third of elytra length; profile of suture strongly arched on both disc and declivity; striae not impressed, punctures very small, distinct; interstriae at least four times as wide as striae, smooth, shining, punctures minute, uniseriate. Declivity broadly convex, steep, base rounded, rather abrupt; striae punctures on declivity about twice as wide as on disc, sculpture about as on disc;

ventrolateral margin acutely elevated from suture to interstriae 7. Vestiture consisting of minute striae setae and rows of erect longer interstitial setae, longest almost equal in length to twice distance between rows.

Distribution: Tropical Africa, SE Asia to Micronesia, Hawaii, Mexico to Venezuela and Brazil.

Brazil: Curitiba, Parana, VI-1971, *Theobroma cacao*, J.A. Winber; 69 km N Manaus, Amazonas, 7-XII-1979, G. Stevens.

Colombia: 24 km E Barbosa, Antioquia, 18-VII-1970, 1200 m, No. 688, Lauraceae sp., SLW; Carton de Colombia forest 8 km S Colonia, near Buenaventura, Valle de Cauca, 9-VII-1970, 30 m, No. 641, *Aspidosperma*, No. 615 *Lecythis*, No. 648 *Chrysophyllum caimito*, SLW; Desengano, Lomitas, Valle de Cauca, 29-V-1959, en cafe, D. Rosero; El Pino, Valle de Cauca, 2-VI-1959, en cafe, I. Parra.

Venezuela: 9 km S Barrancas, Barinas, 5-XI-1969, 150 m, 116, SLW; 8 km SW Bumbum, Barinas, 11-II-1970, 150 m, No. 306, Cucurbitaceae vine, SLW; Finca Monasterios, Cacaugua, Miranda, 1971, *Theobroma cacao*; 20 km SW El Vigia, Merida, 10-XII-1969, No. 187, liana, SLW.

Hosts: *Aspidosperma* sp., *Chrysophyllum caimito*, *Lecythis* sp., *Theobroma cacao*. For additional hosts see Schedl (1962:124–130) and Wood & Bright (c1992:797).

Biology: As described for the genus. Usually found in small stems about 1–5 cm in diameter.

Notes: The above treatment was based on females as follows: 3 from Brazil, 35 from Colombia, 4 from Venezuela, 59 from Central America, 2 from Micronesia, and 6 from Java. The holotype of *Xyleborus morigerus*

(Blandford) and the lectotype of *X. luzonicus* Eggers were examined and compared directly by me to my series.

Xylosandrus compactus (Eichhoff)

Plate CXXIX

Xylosandrus compactus (Eichhoff), 1875:201 (*Xyleborus*). Syntypes ♀; Japan; Hamburg Museum, syntypes lost, 1 syntype in Schedl Collection at NHMW, Wien (Synonymy and references in Wood & Bright c1992:788–790)

Xyleborus morstatti Hagedorn, 1912:37. Amani, Deutsch Ostafrika; Hamburg Museum, lost

Diagnosis: Distinguished from *morigerus* (Blandford) by the black body color; by the longer pronotum and elytral disc; and by the very different profile of the elytra.

Male: Length 1.0–1.1 mm, 1.9 times as long as wide. Frons broadly convex; surface smooth, shining, minute punctures obscure to obsolete. Pronotum 1.0 times as long as wide, widest near base, sides rather strongly arcuate, converging toward narrowly rounded anterior margin; summit indefinite, behind middle; anterior slope somewhat flattened (weakly convex), a few weak asperities in lateral areas; posterior areas smooth, shining, sparse minute punctures almost obsolete. Elytra 1.1 times as long as wide, 1.05 times as long as pronotum; declivity extending almost to base, convex, gradual; poorly formed, punctures appear confused, very different from female; ventrolateral margin abrupt, not carinate. Long interstitial and minute striae setae in rows, moderately abundant.

Female: Length 1.4–1.7 mm, 2.1 times as long as wide; mature color dark brown to black. Frons broadly convex; strongly reticulate, punctures small, sparse, a few minute granules near epistoma; vestiture mostly restricted to epistomal brush, hairlike. Pronotum 0.90 times as long as wide; almost as in *morigerus*. Elytra 1.2 times as long as wide, 1.3 times as long as pronotum; disc occupying basal half of elytra length; profile of suture less strongly arched on basal half, declivity not as abrupt, not as steep; striae and interstriae similar to *morigerus*.

Distribution: Tropical Africa, SE Asia to Micronesia, Hawaii, SE USA, Antilles Islands, Brazil, and Peru.

Brazil: 69 km N Manaus, Amazonas, 7-XII-1979, G. Stevens; INPA Campus, Manaus, Amazonas, 1-XI-1986, ethanol trap, R.S. Abrev; Sao Nicolau farm, VI-2002, Amazon rain forest, VI-2002, P. Filho; UFRRJ Campus, Seropedica, Rio de Janeiro, 13-VII-2000-8-XI-2001, Antropozed Atlantic Forest, ethanol trap, FIT, A.M. Lunz; Telemaco Borba, Parana, 31-VIII-2001-19-IV-2002, ethanol trap, C.A.H. Flechtmann.

French Guyane: Oral report of colleague.

Peru: Perou Loreto, Iquitos, VI-1990, Couturier.

Hosts: Many, see Wood (1982:769), Wood & Bright (c1992:789).

Biology: This is an exceedingly destructive species. It is capable of boring into the most vigorous growing, succulent twigs (1–2 cm in diameter) or a fruiting stalk, where it bores an axial pith tunnel several centimeters in length. Eggs are deposited in small clusters in the

parent chamber. Larvae feed primarily on the symbiotic fungus mycelium. Growth is rapid and a life cycle may be completed in as little as two weeks. It will spread throughout the tropical areas of South America and become one of the most serious pests of shrubs and trees in that region.

Notes: The above treatment was based on 1 female from Peru, about 12 from Brazil, 1 male and 26 females from Florida, 15 females from Hawaii, and 25 females from India. Several of my specimens were compared to the specimens of this species in the Browne, Schedl, and other collections. The NHMW, Wien syntype was examined by me and compared to my series.

Xylosandrus curtulus (Eichhoff)

Plate CXXIX

Xylosandrus curtulus (Eichhoff), 1869:28 (*Xyleborus*). Holotype ♀; Brasil; IRSNB, Brussels (Synonymy and references in Wood & Bright c1992:793)

Anisandrus zimmermanni Hopkins, 1915:67. Holotype ♀; Biscayne, Florida; USNM, Washington (References in Wood & Bright c1992: 801). *New synonymy*

Xyleborus curtuloides Eggers, 1941:102. Holotype ♀; Guadeloupe (Gourbeyre); not listed by Anderson & Anderson 1971 or Schedl 1979

Xyleborus biseriatus Schedl, 1963:226. Holotype ♀; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien

Xyleborus strumosus Schedl, 1972:73. Holotype ♀; Corcovado, Guanabara, Brazil; NHMW, Wien

Diagnosis: Distinguished from *compactus* (Eichhoff) by the smaller average size; by the more strongly arched profile of the elytral suture; by the tuft of hair on the base of the pronotum disc with the long axis longitudinal; and by the stouter interstitial setae on the declivity (tips usually blunt).

Male: Length 1.0–1.8 mm; apparently similar to male *compactus*.

Female: Length 1.3–1.5 mm, 2.5 times as long as wide; color dark reddish brown to almost black. Frons and pronotum about as in *compactus* except tuft of setae at base of pronotum with its long axis longitudinal (transverse in *compactus*), pronotum disc surface distinctly reticulate. Elytra 1.1 times as long as wide, 1.2 times as long as pronotum; striae not impressed, punctures small, distinct; interstriae about three to four times as wide as striae, almost smooth, shining, punctures small, half as large as those of striae, uniseriate; profile of suture on disc more strongly arched than in *compactus*. Declivity more abruptly rounded at base, more strongly convex, and steeper than in *compactus*, broadly convex; striae punctures distinctly larger than on disc; interstriae 2 and 3 each with a row of small tubercles, 1 with a row of minute punctures (feebly tuberculate in some specimens); ventrolateral margin subacutely carinate, crest minutely subserrate. Vestiture of fine, minute striae hair, and rows of erect interstitial setae, each seta slightly longer than distance between rows; interstitial setae varying from slender and pointed (northern range) to rather stout and blunt (southern part of range).

Distribution: USA (Florida) and Antilles Islands (Guadeloupe) to Brazil.

Brazil: Corcovado, Guanabara; Nova Teutonia, Santa Catarina; Botucatu, SP, Duratex, 8-III-1989, ethanol trap, ex Patio de Serraria (*Pinus e Eucalyptus*), Flechtmann; Aracruz, Espirito Santo, 30-IV-1980, 2044, 12-XI-1986, No. 2407; Telemaco Borba, Parana, 1-XII-2000, 2-IV-2004, Klabin Papel e Cellulose, baited trap in *Pinus taeda* stand; Lencois Paulista, Duraflora, Sao Paulo, 3-VIII-1988, ethanol trap, *Eucalyptus grandis* stand, Flechtmann.

Colombia: Colombia, 1959, Betrem; Caicedonia near Sevilla, Valle de Cauca, 1959, cafe, Duque; La Louisa, Puente Palo, Valle de Cauca, 29-V-1959, cafe, G. Diaz; El Bosque, Caicedonia, Valle de Cauca, VI-1959, cafe, J. Restrepo.

Venezuela: Rancho Grande, Aragua, 9-IV-1970, 1100 m, No. 420 *Tabebuia*, No. 431 *Nectandra*, SLW; 9 km S Barrancas, Barinas, 5-XI-1969, 150 m, No. 109, *Inga*, SLW; 40 km SE Socopo, Barinas, 28-I-1970, 150 m, No. 267, bejuco blanco, SLW; 20 km SW El Vigia, Merida, 10-XII-1969, 50 m, No. 186, tree twig, SLW.

Hosts: *Ficus* spp., *Inga* sp., *Nectandra* sp., *Phoradendron* sp., *Tabebuia* sp., *Serjania* sp.

Biology: Unthrifty, broken, and cut branches and small twigs are selected for attack. The female bores radially into the wood about 1 cm then expands the gallery into a tabular cavity on a growth ring above and below the the parent entrance tunnel. The larvae expand the tabular areas. They feed on the symbiotic fungus mycelium, supplemented by xylem tissue from their excavation.

Notes: The above treatment was based on the female holotypes of *Xyleborus curtulus* Eichhoff and *Anisandrus zimmermanni* Hopkins, and a paratype of *X. curtuloides* Eggers. The holotypes of *X. biseriatus* Schedl and *X. strumosus* Schedl were examined previously by me and compared directly to my series.

Xylosandrus peruanus Wood, n. sp.

Xylosandrus peruanus Wood: Holotype ♀; Satipo [Junin], Peru; USNM, Washington, designated below

Diagnosis: Distinguished from *retusus* (Eichhoff) and *laticeps* (Wood) by the smaller size; by the ventrolateral costa on the declivity forming only half of a circle then diverging cephalad; by the larger strial punctures in rows on disc and declivity; and by the finely asperate pronotum from base to anterior margin.

Female: Length 3.0 mm, 2.1 times as long as wide; color black. Frons broadly convex, surface reticulate; punctures coarse, close, rather shallow; median line below upper level of eyes smooth, shining, subfoveate above. Pronotum 1.0 times as long as wide; subcircular in outline; anterior margin armed by two median serrations; summit at middle, densely covered by small asperities, those in posterior areas associated with a coarse, deep puncture with its posterior margin elevated into a small asperate point; vestiture rather abundant, of fine,

moderately long hair. Elytra 1.1 times as long as wide, 1.2 times as long as pronotum; disc occupying basal third of elytral length, profile of suture on disc rather strongly arched, moderately arched on declivity; striae distinctly, weakly impressed from base of declivity part of distance toward base of elytra; interstriae about four times as wide as striae, smooth, shining, densely punctured, punctures half as large as those of striae. Declivity rather steep, basal area broadly rounded, rather steep, convex above, lateral areas impressed below; striae not impressed, punctures on 1–5 rather deep, twice as large as those of disc; suture moderately elevated, highest just before apex, 2–5 impressed on lower third, surface of 1–6 very finely subgranulate, a few small tubercles in lateral areas, becoming moderate tubercles toward base and on posterior disc. Vestiture of abundant fine setae of moderate length.

Distribution: Peru (Junin).

Type material: The female holotype was taken at Satipo [Junin], Peru, V-VI-1942, Paprzycki. The holotype is in the U.S. National Museum, Washington.

Xylosandrus retifer Wood, n. sp.

Xylosandrus retifer Wood: Holotype ♀; Fazenda Laminit, Itinga do Maranhio, Brazil; MZUSP, Sao Paulo, designated below

Diagnosis: Distinguished from *retusus* (Eichhoff) by the smaller body size; by the rather strongly reticulate pronotum disc, with punctures very small, close, mostly spaced by two diameters of a puncture; by the brightly shining declivity with the punctures much larger, spaced by less than diameter of a puncture; by the circumdeclivital costa being more abrupt; and by the sutural interstriae on the declivity being armed by a row of minute tubercles, this interstriae moderately elevated on the lower fifth of the declivity length.

Female: Length 2.4–2.6 mm, 1.9 times as long as wide; mature color black. Frons very broadly, weakly convex below upper level of eyes; surface rugose-reticulate from epistoma to vertex, punctures very small; vestiture of sparse, slender hairlike setae on area below upper level of eyes, more numerous on epistomal margin. Pronotum 0.91 times as long as wide; widest near middle of pronotum length, sides weakly arcuate on basal two-thirds of pronotum length, rather broadly rounded in front; anterior margin armed in median area by two pair of serrations, lateral pair much smaller; summit slightly behind middle of pronotum length; anterior slope steep, asperities rather coarse near anterior margin, becoming much smaller, closer, and more numerous toward summit; posterior areas reticulate, punctures very minute, moderately close; median line at base with several setae. Elytra 1.1 times as long as wide, 1.2 times as long as pronotum; disc occupying 42 percent of elytra length; disc subrugose, punctures very small, close, confused, area between punctures marked by many rather deeply impressed criss-crossing lines. Declivity subtruncate, circumdeclivital ring abrupt, weakly elevated, crest becoming

subserrate on lower third; face somewhat convex above, weakly impressed on lower half in area of interstriae 3; sutural interstriae weakly raised on lower half, strongest near apex, armed by a row of minute tubercles from base to apex; lateral areas smooth, shining, punctures strongly confused, rather large, deep, mostly spaced by less than diameter of a puncture. Glabrous.

Distribution: Brazil.

Type material: The female holotype and 2 female paratypes were taken at Fazenda Laminit, Itinga do Maranhio (not Maranhao?), Brazil, VII-2002. The holotype and 1 paratype are in MZUSP, Sao Paulo. One paratype is in the U.S. National Museum, Washington.

Xylosandrus retusus (Eichhoff)

Plate CXXXI

Xylosandrus retusus (Eichhoff), 1868:151 (*Xyleborus*). Holotype ♀; N. Freiburg, Brasil; IRSNB, Brussels (References in Wood & Bright c1992:800)

Diagnosis: Distinguished from *laticeps* (Wood) by the larger size; by the ventrolateral costa being acutely elevated on two-thirds of a circle on the declivity; and by the declivital surface being weakly reticulate between punctures.

Female: Length 3.7–4.1 mm, 1.8 times as long as wide; color very dark brown to black. Frons moderately, transversely impressed on lower third, convex above; surface strongly reticulate, punctures rather coarse, close; a very short, weak, obtuse, median carina immediately above epistoma; vestiture of sparse hair. Pronotum 0.90 times as long as wide; sides weakly arcuate, subparallel on more than basal half, broadly rounded in front, anterior margin armed by 2–4 coarse, median serrations; summit at middle, anterior slope closely, rather coarsely asperate; posterior areas finely reticulate, punctures fine, close; basal margin finely, rather closely pubescent, abundant on median fourth. Elytra 0.90 times as long as wide, 1.0 times as long as pronotum; disc occupying slightly less than basal half; striae not impressed, punctures small, rows very obscure; interstriae smooth, shining, punctures confused, of variable size (some as large as those of striae). Declivity rather abrupt at base, broadly convex below, lower two-thirds with an acutely elevated, partial circumdeclivital costa; face of declivity moderately convex, very finely reticulate, punctures rather small (twice as large as on discal striae), rather close, confused; no tubercles; ventrolateral costa acutely elevated, slightly higher on lower half, gradually fading at about interstriae 4 on base. Setae confined to sides.

Distribution: Argentina to S Brazil.

Argentina: Loreto, IV-1956, F.H. Walz.

Brazil: Aracruz, Espirito Santo, 11-XII-1991, No. 3570, at light; Nova Freiburg, Rio de Janeiro; Nova Teutonia, Santa Catarina, 1944, X-1956, F. Plaumann; Agudos, Duraflora, SP, 3-IV-1984, ethanol trap, *Pinus c. ribaea* stand, C.A.H. Flechtmann; Botucatu, Duratex, 7-XII-1990, ethanol trap, ex Patio de serraria (*Pinus e Eucalyptus*).

Hosts: *Bauhinia* sp., *Cedrela fissilis*, *Coffea* sp., *Cratylia floribunda*, *Nectandra* sp.

Notes: The above treatment was based on 26 females from Brazil. A female in the Chapuis Collection (IRSNB, Brussels) labeled “N. Freiburg, Deyr., type, det. Eichhoff 1868,” is considered to be the holotype. If other syntypes existed, they were apparently destroyed in 1944 with the Hamburg Museum. This holotype was examined and was compared directly by me to my series.

Xylosandrus laticeps (Wood)

Plate CXXX

Xylosandrus laticeps (Wood), 1977:219 (*Xyleborus*). Holotype ♀; 20 km SW El Vigia, Merida, Venezuela; USNM, Washington (References in Wood & Bright c1992:796)

Diagnosis: Distinguished from *retusus* (Eichhoff) by the smaller body size; by the complete circumdeclivital costa; and by the rugose (with microtubercles in some specimens) face of the declivity.

Male: Length 1.8–2.2 mm, 1.5 times as long as wide. Frons resembling female. Pronotum 0.81 times as long as wide; widest near base, sides convergently arcuate to broadly rounded, unarmed anterior margin; summit distinctly behind middle of pronotum length, anterior slope more gradual than female, stronger than *compactus* (Eichhoff), closely, moderately asperate (not at all flattened), anterior margin not projected into a costa as in *compactus*). Elytra 0.90 times as long as wide, 1.3 times as long as pronotum; disc occupying less than basal fifth, resembling female except declivity more gradual, declivital costa completing three-fourths of a circle, details poorly formed.

Female: Length 3.2–3.6 mm, 1.7 times as long as wide; mature color black. Frons strongly convex, reticulate, coarsely, closely punctured; a moderate transverse impression immediately above epistoma; a weak, short, median carina at impression. Pronotum 0.90 times as long as wide; outline as in *retusus*; anterior margin armed by four serrations; posterior areas rather coarsely, closely punctured; moderately numerous setae along basal margin. Elytra 0.90 times as long as wide, 1.03 times as long as pronotum; disc occupying basal third of elytra length, profile of suture strongly arched on disc, almost straight on declivity; disc smooth, shining, punctures small, numerous, confused. Declivity abrupt, subacutely costate circumdeclivital ring forming a complete circle, costa higher on lower half; surface densely micro-punctate, punctures rather abundant, confused, moderately large, their centers smooth, shining, a row of closely set, minute granules on interstriae 1 near suture. Glabrous except for a few setae along sides.

Distribution: Venezuela: 40 km E Canton, Barinas, 5-XI-1969, 150 m, No. 115 *Spondias mombin*, 8-III-1970, 150 m, No. 399, *Protium tenuifolium*, SLW; 9 km S Barrancas, Barinas, 1-X-1969, 150 m, No. 64 *Protium tenuifolium*, SLW; 8 km SW Bumbum, Barinas, 11-II-1970, 150, tartaguito, SLW; 17 km SE Miri, Barinas, 17-

XII-1969, 150 m, No. 195, *Protium*, SLW; Merida, Merida, 22-IX-1969, 1700 m, SLW; 20 km SW El Vigia, Merida, 21-XI-1969, 50 m, No. 145, *Jacaranda*, SLW; 5 km W El Pino, Zulia, 20-X-1969, 10 m, No. 138, felled tree, SLW; Valle de Choroní, 3-IV-1964, *Theobroma cacao*, J.L. Saunders.

Hosts: *Jacaranda* sp., *Protium tenuifolium*, *P.* sp., *Spondias mombin*, *Theobroma cacao*.

Biology: New tunnels were bored into recently felled trees 8–15 cm in diameter.

Notes: The above treatment was based on the type series of 11 males and 59 females from Venezuela.

GENUS *XYLEBORINUS* REITTER

Xyleborinus Reitter, 1913:79, 83. Type-species: *Bostrichus saxeseni* Ratzeburg, subsequent designation by Swaine 1918:50 (References in Wood & Bright c1992:803–818)

Diagnosis: This genus is distinguished from all other American Xyleborini by the uniquely modified scutellum. Basal margins of the elytra near the suture are pre-

cipitous, weakly emarginate, visible scutellum is depressed below the level of the elytral surface. It is conical in shape and projects somewhat cephalad. The cavity surrounding the scutellum is densely filled by long hair (some of which is visible from above).

Description: Female body length 1.4–3.5 mm, 2.6–3.0 times as long as wide; color brown to black; male dwarfed, deformed, flightless; anterior slope of pronotum convex. Antenna about as in *Xyleborus*. Pronotum longer than wide, anterior margin armed by weak to moderate serrations. Protibia armed on apical half of lateral margin by a row of 6–8 socketed denticles. Elytra striate, punctures in rows; declivity usually armed by tubercles or spines.

Biology: Apparently as described for *Xylosandrus*, except some species attack larger stems [especially *saxeseni* (Ratzeburg)].

Distribution: Wood & Bright (c1992:803–818) list 79 species mostly from tropical and subtropical areas of Africa, Europe, Asia, and tropical America, including 9 species from South America.

Key to the Species of *Xyleborinus*

- 1. Declivity convex, interstriae 1–3 equally convex and armed by a row of small, pointed tubercles; posterolateral margin rounded and bearing similar or slightly larger tubercles 2
- Elytral declivity rather weakly to strongly (concavely) impressed, interstriae 2 unarmed by tubercles, 1 (rarely), 3, and lateral areas armed by tubercles or large spines (occasional *gracilis* with a few minute tubercles on basal half of 1 or 2) 3
- 2(1). Smaller, less slender, 2.6 times as long as wide; elytral declivity not as steep, occupying 40 percent of elytra length; declivital interstriae 1–3 each equally armed by a row of small tubercles, these tubercles equal in size to those on lateral areas; striae setae present on declivity, interstitial setae moderately long, in rows from base to apex; Mexico (Veracruz) to Colombia and Venezuela; 1.4–1.6 mm *intersetosus* (Blandford)
- Larger, very slender, 2.8 times as long as wide; elytral declivity steeper, shorter, occupying 25 percent of elytra length; declivital interstriae 1–3 each equally armed by a row of minute tubercles, which tubercles are conspicuously smaller than those on lateral areas; striae setae obsolete, interstitial setae minute to obsolete; Guadeloupe Island; 2.6–2.8 mm *buscki* (Hopkins)
- 3(1). Elytral declivity weakly impressed, interstriae 1 and 3 each armed by a row of small tubercles, 2 entirely unarmed except weakly at basal margin; body rather slender, 3.0 times as long as wide; almost worldwide through commerce, Argentina, Brazil, Chile, Paraguay; 1.9–2.4 mm *saxeseni* (Ratzeburg)
- Elytral declivity more strongly impressed, interstriae 1 unarmed except at base (if so, 2 sometimes with tubercles at base) 4
- 4(3). Body stout, 2.0 times as long as wide; all punctures on declivity and interstitial punctures on disc very dense, strongly confused; striae punctures on disc mostly in obscure rows, not indicated on declivity; vestiture on declivity of abundant, short, almost scalelike, pointed setae; Brazil (Sao Paulo); 2.7 mm *saginitus* Wood
- Body rather slender, at least 2.5 times as long as wide; punctures of interstriae (when present) and striae in uniseriate rows (partly confused in *dirus*) 5
- 5(4). Elytral declivity rather strongly, broadly impressed, entirely without any interstitial tubercles either in impressed area or on elevated lateral margins; Costa Rica; 1.6–1.7 mm *protinus* Wood

—	Lateral margins of elytral declivity armed by denticles	6
6(5).	Declivital interstriae 3 armed by row of five or more pointed denticles, height of denticles mostly shorter than distance equal to their basal width (except at lower margins)	7
—	Declivital interstriae 3 armed by two or three coarse denticles, height of each usually at least twice their basal width (base of 1 and 2 often with a very small tubercle)	10
7(6).	Declivital interstriae 3 armed by tubercles mostly to entirely on basal two-thirds	8
—	Declivital interstriae 3 with tubercles more equally distributed to apex	9
8(7).	Ventrolateral margin of declivity weakly elevated, rounded, armed by about two to four small tubercles all conspicuously smaller than those on 3, usually in a linear row; Brazil (Santa Catarina, Sao Paulo); 2.0–2.2 mm <i>linearicollis</i> (Schedl)	
—	Ventrolateral margin of declivity conspicuously elevated, crest narrowly rounded and armed between suture and level of interstriae 3 by about eight confused, sharply pointed tubercles (mostly larger than those on 3); Brazil (Mato Grosso); 1.6 mm <i>spiniger</i> (Schedl)	
9(7).	Declivity steep, occupying one-third of elytral length, shallowly impressed, armature variable, usually about five small, pointed tubercles on interstriae 3, rarely with minute tubercles on upper half of 1 and/or 2; ventrolateral margin armed by about seven small, confused, pointed tubercles; SE USA to Argentina, Brazil, Colombia, Galapagos Islands, Venezuela; 1.6–1.9 mm <i>gracilis</i> (Eichhoff)	
—	Declivity more gradual, occupying slightly more than posterior half of elytra length; lateral margin of declivity armed by six or more moderately coarse, pointed spines; ventrolateral margin armed by more than 12 equally coarse, confused, pointed spines; Costa Rica to Venezuela and Suriname to Brazil; 1.9–2.2 mm <i>reconditus</i> (Schedl)	
10(6).	Declivity very steep, occupying posterior third; lateral margins armed by three coarse spines, length of each about twice basal width of a spine; Brazil, Paraguay, Peru; 2.3–2.6 mm <i>sentosus</i> (Eichhoff)	
—	Declivity more gradual, occupying distinctly more than posterior third of elytra length	11
11(10).	Elytral declivity with one major spine on interstriae 3 near middle (variable, a second, smaller spine sometimes present above or below major spine on one or both sides)	12
—	Elytral declivity with two major spines on interstriae 3, at least one of these on lower fourth; a third pair of smaller spines usually present at base of declivity	13
12(11).	Declivity shallowly, less broadly impressed, major spine on interstriae 3 very small, tubercles in lateral areas of lower half smaller, less numerous; Colombia; 1.7–1.8 mm <i>celatus</i> Wood	
—	Declivity rather strongly, broadly impressed, major spine on interstriae 3 rather coarse, length at least twice its basal width, tubercles on interstriae 1–6 on basal half (anterior to major spine) and on ventrolateral margin much larger and more numerous; Costa Rica to Colombia; 2.0–2.2 mm <i>bicornatulus</i> (Wood)	
13(11).	Elytral declivity rather shallowly impressed, lower spine (on lower fourth) largest, about twice as long as its basal width, upper spine about two-thirds as large, positioned slightly above middle, anterior margin with one or two pointed tubercles; Mexico (Veracruz); 1.9 mm <i>tribuloides</i> Wood	
—	Elytral declivity very strongly impressed, spines 2 and 3 very large, 1 much smaller; larger species	14

- 14(13). Declivital spine 1 at base of interstriae 1 pointed, 2 moderately large, clearly below middle of declivity length; striae and interstriae on disc with punctures subequal in size, confused; lower area of lateral margin of declivity without any supplemental pointed tubercles; Costa Rica to Colombia; 3.3–3.5 mm *dirus* Wood
- Declivital spine 1 at base of interstriae 1 present or not, 2 moderately large, clearly above middle of declivity length; striae punctures on disc in rows, distinctly larger than those of interstriae; lower lateral area of declivity armed by 10 or more pointed tubercles; smaller species 15
- 15(14). Spine 1 at base of declivital interstriae 1 minute to obsolete; spines 1 and 3 moderately large, blunt, supplemental tubercles on ventrolateral area much smaller; setae on impressed area of declivity shorter, more numerous; El Salvador; 2.6 mm *gracilicornis* (Schedl)
- Spine 1 at base of declivital interstriae 1 moderately large, pointed, spines 2 and 3 large, acutely pointed, supplemental tubercles on ventrolateral area conspicuously larger; setae on impressed area of declivity sparse, slightly longer; Panama; 2.4–2.5 mm *tribulosus* Wood

Xyleborinus intersetosus (Blandford)
Plate CXXXV

Xyleborinus intersetosus (Blandford), 1898:211 (*Xyleborus*). Holotype ♀; Tamahu, Vera Pas, Guatemala; BMNH, London (Synonymy and references in Wood & Bright c1992:808)
Xyleborus analogus Schedl, 1948:277. Holotype ♀; Mexico; NHMW, Wien

Diagnosis: This species and *buscki* (Hopkins) are distinguished from all other South American species of this genus by the convex elytral declivity, with interstriae 1–3 equally convex and armed by a row of small, pointed tubercles; and by the rounded posterolateral margin of the declivity.

Male: Length 1.0–1.1 mm, 2.5 times as long as wide. Frons about as in female; eye half as large as in female, emargination larger; deeper. Pronotum 1.03 times as long as wide; similar to female, except summit less definite, anterior slope not as steep, asperities small to obsolete, on a much narrower area, anterior margin narrowly rounded, unarmed; disc almost smooth, punctures sparse, small, poorly formed. Elytra 1.5 times as long as wide, 1.3 times as long as pronotum; disc occupying basal half of elytra length; surface obscurely similar to female, all features poorly formed. Declivity much more gradual than in female, obscurely similar.

Female: Length 1.4–1.6 mm, 2.7 times as long as wide; color dark brown. Frons broadly convex, surface reticulate, punctures sparse, rather small; vestiture hairlike, very sparse. Pronotum 1.1 times as long as wide; summit slightly behind middle, anterior slope rather coarsely asperate on median half; posterior areas reticulate, punctures minute, sparse. Elytra 1.7 times as long as wide, 1.4 times as long as pronotum; disc occupying slightly more than half of elytra length; striae not impressed, punctures very small, shallow, distinct; interstriae about four times as wide as striae, smooth, shining, punctures half as large as those of striae, uniseriate, rather closely spaced. Declivity steep, broadly convex; striae 1–3 as on disc, interstriae smooth, shining, 1–3 each armed by a

row of small, pointed tubercles, about six to eight tubercles in each row, 4–7 with similar, less numerous tubercles; ventrolateral margin rather narrowly rounded, part of crest armed by similar tubercles. Vestiture of fine, semirecumbent, short hair, and rows of erect, rather coarse interstitial setae, length of each seta equal to about 1.5 times distance between rows.

Distribution: Mexico (Veracruz) to Panama and Colombia to Venezuela and Brazil.

Brazil: Mario Xavier National Forest, Sarcopedica, Rio de Janeiro, 27-II-2003, *Eucalyptus urophylla* log.

Colombia: Carton de Colombia forest 8 km S Colonia, near Buenaventura, Valle de Cauca, 9-VIII-1970, 30 m, No. 699, *Sloania multiflora*, SLW.

Venezuela: Rancho Grande, Aragua, 9-IV-1970, 1100 m, No. 439, tree seedling; Campamento Rio Grande 30 km E Palmar, Bolivar, 12-VI-1970, 200 m, No. 556, *Alexa imperatricia*, SLW.

Hosts: *Alexa imperatricia*, *Sloania multiflora*, *Theobroma cacao*, *Vismia guianensis*.

Biology: Cut, injured and broken limbs, boles, and logs larger than 8 cm in diameter are selected for attack. Tunnels appear to be of a simple branching pattern.

Notes: The above treatment was based on 2 females from Colombia, 29 females from Venezuela, and 2 males and 46 females from Costa Rica and Panama.

Xyleborinus buscki (Hopkins)
Plate CXXXV

Xyleborinus buscki (Hopkins), 1915:63 (*Xyleborus*). Holotype ♀; Guadeloupe, West Indies; USNM, Washington (References in Wood & Bright c1992:806)

Xyleborus longulus (Schedl), 1966:117. Lectotype ♀; Guadeloupe Island; NHMW, Wien (References in Wood & Bright c1992:808). *New synonymy*

Diagnosis: Distinguished from *intersetosus* (Blandford) by the less slender body; by the more gradual elytral declivity, with the tubercles on interstriae 1–3 equally, more coarsely armed, these tubercles about equal in size to those on lateral areas.

Female: Length 2.6 mm, 3.0 times as long as wide; color brown, pronotum darker (mature?). Frons moderately convex above, more nearly flattened below; surface reticulate (viewed with difficulty on type). Pronotum 1.15 times as long as wide; summit anterior to middle of pronotum length; anterior slope rather finely, closely asperate, anterior margin unarmed; surface strongly reticulate including spaces between asperities; vestiture apparently abraded. Elytra 1.8 times as long as wide, 1.6 times as long as pronotum; disc occupying basal three-fourths of elytra length; striae not impressed, punctures minute, some obscurely impressed; interstriae almost smooth, shining, about four times as wide as striae, punctures uniseriate, most on basal third obscure to obsolete, those on posterior half feebly to distinctly tuberculate. Declivity broadly convex, steep; striae 1–3 with punctures slightly larger than on disc, distinctly impressed, each with a row of closely spaced minute tubercles from base to apex; tubercles in lateral areas conspicuously larger. Vestiture mostly abraded on type, apparently consisting of fine, short hair in uniseriate rows only on declivity, length of each setae equal to less than one-third distance between rows.

Distribution: Guadeloupe Island.

Notes: The above treatment was based on the female holotype of *Xyleborus buscki* Hopkins, and on the female holotype and 1 female paratype of *Xyleborus longulus* Schedl.

Xyleborinus saxeseni (Ratzeburg)

Plate CXXXVII

- Xyleborinus saxeseni* (Ratzeburg), 1837:167 (*Bostrichus*). Syntypes ♀; Suedlichen Deutschland; not located, presumably at DEI, Muncheberg (Synonymy and references in Wood & Bright c1992:810–816)
- Tomicus dohrni* Wollaston 1854:290. Syntypes ♀; Madera Island; BMNH, London
- Tomicus decolor* Boieldieu, 1859:473. Syntypes ♀; Environs de Peronne, France; MNHN, Paris
- Xyleborus angustatus* Eichhoff, 1866:278. Syntypes ♀; Volhynia, Russia; Hamburg Museum, lost
- Xyleborus aesculi* Ferrari, 1867:22. Syntypes ♀; Meidling bei Wien [Austria]; NHMW, Wien
- Xyleborus sobrinus* Eichhoff, 1875:202. Syntypes ♀; Japan; IRSNB, Brussels
- Xyleborus subdepressus* Rey, 1883:142. Syntypes ♂; Lyon, France; MNHN, Paris
- Xyleborus frigidus* Blackburn, 1885:193. Holotype ♀; Haleakala, Maui, 4000 feet [Hawaiian Islands]; BMNH, London
- Xyleborus floridensis* Hopkins, 1915:60, 63. Holotype ♀; Enterprise, Florida [USA]; USNM, Washington
- Xyleborus pecanus* Hopkins, 1915:63. Holotype ♀; Waynesboro, Mississippi [USA]; USNM, Washington
- Xyleborus quercus* Hopkins, 1915:60, 63. Holotype ♀; Baxterville, Mississippi [USA]; USNM, Washington
- Xyleborus arbuti* Hopkins, 1915:64. Holotype ♀; Walker, California [USA]; USNM, Washington
- Xyleborus subspinosus* Eggers, 1930:203. Holotype ♀; 600 feet at Shillong, Assam, India; FRI, Dehra Dun
- Xyleborinus tsugae* Swaine, 1934:204. Holotype ♀; Mission, British Columbia, Canada; CNCI, Ottawa
- Xyleborinus librocedri* Swaine, 1934:205. Holotype ♀; Oak Ridge, Oregon (USA); CNCI, Ottawa
- Xyleborus pseudogracilis* Schedl, 1937:169. Lectotype ♀; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien, designated by Schedl 1979:201

Xyleborus retusus Schedl, 1940:208. Lectotype ♀; Cameroon; NHMW, Wien, designated by Schedl 1979:211, preoccupied by Eichhoff 1868:151

Xyleborus peregrinus Eggers, 1944:142. Holotype ♀; Stuttgart, Germany; NHMW, Wien

Xyleborus pseudoangustatus Schedl, 1948:28. Lectotype ♀; Queensland: Stapleton, Brookfield, Stanthrope, and New South Wales: West Pennant Hills; NHMW, Wien, designated by Schedl 1979:200

Xyleborus paraguayensis Schedl, 1948:276. Holotype ♀; Villarrica, Paraguay; NHMW, Wien

Xyleborus opinulus Schedl, 1976:77. Holotype ♂; Acungui, PR, Brazil; NHMW, Wien (References in Wood & Bright c1992:200). *New synonymy*

Xyleborus cinctipennis Schedl, 1980:186. Holotype ♀; Queensland, Australia; NHMW, Wien

Diagnosis: Distinguished by the weakly impressed elytral declivity, with interstriae 2 unarmed by tubercles except at the extreme basal margin; and by the slender body form.

Male: Length 1.7–1.8 mm, 2.8 times as long as wide. Basic form as in female, eye about half as large. Pronotum 1.1 times as long as wide; resembling female except summit indefinite, anterior slope more gradual, asperities minute, restricted to a much smaller area, anterior margin unarmed. Elytra 1.6 times as long as wide, 1.4 times as long as pronotum; declivity longer and not as steep as in female; striae and interstitial punctures poorly formed, declivital tubercles reduced in size and number.

Female: Length 1.9–2.4 mm, 3.0 times as long as wide; color dark reddish brown. Frons broadly convex, surface reticulate, punctures rather coarse, close. Pronotum 1.2 times as long as wide; sides almost straight and parallel on more than basal half, broadly rounded in front; anterior margin armed by 10 or more low serrations; summit slightly in front of middle of pronotum length, anterior slope coarsely, closely asperate; posterior areas finely reticulate, punctures minute, rather numerous; vestiture hairlike, sparse, mostly on or near margins. Elytra 1.8 times as long as wide, 1.5 times as long as pronotum; disc occupying basal 70 percent of elytra length; striae not impressed, punctures rather small; interstriae three times as wide as striae, smooth, shining, punctures rather small, uniseriate, some near declivity replaced by small tubercles. Declivity steep, convex, weakly impressed; surface smooth, usually shagreened; striae 1–3 clearly indicated, punctures small, in rows; interstriae 1 feebly elevated, armed by a row of about six small, pointed tubercles on upper two-thirds, 2 unarmed except for two or three minute tubercles at base, 3 armed by a row of about eight small, pointed tubercles to apex of 3; ventrolateral margin weakly, subacutely elevated and usually armed by one or more tubercles at apex of 3. Vestiture of short, fine striae hair, and long, erect, rather coarse interstitial setae, some setae on declivity more than twice as long as distance between rows.

Distribution: Europe and N Asia, introduced into Australia, North America, and South America.

Argentina: Punta Lara, III-1950, M.J. Viana.

Brazil: Aracruz, Espirito Santo, 11-XII-1991, No. 3589; Tres Lagoas (presumably Mato Grosso?), 26-V-2001,

Horto Borrado Moreda, International Paper, riparian forest, fallen *Cecropia* petioles, C.A.H. Flechtmann; "Pine logs from Parana, Brazil, intercepted in Australia (Brett & Co., 31,0281, D.M. McIntyre); Telemaco Borba, Parana, 3-XII-1999-19-XII-2003, C.A.H. Flechtmann; Botucatu (Parana²), 5-IV-1989, Duratex SA, Paula Souza Sawmille, ethanol trap, *Pinus, Eucalyptus* stand, C.A.H. Flechtmann; Brotas, Sao Paulo, 15-X-2001, International Paper forest, *Eucalyptus grandis* stand, ethanol trap, C.A.H. Flechtmann; Nova Teutonia, Santa Catarina, XII-1915, F. Plaumann; Agudos, Duraflora, Sao Paulo, 4-IV-1984, ethanol trap, *Pinus caribaea* stand, C.A.H. Flechtmann; Botucatu, Duratex, 7-III-1990, ethanol trap, Patio de Serraria, *Pinus e Eucalyptus*, C.A.H. Flechtmann.

Chile: Cited in Wood & Bright (c1992:810).

Paraguay: Villarrica.

Notes: The above treatment was based on several hundred specimens from Europe, Asia, and North America, and on 2 females from Brazil. The male holotype of *Xyleborus opimulus* Schedl was compared by me directly to my male from Paris, France. Schedl's paratype, of *opimulus*, is a male of another species (= *Xyleborus schoenherri* Schedl), a probable male of *gracilis* (Eichhoff).

Xyleborinus saginatus Wood, n. sp.

Plate CXXXVI

Xyleborinus saginatus Wood: Holotype ♀; Botucatu, Sao Paulo, Brazil; MZUSP, Brazil, designated below

Diagnosis: Distinguished by the stout, comparatively large body size; and by the dense, confused punctures on the declivity and discal interstriae, striae punctures not indicated on disc.

Female: Length 2.7–2.8 mm, 2.2 times as long as wide; color dark reddish brown. Frons broadly convex, weakly reticulate, punctures rather coarse, close; fine median line feebly elevated, impunctate; vestiture sparse, moderate on epistomal brush. Pronotum 0.94 times as long as wide; sides almost straight and parallel on basal half, broadly rounded in front, anterior margin feebly serrate; summit at middle, anterior slope closely, coarsely asperate; posterior areas weakly reticulate, punctures of moderate size, deep, rather close; vestiture hairlike, moderately abundant, fine, rather long. Elytra 1.05 times as long as wide, 1.05 times as long as pronotum; disc occupying basal half of elytra length; striae not impressed, punctures in vaguely discernible rows on one specimen, confused on another; interstriae four times as wide as striae, smooth, shining, punctures about as large as those of striae, strongly confused. Declivity shallowly concave on median two-thirds from abrupt base to apex; margin obtusely, weakly elevated on a complete circle, crest armed by about 11 pointed denticles, largest denticle (as wide as high) at base of interstriae 3, two similar denticles on basal half of 3 below margin; two or three small granules at base of 1; face of declivity smooth, shining, punctures rather coarse, close, confused. Vestiture on disc of semirecumbent, short striae setae, and rows of

erect, long, rather coarse setae of moderate abundance; vestiture on declivity of abundant, uniformly short, stout, almost scalelike, pointed setae.

Distribution: Brazil (Mato Grosso).

Type material: The female holotype was taken at Botucatu, Sao Paulo, Brazil, Duratex, SA, Paula Souza Sawmill. Paratypes include 1 female from Mato Grosso, Brazil, RS/RGS Exp. to 12°31'S, 51°46'W, 27-XI-1968, R.A. Beaver; 1 female paratype is from Sao Paulo (State), D-D, C.A.H. Flechtmann, 1 female paratype from Itiquira, Sao Paulo, Brazil, *Hevea brasiliensis* clone RRIM 600 stand, 15-VI-1992, ethanol trap, O.T. Dall'Oglio. The holotype is in the Museum de Zoologie Universidade de Sao Paulo, Sao Paulo, 1 paratype is in the collection of C.A.H. Flechtmann, and 2 paratypes are in the U.S. National Museum, Washington.

Brazil (non-type): Brotas, Sao Paulo, 23-VII-2001, International Paper forest, ethanol trap, K. Trefflich; Lencois Paulista, Sao Paulo, 17-VII-1988, Duraflora SA forest, ethanol trap, C.A.H. Flechtmann.

Xyleborinus linearicollis (Schedl)

Xyleborinus linearicollis (Schedl), 1937:169 (*Xyleborus*). Holotype ♀; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:808)

Diagnosis: Distinguished from *saxeseni* (Ratzeburg) by the near absence of tubercles on declivital interstriae 1 (one to three minute tubercles sometimes at base); by the near absence of tubercles on the more broadly rounded ventrolateral margin of the declivity; and by the slightly stouter body form.

Female: Length 2.0–2.2 mm, 2.9 times as long as wide; color very dark brown. Frons very broadly convex; surface reticulate, rather coarsely punctured; median line weakly elevated from epistoma almost to upper level of eyes; vestiture of sparse, fine, long hair, more abundant on epistomal brush. Pronotum 1.2 times as long as wide; sides almost straight and parallel on basal two-thirds, broadly rounded in front; anterior margin weakly subserrate; summit slightly anterior to middle, anterior slope closely, rather coarsely asperate; posterior areas rather strongly reticulate, punctures small, rather close; vestiture moderately long, of a mixture of fine and rather stout setae, rather abundant. Elytra 1.6 times as long as wide, 1.4 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed, punctures moderately small; interstriae three times as wide as striae, smooth, shining, punctures half as large as those of striae, uniseriate. Declivity steep, broadly, shallowly impressed between striae 3; punctures of striae 1–3 distinctly larger and more strongly impressed than on disc; interstriae 1 wider than 2, with a row of punctures from apex to near base, punctures replaced by minute tubercles at base; 2 narrower than striae, smooth, shining, impunctate, one to three small tubercles at base, 3 very weakly elevated, twice as wide as 2, armed by a row of four to six moderate, pointed tubercles on basal

two-thirds; lateral areas with several moderate tubercles; ventrolateral margin rounded, crest armed by about two to four small tubercles, usually in a row, smaller than those on 3. Vestiture of minute strial hair on and near declivity, and rows of erect, rather stout interstitial setae from base to apex, each about as long as distance between rows, similarly spaced within a row.

Distribution: Brazil: Telemaco Borba, Parana, 29-XI-1999, Klabin Papel e Cellulose, ethanol trap in *Pinus taeda* stand, C.A.H. Flechtmann; UFSM campus, Santa Maria, Rio Grande do Sul, 22-XII-1998, ethanol trap, *Eucalyptus grandis* stand, T.E. Silva; Nova Teutonia, Santa Catarina, 20-V-1939, X-1956, F. Plaumann; Horto Florestal, DFTM, 1947, *Eucalyptus robustus*, Djalma Almeida; Agudos, Duraflora, Sao Paulo, 27-VIII-1985, 24-II-1987, ethanol trap, *Pinus c. caribaea* stand, C.A.H. Flechtmann; Botucatu, Duratex, PS sawmill, 5-IV-1989, 26-IX-1990, ethanol trap, C.A.H. Flechtmann.

Notes: The above treatment was based on the female holotype, 2 female paratypes, and on 9 other females, all from Brazil.

Xyleborinus spiniger (Schedl)

Xyleborinus spiniger (Schedl), 1954:45 (*Xyleborus*). Lectotype ♀; Rio Caraguata, Mato Grosso, Brazil; NHMW, Wien, designated by Schedl 1979:235 (References in Wood & Bright c1992:817)

Diagnosis: Distinguished from *linearicollis* (Schedl) by the distinctly elevated ventrolateral margin of the declivity that is armed by about eight confused, rather coarse tubercles, larger than those on 3.

Female: Length 1.6 mm, 3.0 times as long as wide; color dark reddish brown. Frons broadly convex; surface strongly reticulate, punctures rather coarse, sparse; vestiture of sparse, long hair, more numerous on epistomal margin. Pronotum 1.2 times as long as wide; sides almost straight and parallel on basal three-fifths, broadly rounded in front; anterior margin unarmed; summit slightly anterior to middle, anterior slope rather coarsely, closely asperate; posterior areas obscurely reticulate, punctures small, moderately close; vestiture of fine, rather short hair, mostly on anterior slope. Elytra 1.8 times as long as wide, 1.5 times as long as pronotum; disc occupying basal 60 percent of elytra length; striae not impressed, punctures rather coarse; interstriae almost smooth, shining, twice as wide as striae, punctures very small, a third as large as those of striae, uniseriate. Declivity moderately steep, broadly flattened to interstriae 3; striae 1–3 marked by punctures as large as those of disc, 3 ending in ventrolateral elevation; interstriae 1 and 2 about as wide as one stria, unarmed except for two or more minute tubercles at base, 3 armed on upper half by three to five moderately coarse, pointed denticles; ventrolateral margin moderately elevated near apex, its crest rounded and armed by about eight confused, rather coarse, pointed denticles. Vestiture consisting of minute, hairlike strial setae on declivity, and

rows of erect interstitial setae from base to apex, each seta rather slender, slightly longer than distance between rows, similarly spaced within a row.

Distribution: Brazil: Rio Caraguata, Mato Grosso, III-1953, F. Plaumann.

Notes: The above treatment was based on the female holotype and 1 female paratype from Brazil.

Xyleborinus gracilis (Eichhoff)

Plate CXXXIV

Xyleborinus gracilis (Eichhoff), 1868:145 (*Xyleborus*). Lectotype ♀; Brazil; USNM, Washington, designated by Anderson & Anderson 1971:14 (Synonymy and references in Wood & Bright c1992:808)
Xyleborus aspericauda Eggers, 1941:106. Holotype ♀; Guadeloupe; Fleutiaux Collection; MNHN, Paris?
Xyleborus neogracilis Schedl, 1954:46. Lectotype ♀; Rondon, Parana, Brazil; NHMW, Wien, designated by Schedl 1979:164
 ?*Xyleborus schoenherri* Schedl, 1981:5. Holotype ♂; Telemaco-Borba, Parana, Brazil; NHMW, Wien (References in Wood & Bright c1992:816). *Probable synonymy*

Diagnosis: Declivity distinctly, shallowly impressed between left and right interstriae 3, 1 and 2 armed by minute granules, 3 with about five pointed denticles mostly on lower half.

Female: Length 1.6–1.9 mm, 3.0 times as long as wide; color very dark reddish brown. Frons broadly convex, surface strongly reticulate, punctures rather small, moderately close. Pronotum 1.2 times as long as wide; sides almost straight and parallel on more than basal half, rather narrowly rounded in front; anterior margin feebly serrate; summit distinctly anterior to middle, anterior slope coarsely, closely asperate; posterior areas strongly reticulate, punctures minute, shallow, rather sparse; vestiture hairlike, very sparse, mostly on or near margins. Elytra 1.8 times as long as wide, 1.5 times as long as wide; disc occupying basal three-fourths of elytral length; striae not impressed, punctures moderately large; interstriae slightly more than twice as wide as striae, almost smooth, shining, punctures mostly minute to obsolete, some punctures near declivity replaced by granules. Declivity steep, shallowly impressed between interstriae 3; striae 1 and 2 with punctures distinctly larger than on disc, clearly impressed; interstriae 1 and 2 slightly wider than striae, smooth, shining, each with a row of minute, rounded granules; 3 armed on lower half by a row of three to five moderately large, pointed denticles, basal half with very small denticles or granules; lateral areas with a few small denticles. Vestiture of minute strial hair, and rows of erect, much longer interstitial setae, each erect seta distinctly longer than distance between rows.

Distribution: SE USA to Panama and Colombia to Argentina and Galapagos Islands.

Argentina: Cited in Wood & Bright (c1992:808).

Brazil: Aracruz, Espirito Santo, at light; Telemaco Borba, 22-XI-1999, Klabin Papel e Cellulose, ethanol trap, *Pinus taeda* stand, C.A.H. Flechtmann; Nova Teutonia, Santa Catarina, 1944, XI-1956, IV-1957, F. Plaumann; Curitiba, VI-1971, J.A. Winder; Agudos, Duraflora, Sao

Paulo, 27-VIII-1985, ethanol trap, *Pinus c. caribaea* stand, C.A.H. Flechtmann; Jundia, Sao Paulo, 6-IV-1993, *Eucalyptus saligna*, A. Dwvlatka.

Colombia: Pauplona, San Vicente, Santander Sur, 26-VI-1959, balsa seco, J. Betancourt; Carton de Colombia forest 8 km S Colonia, near Buenaventura, Valle de Cauca, 9-VII-1970, 30 m, No. 613, *Couma macrocarpa*, SLW.

Venezuela: Rancho Grande, Aragua, 9-IV-1970, 1100 m, No. 448, tree bole, SLW; 10 km SE Miri, Barinas, 8-II-1970, 150 m, No. 301, *Pouteria anibaefolia*, SLW; Finca Monasterios, Cacuagua, Miranda, 1971, *Theobroma cacao*, J.L. Saunders.

Hosts: *Couma macrocarpa*, *Ochroma* sp., *Pouteria anibaefolia*, *Theobroma cacao*.

Biology: Specimens were taken from the wood of broken, injured, and felled stems 5–50 cm in diameter.

Notes: The above treatment was based on the female lectotype of *gracilis* (Eichhoff) and *neogracilis* Schedl, on the series of Eggers and Schedl, and on 5 females from the USA, 20 females from Central America, 6 females from Colombia, and 10 females from Venezuela. Although an authentic male of *gracilis* was not seen, it is almost certain that the male holotype and paratype of *schoenherri* Schedl (NHMW, Wien) and the male paratype of *opimus* Schedl (NHMW, Wien) are males of this species.

Xyleborinus reconditus (Schedl)

Plate CXXXVI

Xyleborinus reconditus (Schedl), 1963:60 (*Xyleborus*). Holotype ♀; Tambabredjo, Suriname; NHMW, Wien (References in Wood & Bright c1992:810)

Diagnosis: Distinguished from *gracilis* Eichhoff by the more gradual, much longer, more gradual elytral declivity; by the ventrolateral margin of the declivity being armed by 12 or more equally coarse, confused spines; and by the larger size.

Female: Length 1.9–2.2 mm, 2.5 times as long as wide; color very dark reddish brown. Frons very weakly convex; surface strongly reticulate, punctures rather coarse, sparse. Pronotum 1.1 times as long as wide; sides almost straight and parallel on basal half, broadly rounded in front, anterior margin armed by about 6 moderate serrations; summit in front of middle, anterior slope coarsely, closely asperate; posterior areas smooth, shining, punctures small, moderately numerous; sparse setae near margins. Elytra 1.5 times as long as wide, 1.3 times as long as pronotum; disc occupying 45 percent of elytra length; striae not impressed, punctures small; interstriae four to five times as wide as striae, smooth, shining, punctures about half as large as those of striae. Declivity gradual, shallowly subconcave from suture to striae 3; striae 1 and 2 with punctures two or three times larger than those on disc; interstriae 1 with one small tubercle at base, a row of minute tubercles to apex; 2 with one or two small tubercles at base, a row of small punctures to apex; 3 armed from base to apex by a row of about eleven

equally spaced, moderately large, pointed denticles, each denticle about as high as its basal width; lateral margin rounded, not clearly formed; several pointed denticles in lateral area on 4–7. Vestiture mostly on declivity, of minute strial hair; and rows of erect interstitial setae, longest setae about equal in length to distance between rows.

Distribution: Costa Rica and Panama to Venezuela, Suriname, and Brazil.

Brazil: Adolpho Ducke Forest Reserve, Manaus, Amazonas, 5-IV-1993, ethanol trap, A.P. Santos; Conde; Manaus, Amazonas, 15-III-1993, A.P. Santos; Bahia, 28-VIII-1991, ethanol trap, *Pinus c. hondurensis*, A.C. Dwulataka; Aracruz, Espirito Santo, 30-III-1990, No. 3121.

French Guyane: Cited in Wood & Bright (c1992:811). Suriname: Tambabredjo.

Venezuela: Finca Monasterios, Cacuagua, Miranda, 1971, *Theobroma cacao*, J.L. Saunders.

Hosts: *Cratylia floribunda*, *Eugenia jambos*, *Liriosoma singularis*, *Liriosoma singularis*, *Pouteria* sp., *Pseudoolmedia laevigata*, *Qualea ingens*, *Theobroma cacao*.

Biology: Boring in the wood of branches 4–10 cm in diameter.

Notes: The above treatment was based on 4 females from Venezuela and 8 females from Costa Rica and Panama. One female from Panama was compared by me directly to the holotype.

Xyleborinus sentosus (Eichhoff)

Plate CXXXVII

Xyleborinus sentosus (Eichhoff), 1868:146 (*Xyleborus*). Holotype ♀; Brazil; NHMW, Wien (References in Wood & Bright c1992:816)

Diagnosis: Distinguished by the slender body form; and by the short, steep declivity, with interstriae 3 armed by three spines of subequal size.

Female: Length 2.3–2.6 mm, 3.2 times as long as wide; color dark reddish brown. Frons broadly convex, surface reticulate, punctures coarse, deep, rather close; vestiture hairlike, very sparse, mostly on epistomal margin. Pronotum 1.3 times as long as wide; sides straight and parallel on basal two-thirds, rather broadly rounded in front; anterior margin weakly serrate; summit distinctly in front of middle of pronotum length; anterior slope coarsely, closely asperate; posterior areas mostly smooth, weakly reticulate in some areas, punctures very minute, sparse; hairlike setae restricted to lateral and anterior margins or near. Elytra 1.8 times as long as wide, 1.4 times as long as pronotum; disc occupying basal 70 percent of elytral length; striae not impressed, punctures rather coarse; interstriae two to three times as wide as striae, smooth, shining, punctures half as large as those of striae, uniseriate. Declivity short, very steep, strongly impressed from suture to interstriae 3; striae 1 and 2 marked by shallow punctures, interstriae 1 and 2 smooth, shining, 1 with sparse, minute punctures and a small tubercle at base, 2 impunctate and unarmed, 3 moderately elevated, crest armed by three large spines about equally spaced,

each spine twice as long as its basal width. Vestiture of very sparse, short strial hair on declivity, and long interstitial setae at margin of declivity and on sides.

Distribution: S Brazil: Nova Teutonia, Santa Catarina, 1944, XI-1956, F. Plaumann; Rondon, Parana, 1957, F. Plaumann; Agudos, Duraflora, Sao Paulo, 22-IV-1986, ethanol trap, *Pinus* spp. stand, C.A.H. Flechtmann; Gravata, Rio Grande do Sul, 3-VII-1991, ethanol trap, *Pinus taeda* stand, A. Dwvlatka.

Hosts: *Araucaria angustifolia*, *Cedrela fissilis*.

Notes: The above treatment was based on more than 100 females from Brazil, 1 of which I compared directly to the female holotype (Schedl 1979:225).

Xyleborinus celatus Wood

Plate CXXXII

Xyleborinus celatus Wood, 1974:43. Holotype ♀; Carton de Colombia forest 8 km S Colonia (near Buenaventura, Valle de Cauca, Colombia; USNM, Washington (References in Wood & Bright c1992:806)

Diagnosis: Distinguished from *bicornatulus* (Wood) by the smaller body size; by the shallowly, less broadly impressed elytral declivity; by the smaller major spine on declivital interstriae 3, with adjacent tubercles smaller and less numerous.

Female: Length 1.7–1.8 mm, 2.7 times as long as wide; color very dark reddish brown. Frons about as in *sentosus* (Eichhoff). Pronotum 1.2 times as long as wide; about as in *sentosus*, except anterior margin more narrowly rounded, more strongly serrate. Elytra 1.4 times as long as wide, 1.3 times as long as pronotum; disc occupying basal 33 percent of elytral length; striae not impressed, punctures very small; interstriae at least four times as wide as striae, almost smooth, shining, punctures very minute, uniseriate. Declivity very gradual on its basal half, surface much as in *sentosus* disc except slightly impressed and interstitial punctures replaced by pointed granules; lower declivity about as in *sentosus* except major spines less than a third as large, each wider than high; areas of lower declivity lateral to crest on interstriae 3 armed by numerous pointed tubercles of moderate size; ventrolateral margin rounded, its summit not specially armed. Vestiture mostly confined to declivity, consisting of very sparse, minute strial hair, and regular rows of erect, stout interstitial setae, each seta about equal in length to distance between rows.

Distribution: Colombia: Carton de Colombia forest 8 km S Colonia, near Buenaventura, Valle de Cauca, 9-VII-1970, 30 m, No. 646 *Inga*, No. 628 *Icica altissima*, No. 631 *Protium nervosum*, SLW.

Biology: Boring in the wood of recently cut stems.

Notes: The above treatment was based on the type series of 14 females from Colombia.

Xyleborinus bicornatulus (Wood)

Plate CXXXII

Xyleborinus bicornatulus (Wood), 1967:137 (*Xyleborus*). Holotype ♀; Moravia, Cartago, Costa Rica; USNM, Washington (References in Wood & Bright c1992:806)

Diagnosis: Distinguished from *celatus* Wood by the larger size; by the more strongly, broadly impressed elytral declivity, a major spine on interstriae 3 more conspicuous, much larger, tubercles on basal half of 3 averaging larger.

Male: The type series of *protinus* Wood may be the male of this species. Males and females have not yet been taken together.

Female: Length 2.0–2.2 mm, 2.6 times as long as wide; color very dark reddish brown. Frons and pronotum as in *celatus*. Elytra 1.5 times as long as wide, 1.3 times as long as pronotum; disc occupying 33 percent of elytra length; striae not impressed, punctures rather small; interstriae three times as wide as striae, smooth, shining, punctures a third as large as those of striae, uniseriate. Declivity on upper half gradual, shallowly impressed, interstriae 1–3 each armed by a row of pointed tubercles, those on 2 distinctly smaller; lower half more strongly, more broadly impressed, interstriae 1 and 2 unarmed, each with a row of small punctures; 3 with a large, major spine at middle of declivity length (at least twice as long as its basal width), two moderate spines connect major spine to row on basal area, lower 3 unarmed except one moderate spine at apex; lateral area with numerous short spines as in *celatus*, slightly larger, more numerous. Vestiture as in *celatus*.

Distribution: Costa Rica and Colombia.

Colombia: Pamplona, San Vicente, Santander Sur, 26-VI-1959, *Ochroma*, J. Betancourt; Carton de Colombia forest 8 km S Colonia, near Buenaventura, Valle de Cauca, 9-VII-1970, No. 627 *Cespodesia macrophylla*, No. 615 *Lecythis*, No. 628 *Icica altissima*, SLW.

Biology: Boring in simple branching tunnels in wood of stems 5–20 cm in diameter.

Notes: The above treatment was based on the type series of 42 females from Costa Rica and Panama and 14 females from Colombia. It is probable that the type series of *protinus* is the male of this species.

Xyleborinus dirus Wood

Plate CXXXIII

Xyleborinus dirus Wood, 1974:41. Holotype ♀; Rincon de Osa, Puntarenas, Costa Rica; USNM, Washington (References in Wood & Bright c1992:806)

Diagnosis: Distinguished from *tribulatus* Wood (Panama) by the larger size; by the conspicuously smaller size of the declivital major spine 2 when compared to spine 3; and by the lower lateral margin of the declivity being armed by 10 or more confused, pointed tubercles.

Male: Length 2.5–2.7 mm, 2.4 times as long as wide. Frons about as in female; eye only slightly smaller than female. Pronotum 1.0 times as long as wide; outline sub-circular, anterior margin unarmed; summit at middle, anterior slope on median half moderately asperate; posterior areas feebly reticulate, rather coarsely, somewhat closely punctured. Elytra similar to female but less perfectly formed.

Female: Length 3.3–3.5 mm, 2.6 times as long as wide; color very dark brown to black. Frons broadly convex; surface weakly reticulate, rather coarsely punctured, punctures mostly poorly formed. Pronotum 1.0 times as long as wide; sides weakly arcuate on basal half, broadly rounded in front; anterior margin feebly serrate; summit slightly in front of middle of pronotum length, anterior slope closely, rather coarsely asperate; posterior areas weakly reticulate, punctures very small, moderately close; vestiture of fine, moderately abundant, rather long hair from base to apex. Elytra 1.5 times as long as wide, 1.4 times as long as pronotum; disc occupying basal half of elytra length; striae not impressed, punctures rather coarse, deep, in rows; interstriae two to three times as wide as striae, smooth, shining, punctures almost as large as those of striae (punctures of striae and interstriae sometimes appear confused). Declivity strongly, subconvexly impressed; striae 1 and 2 with punctures clearly indicated as on disc, interstriae 1 unarmed, 2 unarmed except one moderate spine (twice as long as its basal width) on basal margin, 3 weakly elevated on basal half, moderately elevated below, armed on lower half by a moderate to large spine just below middle of declivity length (spine about twice as long as its basal width), a conspicuously larger spine near apex of 3 (more than twice as long as its basal width). Vestiture of fine, rather short strial hair from base to apex, and erect, longer interstitial setae (more than twice as long as strial hair), each slightly longer than distance between rows from base to apex, except absent on face of declivity.

Distribution: Costa Rica and Colombia.

Colombia: Campo Capote 27 km NE Montoya, Santander, 2-VII-1970, 150 m, No. 682, *Cespedesia macrophylla*, SLW.

Biology: Boring deep in wood of a stump 30 cm in diameter. Tunnels were of a branching type, except that the ends of some branches were enlarged into tabular cavities.

Notes: The above treatment was based on 1 female from Colombia and 8 males and 43 females from Costa Rica and Panama in the type series of this species.

Xyleborinus gracilicornis (Schedl)

Plate CXXXIV

Xyleborinus gracilicornis (Schedl), 1977:45 (*Xyleborus*). Holotype ♀; San Francisco Golera, El Salvador; NHMW, Wien (References in Wood & Bright c1992:807)

Diagnosis: Distinguished from *tribuloides* Wood by having spine 1 at the base of the declivity minute to obsolete, spines 2 and 3 are moderately large, blunt, and supplemented by much smaller tubercles in the ventrolateral area.

Female: Length 2.6 mm, 2.8 times as long as wide; color dark brown. Frons moderately convex; surface finely reticulate, punctures of moderate size, rather abundant, clearly impressed. Pronotum 1.1 times as long as wide; similar to *longulus* Schedl except posterior and lateral areas mostly smooth, shining (some reticulation near summit and base), punctures rather small, moderately close, distinctly impressed. Elytra 1.8 times as long as wide, 1.5 times as long as pronotum; disc occupying 64 percent of elytra length; striae not impressed, punctures small, regular, deep; interstriae about four times as wide as striae, punctures uniseriate, minute, irregular. Declivity rather gradual, strongly impressed on median half from base to apex; punctures on striae 1–3 about twice as large as those on disc, 1 in a definite row, 2 mostly in a row (passing mesad of spine), 3 obscure; interstriae 1 and 2 unarmed except about three small tubercles at base of each, 3 armed on upper third by about three minute tubercles and one moderately large spine (almost twice as long as wide), and on lower third by one large, rather stout spine (twice as long as wide), and one distinctly smaller spine near apex; lateral areas of lower half armed by 6–10 rather coarse tubercles. Vestiture of fine, short strial hair on disc, and longer interstitial hair on disc and declivity, longest setae at base of declivity each about twice as long as distance between rows.

Distribution: El Salvador: San Francisco Golera.

Notes: The above treatment was based on the female holotype and on 2 female paratypes.

TRIBE CRYPTHALINI

Description: Male and female and of equal size (in *Stegomerus*, *Acorthylus*, *Scolytogenes*, and *Hypocryphalus*), the male joins the female in the parent tunnel; or, in consanguineous or inbreeding polygynous genera sexually dimorphic, with deploid males dwarfed, flightless, female alone in parent tunnel. The frons is usually convex, concave, or with various minor impressions or elevations in a few species; it usually is not specially adorned in American species. The eye is entire to moderately emarginate. The antennal scape is elongate; the funicle is 3- to 5-segmented; the club is flattened, with 2 sutures or with 1 or both sutures partly to entirely obsolete, sutures on the posterior face are strongly displaced toward the apex. The pronotum is variously asperate on the anterior half (occasionally sexually dimorphic), the anterior margin is armed by serrations, the basal and posterior third of the lateral margins are often marked by a raised line; the procoxae are contiguous; the protibiae are rather strongly flattened, with their lateral margin armed by more than four socketed denticles; the scutellum is flat and visible; the metepisternal spine is usually modified and is often partly replaced by a callus or groove. The elytra are sometimes marked by a fine, raised line on the basal margin; the surface sculpture is very conservative, the costal margins near their apex ascend slightly to meet the ascending abdomen. The vestiture is usually conservative and often includes scales.

Biology: The species are monogynous and have a normal outbreeding mating system in *Stegomerus*, *Acorthylus*, *Scolytogenes*, and *Hypocryphalus*. In genera

with an inbreeding mating system the males are dwarfed and flightless (*Cryptocarenum*, *Hypothenemus*, *Trischidias*, and *Periocryphalus*). At least one species (*H. hampei*, the coffee berry borer) is pseudoarrhenotyous; the maternal genome is not expressed in males. The species may be phloeophagous, myelophagous, or spermatophagous. Xylomycetophagy has not been reported from South American species but does occur there and elsewhere in *Hypothenemus*. The parental gallery is usually a simple, tabular cave in *Hypocryphalus* and *Cryphalus*, with egg niches formed around the periphery in the cambium area, or the cavity may be variously elongated, with the eggs placed at random in this chamber (*Cryptocarinus*, *Hypothenemus*, *Trischidias*). *Periocryphalus* eggs, larvae, and adults were taken from pith tunnels in very small stems of creepers (lianas). The brood may emerge from individual mines, or they may use the parent entrance hole.

Notes: The minute size and secretive habits of the Cryphalini, might lead to the false conclusion that the species of Cryphalini are rarely encountered and are of minor economic consequence. Except for the coffee berry borer, their true abundance and impact on South American forests and agriculture is unknown. One species, *Hypothenemus eruditus*, is probably the most abundant and widely distributed scolytid species on earth. Yet, it is rarely encountered because few know how or where to look for it. Fruit- and nut-boring species are of more obvious concern, and the tropical nut borer (*H. obscurus*) occasionally causes problems in Macadamia plantations.

Key to the Genera of Cryphalini
(Modified from Wood 1986:87-89)

- 1. Basal and lateral margins of pronotum rounded; procoxae narrowly separated, intercoxal piece longitudinally emarginate 2
- Basal and lateral margins of pronotum marked by a fine, raised line; procoxae contiguous 4
- 2(1). Antennal funicle 5-segmented, club large, subcircular, about as wide as long, sutures conspicuously procurved; discal striae not impressed, poorly defined (punctures often confused); breed in vines, lianas; 1.1-1.9 mm *Stegomerus*
- Antennal funicle 3-segmented, club elongate, at least 1.5 times as long as wide, sutures almost straight 3
- 3(2). Antennal funicle shorter than scape, segments 2 and 3 small, subequal in length; elytral striae impressed, punctures in rows, rather coarse; 1.4-1.5 mm *Neocryphus*

- Antennal funicle with segment 2 greatly enlarged, as long as scape; elytral striae not impressed, strial rows usually not distinguishable (at least one exception); 1.2–1.8 mm ***Acorthylus***
- 4(1). Posterior face of metatibia (usually also mesotibia) with a groove for the reception of tarsus on lateral half from apex at least two-thirds distance toward base, grooved area glabrous, usually with a row of setae along its mesal margin, tibia usually more broadly flattened, gradually tapered on its distal third, with socketed denticles more numerous and distributed over at least apical third; male equal in size to female, capable of flight; funicle 4-segmented, club with sutures strongly to profoundly procurved, with a septem on mesal half of 1, others sometimes marked by rows of setae; 1.0–2.5 mm ***Scolytogenes***
- Metatibia either without a groove for reception of the tarsus or groove on less than distal 20 percent of tibia length, setae randomly distributed on its lateral half, tibia usually subtruncate apically, denticles restricted to apical one-fifth of tibia length; male either normal or dwarfed and deformed 5
- 5(4). Tarsal segment 3 broad, bilobed; procoxae narrowly separated, intercoxal piece not longitudinally emarginate; eye emarginate; antennal club with procurved aseptate sutures clearly marked by grooves and setae; funicle 5-segmented; phloeophagous; 1.2–2.8 mm ***Hypocryphalus***
- Tarsal segment 3 narrow, often laterally compressed; procoxae contiguous, intercoxal piece longitudinally emarginate to absent 6
- 6(5). Antennal funicle 3- to 5-segmented, club with or without sutures, when funicle 3-segmented then club always with suture 1 partly septate 7
- Antennal funicle 3-segmented, club never septate, sutures sometimes marked by rows of setae; body rather stout, 2.0–2.3 times as long as wide, very small species 8
- 7(6). Anterior margin of pronotum armed by 8–16 serrations; antennal funicle 5-segmented, club aseptate, sutures procurved and marked by rows of setae (rarely also by grooves); mature body color reddish to yellowish brown; vestiture usually very sparse (rare exceptions); myelophagous, phloeophagous; 1.3–3.0 mm ***Cryptocarenus***
- Anterior margin of pronotum armed by 1–8 serrations; antennal funicle 3- to 5-segmented, when 5-segmented then suture 1 of club partly septate; mature color usually darker; vestiture usually rather abundant; phloeophagous, myelophagous, or spermophagous; 0.6–2.8 mm ***Hypothenemus***
- 8(6). Antennal club clearly marked by rows of setae; eye entire; phloeophagous in trees and shrubs; 0.6–1.1 mm ***Trischidias***
- Antennal club without indications of sutures; eye emarginate; myelophagous in vines; 0.8–1.1 mm ***Periocryphalus***

GENUS *STEGOMERUS* WOOD

Stegomerus Wood, 1967:129. Type-species: *Stegomerus vulgaris* Wood, original designation (References in Wood & Bright c1992:852)

Diagnosis: Distinguished from other genera of Cryphalini by the absence of a fine, raised line on the basal and lateral margins of the pronotum; by the 5-segmented antennal funicle; and by the larger, strongly flattened antennal club, with 2 aseptate procurved sutures.

Description: Length 0.9–2.1 mm, 2.5–2.6 times as long as wide; sexes similar. Frons slightly impressed in males of some species. Eye elongate, finely granulate, moderately emarginate. Antennal scape short, funicle 5-seg-

mented; club strongly flattened, with 3 procurved, aseptate sutures. Pronotum summit conspicuous, basal and lateral margins rounded, without a raised line. Elytra elongate, costal margin feebly elevated toward apex. Tibiae gradually widened from base, obliquely narrowed toward apex; lateral margin armed by several socketed teeth; tarsal segments narrow, laterally compressed.

Distribution: Six species are reported by Wood & Bright (c1992) from Mexico (Nayarit) to Venezuela. One of these occurs in Venezuela and 1 in Brazil; the other 4 species occur in Costa Rica and Panama and may eventually be found in South America. A key to those species is in Wood (1982:855), and below.

Key to the Species of *Stegomerus*
(Modified from Wood 1982:855)

1. Interstitial scales and setae in uniseriate rows on disc and declivity; striae clearly evident; Mexico (Nayarit) to Costa Rica, etc.; 0.9–1.2 mm *pygmaeus* Wood
- Elytral vestiture and punctures abundant, confused on declivity; usually larger than 1.4 mm 2
- 2(1). Antennal club suture 2 much more strongly procurved than suture 1 3
- Setae on basal half of elytral interstriae 9 and 10 consisting of fine, long, hairlike setae; suture 1 on antennal club equal to 2 or else 1 more strongly procurved than 2 4
- 3(2). Smaller, 1.3–1.6 mm; scales on declivital interstriae 2 and 3 mostly uniseriate; punctures of striae and interstriae somewhat smaller, essentially in rows; Panama; *Canavalia* stems; 1.3–1.6 mm *chiriquensis* Wood
- Larger, 1.8–2.1 mm; scales on all declivital interstriae strongly confused; punctures of striae and interstriae larger, entirely confused; Costa Rica; *Muhelenbeckia*; 1.8–2.1 mm *montanus* Wood
- 4(2). Suture 2 on antennal club marked by a row of setae, 1 and 2 about equally procurved; body more slender, 2.7–2.9 times as long as wide 5
- Suture 2 on antennal club obsolete or much more strongly procurved; body less slender, about 2.6 times as long as wide 6
- 5(4). Body 2.7 times as long as wide; declivity evenly, more strongly convex; discal punctures on elytra slightly larger, more distinctly impressed; female frons more strongly convex, punctures smaller; Venezuela (Caracas); 1.3–1.5 mm *mirandus* Wood
- Body 2.9 times as long as wide; declivity weakly impressed on interstriae 2; discal punctures on elytra smaller, less distinctly impressed; Brazil (Rio de Janeiro); 1.5–1.7 mm *longipennis* Wood
- 6(4). Scales on at least some discal interstriae between 3 and 9 in uniseriate rows; declivital scales broad, usually less than twice as long as wide, apex of each scale truncate; Mexico (Michoacan to Puebla); *Serjania*; 1.4–1.7 mm *mexicanus* Wood
- Scales on discal interstriae numerous, confused, declivital scales more than twice as long as wide, apex of each scale rounded; Guatemala to Costa Rica; *Serjania*; 1.7–2.0 mm *vulgaris* Wood

Stegomerus mirandus Wood
Plate CXXXVIII

Stegomerus mirandus Wood, 1971:32. Holotype ♀; El Laurel Experimental Farm, 12 km SW Caracas, Miranda, Venezuela; USNM, Washington (References in Wood & Bright c1992:852)

Diagnosis: Distinguished from other known species of this genus by the entirely confused punctures on both disc and declivity of the elytra; and by the hairlike elytral vestiture, with no flattened scales intermixed on the disc; slender scales are on the declivity.

Male: Similar to female except lower half of frons flattened; reticulation on pronotum disc less evident.

Female: Length 1.2–1.5 mm, 2.5 times as long as wide; color very dark brown to black. Frons narrow, convex, a

small, transverse impression immediately above margin of epistoma; surface reticulate, punctures coarse above, fine below; vestiture sparse, of fine, long hair. Pronotum 1.0 times as long as wide; widest near base, sides moderately arcuate on basal half, weakly constricted behind obscure anterolateral angles, narrowly rounded in front; anterior margin armed by 6 serrations (variable), anterior slope armed by low asperities; summit at middle, posterior areas subreticulate, with small, sparse granules of irregular size to base; vestiture of sparse, short hair. Elytral 1.5 times as long as wide, 1.6 times as long as pronotum; disc shining, all punctures small, rather deep, confused. Declivity convex, steep; punctures smaller than on disc, confused. Vestiture on disc hairlike, fine, short, on declivity of abundant short scales, each scale about four to six times as long as wide.

Distribution: Venezuela: El Laurel Experimental Farm 12 km SW Caracas, Miranda, 1-V-1970, 1700 m, No. 468, vine (creeper), SLW.

Biology: Boring in small stems less than 1 cm in diameter.

Notes: The above treatment was based on the type series of 59 specimens from Venezuela.

Stegomerus longipennis Wood, n. sp.

Stegomerus longipennis Wood: Holotype ♀; Botaina Mountain, Parati, Rio de Janeiro, Brazil; MZUSP, Sao Paulo, designated below

Diagnosis: Distinguished from *mirandus* Wood by the slightly larger size and the more slender body form; by the weakly impressed female frons, with 1 or more weak transverse wrinkles at the upper level of the eyes; by the central row of interstrial setae on the disc being distinctly longer and stouter than the more slender, shorter ground setae; and by the longer, deeper punctures on the elytral disc.

Male: Similar to female except frons more distinctly, transversely impressed on lower third, transverse wrinkles at upper level of eyes absent; frontal vestiture distinctly longer and more numerous; average size apparently slightly smaller and body slightly stouter.

Female: Length 1.5–1.7 mm, 2.9 (male 2.7) times as long as wide; color almost black. Frons flat on median half of lower two-thirds of area below upper level of eyes, surface almost smooth and shining, and punctures very small on this area; transverse impression above epistoma rather weak (half depth of male); a transverse, subcarinate wrinkle at upper level of eyes; vestiture of moderately long and numerous fine, hairlike setae on and slightly above epistoma; antennal club subcircular in outline, strongly flattened, sutures 1 and 2 moderately procurved, marked by rows of setae. Pronotum 0.87 times as long as wide; widest at base, sides weakly arcuate and covering feebly on basal two-thirds, rather narrowly rounded in front; anterior margin unarmed by serrations; summit at middle of pronotum length; anterior slope steep; asperities coarse, close, confused; posterior areas reticulate, minute punctures about half replaced by a small setiferous granule; vestiture of rather numerous hairlike setae of moderate length, rather stout on asperate area, fine elsewhere. Elytra 1.9 times as long as wide, 1.9 times as long as pronotum; disc occupying 78 percent of elytra length; striae not indicated, punctures very small, close, shallow, confused; interstriae indicated only by central row of suberect, slightly stouter, longer setae. Declivity convex, about as on disc except interstriae 2 feebly impressed, more than half of punctures replaced by a minute granule. Vestiture numerous fine, mostly hairlike setae of moderate length on disc, setae on declivity about half as long and much stouter, most about four to six times as long as wide.

Distribution: Brazil (Rio de Janeiro).

Type material: The female holotype, male allotype, and 4 paratypes were taken at Bocaina Mountain, Parati, Rio

de Janeiro, Brazil, 26-XI-2003, *Passiflora edulis flancarpa* stem. The holotype (upper) and allotype (lower) are mounted on the same pin. The holotype, allotype, and 2 paratypes are in the Museum de Zoologie, Universidade de Sao Paulo, Sao Paulo; 2 paratypes are in the U.S. National Museum, Washington.

GENUS *NEOCRYPHUS* NUNBERG

Neocryphus Nunberg, 1956:139. Type-species: *Neocryphus argentinensis* Nunberg, original designation (References in Wood & Bright c1992:852)

Diagnosis: Distinguished from *Acorthylus* by segments 2 and 3 of the antennal funicle being subequal in size, 2 is not enlarged and is smaller than the pedicel (segment 1), and is much shorter than the scape; and by the impressed discal striae, with punctures in rows.

Description: Frons almost flat on median two-thirds in both sexes; eye deeply emarginate; antennal scape slender, club-shaped, shorter than club, funicle 3-segmented, pedicel larger than segments 2 or 3, with 2 and 3 small, club 1.8 times as long as wide, with three straight, aseptate sutures marked by rows of setae, 1 and 2 weakly procurved; pronotum with anterior margin armed by serrations, anterior slope coarsely asperate, summit well behind middle; elytra with striae punctures in rows, declivity convex, steep; vestiture of abundant, broad scales.

Neocryphus argentinensis Nunberg

Plate CXXXVIII

Neocryphus argentinensis Nunberg, 1956:141. Holotype, sex?; Cordoba, Argentina; IZW, Warsaw (References in Wood & Bright c1992:852)

Phacrylus cristatus Schedl, 1979:61. Holotype ♀; S. Luis, San Gerónimo, Argentina; NHMW, Wien (References in Wood & Bright c1992:852). *New synonymy*

Diagnosis: Distinguished from *Acorthylus* species by the normal (enlarged) pedicel and small segment 2 of the antennal funicle; by the presence of normal striae and interstriae on the elytra; and by the unique sculpturing of the elytral declivity.

Male: Similar to female except frons more distinctly impressed; interstriae 1 on basal half of declivity strongly elevated (as high as wide), elevation declining to normal by middle of declivity, 3 moderately elevated on basal fourth, then very strongly elevated on middle third of elytral length, ending abruptly below, crest of 3 unarmed, lower 3 normal, 4 narrowly convex, weakly elevated.

Female: Length 1.4–1.5 mm, 2.08 times as long as wide; color dark reddish brown, vestiture pale. Frons flattened on a subtriangular area from epistoma to upper level of eyes; surface rugose-reticulate on flattened area, finely granulate-punctate laterally and to slightly above upper level of eyes; vestiture of stout setae in lateral areas and in median area above. Eye rather coarsely faceted, moderately emarginate. Antennal scape elongate; pedicel normal, slightly enlarged, segments 2 and 3 small, club twice as long as wide, with three straight sutures.

GENUS *ACORTHYLUS* BRETHERS

Pronotum 0.80 times as long as wide; widest near base, sides on basal half moderately arcuate, rather broadly rounded in front; anterior margin armed by 2–4 serrations; summit well behind middle of pronotum length, asperities on anterior slope in four concentric, transverse rows above and 2 subconcentric rows on anterior third of slope; surface reticulate, a few granules on disc; vestiture of stout bristles on asperate area, abundant scales on sides and disc, each scale about as long as wide. Elytra 1.3 times as long as wide, 1.7 times as long as pronotum; striae not impressed at base, moderately impressed at base of declivity, punctures small, deep, close; interstriae one to two times as wide as striae, weakly convex at base, moderately convex at base of declivity, 2 obsolete behind base of declivity, surface almost smooth, with numerous, confused setiferous granules (mostly uniseriate on 2). Declivity occupying posterior third of elytra length, steep, basically convex; striae mostly strongly impressed, punctures small to obsolete; interstriae 1 moderately elevated on basal third, weakly convex below, 2 obsolete except near apex, 3 rather strongly elevated and wider on middle third, elevation ending abruptly below, interstriae modestly convex in lateral areas. Vestiture of minute, inconspicuous striae hair and abundant interstitial scales, scales confused, abundant, each slightly longer than wide.

Distribution: Argentina to Paraguay.

Argentina: Cordoba, Davis; San Luis, San Geronimo.

Paraguay: Carumba, Depto. San Pedro, 1-II-8-III-1966, R. Gollbach.

Notes: The above treatment was based on 1 male and 3 female topotypes that appear to have been taken with the type, and 1 female from Paraguay. Schedl's *cristatus* is represented by females of this species.

Acorthylus Brethes, 1922:304. Type-species: *Acorthylus asperatus* Brethes, monobasic (Synonymy and references in Wood & Bright c1992:852–853)

Phacrylus Schedl, 1938:24. Type-species: *Phacrylus bosqi* Schedl, monobasic

Diagnosis: Distinguished from all known scolytid genera by the 3-segmented antennal funicle, with segments 1 and 3 small, segment 2 is greatly enlarged and about equal in length to the scape.

Description: Frons convex to transversely impressed. Eye oval, emarginate. Antennal scape elongate, funicle 3-segmented, pedicel small, segment 2 greatly enlarged (0.5–1.0 times as long as scape), club elongate, sutures almost straight. Pronotum with summit behind middle of pronotum length, asperities vary from randomly confused to organized into concentric rows, anterior margin either unarmed or armed by serrations. Elytra with striae punctures in rows in 1 species, confused and with interstitial punctures in others. Vestiture of abundant scales.

Biology: *Acorthylus pruni* Wood bored into the phloem of recently felled logs of its host, *Prunus sphaerocarpa*. The parent chamber was as in most *Cryphalus*, with a large, subcircular central area in contact with the cambium. Egg niches were formed in the peripheral margin, as in *Cryphalus* and *Hypocryphalus*. Larval mines extended into the surrounding phloem but were only about 1 cm in length when observed. The parents were monogynous; both were present in the main cavity of systems that contained larvae.

Notes: Wood & Bright (c1992:852–853) record 5 species, all from South America. It is a unique genus whose only near relative is *Neocryphus*, above.

Key to the Species of *Acorthylus*

- 1. Segment 2 of antennal funicle elongate, as long as scape; striae punctures in rows at least on declivity, distinctly larger than those of interstriae 2
- Segment 2 of antennal funicle either cordiform or cylindrical, half as long as scape; striae punctures equal in size to abundant interstitial punctures and totally confused with them; smaller species 4
- 2(1). Striae punctures in clearly marked rows on both disc and declivity; pronotum rugose-reticulate, dull, from base to apex except on asperities; Venezuela (Merida); *Prunus sphaerocarpa*; 1.5–1.8 mm *pruni* (Wood)
- Striae punctures very small, in obscure rows except definite on declivity; pronotum mostly subshining, weakly reticulate except on asperities; frons subshining, weakly reticulate, punctures distinctly impressed; anterior margin of pronotum armed by 4 serrations 3
- 3(2). Scales on elytral declivity confused, each scale about as wide as long; body 2.3 times as long as wide; eyes finely faceted, separated above by 1.5 times width of an eye; Argentina; 1.5–1.7 mm *bosqi* (Schedl)

- Scales on declivital interstriae 1 to 4 in uniseriate rows, each scale about twice as long as wide; body 2.0 times as long as wide; eyes more coarsely faceted, separated above by width of an eye; Brazil (Para); 1.2 mm *gracilis* (Schedl)
- 4(1). Body more slender, 2.2 times as long as wide; asperities near summit of pronotum mostly confused, rarely two or three basally conjoined; male frons with lower third rather shallowly, transversely impressed; Argentina (Jujuy) to Brazil (Santa Catarina) and Bolivia (Cochabamba); 1.2–1.3 mm *robustus* (Schedl)
- Body stouter, 2.0–2.1 times as long as wide; at least 4 concentric rows of asperities near summit, those in a row basally fused, each row formed by 6 or more asperities; antennal club 1.4 times as long as wide; frons transversely, strongly impressed, upper margin armed in female by two small tubercles; eyes smaller, finely faceted; Argentina; 1.3 mm *frontalis* Wood

Acorthylus pruni (Wood)
Plate CXL

Acorthylus pruni (Wood), 1971:33 (*Phacrylus*). Holotype ♀; La Carbonera Experimental Forest 50 km NW Merida, Merida, Venezuela; USNM, Washington (References in Wood & Bright c1992:853)

Diagnosis: Distinguished from other known members of this genus by the larger body size; by the larger, distinguishable striae punctures on the disc; and by the much larger segment 2 of the antennal funicle.

Male: Similar to female except 2.2 times as long as wide; frons more evenly, more narrowly, more finely sculptured, transition in sculpture to vertex more gradual; anterior margin of pronotum armed by two serrations.

Female: Length 1.4–1.8 mm, 2.4 times as long as wide; color black, vestiture pale. Frons more broadly, more strongly convex from epistoma to slightly above eyes, surface dull, closely rugose-reticulate, upper transition in sculpture abrupt, smooth, shining above; median area above epistoma convex; vestiture of short, fine hair of moderate abundance; eye emarginate; scape elongate, funicle segment 2 longer and three times wider than scape. Pronotum 0.85 times as long as wide; anterior margin unarmed; summit behind middle; asperities on anterior slope small, confused; posterior and lateral areas and areas between asperities dull, rugose-reticulate, punctures obscure; vestiture of whitish scales. Elytra 1.5 times as long as wide, 1.9 times as long as pronotum; striae not impressed, punctures small, deep; interstriae three times as wide as striae, smooth, shining, punctures fine, abundant, confused. Declivity steep, broadly convex; striae weakly impressed, punctures smaller than on disc; interstriae weakly convex. Vestiture of abundant, short scales, each as wide as long; on disc indefinite rows of slightly longer scales apparently on centers of obsolete interstriae.

Distribution: Venezuela: La Carbonera Experimental Forest 50 km airline NW Merida, Merida, 16-IX-1969, 2500 m, No. 21, *Prunus sphaerocarpa*, SLW.

Hosts: *Prunus sphaerocarpa*.

Biology: The above treatment of biology for this genus was based on this species.

Notes: The above treatment was based on the type series of 252 specimens.

Acorthylus bosqi (Schedl)
Plate CXXXIX

Acorthylus bosqi (Schedl), 1938:24 (*Phacrylus*). Lectotype ♀; Prov. Jujuy, Argentina, NHMW, Wien, designated by Schedl 1979:44 (Synonymy and references in Wood & Bright c1992:853) *Enoporus squamulosus* Eggers, 1943:356. Holotype, sex?, Cochabamba, Bolivia; NHMW, Wien

Diagnosis: Elytra without any indications of striae on disc or declivity, all punctures confused; frons convex in both sexes.

Male: Similar to female except frons broadly convex (somewhat flattened) from epistoma to well above upper level of eyes, this surface rather strongly rugose-reticulate; anterior margin of pronotum armed by 2–4 serrations.

Female: Length 1.5–1.7 mm, 2.3 times as long as wide; color black. Frons evenly, moderately convex from eye to eye from epistoma to vertex, surface shining, weakly reticulate, small, rather deep punctures moderately close to slightly above upper level of eyes; vestiture of sparse, short hair; longer and more numerous on epistoma. Pronotum 0.82 times as long as wide; widest on basal third, sides arcuately converging to narrowly rounded anterior margin; summit high, well behind middle of pronotum length, asperities coarse, narrow, high, restricted to median 40 percent of pronotum width from near anterior margin to slightly behind summit, anterior margin not serrate; posterior and lateral areas rugose (behind summit) to more nearly reticulate, punctures small, close; vestiture of short bristles in asperate area, of erect scales behind, each as long as wide, a few small, slender setae intermixed. Elytra 1.6 times as long as wide, 2.1 times as long as pronotum; striae not indicated on disc, 1 and 2 obscure on declivity, punctures small, dense, confused. Declivity restricted to posterior fourth of elytra length; broadly convex, steep. Vestiture of abundant suberect, whitish scales, each scale about as long as wide.

Distribution: Prov. de Jujuy, Argentina, IX-1928, J.M. Bosq.

Notes: The above treatment was based on the female lectotype of *bosqi* (Schedl) and 3 paratypes from Argentina. The specific name is a patronymic name recognizing J.M. Bosq.

Acorthylus gracilis (Schedl)

Plate CXXXIX

Acorthylus gracilis Schedl, 1972:58 (*Phacrylus*). Holotype ♀; Jacareacanga, Para, Brazil; NHMW, Wien (References in Wood & Bright c1992:853)

Diagnosis: Distinguished from other known *Acorthylus* by the strongly flattened antennal funicle segment 2 that is only half as long as the scape; by the enlarged, coarsely faceted eye; by the stout body form; and by other characters described below.

Female: Length 1.1–1.2 mm, 2.0 times as long as wide; color yellowish brown, vestiture pale. Frons convex from epistoma to vertex; surface reticulate, with a few punctures and many minute tubercles rather uniformly distributed; vestiture rather short hair, mostly on lower half; eye enlarged, coarsely faceted, separated above by width of an eye; antennal scape elongate, funicle segment 2 half as long as scape, strongly flattened, obscurely cordiform. Pronotum 0.80 times as long as wide; widest near base, sides on posterior half weakly arcuate, broadly rounded in front; anterior margin (not submargin) armed by 4 coarse serrations; summit behind middle of pronotum length, asperities basally fused into four concentric rows, rows 5 and 6 almost concentric, but most asperities not basally fused; basal and lateral areas reticulate, with numerous small, setiferous punctures; vestiture of numerous short, broad, suberect scales, each about as long as wide. Elytra 1.3 times as long as wide, 1.7 times as long as pronotum; striae and strial punctures obsolete; surface smooth, shining, punctures rather small, deep, close, strongly confused. Declivity confined to posterior third of elytra length; broadly convex, steep; punctures on striae 1–3 and 9 small, in rows. Vestiture of abundant erect scales, confused on base of disc, each interstriae from middle of disc to apex with a central row of distinctly longer scales (especially conspicuous on 1–5 and 9).

Distribution: Brazil to Venezuela.

Brazil: Jacareacanga, Para, I-1910, FA. Barbosa.

Venezuela: 12 km S Calboza, Guarico, 6-12-II-1969, u.v. light, P.J. Spangler.

Notes: The above treatment was based on the female holotype from Brazil and on 2 other females from Venezuela.

Acorthylus robustus (Schedl)

Acorthylus robustus (Schedl), 1952:453 (*Phacrylus*). Lectotype ♂; Argentina, Cordoba, Dep. Calamuchita, El Saucro, La Clenaga, Belen, Catamarca; NHMW, Wien, designated by Schedl 1979: 212–213 (References in Wood & Bright c1992:853)

Diagnosis: Distinguished from *pruni* Wood by the smaller size; by the obsolete strial punctures; by funicle segment 2 being half as long as scape; anterior margin of pronotum armed in both sexes.

Male: Similar to female except body 2.2 times as long as wide; frons weakly impressed to upper level of eyes.

Female: Length 1.2–1.3 mm, 2.3 times as long as wide; color black, vestiture pale. Frons broadly convex, a slight impression at epistoma; surface above minutely, obscurely reticulate, a few minute granules in lateral areas; epistomal area almost smooth, shining; vestiture of sparse, short hair from epistoma to upper level of eyes. Eye emarginate, finely faceted. Antennal scape elongate; funicle segment 2 half as long as scape, cylindrical; club about twice as long as wide. Pronotum 0.82 times as long as wide; widest on basal half, sides rather strongly arcuate, narrowly rounded in front; anterior submargin armed by 4 coarse serrations; summit well behind middle of pronotum length, armed by about three subconcentric rows of basally fused asperities, additional asperities on anterior slope confined to median half, confused, not connected at bases; surface of posterior, lateral, and asperate areas reticulate, punctures minute, obscure, close; vestiture of stout bristles in asperate area of broad scales (most longer than wide) in lateral and basal areas. Elytra 1.4 times as long as wide, 1.8 times as long as pronotum; striae not evident; surface smooth, shining, with abundant, confused, very small punctures evenly distributed. Declivity confined to posterior third of elytra length; strongly convex, steep; sculpture as on disc. Vestiture of abundant, small, confused scales, each scale about as long as wide; some scales on disc and declivity distinctly larger and organized into obscure rows resembling central interstrial rows found in other species.

Distribution: Argentina to S Brazil.

Argentina: Cordoba, Dep. Calamuchita, El Souce, La Cienaga, Belen, Catamarca.

Brazil: Nova Teutonia, Santa Catarina, 1940, 300–400 m, F. Plaumann.

Notes: The above treatment was based on 2 males and 2 females from Brazil. One of these males was compared by me directly to the holotype.

Acorthylus frontalis Wood, n. sp.

Acorthylus frontalis Wood: Holotype ♀; Cordoba, Argentina; USNM, Washington, designated below

Diagnosis: Distinguished from *robustus* (Schedl) by the stouter body form; by the different arrangement of concentric asperities on the pronotum; and by the strongly impressed male frons.

Male (?): Presumed to be of this species; it lacks the right antenna and left elytron. Frons resembling female except frons shallowly concave eye to eye from epistoma to upper level of eyes, a subacute, transverse carina at upper level of eyes, not armed by tubercles.

Female: Length 1.3 mm, 2.1 times as long as wide; color dark reddish brown, vestiture almost white. Frons transversely, rather strongly, subconcavely impressed from epistoma almost to upper level of eyes; upper crest armed at upper level of eyes by a transverse pair of tubercles; concave area smooth, shining, lateral areas and above with minute punctures; vestiture of sparse, short hair in concave area, epistomal brush moderate; a

small tuft of short hair in median area of vertex immediately above tubercles; antennal club slightly longer than wide, funicle segment 2 cylindrical, slightly more than half as long as scape. Pronotum 0.80 times as long as wide; widest at base, sides weakly arcuate, converging slightly on anterior half toward broadly rounded anterior margin; summit well behind middle, asperities with bases fused into 4 concentric rows from summit to middle of anterior slope, a pair of widely spaced and a pair of subcontiguous, submarginal crenulations above anterior margin and below concentric rows; surface mostly reticulate, shining, small punctures rather abundant; vestiture of short bristles on asperate area, of numerous scales in lateral and basal areas, each scale about as long as wide. Elytra 1.3 times as long as wide, 1.7 times as long as pronotum; disc occupying two-thirds of elytra length; about as in *robustus*, except scales more abundant, shorter, rows of longer presumed interstitial scales where 2 and 3 should be, larger, more conspicuous, each scale about as long as wide.

Type material: The female holotype is labeled "Argentina: Cordoba, Davis, 121." It is in the U.S. National Museum, Washington. A male, presumed to be this species, labeled "Jacareacanga, Para, Brasil, IX-1970, FR. Barbosa is in NHMW, Wien, and is not part of the type series.

Notes: The above treatment was based on the female holotype from Argentina and on 1 presumed male from Brazil.

GENUS *SCOLYTOGENES* EICHHOFF

- Scolytogenes* Eichhoff, 1878:475, 497. Type-species: *Scolytogenes darwini* Eichhoff, monobasic (Synonymy and references in Wood & Bright c1992:858)
- Lepicerus* Eichhoff, 1878:476, 501. Type-species: *Lepicerus aspericollis* Eichhoff, monobasic
- Cryphalomorphus* Schaufuss, 1891:12. Type-species: *Cryphalomorphus communis* Schaufuss, monobasic
- Letznerella* Reitter, 1913:68. Type-species: *Bostrichus jalapae* Letzner, monobasic
- Hypothenoides* Hopkins, 1915:7, 11. Type-species: *Hypothenoides parvus* Hopkins, original designation
- Ernoporides* Hopkins, 1915:8, 34. Type-species: *Ernoporides floridensis* Hopkins, original designation
- Neocryphalus* Eggers, 1922:169. Type-species: *Neocryphalus usagarius* Eggers, monobasic
- Negritus* Eggers, 1923:141. Type-species: *Neogritus ater* Eggers, subsequent designation by Wood 1982:861
- Cylindrotomicus* Eggers, 1936:633. Type-species: *Cylindrotomicus squamulosus* Eggers, monobasic
- Lepicerinus* Hinton, 1936:473. Type-species: *Lepicerus aspericollis* Eichhoff, automatic
- Xylocryptus* Schedl, 1975:352. Type-species: *Xylocryptus papuanus* Schedl = *Scolytogenes papuensis* Wood, original designation
- Cryphalophilus* Schedl, 1970:358. Type-species: *Cryphalophilus afer* Schedl, monobasic

Diagnosis: Distinguished by having the basal and lateral margins of the pronotum with a fine, raised line; by having the eye entire; by the 4-segmented antennal club with part of procurved suture 1 septate; and by the metatibia with a longitudinal groove for reception of the tarsus.

Description: Length 0.9–1.9 mm, 2.2–2.7 times as long as wide (American species only); color reddish brown to black. Frons convex, simple. Eye elongate-oval, entire to very shallowly, broadly emarginate, finely granulate. Antennal scape elongate; funicle 4-segmented; club moderately large, flat, American species devoid of sutures except lateral half of suture 1 septate, strongly procurved. Pronotum with a fine, raised line on basal and lateral margins; summit at or slightly in front of middle, anterior slope finely asperate, anterior margin armed by serrations. Elytra elongate, usually striate, sculpture conservative. Vestiture of hair and scales.

Biology: Most species of this genus bore in small stems of vines and lianas. The mines appear very erratic in pattern and are not easily studied due to space limitations within the stems.

Notes: Wood & Bright (c1992:858–866) list 100 species worldwide in this genus. Of these, 7 occur from Mexico to Panama, mostly in *Ipomoea* species and similar vines. One of these 7 occurs in the Antilles Islands and in Venezuela.

Scolytogenes jalapae (Letzner)

Plate CXL

- Scolytogenes jalapae* (Letzner), 1848:99. Syntypes, sex?; taken from Jalapa root in Mexico; not located (Synonymy and references in Wood & Bright 1992:862)
- Ernoporides knabi* Hopkins, 1915:34. Holotype ♀; Cordoba, Mexico; USNM, Washington. *New synonymy*
- Ernoporides floridensis* Hopkins, 1915:34. Holotype ♀; Biscayne, Florida, USA; USNM, Washington
- Hypothenemus ritchei* Sampson, 1918:295. Syntypes ♀♀; Jamaica; BMNH, London
- Cryphalomorphus caraibicus* Schedl, 1951:96. Syntypes, sex?; Delanney, Guadeloupe; NHMW, Wien
- Cryphalomorphus minutissimus* Schedl, 1951:97. Holotype ♀; Env. de Trois-Rivieres, Guadeloupe; NHMW, Wien
- Cryphalomorphus subtriatus* Schedl, 1952:360. Holotype, sex?; Mexico; NHMW, Wien
- Cryphalomorphus alienus* Schedl, 1976:65. Holotype, sex?; Corcovado, Guanabara, Brazil

Diagnosis: This species was unusually abundant from S Florida to N South America in areas engaged in voluminous commerce, as is typical of introduced species. It was almost absent from remote forested areas. In company with *Nobuchi*, I took it in Honshu, Japan, in 1980. Its true origin cannot be determined from present evidence, but is probably in the area between the SW Pacific islands, Australia, and Japan. It has no near relatives known to me except in Mexico and the SW Pacific area. It is distinguished by the small size; by the 4-segmented antennal funicle; and by the absence of sutures on the antennal club, except for the strongly procurved septum of the lateral half of suture 1.

Male: Similar to female, except transverse impression on frons much weaker, median crest obscure.

Female: Length 1.1–1.8 mm, 2.6 times as long as wide; color dark brown to black, vestiture pale. Frons convex, a weak transverse impression on lower third, a narrow

median callus from middle of impression to upper level of eyes, evanescent into vertex above; lateral areas coarsely, closely punctured from epistoma to above upper level of eyes; vestiture sparse, of fine hair, mostly on and near epistoma; eye elongate, entire; antennal scape elongate, funicle 4-segmented, club strongly flattened, unmarked by sutures except for lateral half of septum in 1. Pronotum 1.0 times as long as wide, widest near middle; sides on almost basal two-thirds weakly arcuate, subparallel, rather broadly rounded in front; anterior margin unarmed; summit slightly in front of middle, anterior slope rather coarsely, not closely (erratic) asperate; posterior and lateral areas smooth, shining, with numerous minute, setiferous granules; vestiture of moderately abundant narrow scales. Elytra 1.5 times as long as wide, 1.6 times as long as pronotum; striae not impressed, 1 and part of 2 usually with small punctures in rows (variable); interstriae smooth, shining, punctures small, confused with those of striae. Declivity occupying posterior third of elytra length; convex, steep; striae feebly impressed, punctures larger and deeper than those on disc; interstriae slightly wider than striae, feebly convex, surface smooth, shining, each with a row of minute granules from base to apex. Vestiture of rows of very small strial hair, and rows of longer, erect interstitial bristles, those on declivity stouter and each bristle about equal in length to distances between rows.

Distribution: USA (S Florida) and Mexico (Nayarit) to the Antilles Islands, Panama, Venezuela, and Brazil.

Brazil: Corcovado, Guanabara (Schedl 1976:65).

Venezuela: "Venezuela" (Wood 1982:866).

Hosts: *Calonciton tamnifolium*, *Candiosperma holocobium*, *Ipomoea* spp., *Serjania* spp., and other vines and lianas.

Biology: Recently cut or dying stems less than 3 cm in diameter are attacked. All tissues are perforated, thus destroying gallery patterns.

Notes: The above treatment was based on the holotypes of several series of specimens identified as *jalapae* (Letzner) by Eggers, Schedl, Blandford, etc.; syntypes were not found; and on the holotypes of *Ernoporides knabi* Hopkins, *E. floridensis* Hopkins, *Cryphalomorphus minutissimus* Schedl, *C. alienus* Schedl, and *C. substriatus* Schedl, on syntypes of *Hypothenemus ritchiei* Sampson, and *C. caraibicus* Schedl, and on more than 300 other specimens.

GENUS *HYPOCRYPHALUS* HOPKINS

Hypocryphalus Hopkins, 1915:8, 41. Type-species: *Hypocryphalus rotundus* Hopkins, original designation (Synonymy and references in Wood & Bright c1992:868)

Dacryphalus Hopkins, 1915:8, 42. Type-species: *Dacryphalus obesus* Hopkins, original designation

Diagnosis: This genus is distinguished from *Cryphalus* Erichson by the 5-segmented antennal funicle; by the procurved sutures on the antennal club; and by the cylindrical tarsal segment 3.

Biology: See the notes under the species listed below. The species are monogynous and outbreeding.

Notes: Wood & Bright (c1992:868–872) list 50 species in this genus from tropical areas of the Eastern Hemisphere. One introduced species occurs in America from USA (Florida) to Brazil.

Hypocryphalus mangiferae (Stebbing)

Plate CXLI

Hypocryphalus mangiferae (Stebbing), 1914:542 (*Cryphalus*). Lectotype ♀; Eastern Dun, northern India; BMNH, London, designated by Wood 1982:871; name conserved by plenary powers of International Code of Zoological Nomenclature (Synonymy and references in Wood & Bright c1992:869–870)

Cryphalus inops Eichhoff, 1872:131. Holotype ♀; Guadeloupe; IRSNB, Brussels, name suppressed by plenary powers

Cryphalus robustus Eichhoff, 1872:131. Syntypes 5, sex?; Amer. bor. (Eichhoff 1878:122 gives America septentrionalis); IRSNB, Brussels, name suppressed by plenary powers (References in Wood & Bright c1992:891). *New synonymy*

Hypothenemus griseus Blackburn, 1885:194. Holotype ♀; plains of Honolulu, Oahu, Hawaiian Islands; BMNH, London, name suppressed by plenary powers

Hypocryphalus mangiferae Eggers, 1928:55. Lectotype ♀; Brazil; USNM, Washington, designated by Anderson & Anderson 1971:19

Cryphalus subcylindricus Schedl, 1942:16. Lectotype ♀; Java, Semarang, Buitenzorg; NHMW, Wien, designated by Schedl 1979:240

Cryphalus mimicus Schedl, 1942:17. Lectotype, sex?; Java, Pasoerogan; NHMW, Wien, designated by Schedl, 1979:153

Hypocryphalus opacus Schedl, 1942:20. Lectotype, sex?; Java, Buitenzorg; NHMW, Wien, designated by Schedl 1979:164

Diagnosis: Features presented in the above key to genera, the genus diagnosis and the host distinguish this species from all other South American Scolytidae.

Male: Similar to female, except posterior margin of visible abdominal sternum 5 more broadly rounded.

Female: Length 1.6–1.9 mm, 2.2 times as long as wide; color dark yellowish brown. Frons broadly convex, a weak transverse impression immediately above epistoma; frons finely reticulate (obscurely aciculate below in some specimens), obscure small punctures at sides and above; vestiture of sparse, fine hair, longer on epistoma; eye oval, finely faceted, anterior margin moderately emarginate; scape elongate, funicle 5-segmented, club as long as scape, rather strongly flattened, sutures 1 and 2 moderately procurved, indicated by grooves and rows of setae. Pronotum 0.84–0.93 times as long as wide; widest near base, sides weakly arcuate on basal half then arcuately converging and broadly rounded in front; anterior margin armed by four to eight coarse serrations; summit well behind middle, anterior slope coarsely, rather closely asperate; areas between asperities and in lateral and discal areas densely, finely punctured (posterior areas rarely granulate); vestiture of abundant, fine, short, recumbent hair, a few long bristles often present. Elytra 1.3 times as long as wide, 1.6 times as long as pronotum; surface subshining; striae obscure, punctures small to obsolete; interstriae covered by dense, fine, confused punctures on disc and declivity. Declivity occupying more than posterior third of elytra length,

moderately steep, convex; sculpture as on disc. Vestiture of abundant small, confused scales; and interstitial rows of erect bristles of moderate length, each bristle about equal in length to two-thirds distance between rows.

Distribution: Tropical and subtropical areas of the world where mango is cultivated, SE Asia to Australia, Pacific Islands, etc., Africa, USA (Florida) to Brazil.

Brazil: Sao Paulo (Pedrosa-Macedo & Schoenherr 1945:45); Recife, Pernambuco, *Mangifera indica*; "Brazil." Piracicaba, 17-VIII-1986, *Mangifera indica*, C.A.H. Flechtmann and 7-VI-2001-11-XI-2001, ethanol trap, A.M. Lunz.

Colombia: Galleries observed by me at Piedras Blancas 10 km E Medellin, Valle de Cauca in VII-1970.

Venezuela: Galleries observed by me in mango at Colonia Tovar, Aragua in VI-1970.

Hosts: *Mangifera indica*.

Biology: Shaded-out branches of living trees are most commonly selected for attack. They also breed in pruned or dying branches. Galleries resemble those of *Cryphalus*, with a large nuptial chamber (often irregular in outline) at the cambium area. Egg niches are placed around the periphery of this chamber at the cambium. Irregular larval mines wander in phloem tissues as they radiate out from the main chamber.

Notes: The above treatment was based on the lectotype of *mangiferae* (Stebbing), on the holotypes of *Cryphalus inops* Eichhoff and *Hypothenemus griseus* Blackburn, and on the lectotypes of *Hypocryphalus mangiferae* Eggers, *Cryphalus subcylindricus* Schedl, *Cryphalus mimicus* Schedl, and *opacus* Schedl. The syntypes of *Cryphalus robustus* were examined in 1983. More than 100 specimens were examined from India, Sri Lanka, Indonesia, Florida, Mexico, Central America, Antilles Islands, and Africa.

GENUS *CRYPTOCARENUS* EGGERS

Cryptocarenus Eggers, 1937:79. Type-species: *Cryptocarenus diadematus* Eggers, original designation (Synonymy and references in Wood & Bright c1992:902-904)

Tachyderes Blackman, 1943:35. Type-species: *Tachyderes floridensis* Blackman = *Cryptocarenus seriatus* Eggers, original designation

Diagnosis: This genus is distinguished from *Hypothenemus* by the large, deeply emarginate, very coarsely faceted eyes (in most species); by the aseptate antennal

club that has 2 procurved sutures marked only by setae; and by the smooth, shining appearance. Most species have very sparse, short vestiture; in a few it is abundant. Some species have a superficial resemblance to *Pityophthorus*; however, the biology and mating system are entirely different. The male is dwarfed but generally resembles the female; the eye is reduced little, if at all.

Description: Length of female 1.4-3.0 mm, male about two-thirds as large, body 2.6-2.7 times as long as wide; color mostly yellowish or light reddish brown, rarely dark brown. Sexually dimorphic, males reduced in size, slightly deformed, haploid, flightless. Female frons variously sculptured, vestiture rather inconspicuous. Eye very large, coarsely faceted in most species, deeply emarginate. Antennal scape elongate, funicle 5-segmented, club rather small, oval, aseptate, sutures 1 and 2 weakly to rather strongly procurved, indicated by rows of setae. Pronotum about as long as wide, basal and posterior two-thirds of lateral margins marked by a fine, raised line; summit distinct, anterior slope closely, rather finely asperate, anterior margin armed by 8-14 serrations; posterior areas smooth, shining, finely punctured; vestiture sparse, hairlike. Elytra conservatively sculptured, striae not impressed, punctures small, interstriae mostly impunctate on disc, smooth, shining, minute points sometimes present; declivity rather steep, convex, punctures often present; vestiture often confined to declivity, usually sparse, apices of some interstitial setae sometimes flattened. Tibiae more slender than in *Hypothenemus*.

Biology: The species for which habits are known breed in small stems, about 1-3 cm in diameter, that were recently broken, cut, or damaged. The parent gallery consists of an entry tunnel that broadens into an enlarged, elongate, axial, or subaxial chamber of irregular proportions. From this chamber 1 or 2 egg tunnels may extend from either end. Eggs are deposited in small clusters in the frass. Larvae extend the parent tunnels from either end and rarely make individual mines as they near maturity. Males are rare, of reduced size, and are flightless; they resemble the females much more than in *Hypothenemus*.

Notes: Wood & Bright (c1992:902-904) list 14 species in this genus, all from America, although 1 was introduced into tropical Africa. One is reported only from Africa. Eleven species are recorded from South America.

Key to the Species of *Cryptocarenus*

- 1. Frons moderately convex from epistoma to upper level of eyes, median crest, when present, longitudinally elongate, never dentate (see also *laevigatus*) 2
- Frons shallowly to rather strongly impressed (sometimes concave) from epistoma to upper level of eyes, median elevation at or above upper level of eyes usually dentate or represented by one tubercle, rarely elongate 5
- 2(1). Interstitial setae more numerous, extending on disc to base, each seta rather strongly flattened, its width at apex twice that at base; mature color dark reddish brown; Mexico (Sinaloa) to Peru; *Struthanthus* sp.; 1.7-2.0 mm *spatulatus* Wood

CRYPHALINI

- Interstitial setae less numerous, slender, feebly flattened, apex not wider than base; mature color mostly yellowish to medium reddish brown 3
- 3(2). Body size much larger; facets of eye enlarged, width of each equal to half width of scape; lower two-thirds of frons densely, rather coarsely, subrugosely punctured; median crest near vertex low; Mexico (Oaxaca) and Antilles Islands to Brazil, Colombia, and Venezuela; 2.3–3.0 mm *diadematus* Eggers
- Smaller species; facets of eye small, normal, width of each less than a fourth as wide as scape; frons not rugose, punctures small 4
- 4(3). Frons rather strongly convex above, a weak, transverse impression immediately above epistoma, surface shining, rather coarsely, closely punctured; epistomal brush broad, rather dense; declivital striae 1 modestly impressed, 2–3 not impressed, punctures minute, interstriae 2 weakly impressed; Venezuela; 2.0 mm *tropicalis* Wood
- Frons distinctly protuberant above epistoma, surface smooth, shining, punctures very small (upper half concealed by pronotum); epistomal brush occupying less than median third of epistoma, setae very short; declivital striae 1 to 3 equally impressed, punctures small, declivital interstriae 2 convex; Brazil (Amazonas); 2.0 mm *amazonicus* Wood
- 5(1). Frons weakly to moderately, transversely impressed from epistoma to near upper level of eyes, transition to vertex rounded or with a single median prominence; anterior margin of pronotum armed by 6–8 serrations 6
- Frons more strongly impressed, transverse arch at upper limits of impression either abrupt or armed on this arch by a series of three to five tubercles (including median one); anterior margin of pronotum armed by 11–16 serrations 11
- 6(5). Body smaller, less than 2.0 mm; interstitial setae on declivity flattened, each less than eight times as long as wide 7
- Larger species, more than 3.0 mm; interstitial setae on declivity hairlike to blunt at apex, not distinctly flattened 10
- 7(6). Frons moderately, transversely impressed from epistoma to median tubercle near upper level of eyes; minute strial hair conspicuous on declivity; interstitial setae regularly spaced on declivity and extending to base of disc, each seta strongly flattened, about four times as long as wide; Argentina to Bolivia; 1.3–1.4 mm *harringtoni* (Blackman)
- Transverse impression on lower frons weak to obscure, median tubercle smaller to obsolete; strial hair on declivity almost obsolete; interstitial setae on declivity more slender, each six to eight times as long as wide 8
- 8(7). Transverse impression on lower frons distinct, surface below upper level of eyes rugose, punctures larger, obscurely subaciculate, an obscure median carina sometimes extending to epistoma; Mexico (Oaxaca) to Colombia; 1.5–1.8 mm *lepidus* Wood
- Transverse impression on lower frons feeble, median tubercle weak, without rugosities, punctures small 9
- 9(8). Transverse impression on frons weak, median tubercle conspicuous, punctures larger above, a few subrugose; declivital interstriae 2 as wide as 1 or 3, each interstitial seta on declivity flattened on its apical half; USA (Florida) and Mexico (Colima) to Brazil, introduced to Africa; 1.4–2.0 mm *hevae* (Hagedorn)
- Transverse impression on frons almost obsolete, surface shining, closely punctured, tubercle essentially obsolete; declivital interstriae 2 narrower than 1 or 3; interstitial setae on declivity flattened on apical fourth; Panama; 1.8 mm *laevigatus* (Blandford)

- 10(6). Lower frons shallowly impressed, transition in sculpture to vertex gradual, lateral and dorsal areas coarsely punctured, subrugose; median elevation from upper level of eyes to vertex obtuse, its crest rather strongly angled and crest transversely etched; most punctures on disc and declivity confused, rather coarse; vestiture of abundant, fine, long hair on disc and declivity; Brazil (Amazonas); 3.1 mm *pubescens* Wood
- Frons rather strongly, transversely impressed from epistoma to distinctly above upper level of eyes, upper margin abruptly, obtusely rounded, surface smooth, shining, punctures moderately coarse, close; striae punctures on disc mostly in rows; elytral vestiture confined to declivity, of interstitial rows of rather short bristles, each bristle shorter than distance between rows, blunt, slightly flattened on apical third, about eight or more times as long as wide; Bolivia, Brazil, Venezuela; 2.9–3.3 mm *brevicollis* Eggers
- 11(5). Lower frons moderately, transversely impressed, upper area variously rugose or ornamented by a transverse row of three or more tubercles 12
- Half or more of lower frons strongly, concavely impressed, its upper margin rather abrupt and either unarmed or with a small, pointed, median tubercle 14
- 12(11). Transverse impression on frons restricted to lower half, upper margin moderately abrupt, rounded and with rather coarse, confused rugae to upper level of eyes, median line to vertex with a moderate, subacute carina; facets of eye enlarged; Venezuela to Brazil; 2.4–2.5 mm *frontalis* Wood
- Transverse impression on frons extending from epistoma to upper level of eyes, crest forming upper margin of impression armed by a series of about three to five tubercles, median one largest; facets of eye enlarged 13
- 13(12). Smaller species; punctures on impressed area of frons smaller, closer; impressed area of frons deeper, occupying at least median two-thirds of width; Venezuela to Brazil; 1.7–1.9 mm *punctifrons* Schedl
- Larger species; punctures on impressed area of lower frons averaging larger; impressed area of frons rather shallow, occupying less than median half of width; USA (Texas, Florida) to Brazil; 1.8–2.4 mm *seriatus* Eggers
- 14(11). Frons strongly, transversely impressed (almost concave), upper margin slightly above upper level of eyes abrupt, narrowly rounded, crest armed by about five very weak irregularities, median one a weak tubercle; concave area of frontal impression smooth, shining, punctures distinct, rather small; facets of eye rather large; interstitial setae in rows from base to apex, slender, a few feebly flattened on their apical half; Venezuela to Brazil; 1.5–1.7 mm *beaveri* Wood
- Frons strongly concave from epistoma to vertex, upper crest subacute, its summit marked by five weak serrations, median one forming a small, subacute tubercle; rows of interstitial punctures present on disc and declivity; Brazil (Mato Grosso); 2.0 mm *pilosus* Eggers

Cryptocarenus spatulatus Wood

Cryptocarinus spatulatus Wood, 1986:272. Holotype ♀; Santa Maria Chimalpa, Oaxaca, Mexico; USNM, Washington (References in Wood & Bright c1992:904)

Diagnosis: Distinguished by the convex frons; and by the strongly flattened interstitial setae that are distributed from base of disc to apex of the elytra.

Female: Length 1.7–2.0 mm, 2.5 times as long as wide; color very dark reddish brown. Frons broadly, weakly convex, surface shining, rather coarsely, subrugosely

punctured from near epistoma to upper level of eyes; eye normal, facets rather small; sutures of antennal club modestly procurved, 2 attaining middle of club length. Pronotum 0.93 times as long as wide; sides subparallel, weakly arcuate on basal half of pronotum length, broadly rounded in front; anterior margin armed by 6 coarse serrations; summit at middle, anterior slope coarsely asperate; posterior areas shining, partly subreticulate, minute punctures sparse; vestiture hairlike, sparse, mostly on sides and asperate areas. Elytra 1.6 times as long as wide, 1.8 times as long as pronotum; disc occupying

basal two-thirds of elytra length; striae not impressed except 1 slightly near declivity, punctures small, rather shallow; interstriae three times as wide as striae, almost smooth, shining, punctures smaller than those of striae, mostly near declivity. Declivity strongly convex, steep; striae 1 impressed, punctures on 1–3 small, obscure, setiferous, in rows. Vestiture of rows of erect interstitial setae from base to apex, each seta strongly flattened on its apical half, about four to six times as long as wide.

Distribution: Mexico (Sinaloa, Oaxaca) to Peru.

Peru: Intercepted at Miami, Florida, 12-IX-1963, *Echino derris* plant from Peru, #63-22850, E.M. Jones.

Hosts: *Serjania* sp. (Mexico) and “*Echino derris*” (Peru).

Notes: The above treatment was based on the type series of 9 females from Mexico and 1 female from Peru.

Cryptocarenum diadematus Eggers

Plate CXLII

Cryptocarenum diadematus Eggers, 1937:80. Holotype ♀; Corumba, Mato Grosso, Brazil; USNM, Washington (References in Wood & Bright c1992:902)

Diagnosis: Distinguished by the comparatively large size; and by the distinctive, convex frons as described below.

Male: Length 1.3–1.5 mm, resembling female except frons convex, finely punctured; eye smaller; summit of pronotum anterior to middle of pronotum length; features resemble female except rather poorly formed.

Female: Length 2.3–3.0 mm, 2.7 times as long as wide; color reddish brown. Frons rather strongly convex from epistoma almost to upper level of eyes, a median, carinate elevation extending from upper level of eyes toward vertex; epistomal margin shallowly recurved, brush short, with closely set setae; surface from epistoma to upper level of eyes rather coarsely, very closely punctured, becoming subrugose in lateral areas to eyes in upper punctured area; eyes very coarsely faceted (one facet two-thirds as wide as scape); antennal club 1.2 times as long as wide, sutures 1 and 2 moderately procurved, 2 attaining middle of club length. Pronotum 1.1 times as long as wide; sides weakly arcuate and subparallel on basal half, broadly rounded in front; anterior margin armed by 12–14 coarse serrations; summit at middle, anterior slope rather coarsely, closely asperate; posterior areas shining, partly reticulate, minute impressed points present, small punctures rather numerous; vestiture hairlike, mostly restricted to sides and asperate area. Elytra 1.6 times as long as wide, 1.5 times as long as pronotum; disc occupying basal 70 percent of elytra length; striae not impressed, punctures small, distinct; interstriae three to four times as wide as striae, smooth, shining, impunctate except one or two punctures on posterior half of disc. Declivity convex, steep; striae not impressed except 1 moderately, punctures as on disc; interstriae as on disc except each with a row of small punctures. Vestiture restricted to sides and declivity,

consisting of slender interstitial bristles (some feebly flattened on their apical half).

Distribution: Mexico and Antilles Islands to Brazil, Colombia, and Venezuela.

Brazil: Aracruz, Espirito Santo, 11-XII-1991, No. 3582 to 18-VIII-1993, 5151; Itare, Recanto Champagnat, Rio Grande do Sul, 16-III-1998, ethanol trap, *Eucalyptus grandis* stand, T.E.F. Silva; Corumba, Mato Grosso; Cepec Ilheus, Bahia, 1966–1968, at light; Agudos, Telemaco Borba, Parana, 26-I-2001-16-IV-2004; Duraflora, Sao Paulo, 20-III-1984, 27-III-1984, ethanol trap, *Pinus c. Caribaea* stand, Flechtmann; Botucatu, Duriflora, Sao Paulo, 11-VII-1990, ethanol trap, Patio de Serraria, *Pinus e Eucalyptus*, Flechtmann; Ibateripasa, SP, 16-I-1985, ethanol trap, *Eucalyptus* stand, C.D. Santos; Lencois Paulista, Duraflora, Sao Paulo, 21-XII-1988, 2-IV-1990, ethanol trap, *Eucalyptus grandis* stand, Flechtmann; Podrinhas, Sao Luis Island, MA, 13-III-1987, blacklight, E.C. Bergmann; Selviria Frazenda, UNESP, MS, 1-III-1990, ethanol trap, *Persea americana* stand, Flechtmann.

Colombia: Chinchina, Caldes, 14-VI-1959, SCO #14, ramas secas de cafe, M. Benevides; El Bosque, Caicedonia, Valle de Cauca, 10-VII-1959, SCO #12, guamo verde, J. Restrepo.

Venezuela: 9 km S Barrancas, Barinas, 5-XI-1969, 150 m, *Serjania*, SLW; 20 km SW El Vigia, Merida, 21-XI-1969, 50 m, *Bauhinia*, SLW; Campamento Rio Grande 30 km E Palmar, Bolivar, 12-VI-1970, 200 m, No. 582, *Nectandra*, SLW; 40 km SE Socopo, Barinas, 25-I-1970, 150 m, No. 248, tree twig, SLW; 10 km SE Miri, Barinas, 8-II-1970, politico negro, SLW; 40 km E Canton, Barinas, 8-III-1970, 70 m, *Serjania*, SLW; 30 km N Canyon Zancudo, Zulia, 4-VI-1970, 70 m, vine, SLW.

Notes: The above treatment was based on a female from Venezuela that I compared to the holotype, on 2 females from Brazil, 5 females from Colombia, 41 females and 3 males from Venezuela, and 20 females and 2 males from Central America.

Cryptocarenum tropicalis Wood, n.sp.

Cryptocarenum tripicalis Wood: Holotype ♀; Campamento Rio Grande 30 km E Palmar, Bolivar, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *diadematus* by the smaller size; by the more strongly convex frons with coarse punctures extending to well above upper level of the eyes; and by other characters described below.

Male: Length about 1.5 mm; basically similar to female except smaller; all characters poorly formed.

Female: Length 2.0 mm, 2.6 times as long as wide; color very dark reddish brown. Frons rather strongly convex, a feeble, transverse impression on less than lower fourth; surface shining, coarsely, closely punctured from epistoma to vertex, weak rugosities in lateral and upper areas, a small, median callus on vertex (not elongated);

vestiture restricted to lower areas, rather short, moderately abundant; eye normal, facets small; antennal club slightly longer than wide, sutures 1 and 2 broadly procurved, 2 attaining middle of club length. Pronotum 1.03 times as long as wide; sides feebly arcuate and subparallel on basal half, broadly rounded in front; anterior margin armed by 12 serrations; summit at middle, anterior slope rather coarsely, closely asperate; posterior areas smooth, shining, punctures small, rather close; hairlike vestiture mostly restricted to sides and asperate area. Elytra 1.6 times as long as wide, 1.5 times as long as pronotum; striae not impressed, punctures very small, distinct; interstriae about four times as wide as striae, surface smooth, with many minute, impressed points, one or two small punctures irregularly placed. Declivity strongly convex, steep; striae 1 distinctly impressed, punctures on 1–3 minute, smaller than on disc; interstriae 1 weakly elevated, each interstriae with a central row of minute, setiferous punctures. Vestiture of erect interstitial setae on sides and declivity, almost absent on disc, setae slender, their apex slightly flattened, each almost as long as distance between rows, more widely spaced within a row.

Distribution: Venezuela (Bolivar).

Type material: The female holotype was taken at Campamento Rio Grande 30 km E Palmar, Bolivar, 12-VI-1970, 200 m, No. 566, Suipo, SLW. A male (possibly this species) and not part of the type series is from Rancho Grande, Aragua, 9-IV-1970, 1100 m, No. 343, *Clusia* SLW. The holotype and the non-type male are in the U.S. National Museum, Washington.

Cryptocarenum amazonicus Wood, n. sp.

Cryptocarenum amazonicus Wood: Holotype ♀; Reserva Campinas, Amazonas, Brazil; USNM, Washington, designated below

Diagnosis: Frons more strongly convex, with punctures smaller than *tropicalis* Wood; a transverse impression not indicated on lower frons.

Female: Length 2.0 mm, 2.7 times as long as wide; color reddish brown (abdomen and part of thorax missing from type. Frons visible from epistoma to upper level of eyes (concealed by pronotum); convex to epistomal margin; surface smooth, shining, rather closely, finely, deeply punctured, a feeble, median crest to epistoma; facets of eye somewhat enlarged; antennal club slightly longer than wide, sutures 1 and 2 rather broadly procurved, 2 almost attaining middle of club length. Pronotum 1.07 times as long as wide; sides widest near base, weakly arcuate on basal half, converging slightly toward rather narrowly rounded anterior margin; anterior margin armed by 12 low serrations; asperities on anterior slope small, close, numerous; summit in front of middle of pronotum length; posterior areas smooth, shining, punctures minute, sparse; vestiture sparse, hairlike, mostly restricted to sides and asperate area. Elytra 1.6 times as long as wide, 1.5 times as long as pronotum; striae not impressed, punctures in rows, small, distinct;

interstriae three to four times as wide as striae, smooth, shining, 1 and 3 each with two or three small punctures. Declivity strongly convex, steep; striae 1–3 feebly impressed, punctures slightly larger, deeper than on disc; interstriae 1 and 3 each with a row of minute punctures; sparse vestiture of erect, slender, blunt interstitial setae, mostly on 1, 3, and lateral areas.

Distribution: Brazil (Amazonas).

Type material: The female holotype was taken at Reserva Campinas, Amazonas, Brazil, 24-X-1979, BR 174, Km 44, #4697, M.I.G. Hopkins. The holotype is in the U.S. National Museum, Washington.

Cryptocarenum harringtoni (Blackman)

Cryptocarenum harringtoni (Blackman), 1943:38 (*Tachyderes*). Holotype ♀; Yaguacua, Bolivia; USNM, Washington (References in Wood & Bright c1992:903)

Diagnosis: Distinguished by the very small size; by the conspicuous strial hair; and by other characters described below. This species strongly resembles *Hypothernemus* species in the *areccae* species group.

Female: Length 1.3–1.4 mm, 2.7 times as long as wide; color yellowish brown. Frons moderately, transversely impressed on median half from epistoma half distance to upper level of eyes, upper margin marked by a transverse, obtuse callus at median line; impressed area partly smooth (median), lateral areas minutely rugose-punctate, area above callus minutely rugose-reticulate; vestiture sparse, hairlike, mostly in epistomal brush; eye normal, finely faceted; antennal club longer than wide, sutures 1 and 2 straight, 2 attaining middle of club length. Pronotum 1.0 times as long as wide; sides almost straight and parallel on basal half, broadly rounded in front; anterior margin armed by 6 serrations, anterior slope coarsely, rather closely asperate; summit at middle, posterior areas smooth, shining, several minute granules behind summit; vestiture sparse, mostly on sides and asperate area. Elytra 2.2 times as long as wide, 2.3 times as long as pronotum; striae not impressed, punctures rather small, shallow; interstriae twice as wide as striae, almost smooth, each with a uniseriate row of minute punctures. Declivity confined to posterior third of elytra length, strongly convex, steep; sculpture about as on disc. Vestiture of minute, fine strial hair from base to apex (a few similar setae on interstriae) and rows of erect interstitial scales from base to apex, each scale about four times as long as wide and almost equal in length to distance between rows.

Distribution: Argentina to Bolivia.

Argentina: Santiago, Lot No. 40-25771, in dead cotton stems, H.L. Parker.

Bolivia: Yaguacua; Yhancaroinza, Chuquaca, IV-1924, G.L. Harrington.

Hosts: *Gossypium* sp.

Notes: The above treatment was based on 3 females, 2 from Argentina and 1 from Bolivia. One of the Argentina specimens was compared by me to the holotype.

Cryptocarenum lepidus Wood

Cryptocarenum lepidus Wood, 1971:36. Holotype ♀; Beverley, Limon Prov., Costa Rica; USNM, Washington (References in Wood & Bright c1992:903)

Diagnosis: Distinguished from *heveae* (Hagedorn) by the more distinct transverse impression on the lower frons; by the subrugose area below upper level of the eyes, with punctures on that area larger, subaciculate; and by the obscure median carina that may extend in some specimens to the epistoma.

Female: Length 1.5–1.8 mm, 2.6 times as long as wide; color dark reddish brown. Frons weakly, transversely impressed from epistoma to slightly above upper level of eyes; surface shining, punctures obscure, close, areas between punctures finely rugose, rugosities mostly, obscurely organized into weak convergent aciculation from epistoma to near vertex, median element forming a very weak median carina from epistoma to upper level of eyes; vestiture hairlike, sparse, mostly on or near epistoma; eye with facets moderately enlarged; antennal club slightly longer than wide, sutures 1 and 2 moderately procurved, 2 extending very slightly beyond middle of club length. Pronotum 1.0 times as long as wide; sides feebly arcuate and subparallel on basal half, somewhat narrowly rounded in front; anterior margin armed by 8–10 serrations; anterior slope coarsely, closely asperate; summit at middle, posterior areas smooth, shining, punctures very small, rather close; vestiture hairlike, sparse, mostly on sides and asperate area. Elytra 1.7 times as long as wide, 1.7 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed, punctures small, distinct; interstriae almost three times as wide as striae, smooth, shining, often with one or two punctures near declivity. Declivity strongly convex, steep; striae 1 narrowly, weakly impressed, remaining sculpture similar to disc except interstriae 1 and 3 each with a sparse row of small punctures. Vestiture of sparse rows of erect interstitial setae on odd-numbered declivital interstriae (one or two sometimes on 2).

Distribution: Mexico (Oaxaca) to Colombia and Brazil.

Brazil: Aracruz, Espirito Santo, 2-X-1984, No. 0960, 11-XII-1991, No. 2583.

Colombia: Campo Capote 24 km E Barbosa, Antioquia, 18-VII-1970, 1200 m, *Xelopia* sp., SLW; El Bosque, Caicedonia, Valle de Cauca, 30-VI-1959, ramas secas de cafe, J. Restrepo.

Hosts: *Coffea* sp., *Xelopia* sp., “cola de pavo,” and several vines and tree twigs.

Notes: The above treatment was based on the type series and on 19 specimens from Panama and 7 from Colombia.

Cryptocarenum heveae (Hagedorn)

Plate CXLII

Cryptocarenum heveae (Hagedorn), 1912:338 (*Stephanoderes*). Lectotype ♀; Eala, Congo; MRCB, Tervuren, designated by Wood 1982:

914 (Synonymy and references in Wood & Bright c1992:903)
Cryptocarenum caraibicus Eggers, 1937:82. Holotype ♀; Guadeloupe; USNM, Washington
Tachyderes parvus Blackman, 1943:36. Holotype ♀; Cayamas, Cuba; USNM, Washington
Cryptocarenum porosus Wood, 1954:1014. Holotype ♀; Royal Palm Hammock State Park, Florida; USNM, Washington
Cryptocarenum acaciae Schedl, 1958:45. Lectotype ♀; Buenos Aires, Tigre, Argentina; NHMW, Wien, present designation (References in Wood & Bright c1992:902). *New synonymy*

Diagnosis: Distinguished from *lepidus* Wood by the stronger, transverse impression of the frons; by the finer sculpture and punctures on the frons; and by the small, median tubercle at the upper level of the eyes, a subcarinate extension sometimes continued toward the vertex but never downward toward the epistoma.

Male: Length 1.0 mm; resembling female except all characters more poorly formed.

Female: Length 1.4–1.8 mm, 2.7 times as long as wide; mature color dark reddish brown. Frons with a distinct transverse impression on median half from epistoma to upper level of eyes; impressed area shining, finely punctured, usually without any rugae, weak rugae usually present on median half at upper level of eyes, median tubercle conspicuous at upper level of eyes (sometimes extending dorsad toward vertex, never extending ventrad toward epistoma); vestiture very sparse, mostly on or near epistoma; eye and antennal club about as in *lepidus*. Pronotum 1.0 times as long as wide; about as in *lepidus*. Elytra 1.6 times as long as wide, 1.6 times as long as pronotum; about as in *lepidus*.

Distribution: USA (Florida) and Mexico (Colima) to Brazil; introduced to tropical Africa.

Brazil: Aracruz, Espirito Santo, 22-I-1993, No. 5352-13-II-1996, No. 7384; Mato Grosso do Sul, Telemaco Borba, Parana, 11-II-2000-28-XI-2003; Agudos, Duraflora, Sao Paulo, 20-III-1984, 3-IV-1984, ethanol trap, *Pinus c. Caribaea* stand, Flechtmann; Botucatu, Duraflora, Sao Paulo, 14-III-1990, 19-IX-1990, 28-III-1990, ethanol trap, Patio de serraria (*Pinus e Eucalyptus grandis* stand, Flechtmann; Pemcois Paulista, Duraflora, Sao Paulo, 7-IX-1988, ethanol trap, *Eucalyptus grandis* stand, Flechtmann; Piracicaba, Parque ESALQ, Sao Paulo, IV-1987, *Mangifera indica*, Flechtmann.

Colombia: Caicedonia, Valle de Cauca, 11-V-1959, ramas de cafe, SCO#11, J. Jimenez; El Bosque, Caicedonia, Valle de Cauca, 10-VII-1959, guamo verde, J. Restrepo; Zuniga, Caicedonia, Valle de Cauca, 18-VI-1959, ramas de cafe, J. Restrepo.

Venezuela: Finca Monasterios, Cacaugua, Mirador, 1971, *Theobroma cacao*, J.L. Saunders; Bumbum Forest Station, Barinas, 29-I-1970, 150 m, No. 284, *Serjania*, SLW; 40 km E Canton, Barinas, 8-III-1970, 70 m, No. 343, *Serjania*, SLW; 3 km E Lagunillas, Merida, 12-I-1970, SLW; 20 km SW El Vigia, Merida, 21-XI-1969, 50 m, No. 150, *Bauhinia*, SLW.

Hosts: *Bauhinia* sp., *Coffea* sp., *Serjania* sp., *Theobroma cacao*.

Biology: As described for the genus.

Notes: The above treatment was based on 2 females from Florida that were compared by me to the syntypes of *heveae*, on the holotypes of all synonyms listed above, and on 127 specimens from Central America, 4 from Santo Domingo, 8 from Colombia, and 81 from Venezuela. One male was examined. Schedl named *acaciae* from a syntypic series, then cited (Schedl 1979:9) 1 of these syntypes as a holotype. Because this act was not permitted under the Code of Nomenclature, I here designate that syntype as the lectotype of *Cryptocarenum acaciae* Schedl, as indicated above.

Cryptocarenum laevigatum (Blandford)

Cryptocarenum laevigatum (Blandford), 1904:230 (*Hypothenemus*). Lectotype ♀; Los Remedios, Chiriqui, Panama; BMNH, London, designated by Wood 1982:91 (References in Wood & Bright c1992:903)

Diagnosis: Distinguished from *lepidus* Wood by the more convex, punctured frons that is entirely devoid of rugae, tubercles or a carina; by the large, slender pronotal asperities and anterior serrations; and by the more slender interstitial setae.

Female: Length 1.9 mm, 2.4 times as long as wide; color rather dark yellowish brown.

“Frons very broadly convex; surface shining, coarsely, closely punctured from epistoma to slightly above upper level of eyes, no indication of rugae or tubercles or carina; vestiture of sparse, fine, long hair. Pronotum as in *lepidus* except asperities and anterior serrations higher. Elytra 1.5 times as long as wide; as in *lepidus* except striae punctures very slightly larger, impressed points obscure or absent; declivital interstriae 2 as wide as 1 or 3, bristles distinctly longer than width of discal interstriae, each slightly flattened on its apical fourth” (Wood 1982:915).

Distribution: Panama.

Notes: The lectotype is unique, even though extensive collecting has been done in Panama. The possibility must be considered that the type is a male of another species, such as *seriatus* Eggers.

Cryptocarenum pubescens Wood

Plate CXLIII

Cryptocarenum pubescens Wood, 1986:271. Holotype ♂; 69 km N Manaus, Amazonas, Brazil; USNM, Washington (References in Wood & Bright c1992:903)

Diagnosis: Distinguished by the distinctive frons, described below; by the abundant, fine, long hair on the pronotum and elytra; and by the anterior margin of the pronotum being armed by 16 serrations.

Female: Length 3.1 mm, 2.4 times as long as wide; color dark reddish brown. Frons with a weak, transverse impression on median half of area below upper level of eyes, convex above; surface shining, rather coarsely, deeply punctured from epistoma to vertex, spaces between punctures moderately rugose; median area with broad, median callus from upper level of eyes to vertex,

its obtuse crest transversely etched; vestiture sparse, hairlike, short above, longer and more abundant on epistoma; eye normal, facets small; antennal club distinctly longer than wide, sutures 1 and 2 subangulately produced, 2 attaining level slightly beyond middle of club. Pronotum 1.0 times as long as wide; sides weakly arcuate on basal half, rather narrowly rounded in front; anterior margin armed by 16 serrations; summit at middle, anterior slope closely, rather coarsely asperate, posterior areas smooth, shining, punctures small, abundant, those near summit partly or entirely replaced by a small tubercle; vestiture of abundant, fine, long hair on all areas, including disc. Elytra 1.4 times as long as wide, 1.4 times as long as pronotum; disc occupying about 45 percent of elytra length; striae not impressed, punctures of striae and interstriae small, confused, mostly not in rows. Declivity broadly convex, steep; sculpture about as on disc. Vestiture of abundant, fine, long hair, longer on declivity; on basal third of declivity setae of apparent striae origin short, those of apparent interstitial origin conspicuously longer.

Distribution: Brazil: Amazonas, 69 km N Manaus, 7-XII-1979, G. Stevens.

Notes: The above treatment was based on the female holotype from Brazil.

Cryptocarenum brevicollis Eggers

Plate CXLI

Cryptocarenum brevicollis Eggers, 1937:81. Holotype ♀; Cochabamba, Bolivia; NHMW, Wien (Synonymy and references in Wood & Bright c1992:902)

Cryptocarenum coronatus Wood, 1971:36. Holotype ♀; 20 km SW El Vigia, Merida, Venezuela; USNM, Washington

Diagnosis: Distinguished by the larger size; by the distinctive frons; and by the sparse, short elytral setae.

Female: Length 2.9–3.3 mm, 2.5 times as long as wide; color reddish brown. Frons rather strongly, transversely impressed on median half from epistoma to upper level of eyes; upper crest rounded (moderately abrupt) slightly above upper level of eyes; impressed area shining, moderately, deeply punctured eye to eye, a callus on median fourth immediately above weak epistomal brush; area above crest coarsely punctured to vertex, somewhat rugose laterally; eye coarsely faceted; antennal club very slightly longer than wide, sutures 1 and 2 rather broadly procurved, 2 extending slightly beyond middle. Pronotum 1.0 times as long as wide; sides weakly arcuate on posterior half, broadly rounded in front, anterior margin armed by 10 serrations; summit at middle, anterior slope coarsely, rather closely asperate; posterior areas almost smooth, shining, punctures rather coarse, deep, some impressed points present; vestiture sparse, mostly on sides and asperate area. Elytra 1.5 times as long as wide, 1.6 times as long as pronotum; disc occupying basal 45 percent of elytra length; striae not impressed, punctures small, in rows; interstriae about four times as wide as striae, smooth, shining, a few irregularly

placed minute punctures (one to six) on each interstriae. Declivity strongly convex, steep; striae feebly impressed, punctures small; interstriae almost smooth, each with a row of regularly placed minute, setiferous punctures. Vestiture of slightly flattened interstitial setae on declivity and sides, each slightly shorter than distance between rows.

Distribution: Bolivia to Venezuela.

Bolivia: Cochabamba [Woytkowski].

Brazil: Aracruz, Espirito Santo, 28-IX-1988, No. 2351, 12-III-1993, No. 5253.

Venezuela: Campamento Rio Grande 30 km E Palmar, Bolivar, 12-VI-1970, 200 m, No. 566, "suipo," SLW; 40 km E Canton, Barinas, 8-III-1970, 70 m, No. 351, palito negro, SLW; 40 km SE Socopo, Barinas, 25-I-1970, 150 m, No. 255, tree seedling, SLW; 8 km SW Bumbum, Barinas, 11-II-1970, 150 m, No. 325, *Nectandra*, SLW; 30 km SW El Vigia, Merida, 21-XI-1969, 50 m, No. 150, *Bauhinia* (liana), SLW.

Hosts: *Bauhinia* sp., *Nectandra* sp., "suipo," "palito negro" (both common names identified by Balbino Rodriguez).

Biology: Twigs and small stems were attacked. Habits were as described for the genus.

Notes: The above treatment was based on the type series of *coronatus*. This type was compared directly by me to the type of *brevicollis* Eggers.

Cryptocarenum frontalis Wood, n. sp.

Cryptocarenum frontalis Wood: Holotype ♀; 10 km SE Miri, Barinas, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *brevicollis* Eggers by the unique frons; by the very sparse, slender interstitial setae; and by other characters described below.

Female: Length 2.5 mm, 2.7 times as long as wide; color reddish brown. Frons rather strongly, transversely impressed on median half of lower half of area below upper level of eyes; without a transverse callus above epistomal brush, impressed area rather coarsely punctured, subrugose in lateral areas; area above impression moderately elevated, rounded, coarsely, closely, subrugosely punctured almost to upper level of eyes, median subcarinate elevation ending abruptly below, continuing above on a weak decline; vestiture sparse, short; eye coarsely faceted; antennal club as wide as long, sutures 1 and 2 broadly procurved, 2 extending slightly beyond middle. Pronotum 1.0 times as long as wide; almost as in *brevicollis*. Elytra 1.5 times as long as wide, 1.7 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed, punctures small; interstriae three times as wide as striae, surface smooth, shining, odd-numbered interstriae each with one to about 3 punctures. Declivity strongly convex, steep; striae 1–3 weakly impressed; interstriae 1 and 3 each with sparse punctures. Vestiture of sparse, short interstitial setae on declivity, almost absent on 2 and 4.

Distribution: Venezuela (Barinas).

Type material: The female holotype was taken at 10 km SE Miri, Barinas, Venezuela, 8-II-1970, 150 m, No. 305, *Serjania*, SLW; 2 female paratypes are from Rancho Grande, Aragua, Venezuela, 9-IV-1970, 1100 m, No. 343, *Clusia*, SLW. The holotype and paratypes are in the U.S. National Museum, Washington.

Biology: Boring in broken twigs.

Cryptocarenum beaveri Wood, n. sp.

Cryptocarenum beaveri Wood: Holotype ♀; Mato Grosso, Brazil 12°31'S, 51°46'W; BMNH, London, designated below

Diagnosis: As in *frontalis* Wood, except transverse impression on lower frons not as deep, upper area less abruptly, less strongly elevated, punctured area less rugose; median carina low, acute, extending high on vertex to a point half distance from epistoma to vertex; vestiture on elytra mostly restricted to declivital interstriae, setae blunt, slender, each slightly longer than distance between rows of setae (only two or three setae on 2, 4, and 6).

Female: Length 2.4 mm, 2.6 times as long as wide; about as in *frontalis*, except as noted in above diagnosis; punctures on pronotum disc smaller.

Distribution: Brazil (Mato Grosso).

Type material: The female holotype was taken at RS/RGS Mato Grosso Expedition to Brazil 12°31'S, 51°46'W, 15-XI-1968, FOS, R.A. Beaver. The holotype is in the British Museum of Natural History, London.

Cryptocarenum punctifrons Schedl

Cryptocarenum punctifrons Schedl, 1939:410. Syntypes, sex?; Isla Martin Garcia, Argentina; NHMW, Wien (References in Wood & Bright c1992:903)

Cryptocarenum brasiliensis Schedl, 1951:96. Holotype ♀; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:902). *New synonymy*

Diagnosis: Distinguished from *seriatus* Eggers by the smaller size; impressed area of frons wider, not as deep, punctures smaller.

Female: Length 1.7–1.9 mm, 2.6 times as long as wide; color dark reddish brown. Frons moderately impressed on median two-thirds from epistoma to upper level of eyes, upper crest rather abruptly rounded, median tubercle small (transversely, weakly carinate above), 2 small rugosities usually visible on crest; punctures on impressed area small, deep, close, punctures larger laterally and near crest above; vestiture rather sparse, mostly short; eye finely faceted; antennal club with sutures 1 and 2 rather broadly procurved. Pronotum and elytra about as in *seriatus*.

Distribution: Brazil to Venezuela.

Brazil: 69 km N Manaus, Amazonas, 12-VII-1979, G. Stevens; Nova Teutonia, Santa Catarina, VIII-1941, F. Plaumann.

Venezuela: Finca Monasterios, Cacaugua, Mirador, 1971, *Theobroma cacao*, J.L. Saunders.

Notes: The above treatment was based on the female syntype from Argentina that Schedl had labeled as the holotype, on the female holotype of *brasiliensis* Schedl, and on 1 other female from Brazil and 1 from Venezuela. A lectotype has not been designated. It is probable that this is a synonym of *seriatus* Eggers; additional specimens are needed to resolve this problem.

Cryptocarenum seriatus Eggers

Plate CXLIV

Cryptocarenum seriatus Eggers, 1933:10. Holotype ♀. Nouveau Chantier, French Guyane; MNHN, Paris (Synonymy and references in Wood & Bright c1992:904)

Cryptocarenum adustum Eggers, 1933:11. Holotype ♀; St Jean du Maroni, French Guyane; MNHN, Paris

Tachyderes floridensis Blackman, 1943:36. Holotype ♀; Paradise Key, Florida, USA; USNM, Washington

Cryptocarenum bolivianus Eggers, 1943:356. Holotype ♀; Cochabamba, Bolivia; USNM, Washington

Diagnosis: The intermediate size and narrowly, moderately impressed frons, with a series of three to five tubercles arming the upper, transverse crest of this impression distinguish this species.

Male: Length 1.4–1.5 mm, 2.2 times as long as wide; as in female except eye slightly reduced in size, frons less strongly impressed, tubercles poorly formed; pronotum and other areas about as in female except all features poorly formed.

Female: Length 1.8–2.4 mm, 2.6 times as long as wide; color reddish brown. Frons shallowly, transversely impressed on median half from epistoma to upper level of eyes; surface smooth, shining, punctures very small on median half, distinctly larger in lateral areas; upper crest of impressed area weakly elevated, armed by a transverse row of three to five rugae, median one larger and weakly carinate from crest toward vertex, weakly subcarinate in lateral areas; vestiture of short hair on impressed area; eye enlarged, coarsely faceted; antennal club slightly longer than wide, sutures 1 and 2 rather broadly procurved. Pronotum and elytra about as in *punctifrons* Schedl, anterior margin of pronotum armed by 8 serrations.

Distribution: USA (Florida, S Texas) to Brazil and Bolivia.

Bolivia: Cochabamba (Woytkowski).

Brazil: Aracruz, Espirito Santo, 30-IV-1980, No. 2052 to 8-XII-1995, 7326; Recife, 1960, Rio Grande do Sul, Castro; Agudos, Duraflora, Sao Paulo, 20-III-1984, ethanol trap, *Pinus bahamensis* stand, C.A.H. Flechtmann; Ibata, Ripasa, Sao Paulo, 13-III-1985, ethanol trap, *Eucalyptus* stand, C.D. Santos; Piracicaba, Parque ESALQ, Sao Paulo, IV-1987, *Mangifera indica*, C.A.H. Flechtmann; Selviria, Fazenda, UNESP, MS, 1-III-1990, *Persea americana* stand, C.A.H. Flechtmann; Tres Lagoas, CPC Horto Barra do Moeda, Mato Grosso do Sul, 2-V-1993, *Eucalyptus grandis* stand, C.A.H. Flechtmann.

French Guyane: Nouveau Chantier; St. Jean du Maroni.

Venezuela: 30 km N Canyon Zancudo, Zulia, 4-VI-1970, 10 m, No. 521, liana, SLW; 20 km SW El Vigia, Merida, 10-XII-1969, 50 m, No. 179, *Virola*, SLW; 40 km SE Socopo, Barinas, 25-I-1970, 150 m, No. 258, palito negro, SLW; 3 km E Lagunillas, Merida, 12-I-1970, 1000 m, No. 236, vine, SLW; 9 km S Barrancas, Barinas, 5-XI-1969, 150 m, No. 101, *Serjania*, SLW; Bumbum Forest Station, Barinas, 21-I-1970, 150 m, No. 284, *Serjania*, SLW; El Laurel Experimental Farm 12 km SW Caracas, Aragua, 12-I-1970, 1000 m, No. 236, vine, SLW; Rancho Grande, Aragua, 9-IV-1970, 1100 m, No. 343, *Clusia*, SLW.

Hosts: *Canavalia villosa*, *Chenopodium ambrosioides*, *Clusia* sp., *Conocarpus erecta*, *Dipholis salicifolia*, *Ficus aurea*, *Ipomoea pes-caprae*, *Mangifera indica*, *Metopium toxiferum*, *Persea barbonea*, *Pithecelobium guadeloupense*, *Rhacoma crossopetalum*, *Serjania* sp., *Virola* sp.

Biology: As described for the genus.

Notes: The above treatment was based on females as follows: 20 from Florida (and 1 male), 23 from Central America, 31 from Venezuela (and 1 male). Five of my females (1 Honduras, 4 Venezuela) were compared directly by me to the holotype of *seriatus* Eggers. The holotypes of *adustum* Eggers, *floridensis* Blackman, and *bolivianus* Eggers were also examined and compared to my specimens.

Cryptocarenum barinensis Wood, n. sp.

Cryptocarenum barinensis Wood: Holotype ♀; 10 km SE Miri, Barinas, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *seriatus* by the much smaller size; by the strong, transverse impression on the frons; and by the very weak tubercles on the crest above the frontal impression.

Female: Length 1.5–1.7 mm, 2.4 times as long as wide; color yellowish brown. Frons strongly, transversely impressed almost eye to eye from epistoma to upper level of eyes; surface of impressed area smooth, shining, punctures small; upper crest of impression narrowly rounded, armed by 7 obscure crenulations, median one forming a weak carina on vertex; vestiture of sparse, fine, short hair on impressed area; eye coarsely faceted; antennal club distinctly longer than wide, sutures 1 and 2 moderately procurved. Pronotum 1.0 times as long as wide; sides moderately arcuate on basal half, rather narrowly rounded in front; anterior margin armed by 5–6 coarse serrations; summit at middle, anterior slope coarsely, rather closely asperate; posterior areas smooth, shining, sparse punctures very small. Elytra 1.6 times as long as wide, 1.6 times as long as pronotum; disc occupying two-thirds of elytra length; striae not impressed, punctures small, distinct; interstriae about four times as wide as striae, each with an obscure row of minute punctures to base. Declivity sculpture about as on disc. Vestiture mostly confined to declivity, of interstitial rows of erect,

stout, blunt bristles from base to apex, each about as long as distance between rows.

Distribution: Brazil to Venezuela.

Type material: The female holotype was taken 10 km SE Miri, Barinas, Venezuela, 8-II-1970, 150 m, No. 291, *Protium tenuifolium*, S.L. Wood. Two paratypes are labeled: Brazil, RS/RGS Exped. 12°31'S, 51°46'W, R.A. Beaver, C11/1, 30-X-1968, the second specimen is the same except C57, 9-XI-1968. The holotype and paratypes are in the U.S. National Museum, Washington.

Cryptocarenum pilosus Eggers

Plate CXLII

Cryptocarenum pilosus Eggers, 1937:81. Holotype ♀; Cochabamba, Bolivia; USNM, Washington (References in Wood & Bright c1992: 903)

Diagnosis: Distinguished by the very strongly impressed, moderately concave frons from eye to eye, from epistoma to vertex; the upper crest of the concave area is transversely subcarinate.

Female: Length 2.0 mm, 2.6 times as long as wide; color yellowish brown. Frons strongly, concavely impressed from eye to eye from epistoma to vertex; surface of concave area rugose, some fine, minute reticulation obscurely present; crest of upper margin subcarinate, armed by obscure crenulations, median one largest and not carinate above; vestiture of sparse, fine, long hair. Pronotum 1.0 times as long as wide, as in *seriatus*. Elytra as in *seriatus* Eggers, except interstriae regularly punctured. Vestiture of interstitial setae from base to apex, each seta very slender; those on declivity mostly longer than on disc, most 1.25 to 1.5 times longer than distance between rows.

Distribution: Bolivia to Brazil.

Bolivia: Cochabamba [Woytkowski].

Brazil: Mato Grosso, RS/RGS Exped. 12°31'S, 51°46'W, 30-X-1968, C 11/2, R.A. Beaver.

Notes: The above treatment was based on the female holotype from Bolivia and on 1 female from Brazil that I compared to the holotype.

GENUS *HYPOTHENEMUS* WESTWOOD

Hypothenemus Westwood, 1836:34. Type-species: *Hypothenemus eruditus* Westwood, monobasic (Synonymy and references in Wood & Bright c1992:904–946)

Homocryphalus Lindemann, 1876:168. Type-species: *Stephanoderes ehlersii* Eichhoff = *Hypothenemus eruditus* Westwood, monobasic
Triarmocerus Eichhoff, 1878:42, 119. Type-species: *Triarmocerus cryphaloides* Eichhoff, monobasic

Adiaeretus Hagedorn, 1909:744. Type-species: *Adiaeretus spinosus* = *Stephanoderes elaphus* Eichhoff, monobasic

Stylotentus Schedl, 1939:380. Type-species: *Hypothenemus concolor* Hagedorn, subsequent designation by Schedl 1961:448

Chondronoderes Schedl, 1940:589. Type-species: *Stephanoderes magnus* Eggers, monobasic

Archeophalus Schedl, 1941:392. Type-species: *Archeophal natalensis* Schedl, monobasic

Pachynoderes Schedl, 1941:393. Type-species: *Pachynoderes depreca-tor* Schedl, monobasic

Lepiceroides Schedl, 1957:59. Type-species: *Lepiceroides aterrimus* Schedl, monobasic

Ernophloeus Nunberg, 1958:484. Type-species: *Ernophloeus costalimai* Nunberg = *Stephanoderes fuscicollis* Eichhoff, original designation

Epsips Beeson, 1941:287. Type-species: *Epsips sylvatum*, nomen nudum. This name was never validated and is not needed. Beeson's original series was examined

Diagnosis: Distinguished from *Cryptocarenum* by the darker color; by the 4- or 5-segmented antennal funicle often 3-segmented in *birmanus* (Eichhoff) [Wood 1957: 402]; by the almost straight, partly septate suture 1 of the antennal club; and by the different type of elytral vestiture.

Description: Length 0.6–2.8 mm (male much smaller, flightless), 2.1–2.7 times as long as wide. Frons variously sculptured; eye emarginate, finely faceted; antennal funicle 3- to 5-segmented, club with suture 1 almost straight, partly septate, 2 procurved and marked by setae. Pronotum with basal margin and posterior third of lateral margin marked by a fine, raised line, anterior margin armed by a series of serrations. Elytra weakly striate; declivity convex, conservatively sculptured; costal margin ascending slightly near apex; protibia armed by a series of 4–6 socketed denticles on outer distal margin; tarsi cylindrical.

Biology: Most species breed in the pith and xylem of small broken or cut stems. The parent gallery is irregularly shaped; eggs are deposited in small clusters in these tunnels; the larvae extend and enlarge the parent galleries. Some species breed in the phloem of large trees, and a few in the green outer bark of living trees where the tunnels are very short and occur in the zone between living and dead bark. Other species breed in the pods or large seeds of a variety of plants where they are sometimes of economic significance. One species [*pubescens* (Hopkins)] breeds in the fruiting stem of certain grasses; several species breed in the stems of common garden plants or backyard weeds. Representatives of this genus are occasionally taken from the fruiting bodies of fungi; 1, *eruditus* Westwood, was named originally from specimens breeding in the cover of a book. As far as is known, all species inbred.

Notes: Wood & Bright (1992:904–946) list 179 species worldwide. Of these, 19 species occur in North America and the Antilles Islands, 46 species are reported from South America. At least 11 of the species reported from South America are endemic to Africa and were introduced to America. Most of these 11 species probably gained entry to America during the era of exploration in straw and fodder used in the care of horses or, later, in shipping crates or other paraphernalia associated with the slave trade. The notorious coffee pest, *hampei* (Ferrari), was apparently associated with commerce. Because *Hypothenemus* species are easily transported through commerce to extra-territorial areas, all known American species are included in the following key. Descriptions of those from the Antilles Islands, Mexico, North and Central America are presented in Wood (1982:876–881).

The structural characters of males are not consistent from 1 specimen to another within the same species. Because of this feature, and their rarity, they are omitted from the key.

Key to females of the Species of *Hypothenemus*
(Modified from Wood 1982:876–881)

- 1. Frons convex, with or without a narrow median groove; usually devoid of a median frontal tubercle but, if present, elytral vestiture limited to rows of erect, uniseriate, interstitial scales and (usually) uniseriate rows of striae hair; interstitial ground vestiture either hair- or scalelike 2a
- Frons with a conspicuous tubercle or transverse carina at middle of frons length, lower half of frons weakly to strongly, concavely impressed; interstitial ground vestiture hairlike, rather abundant 40a
- 2a(1). Larger species; anterior slope of pronotum armed by more than 50 small, rather close, confused asperities; female epistoma broadly, moderately emarginate on median half, frons on lower half of area below upper level of eyes transversely flat on median three-fourths, surface almost smooth, with minute, shallow punctures, median half above transverse impression abruptly elevated at its lower margin and continued laterally and to vertex as a strongly convex, dull, closely, coarsely granulate area; anterior margin of pronotum armed by a median pair of rather coarse serrations; striae not impressed, punctures very small, interstitial setae confused, ground setae hairlike, erect setae short, stout, each about six times as long as wide, not in definite rows; Brazil (Mato Grosso); *Hevea brasiliensis*; 2.6–2.7 mm *abhorrens* Wood
- Smaller species, 2.2 mm or less; anterior slope of pronotum armed by 8–25 asperities and with 2–4 serrations on anterior margin of pronotum or armed by more than 25 asperities, but with 4–8 serrations on anterior margin of pronotum 2b
- 2b(2a). Anterior margin of pronotum armed by 2–4 serrations; anterior slope of pronotum armed by 8–25 coarse asperities; short ground vestiture on declivital interstriae scalelike (except hairlike in *fusicollis*, absent in *aterrimus*, *novateutonicus*, *stigmaticus*), either hair- or scalelike on disc; mostly larger species, females 1.5–2.2 mm 3
- Anterior margin of pronotum armed by 4–8 serrations; anterior slope of pronotum armed by 25 or more asperities; short interstitial ground vestiture either absent or hairlike; mostly smaller, females 1.0–1.6 mm, rarely 1.7 mm 15
- 3(2). Erect interstitial setae slender, each pointed at its apex; pronotum disc devoid of scalelike setae; anterior margin of pronotum armed by 2 subcontiguous serrations; ground vestiture on declivity slender, often as very coarse hair 4
- Erect interstitial setae scalelike, uniseriate, each broadly rounded or truncate at its apex; pronotum disc with hair- and scalelike setae intermixed; anterior margin of pronotum armed by either 2 or 4 serrations 6
- 4(3). Elytral ground cover on disc confused, rather abundant, longest interstitial setae on disc as long as distance between rows; Africa, India, and Indonesia to Japan, Belize, and Antilles Islands to Colombia, Venezuela, and Brazil; 1.5–1.6 mm *fusicollis* (Eichhoff)
- Short hair on elytral disc in sparse striae rows; interstitial setae shorter than distance between rows; larger species 5
- 5(4). Elytral declivity broadly convex, interstriae 3 weakly elevated; striae punctures on declivity as large as those on disc; declivital bristles much coarser and longer than on disc; pronotum disc longitudinally substrigose; USA (Florida Keys); 1.7–1.9 mm *hirsutus* (Wood)
- Elytral declivity more narrowly convex, interstriae 3 not elevated; striae punctures on disc slightly smaller than those on declivity; interstitial bristles on declivity as slender as on disc and little if any longer; pronotum disc punctured, not at all strigose; E USA (Connecticut and Minnesota to Florida and Texas); 1.6–2.4 mm *dissimilis* (Zimmermann)

CRYPHALINI

- 6(3). Anterior margin of pronotum armed by 2 serrations (4 in *apicalis*); anterior slope of pronotum armed by 8–12 asperities; discal striae usually more distinctly impressed, punctures larger 7
- Anterior margin of pronotum armed by 4 serrations, lateral pair smaller; anterior slope of pronotum armed by at least 15 asperities; discal striae usually more feebly impressed, punctures averaging smaller 11
- 7(6). Interstriae 9 on apical half of declivity rather strongly elevated, elevation almost as high as wide; setae on apical elevation much more numerous; erect interstitial scales almost as long as distance between rows, spaced by similar distances within a row; Mexico (Colima to Oaxaca); 1.7–2.0 mm *apicalis* Wood
- Declivital interstriae 9 equal in convexity to other interstriae, apical setae not more abundant; erect interstitial scales on declivity shorter and/or more slender; smaller species 8
- 8(7). Erect interstitial scales on declivity slender, each six to eight times as long as wide, spaced within a row by distances slightly greater than length of a scale; elytra surface very finely rugose; Mexico (Nayarit to Oaxaca); 1.4–1.7 mm *indigenis* Wood
- Erect interstitial scales on declivity each about two to four times as long as wide; spaced within a row by distances slightly less than length of a scale; elytra surface almost smooth or rugose 9
- 9(8). Elytral declivity much more broadly convex, its posterior profile more broadly rounded; declivity occupying half of elytral length; pronotum strongly, coarsely reticulate; declivity dull, minutely rugose, discal interstriae almost smooth, shining on posterior half, rugose near base; scales on declivital interstriae each four (rarely six) times as long as wide, their length very slightly shorter than distance between rows; Venezuela (Barinas); 1.2–1.4 mm *barinensis* Wood
- Elytral declivity less strongly convex, its posterior profile more narrowly rounded; declivity occupying only one-third of elytra length; pronotum shining or partly, weakly reticulate; elytra either smooth, shining or rugose 10
- 10(9). Pronotum disc partly to mostly shining, reticulation weak (when present); elytral interstriae mostly to entirely smooth, shining, with little, if any rugosity; SE USA to Mexico (Nayarit, Oaxaca); 1.5–1.7 mm *rotundicollis* (Eichhoff)
- Pronotum mostly, weakly reticulate; elytral interstriae minutely rugose, dull, without any smooth, shining areas on disc; erect interstitial scales each about twice as long as wide, each equal in length to about half distance between rows; Venezuela (Merida); 1.4–1.7 mm *meridensis* Wood
- 11(6). Uniseriate rows of erect interstitial setae present, each seta about four to eight times as long as wide, interstitial ground setae entirely absent, minute strial hair also present; female frons without a median groove 12
- Uniseriate rows of interstitial setae present, each seta about two to six times as long as wide, supplemental ground vestiture also present at least on declivity; female frons usually with a median groove or impression 14
- 12(11). Posterolateral areas of pronotum reticulate; interstitial scales on declivity each about four times as long as wide; Brazil (Santa Catarina); 1.0–1.1 mm *novateutonicus* (Schedl)
- Posterolateral areas of pronotum smooth, shining between punctures; erect interstitial scales more slender, each about six to eight times as long as wide 13
- 13(12). Area behind pronotum summit smooth, shining between punctures; declivital striae much narrower, punctures indefinite, interstriae smoother, more nearly shining, each with a row of small, pointed tubercles; declivital striae wider, punctures obscure; Bolivia; 1.4–1.6 mm *aterrimus* (Schedl)

SCOLYTIDAE OF SOUTH AMERICA

- Area behind pronotum summit dull, subrugose; declivital interstriae subreticulate, rather dull, without pointed tubercles; declivital scales more slender, each six to eight times as long as wide; Argentina to Brazil (Santa Catarina); 1.8–2.2 mm *stigmaticus* (Schedl)
- 14(11). Mature color black; erect interstitial scales on declivity more slender, each four to six times as long as wide; interstitial punctures on disc averaging larger, more strongly confused; antennal funicle always 5-segmented; Africa, Antilles Islands, S USA to Venezuela; 1.7–2.2 mm *erectus* LeConte
- Mature color reddish brown; erect interstitial scales on declivity stouter, each two to four times as long as wide; interstitial punctures on disc smaller, less strongly confused; antennal funicle 3-, 4-, or 5-segmented; Africa, tropical Asia, Pacific Islands, SE USA, Antilles Islands to South America (Galapagos Islands); 1.5–2.1 mm *birmanus* (Eichhoff)
- 15(2). Interstitial ground vestiture absent, elytral vestiture consisting only of uniseriate rows of erect interstitial scales and rows of fine striae hair, one hair arising from each puncture; antennal funicle usually 5-segmented, mostly larger species; 1.0–1.9 mm 16
- Interstitial ground vestiture consisting of fine, confused hair, at least in posterolateral areas, in addition to uniseriate rows of erect scales and striae hair (see also *rugosipes*; confused ground setae sometimes absent in *pubescens*); antennal funicle usually 4-segmented; mostly smaller species, 1.0–1.4 mm 32
- 16(15). Interstitial bristles on declivity very slender, flattened little if any, each bristle more than eight times as long as wide (six times in *bolivianus*); anterior margin of pronotum usually armed by 4 serrations, rarely 6 17
- Interstitial bristles rather strongly flattened, each bristle less than six times as long as wide; anterior margin of pronotum usually armed by 6 or more serrations (4 in *squamosus*, *solicis*) 21
- 17(16). Punctures on discal interstriae 2 and 3 rather strongly confused, each puncture bearing an erect, flattened bristle 18
- Interstitial punctures on disc uniseriate; smaller species 19
- 18(17). Discal interstriae smooth, shining, adjacent striae punctures clearly, separately impressed; summit of pronotum rather broadly rounded, small asperities continued to center of pronotum width and length; Mexico (Veracruz) to Colombia and Venezuela; 1.5–1.8 mm *trivialis* Wood
- Discal interstriae and striae minutely rugose, dull, adjacent punctures obscure to obsolete; summit of pronotum broadly rounded, small central area at center of pronotum width and length without asperities or tubercles (setae usually trap a small, circular accumulation of frass); Venezuela; *Virola*; 1.6–1.7 mm *virolae* Wood
- 19(17). Entire surface of pronotum and elytra densely rugose-reticulate, dull; frons without a median groove; Colombia and Venezuela to Bolivia; 1.7–2.1 mm *bolivianus* (Eggers)
- Surface of pronotum (between punctures, granules, asperities) almost smooth, shining; frons with a median groove 20
- 20(19). Interstitial bristles on disc rather strongly flattened, much wider than those on declivity; elytral declivity steep, confined to posterior fourth of elytra length; interstitial punctures bearing a fine granule on basal half of disc; E USA and Antilles Islands to Colombia and Venezuela; breeds in pith and xylem tissues of small stems of trees and shrubs; 1.5–1.7 mm *interstitialis* (Hopkins)
- Disc and declivity with interstitial bristles equal in width; elytral declivity more gradual, extending almost to middle of elytra length; interstitial punctures on basal half of disc not at all granulate; Africa, SE Asia, etc., Guatemala to Brazil; breeds in coffee berries; 1.4–1.6 mm *hampei* (Ferrari)

21(16).	Summit of pronotum indefinite, very broadly convex; pronotum asperities small, very numerous particularly near summit, exceeding 50 in number; tropical species	22
—	Summit of pronotum strongly, narrowly convex, usually with a definite, transverse impression on its posterior limits, pronotum asperities rather coarse, rarely exceeding 30 in number	23
22(21).	Setae on pronotum disc all hairlike, asperities on summit higher, not associated with pitlike depressions; posterolateral areas of pronotum rather coarsely, deeply punctured, surface subreticulate, shining; Mexico (Veracruz) to Costa Rica; 1.6–1.7 mm <i>dolosus</i> Wood	
—	Vestiture on pronotum disc of scales and hair intermixed; asperities on pronotum summit smaller, each with a small, circular pit on its posterior margin, white frass packed into these pits (mycetangia?) usually appearing as recumbent, subcircular scales; posterolateral areas of pronotum strongly reticulate, dull, punctures very small, shallow, obscure; Costa Rica to Colombia, Venezuela and Brazil; 1.4–1.9 mm <i>opacus</i> (Eichhoff)	
23(21).	Declivital striae rather strongly impressed, interstriae narrower than striae, rather narrowly convex and uniseriately armed by small, pointed denticles	24
—	Declivital striae weakly if at all impressed, interstriae as wide or wider than striae; interstitial granules on declivity small, rounded if present	25
24(23).	Elytral declivity broadly convex; costal margin at apex of elytral declivity normal, declivital interstitial granules small, equally developed to apices of all interstriae; USA (Florida) and Cuba to Mexico (Veracruz, Colima); 1.3–1.5 mm <i>squamosus</i> (Hopkins)	
—	Elytral declivity more narrowly convex, with costal margin near apex rather strongly elevated; interstitial tubercles on declivity larger except suppressed near apices of even-numbered interstriae; Mexico (Sinaloa to Colima); 1.3–1.5 mm <i>solocis</i> Wood	
25(23).	Minute species; frons without a median tubercle or groove; erect interstitial scales shorter than distance between rows, each less than twice as long as wide	26
—	Larger species; frons usually with a median groove or tubercle or both; erect interstitial scales at least four to six times as long as wide; breed in twigs or fruit of trees and shrubs	27
26(25).	Body 2.2 times as long as wide, declivity steep, occupying posterior third of elytra length; frons without a median fovea; anterior margin of pronotum more broadly rounded; interstitial punctures near declivity not granulate; Hawaii and SE USA to Argentina; breed in fruiting (seed) stems of seaside grasses; 1.0–1.1 mm <i>pubescens</i> (Hopkins)	
—	Body 2.1 times as long as wide, declivity more gradual, occupying posterior half of elytra length; frons with a distinct median fovea; anterior margin of pronotum more narrowly rounded; interstitial punctures near declivity weakly granulate; Costa Rica; 1.0 mm <i>nanellus</i> Wood	
27(25).	Frons with a small, rounded median tubercle at upper level of eyes; lower half of frons shallowly impressed, longitudinally concave, with a variable, shallow, median groove ending dorsad in median tubercle; Africa, E USA and Antilles Islands to Venezuela and Guyana to Ecuador and Brazil; 1.4–1.6 mm <i>crudiae</i> (Panzer)	
—	Frons almost uniformly convex, devoid of a median tubercle	28
28(27).	Entire surface of elytra densely micropunctate to minutely rugose, including inner surface of striae punctures	29
—	Elytral surface largely smooth, shining; frontal median groove, when present, much shorter, rarely occupying more than half distance from upper level of eyes to epistoma	30



SCOLYTIDAE OF SOUTH AMERICA

- 29(28). Elytra surface somewhat smooth, except densely micropunctate on striae and interstriae; striae punctures clearly impressed; frons with a rather deep, narrow median groove extending from upper level of eyes to epistoma; mature body color brown; USA (Florida) and Antilles Islands to Brazil; in twigs, seeds, pods, etc.; 1.4–1.6 mm *obscurus* (Fabricius)
- Elytra surface finely rugose on both striae and interstriae; striae punctures obscure to obsolete; frons without a conspicuous median groove; mature body color black; Venezuela; in small stems; 1.2–1.3 mm *rugosipes* Wood
- 30(28). Larger species; striae punctures very small, shallow, about half as wide as an interstriae; Mexico (Tamaulipas) to Colombia; in pith and xylem of small stems; 1.6–1.8 mm *multidentatus* (Hopkins)
- Smaller species; striae punctures larger, deeper, about as wide as interstriae 31
- 31(30). Punctures in lateral areas of pronotum disc not at all granulate; interstitial scales on declivity three to six times as long as wide; anterior margin of pronotum usually armed by 6 serrations; Africa, Asia Minor, Indonesia to Australia, E USA and Antilles Islands to Argentina; in twigs, weeds, seeds, pods, and other plant material; 1.4–1.6 mm *seriatus* (Eichhoff)
- Punctures in lateral areas of pronotum disc finely granulate; interstitial scales on declivity wider, about twice as long as wide; anterior margin of pronotum armed by 4 serrations; USA (S Texas) to Mexico (Tamaulipas); in small stems; 1.1–1.3 mm *sparsus* Hopkins
- 32(15). Anterior margin of pronotum rather broadly rounded, usually bearing 6 serrations; mostly larger than 1.1 mm 33
- Anterior margin of pronotum narrowly produced, armed by 1–4 serrations, with lateral pair of reduced size, when present; smaller than 1.1 mm 39
- 33(32). Posterolateral areas of pronotum rather deeply, coarsely, closely punctured to lateral margin 34
- Posterolateral areas of pronotum indistinctly, shallowly, finely punctured to lateral margin 37
- 34(33). Body slender, 2.5 times as long as wide; pronotum as long or longer than wide; pronotum rather broadly rounded in front; Africa, Asia, USA to Mexico (Tamaulipas) and Brazil; 1.1–1.3 mm *californicus* Hopkins
- Body stout, 2.2 times as long as wide; pronotum distinctly wider than long; pronotum narrowly rounded in front; tropical species 35
- 35(34). Posterolateral areas of pronotum finely, densely granulate; striae distinctly impressed, punctures rather coarse, deep; interstriae convex, uniseriately, rather coarsely granulate; Costa Rica to Panama; 1.2–1.3 mm *ascitus* Wood
- Posterolateral areas of pronotum smooth, shining, punctures not granulate; striae not impressed, punctures small, shallow; interstriae flat, smooth, devoid of granules 36
- 36(35). Strial punctures on disc minute, little (if any) larger than those of interstriae; erect interstitial scales on declivity more slender, each six to eight times as long as wide; mature color black; USA (Florida); in dead fern fronds; 1.2 mm *parvistriatus* Wood
- Strial punctures on disc rather large, deep, considerably larger than those of interstriae; area of pronotum disc near posterior margin smooth, shining, rather coarsely, closely punctured, most tubercles near summit; erect interstitial scales on declivity more slender, each about six times as long as wide; recumbent striae setae rather long, slender; Mexico (Chiapas) to Panama; 1.0 mm *vesculus* Wood

- 37(33). Body small, stout, 2.3 times as long as wide; antennal club large, at least equal in width to width of an eye; interstitial ground setae abundant on posterior half of elytra length, erect interstitial setae very slender (some almost hairlike), some on declivity slightly longer than distance between rows; interstitial granules small, conspicuous from base to apex; mature color almost black; Colombia to Brazil (Santa Catarina); 1.3–1.4 mm *eximius* Schedl
- Body slender, more than 2.4 times as long as wide; width of antennal club narrower than width of an eye 38
- 38(37). Anterior margin of pronotum rather narrowly rounded, median pair of serrations on anterior margin of pronotum subcontiguous or very narrowly separated; scales on interstriae of declivity two to eight times as long as wide; essentially worldwide in tropical and subtropical areas, including all South American countries; 1.0–1.3 mm *eruditus* Westwood
- Anterior margin of pronotum very broadly rounded, all serrations rather widely spaced; interstitial scales on declivity six to ten times as long as wide; USA (Florida) and Antilles Islands to Mexico (Hidalgo); 1.2–1.4 mm *gossypii* Hopkins
- 39(32). Anterior margin of pronotum bearing 4 serrations, median pair larger; striae punctures larger, more deeply impressed; scales of declivital interstriae each about three times as long as wide; SE USA; in phloem of small stems; 0.9 mm *distinctus* Wood
- Anterior margin of pronotum narrowly produced into a slender, hornlike, median process; striae punctures small, obscure; interstitial scales on declivity about twice as long as wide; USA (Georgia, Florida); 1.05–1.15 mm *miles* (LeConte)
- 40a(1). Frontal tubercle or transverse carina very short, impression below tubercle rather poorly to moderately developed, tubercle and impression occupying less than median third of frons 40b
- Transverse frontal carina weakly to strongly elevated, impression stronger, much wider, occupying at least median two-thirds of distance between eyes 44
- 40b(40a). Transverse impression between epistoma and rather large, median tubercle on frons moderately strong; interstitial vestiture on disc of elytra of erect scales, each three to four times as long as wide, without any hairlike setae; color dark brown to black; Brazil (Espírito Santo); 1.3–1.4 mm *ebenus* Wood
- Transverse impression between epistoma and small median tubercle weak to absent; discal interstriae with sparse, hairlike setae intermixed with erect scales; color mostly very dark brown 41
- 41(40b). Rows of erect interstitial scales on basal half of elytra only, all vestiture near and on declivity very short; Costa Rica to Venezuela; 1.0–1.2 mm *teretis* Wood
- Rows of erect interstitial scales on both disc and declivity 42
- 42(41). Frons bearing a small but conspicuously, transversely flattened median tubercle at upper level of eyes, impression below tubercle feebly if at all indicated; erect interstitial scales on declivity two to three times as long as wide; Mexico (Tamaulipas, Colima), Hawaii; 1.0–1.1 mm *parallelus* (Hopkins)
- Frontal tubercle less well developed, with a distinct, rather shallow impression on median third between upper level of eyes and epistoma (rather variable in both species) 43
- 43(42). Interstitial scales on declivity stouter, each three to four times as long as wide; Mexico (Veracruz) to Colombia and Venezuela; 1.1–1.3 mm *plumeriae* (Nordlinger)
- Interstitial scales on declivity slender, each about eight times as long as wide; Mexico (Nayarit) to Panama and Venezuela; 1.1–1.3 mm *suspectus* Wood

- 44(40). Smaller, 1.0–1.4 mm, more slender, 2.4–2.5 times as long as wide; interstriae usually only slightly wider than striae; interstitial hairlike ground vestiture more abundant, proportionately longer . . . 45
- Larger, 1.3–1.8 mm, stouter, 2.3 times as long as wide; interstriae usually more than twice as wide as striae; interstitial hairlike ground vestiture less abundant, proportionately shorter 46
- 45(44). Interstitial scales on declivity longer; more slender, each scale six or more times as long as wide; frontal carina poorly developed, lower frons flattened, more strongly impressed; posterior half of pronotum more nearly shining, smoother; SE Asia, etc., USA (Florida), Brazil; 1.2–1.4 mm *areccae* (Hornung)
- Interstitial scales on declivity shorter, broad, each two to four times as long as wide; frontal carina more strongly, acutely elevated in median area, lower frons more nearly concave; posterior half of pronotum mostly reticulate, less brightly shining; USA (Florida to Texas), Mexico (Nayarit) to Colombia and Venezuela; 1.0–1.2 mm *columbi* Hopkins
- 46(44). Interstitial scales on declivity almost as long as distance between rows, each scale broad, about two to three times as long as wide; pronotum surface in posterolateral areas smooth, shining, punctures rather abundant, moderately small, rather deep; Africa, S Asia, Indonesia, SE USA and Antilles Islands to Costa, Venezuela, Brazil; 1.7–1.9 mm *africanus* (Hopkins)
- Interstitial scales on declivity more slender, at least four times as long as wide; posterolateral areas of pronotum reticulate to rugose-reticulate, punctures fine, shallow, less numerous, usually much less clearly defined 47
- 47(46). Body slender, 2.4 times as long as wide; anterior slope of pronotum with more than 25 small asperities; anterior margin of pronotum with 6–8 serrations; Africa, Taiwan, Antilles Islands to Panama, Colombia, Venezuela, Brazil; 1.6–1.7 mm *setosus* (Eichhoff)
- Body stout, 2.2 times as long as wide; anterior slope of pronotum with 12–18 coarse asperities; anterior margin of pronotum armed by 2–4 serrations 48
- 48(47). Posterolateral areas of pronotum shallowly, finely punctured, punctures not at all granulate; interstitial scales on declivity slightly longer, each scale about equal in length to distance between rows, and more slender, about six to eight times as long as wide; transverse frontal carina less acutely elevated; Africa, S Asia, Indonesia, USA (Florida) and Antilles Islands to Mexico (Jalisco), Brazil and Venezuela; 1.4–1.7 mm *javanus* (Eggers)
- Posterolateral areas of pronotum less closely punctured, most punctures finely granulate or feebly vulcanate; interstitial scales on declivity slightly shorter, each scale about two-thirds as long as distance between rows, stouter, about four times as long as wide; transverse frontal carina more acutely elevated; S USA and Mexico (Nayarit) to Panama and South America (Galapago Islands); 1.3–1.45 mm *brunneus* (Hopkins)

Hypothenemus abhorrens Wood, n. sp.

Hypothenemus abhorrens Wood: Holotype ♀; Rio Itiquira [south central] Mato Grosso, Brazil; MZUSP, Sao Paulo, designated below

Diagnosis: Distinguished from all other South American species by the large size; by the unique female frons, described below; by the combination of having more than 50 asperities on the anterior slope of the pronotum, but only 2 serrations on the anterior margin.

Female: Length 2.6–2.7 mm, 2.2 times as long as wide; very dark reddish brown to almost black; epistoma broadly, moderately emarginate on median three-fourths; frons on lower half of area below upper level of eyes trans-

versely flat on median three-fourths, surface almost smooth, shining, with minute, shallow punctures; median half above impression abruptly elevated on its lower margin and continued laterad and to vertex as a strongly convex, dull, closely, coarsely granulate area. Pronotum 0.9 times as long as wide; sides rather weakly elevated on slightly more than basal half, rather broadly rounded in front; anterior margin armed by a median pair of rather large serrations; summit slightly behind middle of pronotum length; anterior slope with more than 50 small, close, confused asperities; posterior areas rather strongly rugose-reticulate, small punctures shallow, obscure; small, moderately abundant setae on asperate

and posterior areas obscured by incrustation covering surface. Elytra 1.3 times as long as wide, 1.4 times as long as pronotum; disc occupying about 65 percent of elytra length; disc smooth, shining; striae not impressed, punctures very small, close; interstriae at least four times as wide as striae, punctures minute, confused. Declivity very steep, strongly, rather narrowly rounded; striae punctures minute to obsolete; interstitial punctures numerous, minute, confused. Vestiture short, mostly absent or abraded on anterior half of disc, consisting of moderately abundant, confused, erect bristles and more abundant, shorter, hairlike setae.

Distribution: Brazil (Mato Grosso).

Type material: The female holotype and 1 female paratype were taken at [Rio] Itiquira, southcentral Mato Grosso, Brazil, 28-XI-1992, *Hevea brasiliensis*, clone PB235 branch, O. Dall'Oglio. The holotype is in the Museum de Zoologie, Universidade de Sao Paulo, Sao Paulo; the paratype is in the U.S. National Museum, Washington.

Hypothenemus fuscicollis (Eichhoff)

Hypothenemus fuscicollis (Eichhoff), 1878:148 (*Stephanoderes*). Holotype, sex?; Colombia; Hamburg Museum, lost (Synonymy and references in Wood & Bright c1992:926)

Stephanoderes sundaensis Eggers, 1927:396. Holotype ♀; Haboko, Sumatra; NHMW, Wien

Hypothenemus aequaliclavatus Schedl, 1939:33. Lectotype ♀; Buitenzorg, Java; NHMW, Wien, designated by Schedl (1979:13)

Hypothenemus costalimai Nunberg, 1958:484 (*Ernophloeus*). Holotype, sex?; Ceara, Brazil; IZW, Warsaw

Hypothenemus ghanaensis Schedl, 1962:67. Holotype, sex?; Kumasi, Ghana; BMNH, London

Diagnosis: This is the only member of this genus in America having 2 serrations on the anterior margin of the pronotum, a greatly reduced number of asperities on the anterior slope of the pronotum, and also with all setae hairlike on the pronotum and elytra; striae punctures on the disc are minute to obsolete. It is very close to *H. comosus* Bright, of Jamaica, except the striae punctures are less strongly impressed.

Female: Length 1.6–1.7 mm, 2.3 times as long as wide; color dark brown. Frons convex, an obscure, median tubercle at upper level of eyes; weakly impressed from tubercle to epistomal margin; surface rather coarsely granulate-punctate to upper level of eyes; vestiture sparse, short, except longer on epistoma; eye shallowly emarginate; antennal club 1.4 times as long as wide, sutures 1 and 2 straight. Pronotum 0.90 times as long as wide; sides on basal half subparallel, weakly arcuate, anterior margin rather narrowly rounded, armed by 2 subcontiguous, median serrations; summit at middle of pronotum length, anterior slope armed by 12–15 coarse asperities; posterior areas smooth, shining, a few small granules from summit to base on disc and sides; vestiture of moderately long, fine hair uniformly distributed. Elytra 1.3 times as long as wide, 1.7 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed, punctures small to minute, some obso-

lete near base of declivity; interstriae perhaps ten times as wide as striae, almost smooth, shining, punctures very minute, confused. Declivity convex, steep, posterior profile rather narrowly rounded; sculpture as on disc. Vestiture of a ground cover of more numerous, short, hairlike setae and interstitial rows of long, erect hair, each two to four times longer than ground setae.

Distribution: Africa (Ghana), Asia (Punjab in India, Japan), Indonesia (Java, Sumatra), Central America (Belize), Jamaica, and South America (Brazil, Colombia, Venezuela). The area of origin is unknown.

Brazil: Ceara.

Colombia: "Colombia."

Venezuela: Ocumare, Aragua, 1967, cacao, B. Mendoza.

Hosts: *Theobroma cacao*, etc.

Notes: The above treatment was based on 13 female specimens, including the holotypes of *Stephanoderes sundaensis* Eggers, *Hypothenemus aequaliclavatus* Schedl, *H. costalimai* (Nunberg), and *H. ghanaensis* Schedl. One Eggers female in NHMW, Wien, was compared in 1925 by Eggers to the holotype of *fuscicollis* before it was destroyed (Wood & Bright c1992:926).

Hypothenemus barinensis Wood, n. sp.

Hypothenemus barinensis Wood: Holotype ♀; 10 km SE Miri, Barinas; USNM, Washington, designated below

Diagnosis: Distinguished from *rotundicollis* (Eichhoff) by the smaller size; by the larger, much more broadly convex elytral declivity; by the strongly rugose-reticulate pronotum; and by the rugose elytral declivity with the posterior half of the discal interstriae smooth, shining.

Female: Length 1.2–1.4 mm, 2.2 times as long as wide; color dark reddish brown. Frons broadly, evenly convex from epistoma to vertex; surface finely rugose-reticulate, a small, obscure, median fovea near upper level of eyes; vestiture restricted to lower half of fine, long, sparse hair, mostly on or near epistomal margin; eye feebly emarginate, finely faceted. Pronotum 0.95 times as long as wide; sides on basal half subparallel, rather weakly arcuate, broadly rounded in front; anterior margin armed by 2 subcontiguous, median serrations of moderate size and 3 lateral pairs of minute serrations; anterior slope armed by 20–25 small asperities; summit near middle; posterior areas densely, rather coarsely rugose-reticulate, punctures apparently obsolete, a few small granules present; vestiture mostly hairlike in asperate area, a mixture of hair and scales on posterior areas. Elytra 1.3 times as long as wide, 1.4 times as long as pronotum; disc occupying basal half of elytra length; striae distinctly impressed except 1 near base, punctures small, mostly obscure to obsolete; interstriae four or more times as wide as striae, almost smooth and shining on posterior half of disc, rugose on basal half, punctures small, indefinite. Declivity very broadly convex, steep, posterior profile broadly rounded; entire declivity rugose, dull, striae punctures obscure; interstriae slightly convex, each

with a row of minute serrations. Vestiture of rows of minute strial hair, and rows of erect interstitial scales (without interstitial ground setae), each scale about four times as long as wide, length of a scale slightly shorter than distance between rows.

Type material: The female holotype and 1 female paratype were taken 10 km SE Miri, Barinas, Venezuela on 8-II-1970, 150 m, No. 290, from a small, broken tree branch, by S.L. Wood; 1 female paratype bears the same data except it is collection No. 305, *Serjania* sp.; and 1 female paratype was taken 20 km SW El Vigia, Merida, Venezuela, on 10-XII-1969, 50 m, No. 189, S.L. Wood. The holotype and paratypes are in the U.S. National Museum, Washington.

Hypothenemus meridensis Wood, n. sp.

Hypothenemus meridensis Wood: Holotype ♀ ♂; 3 km E Lagunillas, Merida, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *rotundicollis* (Eichhoff) by the mostly shining pronotum, reticulation weak, when present; by the minutely rugose, dull elytral interstriae; and by the interstitial scales on the declivity being only twice as long as wide and half as long as distance between rows.

Female: Length 1.4–1.7 mm, 2.4 times as long as wide; color dark brown. Frons about as in *barinensis* Wood, except central area partly smooth, shining, with several small punctures. Pronotum 0.84 times as long as wide; widest on basal half, sides moderately arcuate and converging toward rather narrowly rounded anterior margin; anterior margin armed by 2 subcontiguous, median serrations, anterior slope armed by about 16 coarse asperities; summit at middle of pronotum length, posterior areas mostly smooth, shining, reticulation sparse, scattered granules on disc and lateral areas; vestiture mostly hairlike on asperate area, a mixture of hair and scales behind. Elytra 1.5 times as long as wide, 1.8 times as long as pronotum; disc occupying two-thirds of elytra length; striae weakly impressed, punctures very small, distinct; interstriae three to four times as wide as striae, minutely rugose, subshining, punctures small, indefinite. Declivity rather narrowly convex, steep, posterior profile rather narrowly rounded; sculpture about as on disc. Vestiture of some strial hair and similar interstitial ground setae short, slender anteriorly, stouter on declivity, and rows of erect interstitial scales, each mostly twice as long as wide on disc, mostly as long as wide on declivity, on declivity length of each scale equal to half distance between rows.

Type material: The female holotype and 9 female paratypes were taken 3 km E Lagunillas, Merida, Venezuela, on 12-I-1970, 1000 m, by S.L. Wood. The holotype was collection No. 237 taken from a *Mimosa* sp. twig; the paratypes were No. 236, taken from small stems of an unidentified vine (*Clematis* sp.?). The holotype and paratypes are in the U.S. National Museum, Washington.

Hypothenemus novateutonicus (Schedl)

Plate CXLVII

Hypothenemus novateutonicus (Schedl), 1951:105 (*Ptilopodius*). Lectotype ♀; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien, present designation (References in Wood & Bright c1992:936)

Diagnosis: Distinguished from *aterrimus*, (Schedl) by the reticulate posterior and lateral areas of the pronotum; and by the stouter interstitial scales.

Female: Length 1.0–1.1 mm, 2.2 times as long as wide; color dark brown. Frons and pronotum about as in *aterrimus* except posterior and lateral areas of pronotum reticulate. Elytra 1.2 times as long as wide, 1.6 times as long as pronotum; striae weakly impressed, punctures small, shallow; interstriae almost twice as wide as striae, surface shining, weakly subrugose, punctures replaced by uniseriate rows of small, rounded granules. Declivity occupying almost 40 percent of elytra length; broadly convex, steep; sculpture about as on disc. Vestiture of minute, fine strial hair, and uniseriate rows of erect interstitial scales; each scale about four to six times as long as wide, slightly shorter than distance between rows, similarly spaced within a row.

Distribution: Brazil: Nova Teutonia, Santa Catarina, 1946, F. Plaumann.

Notes: The above treatment was based on 3 syntypes, all females, from Brazil. Schedl (1979:172) subsequently cited a holotype, an act not recognized by the Code of Nomenclature. I here designate that female syntype, Schedl's "holotype," as the lectotype of *Ptilopodius novateutonicus* Schedl. Schedl (1979:172) transferred this species to *Cryphalops*; both genera are entirely unrelated to *Hypothenemus*, where it belongs.

Hypothenemus aterrimus (Schedl)

Plate CXLIV

Hypothenemus aterrimus (Schedl), 1951:104 (*Stephanoderes*). Lectotype ♀; Cochabamba, Bolivia; NHMW, Wien, present designation (References in Wood & Bright c1992:908)

Diagnosis: Distinguished from *novateutonicus* (Schedl) by the smooth, shining posterolateral areas of the pronotum; by the slender interstitial scales; and by the larger size.

Female: Length 1.4–1.6 mm, 2.3 times as long as wide; color dark brown, almost black. Frons broadly convex, a weak, transverse impression immediately above epistoma; surface rugose-reticulate, punctures obscure; vestiture sparse, largely restricted to epistomal margin. Pronotum 0.88 times as long as wide; widest near base, sides arcuately converging to rather broadly rounded anterior margin; anterior margin armed by 4 serrations; summit at middle of pronotum length, anterior slope armed by about 20–25 coarse asperities; area behind summit with a few small tubercles, posterior areas smooth, shining, punctures in lateral areas small, rather numerous; vestiture of rather stout bristles in asperate area, a mixture of hair and erect scales on posterior areas. Elytra 1.4 times

as long as wide, 1.3 times as long as pronotum; striae not impressed, punctures small, distinct; interstriae about twice as wide as striae, shining, almost smooth, setiferous punctures very weakly elevated, uniseriate. Declivity restricted to posterior third, broadly convex, steep; sculpture about as on disc except punctures replaced by rows of small tubercles. Vestiture of rows of minute, fine hair on disc and declivity, and uniseriate rows of erect interstitial scales, each scale about four times as long as wide on disc, six times as long as wide on declivity, scales on declivity about as long as distance between rows, more closely spaced within a row; interstitial ground setae absent.

Distribution: Bolivia: Cochabamba [Woytkowski].

Notes: The above treatment was based on 3 female syntypes from Bolivia. Subsequent to the original description Schedl (1979:30) incorrectly cited a holotype for this species. I here designate this syntype, Schedl's "holotype," as the lectotype for *Stephanoderes aterrimus* Schedl, as indicated above.

Hypothenemus stigmus (Schedl)

Plate CXLVIII

Hypothenemus stigmus (Schedl), 1951:101 (*Stephanoderes*). Holotype ♀; Argentina: NHMW, Wien (Synonymy and references in Wood & Bright c1992:945)

Stephanoderes garciae Schedl, 1958:42. Holotype ♀; Isla Martin Garcia, Buenos Aires, Argentina; NHMW, Wien

Diagnosis: Distinguished from *erectus* LeConte and *birmanus* (Eichhoff) by the absence of interstitial ground setae; and by the absence of a median groove on the female frons.

Female: Length 1.8–2.2 mm, 2.3 times as long as wide; color very dark brown. Frons broadly convex, a weak, transverse impression immediately above epistoma; surface smooth, shining from epistoma to upper level of eyes, punctures small to rather coarse, moderately close, sharply impressed, area above upper level of eyes rugose-reticulate; vestiture of fine, rather long hair of moderate abundance. Pronotum 0.84 times as long as wide; widest on basal half, sides arcuately converging to broadly rounded anterior margin; anterior margin armed by 4 median serrations, lateral pair usually smaller; summit at middle, anterior slope armed by about 18 coarse asperities; weakly reticulate behind summit, smooth and shining in lateral areas, punctures on basal areas small, moderately abundant; vestiture a mixture of fine hair and stouter bristles, longer than in allied species. Elytra 1.6 times as long as wide, 2.1 times as long as pronotum; striae weakly impressed, punctures rather small, moderately impressed; interstriae twice as wide as striae, smooth, shining, punctures minute, uniseriate. Declivity occupying posterior third of elytra length, convex, steep; striae weakly impressed, punctures slightly larger than those on disc, obscure; interstriae wider than striae, setiferous punctures larger than on disc, their upper (anterior) margin slightly elevated. Vestiture of rows of minute strial hair, and uniseriate

rows of erect, slender interstitial scales, each scale about six to eight times as long as wide, longest scales almost as long as distance between rows, spaced within a row by less than length of a scale; ground setae entirely absent.

Distribution: Argentina to Brazil.

Argentina: Isla Martin Garcia, 1-X-1921 (type); Buenos Aires, Tigre, 1932, M.J. Viana; Buenos Aires, Isla Martin Garcia, IV-1937, M.J. Viana.

Brazil: Aracruz, Espirito Santo, 12-III-1990, No. 300, 11-XII-1991, No. 3574, 3-V-1996, No. 7381; Nova Teutonia [Santa Catarina], 24-X-1949, 300–500 m, *Fagara* (Rutaceae), F. Plaumann.

Notes: The above treatment was based on the female holotype and 2 non-type females of *Stephanoderes stigmus* Schedl, and the female holotype of *S. garciae* Schedl, all from Argentina, and 1 female from Brazil.

Hypothenemus erectus LeConte

Plate CXLV

Hypothenemus erectus LeConte, 1876:356. Lectotype ♀; "Belfrage, Texas," presumably from the lower Rio Grande Valley, USA; MCZ, Cambridge, designated by Wood 1972:45 (Synonymy and references in Wood & Bright c1992:918)

Hypothenemus validus Blandford, 1904:228. Holotype ♀; Motzorongo, Veracruz, Mexico; BMNH, London

Stephanoderes puncticollis Hopkins, 1915:32. Holotype ♀; Tampico, Tamaulipas, Mexico; USNM, Washington

Stephanoderes cubensis Hopkins, 1915:32. Holotype ♀; Cayamas, Cuba; USNM, Washington

Stephanoderes brunneicollis Hopkins, 1915:33. Holotype ♀; Round Mountain, Texas, USA; USNM, Washington

Stephanoderes discedens Schedl, 1950:23. Holotype ♀; St. Thomas [Island]; NHMW, Wien

Diagnosis: Anterior margin of pronotum armed by 4 serrations, median pair larger; distinguished from *birmanus* (Eichhoff) by the black mature color; by the more slender interstitial scales; and by the antennal funicle always being 5-segmented.

Male: Length 1.3–1.5 mm, 2.1 times as long as wide; pale yellowish to dark brown; similar to female except smaller, stouter, eye distinctly smaller, all characters poorly formed.

Female: Length 1.7–2.2 mm, 2.3 times as long as wide; mature color black. Frons broadly convex, a transverse impression on lower fourth immediately above epistoma; upper half weakly, longitudinally aciculate, a few tubercles on lower half above impression; vestiture of rather sparse, fine hair of moderate length on lower half; eye shallowly emarginate, finely faceted. Pronotum 0.83 times as long as wide; widest on basal third, sides rather strongly arcuate, converging toward rather narrowly rounded anterior margin; anterior margin armed by 4 subcontiguous serrations, median pair largest; summit at middle, anterior slope armed by 15–20 coarse asperities; posterior areas irregularly reticulate, finely punctured; vestiture of ground cover of short hair, intermixed with a few longer bristles anteriorly and a few slender scales near base. Elytra 1.5 times as long as

wide, 1.7 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae weakly impressed near base, more strongly near declivity, punctures moderately large near base, small near declivity; interstriae twice as wide as striae, each bearing rather numerous small, confused punctures. Declivity convex, steep; sculpture about as on disc. Vestiture of short ground cover, hairlike on disc, stouter, almost scalelike on declivity, and rows of erect interstitial scales, each scale on declivity four to six times as long as wide, each slightly shorter than distance between rows, spaced within a row by slightly shorter distances.

Distribution: Tropical Africa, S USA and Antilles Islands to Venezuela.

Venezuela: 3 km E Lagunillas, Merida, 12-I-1970, 1000 m, No. 237, *Mimosa*, SLW; 9 km S Barrancas, Barinas, 2-XII-1969, 150 m, No. 57, tree twig, SLW.

Hosts: *Condalia* sp., *Ficus* sp., *Inga* sp., *Miconia* sp., *Mimosa* spp., *Prosopis* sp., *Rubus* sp., *Serjania* spp., *Toxicodendron* sp., *Verbisina agricolorum*, and *Vismia* sp. in North and Central America (Wood 1982:885).

Biology: Breeds in the pith and xylem of small stems.

Notes: The above treatment was based on 6 females from Venezuela and 223 from North and Central America, including the lectotype of *Hypothenemus erectus* LeConte and holotypes of *H. validus* Blandford, *Stephanoderes puncticolis* Hopkins, *S. cubensis* Hopkins, *S. discedens* Schedl, and *S. brunneicollis* Hopkins (Wood 1982:885).

Hypothenemus birmanus (Eichhoff)

Plate CXLV

Hypothenemus birmanus (Eichhoff), 1878:486 (*Triarmocerus*). Holotype ♀; Birma; Dorn Collection at Stettin Museum, now in NHMW, Wien (Synonymy and references in Wood & Bright c1992:909–910)

Hypothenemus maculicollis Sharp, 1879:101. Holotype ♀; Oahu, Hawaiian Islands; BMNH, London

Hypothenemus peritus Blandford, 1894:84. Holotype ♀; Nagasaki, Japan; BMNH, London

Hypothenemus farinosus Blandford 1896:241. Syntypes, 2, sex?; Noumea [New Caledonia]; BMNH, London

Hypothenemus validus valens Sampson, 1914:385. Holotype ♀; Seychelles, Silhouette: Mare aux Cochons over 100 ft.; BMNH, London (Synonymy Browne 1970:556)

Stephanoderes perkinsi Hopkins, 1915:31. Holotype ♀; Honolulu, Hawaii; USNM, Washington

Stephanoderes sterculiae Hopkins, 1915:31. Holotype ♀; Calapan, P.I.; USNM, Washington

Stephanoderes psidii Hopkins, 1915:32. Holotype ♀; Calapan, P.I.; USNM, Washington

Stephanoderes alter Eggers, 1923:219. Syntypes, 10 ♀; New Guinea (Augustfluss), Ralum, Neu Pommern (New Britannien), Philippinen (Los Banos), Borneo (Sarawak); MNB, Berlin; SMTD, Dresden; MCC, Genova; USNM, Washington

Stephanoderes uter Eggers, 1923:219. Syntypes, 3 sex?; Neu Guinea (Andai und Washington) und Australien (Somerset); McG, Genova, Eggers Collection

Stephanoderes nibarani Beeson, 1933:10. Holotype ♀; North Salem Division, Jawalagiri; Madras, India; FRI, Dehra Dun

Stephanoderes ampliatus Eggers, 1936:627. Holotype ♀; Brit. Indien (Mysore: Jakkur); BMNH, London, 1 Eggers cotype in NHMW, Wien

Stephanoderes pacificus Beeson, 1940:197. Holotype ♀; Northwest side, Henderson Island; BPBM, Honolulu

Stephanoderes castaneus Wood, 1954:1027. Holotype ♀; Homestead, Florida (USA); SMUK, Lawrence, Kansas

Diagnosis: Distinguished from *erectus* LeConte by the mature reddish brown color; by the variability of the antennal funicle (3–5 segments); and by the stouter erect interstitial scales.

Male: Length 1.2–1.5 mm; similar to female except anterior margin of pronotum with only 2 serrations, eye greatly reduced in size, antennal club smaller, more slender.

Female: Length 1.5–2.1 mm, 2.2 times as long as wide; mature color reddish brown. Frons transversely, moderately, broadly impressed on lower half, broadly convex from epistoma to vertex; surface strongly reticulate above, reticulation obscure on impressed area, punctures small, obscure, rather numerous; vestiture of fine, rather short hair; eye shallowly emarginate, finely faceted; antennal funicle 3- to 5-segmented (right and left sides occasionally different). Pronotum and elytra very similar to *erectus*, except for reddish brown color; smaller interstitial punctures and stouter, erect interstitial scales (each two to four times as long as wide).

Distribution: Tropical areas of Africa, SE Asia, Pacific Islands, SE USA (Florida) and Antilles Islands to Panama and South America (Galapagos Islands).

Galapagos Islands: Cited in Wood & Bright (c1992: 909).

Hosts: *Acras sapota*, *Adenanthera pavonia*, *Annona* sp., *Ardesia paniculata*, *Cassia florida*, *Dalbergia gastrophyllum*, *Eucalyptus trachyphloia*, *Eugenia buxifolia*, *Ficus aurea* *Litchi chinensis*, *Mangifera indica*, *Melia azedarack*, *Ocotea catesbyana*, *Persea borbonia*, *Phelocarpus septentrionalis*, *Prunus domesticus*, *Quercus* spp., *Rhizophora mangle*, *Swietenia macrophylla*, *Trema floridana*, *Vitis* sp.

Biology: Breeds in small stems of woody plants as described for the genus.

Notes: The above treatment was based on more than 200 specimens from North and Central America (Wood 1982:866–867). The holotypes of *Triarmocerus birmanus* Eichhoff, *H. perkinsi* Hopkins, *S. psidii* Hopkins, *S. pacificus* Beeson, and *S. castaneus* Wood were examined. Syntypes were also examined of *H. maculicollis* Sharp, and *S. alter* Eggers. This species is probably distributed throughout the populated areas of South America but has not been reported because of the difficulty of separating this species from *erectus*.

Hypothenemus trivialis Wood

Hypothenemus trivialis Wood, 1974:20. Holotype ♀; Santa Ana, San Jose, Costa Rica; USNM, Washington (References in Wood & Bright c1992:946)

Diagnosis: Distinguished from *birmanus* (Eichhoff) by the much stouter body form; by the confused interstitial setae on the disc; by the absence of interstitial ground cover; and by color and other characters cited below.

Male: Length 1.3 mm; similar to female except much smaller, eye greatly reduced in size, interstitial bristles much longer, more slender, not confused.

Female: 1.5–1.8 mm, 2.1 times as long as wide; mature color black. Frons strongly convex, except weakly impressed slightly above epistoma; surface rugose-reticulate, punctures sparse, minute to obsolete; vestiture hairlike, sparse, mostly on epistoma. Pronotum 0.90 times as long as wide; widest on basal third, sides moderately arcuate on basal half, moderately rounded in front; anterior margin armed by 4 rather coarse, median serrations, 1 or 2 very small submarginal tubercles sometimes present; summit at middle of pronotum length, wider than usual, about 25–30 small asperities on anterior slope; surface between asperities and in posterior areas subreticulate; vestiture rather short, of moderate abundance, slender in asperate areas, a mixture of scales and short hair in basal area. Elytra 1.2 times as long as wide, 1.4 times as long as pronotum; disc occupying slightly less than basal half of elytra length; striae shallowly impressed, punctures small, mostly in rows; interstriae mostly smooth, shining, two to three times as wide as striae, interstitial punctures small, confused on 2–4, uniseriate on 1. Declivity rather gradual, broadly convex, sculpture about as on disc except punctures mostly uniseriate. Vestiture consisting of rows of minute striae hair (at least on declivity), and erect interstitial bristles (each about eight or more times longer than wide), bristles uniseriate on declivity and on discal interstriae 1 and lateral areas, confused on 2–4 on disc, each bristle on declivity about as long as distance between rows.

Distribution: Mexico (Veracruz) to Panama, Colombia, and Venezuela.

Colombia: Carton de Colombia forest 8 km S Colonia, near Buenaventura, Valle de Cauca, 8-VII-1970, 30 m, No. 617, *Ficus*, SLW.

Venezuela: 10 km SE Miri, Barinas, 8-II-1970, 150 m, No. 305, *Serjania*, SLW; 30 km E Palmar, Bolivar, 12-VI-1970, 200 m, No. 579, rosada (Moraceae), SLW; 3 km E Lagunillas, Merida, 12-I-1970, 1000 m, No. 236, tree twigs, SLW.

Hosts: *Carapa guatemalensis*, *Ficus* sp., *Ochroma* sp., *Serjania* sp., *Vismia guianensis*.

Biology: Breeds in small stems of lianas, shrubs, and trees.

Notes: The above treatment was based on the type series of 54 specimens from Central America, 3 specimens from Colombia, and 11 from Venezuela.

Hypothenemus virolae Wood, n. sp.

Hypothenemus virolae Wood: Holotype ♀; 20 km SW El Vigia, Merida, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *trivialis* Wood by the smaller body size; by the minutely rugose, dull interstriae and striae, with the striae punctures obscure to obsolete; and by the unique summit of the pronotum as described below.

Male: Length 1.3 mm; similar to female, except eye slightly smaller, interstitial setae larger, more slender.

Female: Length 1.6–1.7 mm, 2.1 times as long as wide; color almost black. Frons broadly convex from epistoma to vertex; area above eyes rugose-reticulate, becoming reticulate toward epistoma; a weak, obtuse shining median crest from epistoma almost to upper level of eyes, sparse, obscure punctures on lower half; vestiture sparse, hairlike, mostly on or near epistoma. Pronotum 0.9 times as long as wide; sides on basal half subparallel, weakly arcuate, rather narrowly rounded in front; anterior margin armed by 4 serrations, median pair largest; summit at middle, broadly rounded, anterior slope asperate, asperities rather small, numerous (over 30), decreasing in size toward center; central area on median one-sixth subcircular, apparently devoid of granules, bearing a cluster of short setae, these setae usually holding a small disk of frass (a mycetangium) thus obscuring surface; basal area behind summit and to lateral margins strongly reticulate, bearing numerous small tubercles; vestiture of rather short, moderately abundant hair. Elytra 1.2 times as long as wide, 1.3 times as long as pronotum; disc occupying basal half of elytra length; striae obscurely impressed, punctures obsolete; striae and interstriae finely granulate, dull. Declivity convex, moderately steep; sculpture as on disc. Vestiture consisting of rows of short, minute striae hair from base to apex, and rows of erect interstitial bristles; bristles in uniseriate rows except moderately confused on 2, 3, and sometimes 4, each bristle slender, weakly flattened (each about 8–10 times as long as wide and about equal in length to distance between rows).

Distribution: Venezuela (Merida, Bolivar) to Costa Rica.

Type material: The female holotype, male allotype, and 15 paratypes were taken 20 km SW El Vigia, Merida, Venezuela, 10-XII-1969, 50 m, No. 179, 50 m, No. 179, from *Virola* branches, by S.L. Wood. Two paratypes are from Campamento Rio Grande 30 km E Palmar, Bolivar, Venezuela, 12-VI-1970, 1200 m, *Trichilla propingua*, S.L. Wood.

Costa Rica (non-types): Estacion La Selva, Heredia, 11-III-1992, Hanson & Godoy.

Hosts: *Virola* sp., *Trichilla propingua*.

Biology: Specimens were taken from small stems. Galleries were typical of this genus.

Notes: The holotype, allotype, and paratypes are in the U.S. National Museum, Washington. The peculiar structure on the pronotum summit suggests the existence of very primitive mycetangia and may be involved in transporting fungal spores. The limitations of time and specimens did not permit a more detailed examination of this structure.

Hypothenemus bolivianus (Eggers)

Hypothenemus bolivianus (Eggers), 1931:29 (*Stephanoderes*). Holotype ♀; Cochabamba, Bolivia; USNM, Washington (References in Wood & Bright c1992:911)

Diagnosis: Distinguished from *interstitialis* (Hopkins) by the uniformly, strongly, rugose-reticulate (dull) surfaces of the entire pronotum and elytra; and by the absence of a median groove on the frons.

Male: Length 1.3–1.4 mm; similar to female except for size, eye reduced in size to half, setae slightly slightly longer.

Female: Length 1.7–2.1 mm, 2.3 times as long as wide; mature color dark brown to almost black. Frons strongly, broadly convex from vertex to near epistoma, weakly impressed immediately above epistoma; surface rugose-reticulate, most specimens with a feeble median fovea at upper level of eyes (not a groove), minute punctures almost obsolete; vestiture hairlike, sparse, mostly on or near epistoma. Pronotum 0.90 times as long as wide; widest behind middle, sides weakly arcuate on basal half, rather broadly rounded in front; anterior margin armed on median area by 4 serrations, median pair basally subcontiguous, larger; anterior slope armed by more than 25 rather coarse asperities; all surfaces (except asperities) rugose-reticulate; punctures on posterior areas minute, obscure, those behind summit replaced by granules; vestiture on asperate area hairlike, on posterior areas a mixture of scales and hair. Elytra 1.3 times as long as wide, 1.5 times as long as pronotum; disc occupying basal two-thirds; entire surface rugose-reticulate; striae weakly impressed, punctures obscure to obsolete; interstriae obscured by rugosity. Declivity rather broadly convex, steep; sculpture about as on disc. Vestiture of rows of minute strial hair on declivity, and interstitial rows of erect scales from base to apex, most scales about eight times as long as wide.

Distribution: Colombia and Venezuela to Bolivia.

Bolivia: Cochabamba, [Woytkowski].

Colombia: Campo Capote 27 km NE Montoya, Santander, 2-VII-1970, 150 m, No. 583, unknown seedling, SLW; El Litoral, San Vicente, Santander Sur, 26-VI-1959, cafe seco, J. Betancourt; El Bosque, Caicedonia, Valle de Cauca, 30-VI-1959, ramas secas de cafe, J. Restrepo.

Venezuela: 8 km SW Bumbum, Barinas, 11-II-1970, 150 m, No. 325, *Nectandra*, SLW; Campamento Rio Grande 30 km E Palmar, Bolivar, 12-VI-1970, 200 m, No. 582, miscellaneous hosts, SLW; El Pino, Zulia, 20-X-1969, 10 m, No. 140, *Ochroma*, SLW.

Hosts: *Guatteria* sp., *Nectandra* sp., *Ochroma* sp., *Pouteria* sp., *Protium* sp.

Biology: As described for the genus.

Notes: The above treatment was based on 14 females and 2 males from Colombia, and 26 specimens from Venezuela. Two females from Colombia were compared by me directly to the holotype of *bolivianus* (Eggers).

Hypothenemus interstitialis (Hopkins)

Hypothenemus interstitialis (Hopkins), 1915:28 (*Stephanoderes*). Holotype ♀; Victoria, Texas, USA; USNM, Washington (Synonymy and references in Wood & Bright c1992:931–932)
Stephanoderes interpunctus Hopkins, 1915:28. Holotype ♀; Brownsville, Texas, USA; USNM, Washington

Stephanoderes flavescens Hopkins, 1915:29. Holotype ♀; Tallahassee, Florida, USA; USNM, Washington

Stephanoderes approximatus Hopkins, 1915:29. Holotype ♀; Columbus, Texas, USA; USNM, Washington

Stephanoderes obliquus Hopkins, 1915:30. Holotype ♀; Cayamas, Cuba; USNM, Washington

Stephanoderes opacipennis Hopkins, 1915:30. Holotype ♀; District of Columbia, USA; USNM, Washington

Stephanoderes quadridentatus Hopkins, 1915:30. Holotype ♀; Morgantown, West Virginia, USA; USNM, Washington

Diagnosis: Occasionally confused with *hampei* (Ferrari), but distinguished by the slightly larger average size; by the rather strongly flattened interstitial setae on the disc; by the shorter, steeper elytral declivity; by the presence of a small granule at the base of each erect interstitial scale on the posterior half of the elytra; and by the very different habits.

Male: Length 1.0–1.1 mm; similar to female except size much smaller, eye half as large, elytral setae longer and more slender; most characters poorly formed.

Female: Length 1.5–1.7 mm, 2.2 times as long as wide; mature color dark brown. Frons strongly, broadly convex from vertex to lower half of area below upper level of eyes, slightly flattened from epistoma to lower third of area below upper level of eyes, strongly reticulate above to epistoma, obscure minute punctures on lower area; a small median groove from upper level of eyes one-fourth distance to epistomal margin. Pronotum 0.90 times as long as wide; sides widest on basal third, arcuately converging to rather narrowly rounded anterior margin; anterior margin armed in median area by 4 serrations of equal size; summit at middle of pronotum length, anterior slope coarsely asperate; posterior areas obscurely reticulate, with a few granules, finely subrugose; vestiture of slender bristles on asperate area, a mixture of shorter scales and hair behind. Elytra 1.4 times as long as wide, 1.7 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae weakly impressed, punctures rather coarse, close, deep; interstriae slightly wider than striae, smooth, shining, punctures small, uniseriate, becoming replaced by small, setiferous granules near and on declivity. Declivity convex, steep; sculpture about as on disc except all interstitial punctures replaced by small tubercles. Vestiture of strial rows of minute hair on and near declivity, and interstitial rows of erect scales, each scale on disc wider, about six times as long as wide, on declivity each scale slightly longer and more slender (about eight times as long as wide), scales on declivity equal in length to distance between rows.

Distribution: SE USA to Jamaica and Costa Rica, rare in Colombia and Venezuela.

Colombia: Cited in Wood & Bright (c1992:931).

Venezuela: Cited in Wood & Bright (c1992:931).

Hosts: *Acer rubrum*, *Aesculus* sp., *Carya* spp., *Cercus canadensis*, *Coffea* spp., *Fagus grandifolia*, *Ficus* sp., *Liquidambar styraciflua*, *Magnolia* sp., *Miconia* sp., *Mimosa* sp., *Morus rubra*, *Ocotea catesbyana*, *Persea*

borbonea, *Picea* sp., *Prosopis* sp., *Quercus* spp., *Rhododendron* sp., *Rhus* spp., *Serjania* sp., *Vismia* sp., *Vitis* sp. (Wood & Bright c1992:931).

Biology: This species breeds in twigs and small branches, including *Coffea* spp., in the pith and xylem. It is known, but uncommon, from fruit or seeds in some areas.

Notes: The above treatment was based on 11 males and 86 females from North and Central America, 1 from Jamaica, 1 from Cuba. The holotypes of *Stephanoderes interstitialis* Hopkins and of each synonym listed above were examined and compared to my material (Wood 1982:885).

Hypothenemus hampei (Ferrari)

Plate CXLVI

Hypothenemus hampei (Ferrari), 1867:11–12 (*Cryphalus*). Syntypes ♀; Gallia (in coffee berries); NHMW, Wien (Synonymy and references in Wood & Bright c1992:927–930)

Stephanoderes coffeae Hagedorn, 1910:1. Syntypes ♀; Entebbe, Uganda, Zentralafrika, Angola; BMNH, London

Xyleborus coffeivorus Weele, 1910:1. Syntypes, sex?; Java; not located
Stephanoderes cooki Hopkins, 1915:27. Holotype ♀; Mount Coffee, Liberia; USNM, Washington

Xyleborus coffeicola Campos Novaes, 1922:67. Syntypes, sex?; Brazil; not located

Stephanoderes punctatus Eggers, 1924:101. Lectotype, sex?; Eala (Congostaat); USNM, Washington, designated by Anderson & Anderson 1971:27

Stephanoderes glabellus Schedl, 1952:452. Lectotype, sex?; Isla Martin Carga, Buenos Aires, Argentina; NHMW, Wien, designated by Schedl 1979:104

Diagnosis: Distinguished from *interstitialis* (Hopkins) by the slightly smaller average size; by the longer, more gradual elytral declivity; by the more slender interstitial setae; by the absence of a small granule at the base of interstitial setae on the declivity; and by the hosts and habits.

Female: Length 1.4–1.6 mm, 2.3 times as long as wide; mature color dark brown. Frons feebly, transversely impressed above epistoma, then broadly convex to vertex; area above upper level of eyes almost rugose-reticulate, becoming more nearly reticulate near epistoma; median line with a shallow median groove from upper level of eyes two-thirds distance to epistomal margin; vestiture hairlike, sparse, mostly near epistoma. Pronotum 0.92 times as long as wide; about as in *interstitialis*, except lateral areas more strongly reticulate. Elytra 1.5 times as long as wide; disc occupying very slightly more than basal half; striae feebly impressed, punctures rather coarse, deep, close; interstriae slightly wider than striae, smooth, shining, punctures very small, uniseriate, those on and near declivity without a granule. Declivity more gradual, not as steep as in *interstitialis*. Vestiture of striae rows of minute hair, and interstitial rows of erect bristles, bristles on both disc and declivity slender, each at least eight times as long as wide and equal in length to distance between rows.

Distribution: Coffee growing areas of Africa, SE Asia, Pacific Islands, etc., Guatemala, Honduras, and Colombia to Brazil.

Argentina: Cited in Wood & Bright (c1992:927).

Brazil: Cited in Wood & Bright (c1992:927); Castelhana farm, Monte Carmelo, Minas Gerais, 14-X-1999, *Coffea arabica* berry.

Colombia: Cited in Wood & Bright (c1992:927); coffee berries from Colombia intercepted in 1982 in Panama.

Suriname: Cited in Wood & Bright (c1992:927).

Hosts: *Coffea* spp.

Biology: This species breeds only in the fruit (berry) of coffee. It came originally from Africa and has been carried through commerce and other human activity to most tropical and subtropical areas where coffee is grown. Previously mated females bore into fruits near the stem. A small cavity is excavated where up to 120 eggs may be deposited in one fruit. The larvae extend the parental tunnel as they consume the endosperm. They also bore into fruits. Pupation and emergence are followed by mating with the flightless sibling males inside the brood chamber. Mated females apparently spend the remainder of the year in the brood chamber in fruit on the ground, emerge to infest unpicked fruit hanging on the plant, or estivate in litter in and near the plantation area. Apparently 1 generation occurs each year. In severe infestations losses can be almost total.

Notes: The above treatment was based on 25 females from Africa (Angola, Zaire), Philippine Islands, Jamaica, Guatemala, Honduras, Brazil, and Colombia. Syntypes of *Cryphalus hampei* Ferrari and *Stephanoderes coffeae* Hagedorn, the holotype of *S. cooki* Hopkins, and the lectotype of *S. punctatus* Eggers were examined.

Hypothenemus opacus (Eichhoff)

Plate CXLVII

Hypothenemus opacus (Eichhoff), 1872:132 (*Stephanoderes*). Lectotype ♀; Nov. Grenada; IRSNB, Brussels, designated by Wood 1982: 889 (References in Wood & Bright c1992:937–938)

Diagnosis: The structure of the pronotum and elytra suggest a relationship between *trivialis* Wood, *dolosus* Wood, and *virolae* Wood. This species is distinguished by the smooth, shining discal interstriae (anterior area); by the minutely granulate posterior interstriae and striae; and by the shorter, wider interstitial scales.

Male: Possibly represented by the smallest specimens at hand; resembles female.

Female: Length 1.4–1.9 mm, 2.2 times as long as wide; color almost black. Frons strongly, broadly convex from vertex to immediately above epistoma; surface strongly reticulate, small, sparse granules and obscure punctures from epistoma to above upper level of eyes; a small, obscure median fovea at upper level of eyes; vestiture of moderately long, rather abundant, fine hair from epistoma to upper level of eyes. Pronotum 0.98 times as long as wide; sides weakly arcuate and subparallel on basal half, broadly rounded in front; anterior margin armed by 4 serrations, median pair larger; summit at middle of pronotum length, broadly rounded, anterior slope rather finely asperate, more than 30 asperities;

asperities on and near summit small, acute, apparently each with a small pit (that traps tiny pellets of frass, often giving summit a white color; a mycetangium?); area behind summit rugose-reticulate, with many small tubercles, tubercles smaller and sparse in lateral areas, vestiture moderately abundant, bristlelike in asperate area, a mixture of fine hair and slender scales on basal area. Elytra 1.3 times as long as wide, 1.5 times as long as pronotum; disc occupying basal 60 percent of elytra length; striae feebly impressed, punctures very small, obscure, but present from base to apex; interstriae about three times as wide as striae, surface on posterior half of disc and all of declivity minutely, densely micropunctate to minutely rugose-reticulate, dull; anterior half of interstriae 2–4 on disc smooth, shining, punctures small, uniseriate except confused on 2–4 near declivity. Declivity convex, rather steep; sculpture as on posterior disc, dull, small striae punctures distinctly impressed. Vestiture of minute, fine striae hair, and erect interstitial scales, uniseriate except confused on 2–4 on disc near declivity; each scale about six times as long as wide, length slightly shorter than distance between rows.

Distribution: Costa Rica to Colombia, Venezuela, and Brazil.

Brazil: Reserva Campinas, Amazonas; BR 174 km 44, 23-V-1979, #693, M.J.G. Hopkins.

Colombia: El Bosque, Caicedonia, Valle de Cauca, 30-VI-1959, ramas secas de cafe, J. Restrepo; Monte-grande, Caicedonia, Valle de Cauca, 19-VI-1959, en guamo y cafe, J. Restrepo; Zuniga, Caicedonia, Valle de Cauca, cafe ramas, J. Restrepo; Carton de Colombia forest near Buenaventura 8 km S Colonia, Valle de Cauca, 9-VII-1970, *Tovomita guianensis*, SLW; Campo Capote 27 km NE Montoya, Santander, 2-VII-1970, 150 m, Myristicaceae sp., SLW.

Venezuela: Campamento Rio Grande 30 km E Palmar, Bolivar, 12-VI-1970, 200 m, No. 579, Rosada (Moraceae), SLW; 40 km SE Socopo, Barinas, 25-I-1970, 150 m, No. 278, palito negro, SLW; 30 km N Canyon Zancudo, Zulia, 4-VI-1970, 30 m, No. 525, liana, SLW; 40 km E Canton, Barinas, 8-III-1970, 70 m, No. 372, Mimosaceae, SLW; 3 km E Lagunillas, Merida, 12-I-1970, 1000 m, No. 239, vine, SLW.

Hosts: *Calliandra confusa*, *Cassia* sp., *Coffea arabica*, *Inga* sp., *Mimosa* sp., *Nectandra* sp., *Ochroma* sp., *Protium* sp., *Tovomita guianensis*.

Notes: The above treatment was based on 49 specimens from Costa Rica, 1 from Brazil, 10 from Colombia, and 38 from Venezuela. Two females from Costa Rica and 1 from Colombia were compared by me directly to the holotype of *Stephanoderes opacus* Hopkins.

Hypothenemus pubescens Hopkins

Hypothenemus pubescens Hopkins, 1915:19. Holotype ♀; Key West, Florida [USA]; USNM, Washington (Synonymy and references in Wood & Bright c1992:939)

Hypothenemus subelongatus Hopkins, 1915:19. Holotype ♀; Victoria, Texas [USA]; USNM, Washington

Hypothenemus opacifrons Hopkins, 1915:25. Holotype ♀; Aguadilla, Puerto Rico; USNM, Washington

Hypothenemus minutissimus Schedl, 1952:450. Lectotype ♀; Buenos Aires, Pilar, Cordoba, Dep. Punilla, Argentina; NHMW, Wien, designated by Schedl 1979:156

Diagnosis: Distinguished by the small body size; by the rather stout body form; by the short, very broad interstitial scales; and by the unique habits.

Female: Length 1.0–1.1 mm, 2.2 times as long as wide; mature body color yellowish brown. Frons broadly, strongly convex from epistoma to vertex; surface rugose-reticulate, sparse, minute punctures almost obsolete; antennal funicle 3-segmented; vestiture sparse, hairlike, mostly on epistoma. Pronotum 1.0 times as long as wide; sides widest on basal third, sides weakly arcuate, converging toward rather broadly rounded anterior margin; anterior margin armed by 6 slender serrations (usually of irregular size); anterior slope armed by about 25 coarse asperities; summit at middle, distinct; posterior areas obscurely reticulate, numerous minute tubercles behind summit, minute punctures and minute tubercles in lateral areas; vestiture rather abundant, of stout hair in asperate area, of a mixture of minute hair and stout scales in basal and lateral areas. Elytra 1.4 times as long as wide, 1.6 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed, punctures small; interstriae twice as wide as striae, almost smooth, shining, punctures uniseriate, slightly smaller than those of striae, each feebly subvulcanate. Declivity steep, rather narrowly convex; sculpture about as on declivity; vestiture of rows of minute striae hair, and rows of erect, broad interstitial scales, each scale about 1.5 times as long as wide and equal in length to two-thirds distance between rows.

Distribution: Hawaii, USA (Florida, Texas), Puerto Rico and Mexico (Yucatan) to Brazil and Argentina.

Argentina: Buenos Aires, Pilar, Cordoba, Dept. Punilla.

Brazil: Cited in Wood & Bright (c1992:939).

Hosts: Fruiting stems of seaside grass: *Andropogon* sp., *Cynodon dactylon*, *Paspalum vaginatum*.

Biology: Larvae, young adults, and mature adults were removed from the central axis of the fruiting stems of seaside grasses.

Notes: The above treatment was based on the holotypes of *pubescens* Hopkins, *subelongatus* Hopkins, and *opacifrons* Schedl, and on the lectotype of *minutissimus*. This species is undoubtedly much more widely distributed than records indicate. Its economic impact has not been studied.

Hypothenemus crudiae (Panzer)

Hypothenemus crudiae (Panzer), 1791:35 (*Bostrichus*). Syntypes, sex?; India occidentalis; Hamburg Museum, lost (Synonymy and references in Wood & Bright c1992:914–916)

Cryphalus micronifer Wollaston, 1867:116. Syntypes, sex?; S. Antao, S. Vicente, S. Iago et Fogo, Cape Verde Islands; BMNH, London
Cryphalus hispidulus LeConte, 1868:156. Syntypes, sex?; District of Columbia, Georgia, Louisiana [USA]; MCZ, Cambridge

- Hypothenemus nanus* Hagedorn, 1909:744. Syntypes ♀; La Plata Museum, Argentina
- Stephanoderes differens* Hopkins, 1915:25. Holotype ♀; San Bernardino, Paraguay; USNM, Washington
- Stephanoderes guatemalensis* Hopkins, 1915:26. Holotype ♀; Trece Aguas, Alta Vera Paz, Guatemala; USNM, Washington
- Stephanoderes brasiliensis* Hopkins, 1915:26. Holotype ♀; Pernambuco, Brazil; USNM, Washington
- Stephanoderes paraguayensis* Hopkins, 1915:26. Holotype ♀; San Bernardino, Paraguay; USNM, Washington
- Stephanoderes lecontei* Hopkins, 1915:27. Holotype ♀; Jefferson County, West Virginia [USA]; USNM, Washington
- Stephanoderes polyphagus* Costa Lima, 1924:316. Syntypes, sex?; Brazil, publication not seen
- Stephanoderes fallax* Costa Lima, 1924:414. Syntypes, sex?; Brazil, publication not seen, automatic replacement name for *polyphagus* Costa Lima
- Stephanoderes largipennis* Toledo Piza Junior, 1924:354. Syntypes, sex?; Brazil; not located
- Stephanoderes uniseriatus* Eggers, 1924:103. Lectotype ♀; Congostaat (Luebo); USNM, Washington, designated by Anderson & Anderson 1971:35
- Stephanoderes hivaoea* Beeson, 1935:105. Holotype ♀; Tahauku, Hivaoa, Marquesas Islands; BPBM, Honolulu
- Stephanoderes lebronneci* Beeson, 1935:104. Syntypes, sex?; Tahuata: Hanatuma Valley, 150 feet, Uapou: Hakahuetau 500 feet, Marquesas Islands; BPBM, Honolulu

Diagnosis: Distinguished from *seriatus* (Eichhoff) by differences in the sculpture of the frons; by the slightly steeper elytral declivity; and by the slightly larger, more slender interstitial scales.

Male: Length 1.0 mm; similar to female, except eye smaller, erect setae longer, all characters poorly formed.

Female: Length 1.4–1.6 mm, 2.3 times as long as wide; color dark reddish brown. Frons shallowly, transversely impressed, longitudinally, slightly concave, a small median tubercle slightly above upper level of eyes; a weak, narrow, median groove extending from just above epistoma to median tubercle and cutting into lower slope of this tubercle; area above median tubercle rugose-reticulate, area below reticulate, minutely, obscurely punctured in lateral areas, groove and its margins smooth, shining. Pronotum 0.90 times as long as wide; widest near base, sides on basal half weakly arcuate, rather narrowly rounded in front; anterior margin armed by 6 serrations of about equal size; summit at middle of pronotum length, distinctly elevated, anterior slope rather coarsely asperate; areas between asperities and on posterior areas mostly smooth, shining, becoming reticulate near lateral margins, area behind summit with numerous granules; vestiture of coarse hair on asperate area, and a mixture of fine, short hair and scales on posterior and lateral areas, each scale about three times as long as wide. Elytra 1.4 times as long as wide, 1.7 times as long as pronotum; disc occupying basal 60 percent of elytra length; striae not impressed, punctures rather coarse, moderately deep, close; interstriae as wide as striae, smooth, shining, punctures minute, uniseriate. Declivity strongly convex, steep; striae distinctly impressed, sculpture about as on disc except punctures slightly larger, weakly subvulcanate. Vestiture of rows of fine, minute strial hair; and rows of erect

interstitial scales, each scale about four to five times as long as wide, length of a scale slightly shorter than distance between rows, spaced within a row by less than length of a scale.

Distribution: Africa, E USA and Antilles Islands to Argentina.

Argentina: "Argentina."

Bolivia: Cited in Wood & Bright (c1992:914).

Brazil: Cepec, Ilheus, Bahia, 1966–1968, at light; Aracruz, Espirito Santo, 11-XII-1991, 3590, at light; Curitiba, Panana, VI-1971, *Theobroma cacao*, J.A. Winder; Pernambuco; Nova Vlicosa, Aracruz C., BA, 30-VII-1999, ethanol trap, *Eucalyptus grandis* stand, C.A.H. Flechtmann; Telemaco Borba, KPC, Parana, 9-IV-1999, ethanol trap, *Pinus taeda* stand, C.A.H. Flechtmann; Monte Mor, IV-1985, tronco de *Citrus*, A. Sales; UFRRJ Campus, numerous collections, ethanol trap in *Mimosa caesalpiniaefolia* stand, A.M. Lunz; UNESP Campus, Ilha Solteira, Rio de Janeiro, 12-I-1999, *Cecropia pachystrota* petiole, C.T. Muraish; Taguai, Sao Paulo, tronco de *Vitex* sp., E. Pires; Piracicaba, Parque Esalq, IV-1987, *Mangifera indica*, C.A.H. Flechtmann; Botucatu, Duraflora, Sao Paulo, 28-II-1990, ethanol trap, *Pinus e Eucalyptus* stand, C.A.H. Flechtmann; Lencois Paulista, Sao Paulo, 23-VIII-1989, Duratex, ethanol trap, *Eucalyptus grandis* stand, C.A.H. Flechtmann.

Colombia: CENICAFE, Chinchina, 1360 m, *Macademias*, C. Villagos.

Ecuador: Cited in Wood & Bright (c1992:914).

French Guyana: Cited in Wood & Bright (c1992:914). Paraguay: San Bardino.

Suriname: Cited in Wood & Bright (c1992:914).

Venezuela: 9 km S Barrancas, Barinas, 1-X-1969, 150 m, No. 35, *Cucurbita*, SLW; 40 km E Canton, Barinas, 8-III-1970, 70 m, No. 358, *Serjania*, SLW, and No. 395, SLW; 20 km SW El Vigia, Merida, 16-XII-1969, 50 m, No. 187, vine, SLW.

Hosts: *Abutilon mollissimum*, *Acacia farnesiana*, *Achras sapota*, *Adenantha pavonina*, *Aloe vera*, *Astragalus* sp., *Bauhinia grandiceps*, *B. krugi*, *Betula* sp., *Bidens pilosa*, *Bignonia* sp., *Boehmeria scabra*, *Bucida bucerus*, *Bursera* sp., *Carica papaya*, *Carya* spp., *Cassia nodosa*, *Cinnamomum camphora*, *Citrus* sp., *Clerodendron squamatum*, *Crataegus* sp., *Cucurbita* sp., *Dalbergia ecastophyllum*, *Derris* sp., *Dioclea megacarpa*, *Diphysia robinoides*, *Dolonix rigia*, *Ficus* spp., *Glycine max*, *Grewia asiatica*, *Inga* sp., *Juglans nigra*, *Magnolia* sp., *Mangifera indica*, *Morus rubra*, *Passiflora latifolia*, *Phalocarpus septentrionis*, *Pinus taeda*, *Prunus persica*, *Pyrus malus*, *Quercus* spp., *Quisqualis indica*, *Rhizophora mangle*, *Richinus communis*, *Schleichera trifuga*, *Serjania racemosa*, *Sida rhombifolia*, *Smilax* sp., *Theobroma cacao*, *Wisteria* sp., *Yucca* sp. (Wood & Bright c1992:914).

Biology: This species appears to have an American origin. It was the first endemic scolytid species named from the Western Hemisphere (India occidentalis, presumably the Antilles Islands, Panzer 1791). It has spread to Africa, the Pacific Islands, tropical Asia, etc. Its habits

suggest that it will eventually spread to all tropical and subtropical areas of the world. This species can breed in twigs and small branches of trees, shrubs, vines, weeds, and other common backyard plants. In these stems the gallery system is about as described for the genus. It can also breed in a wide variety of seeds, pods, or other fruiting bodies of many kinds of plants. The broad host range, high fecundity (enhanced by male haploidy), and the ability to spread through commerce have made this species economically important throughout tropical and subtropical agriculture almost worldwide. Its occasional occurrence in coffee berries, macademia nuts, and other high profile plant products where it has been misidentified as other more notorious species [*hampei* (Ferrari), *obscurus* (Fabricius)] has triggered unnecessary pannic reactions among plant protection specialists on several occasions (especially in South America). Its importance in tropical forestry is apparently limited to its effect on seed production.

Notes: The above treatment was based on more than 500 specimens from North and Central America, the Pacific Islands, SE Asia, and Africa, and on 3 from Brazil, 2 from Colombia, and 13 from Venezuela. The holotypes were examined for *Stephanoderes differens* Hopkins, *S. guatemalensis* Hopkins, *S. brasiliensis* Hopkins, *S. paraguayensis* Hopkins, *S. lecontei* Hopkins, and *S. hivaoea* Beeson, syntypes for *Cryphalus hispidulus* LeConte, *polyphagus* Costa Lima, and *S. lebroneci* Beeson, the lectotype of *S. uniseriatus* Eggers, and on Eggers's specimens of *Bostrichus crudiae* Panzer. Eggers had the opportunity to examine the holotype of *crudiae* before it was destroyed and compared specimens to it. It is presumed, for the sake of stability in nomenclature, that he correctly identified these specimens. His experience and understanding of this genus were such that this assumption is probably correct.

Hypothenemus obscurus (Fabricius)

- Hypothenemus obscurus* (Fabricius), 1801:395 (*Hylesinus*). Lectotype ♀; type labeled [Rio] Essequibo (Guiana), published as *Americae meridionalis*; UZMC, Copenhagen, designated by Wood 1972:49 (Synonymy and references in Wood & Bright c1992:936–937)
- Stephanoderes asperulus* Eichhoff, 1872:133. Lectotype ♀; northern South America; IRSNB, Brussels, designated by Wood 1982:893, preoccupied by LeConte 1868
- Stephanoderes cassiae* Eichhoff, 1878:152. Lectotype ♀; northern South America; IRSNB, Brussels, designated by Wood 1982:893
- Hypothenemus kuennemanni* Reitter, 1902:140. Lectotype ♀; Brumen, Germany [in Brazil nuts]; NHMB, Budapest, designated by Wood 1972:49
- Stephanoderes moschatae* Schauffuss, 1905:8. Holotype ♀; Guadeloupe; Hamburg Museum, lost
- Stephanoderes rufescens* Hopkins, 1915:29. Holotype ♀; Allegheny, Pennsylvania [USA]; USNM, Washington
- Stephanoderes amazonicus* Eggers, 1934:78. Lectotype ♀; Manaus, Amazonas, Brazil; USNM, Washington, designated by Anderson & Anderson 1971:4
- Hypothenemus emarginatus* Schedl, 1942:11. Lectotype ♀; Buitenzorg, Java; NHMW, designated by Schedl 1979:90

Diagnosis: Distinguished from *seriatus* (Eichhoff) and allied species by the densely micropunctate surfaces of

both striae and interstriae (seen at 80X or more); and by the narrow, moderately deep, median groove on the frons, extending from the epistoma to the upper level of the eyes; the mature body color is dark brown.

Male: Length 0.9 mm; resembling female except smaller; eye greatly reduced in size; all characters poorly formed, setae longer.

Female: Length 1.4–1.6 mm, 2.3 times as long as wide; mature color dark brown. Frons broadly convex from epistoma to vertex; area above eyes and on sides below finely rugose-reticulate, more nearly reticulate toward median area below; median line with a narrow, moderately deep, shining groove from near epistoma to slightly above upper level of eyes; punctures very small, rather sparse, mostly on area below upper level of eyes; vestiture hairlike, sparse, mostly on and near epistoma. Pronotum 0.84 times as long as wide; widest on basal third, sides moderately arcuate, converging to rather narrowly rounded anterior margin; anterior margin armed by 4–6 serrations; summit at middle, narrowly convex, anterior slope armed by more than 25 coarse asperities; surface reticulate between asperities, becoming rugose-reticulate behind, punctures in basal and lateral areas small, shallow, obscure to obsolete, several tubercles behind summit; vestiture of stout hair in asperate area, a mixture of short, fine hair and erect scales on posterior areas. Elytra 1.5 times as long as wide, 1.7 times as long as pronotum; disc occupying basal 60 percent of elytra length; striae weakly impressed, punctures rather small, distinctly impressed; interstriae slightly wider than striae, basically smooth and subshining, and densely covered by minute micropunctures (seen at 80X, not at 40X), punctures small, uniseriate, not vulcanate. Declivity convex, rather steep; sculpture about as on disc. Vestiture of rows of minute strial hair from base to apex, and interstitial rows of erect, flattened bristles, those on disc four to six times as long as wide, on declivity six to eight times as long as wide, each bristle slightly shorter than distance between rows.

Distribution: USA (Florida), Mexico (Veracruz) and Puerto Rico to Brazil; intercepted worldwide in Brazil nuts.

Brazil: Manaus, Amazonas; numerous interceptions in nuts originating in Brazil; UFRRJ, Rio de Janeiro (many).

Colombia: Palmira, Valle de Cauca, IV-1945, #3–438, B. Losada & E. Martino; 24 km E Barbosa, Antioquia, 18-VII-1970, 1200 m, No. 698, Lauraceae sp., SLW.

Suriname: Cited in Wood & Bright (c1992:936–937).

Venezuela: Ocomare, Aragua, 1967, *Theobroma cacao*, B. Mendoza; 9 km S Barrancas, Barinas, 1-X-1969, 150 m, No. 54, vine, SLW, same 5-XI-1969, No. 102, espinito de sabana; 40 km E Canton Barinas, 8-III-1970, *Serjania*, SLW; Campamento Rio Grande 30 km E Palmar, Bolivar, 12-VI-1970, 200 m, No. 526, *Cecropia* leaf petioles, SLW; 3 km E Lagunillas, Merida, 12-I-1970, 1000 m, No. 239, vine, SLW; 30 km N Canyon Zancudo, Zulia, 4-VI-1970, 10 m, No. 521, vine, SLW; El Pino, Zulia, 20-X-1969, 10 m, No. 140, *Ochroma*, SLW.

Hosts: *Bertholletia excelsa*, *Cecropia* sp., *Crotalaria* sp., *Hymenaea courbaril*, *Myrtistica fragrans*, *Serjania* sp., *Tamarindus indica*, *Theobroma cacao* (Wood & Bright c1992:936).

Biology: This species breeds in stems, fruit, seeds, and nuts of a wide variety of plants. It is best known as a significant pest of Brazil nuts that are transported through world commerce. This species is very common in South America. The known habits are essentially as in *seriatus* (below).

Notes: The above treatment was based on the holotype of *rufescens*, on the lectotypes of *obscurus* (Fabricius), *Stephanoderes asperulus* Eichhoff, *H. kuennemanni* Reitter, *H. emarginatus* Schedl, and *S. amazonicus* Eggers, and on several specimens of *S. moschatae* Schaufuss determined by Schedl and compared by him to either the types and/or homotypes of this species (Wood 1982: 894). Also examined were 271 specimens from North and Central America, 2 from Brazil, 3 from Colombia, and 23 from Venezuela.

Hypothenemus rugosipes Wood, n. sp.

Hypothenemus rugosipes Wood: Holotype ♀; 20 km SW El Vigia, Merida, Venezuela; USNM, Washington, as designated below

Diagnosis: Distinguished from *obscurus* (Fabricius) by the smaller size; by the finely rugose surfaces of the elytra continuously on both disc and declivity; by the obscure to obsolete striae punctures; by the near absence of a median groove on the frons; and by the black body color.

Female: Length 1.2–1.3 mm, 2.2 times as long as wide; color black. Frons broadly, strongly convex from epistoma to vertex, surface rugose-reticulate, obscure punctures from epistoma to upper level of eyes; rather short, stout hair of moderate abundance from epistoma to upper level of eyes. Pronotum 1.0 times as long as wide; slightly widest just behind middle, sides moderately arcuate on basal half, rather broadly rounded in front; anterior margin armed by 4 serrations; summit at middle, distinct, anterior slope armed by about 25 asperities; posterior areas minutely granular; punctures minute, obscure, a few granules from summit to basal margins; vestiture of stout hair on asperate area, of a mixture of fine, short hair and scales on posterior and lateral areas. Elytra 1.4 times as long as wide, 1.6 times as long as pronotum; disc occupying basal 62 percent of elytra length; striae feebly impressed, punctures very small, obscure to mostly obsolete; interstriae perhaps twice as wide as striae, entire surface minutely rugose, dull, interstriae each bearing a central row of erect scales, a small obscure granule (basal half) or small tubercle (near base of declivity). Declivity rather steep, convex; sculpture about as on disc, striae punctures more distinctly impressed, interstitial tubercles slightly larger. Vestiture consisting of a very sparse ground cover on posterior half of elytra of short, fine hair, and erect rows of interstitial bristles each about eight times as long as

wide, their length equal to two-thirds distance between rows on disc, equal to distance between rows on declivity.

Type-material: The female holotype and 7 paratypes were taken at 20 km SW El Vigia, Merida, Venezuela, 10-XII-1969, 50 m, No. 184, S.L. Wood, from an unrecorded host. One female paratype is labeled Merida, Merida, Venezuela, 22-IX-1969, *Cucurbita* sp., S.L. Wood. The holotype and paratypes are in the U.S. National Museum, Washington.

Biology: Specimens were removed from small stems.

Hypothenemus multidentatus (Hopkins)

Hypothenemus multidentatus (Hopkins), 1915:28 (*Stephanoderes*). Holotype ♀; Tampico, Tamaulipas, Mexico; USNM, Washington (Synonymy and references in Wood & Bright c1992:936)

Stephanoderes ferrugineus Hopkins 1915:29. Holotype ♀; Livingston, Guatemala; USNM, Washington, preoccupied by Hopkins 1915:20

Stephanoderes nitidifrons Hopkins, 1915:31. Holotype ♀; Tampico, Tamaulipas, Mexico; USNM, Washington

Hypothenemus hopkinsi Browne 1963:53. Holotype ♀; Livingston, Guatemala; USNM, Washington, automatic

Diagnosis: Doubtfully distinct from *seriatus* (Eichhoff) by the slightly larger size; by the slightly smaller striae punctures on disc and declivity; and by the slightly longer, more slender interstitial scales (each as long as distance between rows and four to six times as long as wide).

Female: Length 1.6–1.8 mm, 2.7 times as long as wide. As in *seriatus*, except as noted in the diagnosis.

Distribution: Rare in Mexico (Tamaulipas, Puebla), Guatemala, and Colombia.

Colombia: Opima Perez, Palermo, Huila, V-1959, cafe, F Vasquez.

Notes: This species is very rare in Mexico, Central America, and Colombia. When more material is available for study, it is possible that *multidentatus* will be no more than a normal size variant of *seriatus*. The female holotypes of *S. multidentatus* Hopkins, *S. ferrugineus* Hopkins, and *S. nitidifrons* Browne were examined and compared to my material.

Hypothenemus seriatus (Eichhoff)

Hypothenemus seriatus (Eichhoff), 1872:133 (*Stephanoderes*). Lectotype ♀; New Orleans, Louisiana [USA]; IRSNB, Brussels, designated by Wood 1973:177 (Synonymy and references in Wood & Bright c1992:940–943)

Stephanoderes pulverulentus Eichhoff, 1872:133. Syntypes ♀; Hamburg Museum, lost

Stephanoderes vulgaris Schaufuss, 1897:209. Syntypes ♀; La Digue, Seychelles Islands; Hamburg Museum, lost

Cryphalus aulmanni Hagedorn, 1912:41. Syntypes ♀; Daressalam; Hamburg Museum, lost

Stephanoderes georgiae Hopkins, 1915:26. Holotype ♀; Georgia [USA]; USNM, Washington

Stephanoderes minutus Hopkins, 1915:26. Holotype ♀; Cayamas, Cuba; USNM, Washington

Stephanoderes texanus Hopkins, 1915:26. Holotype ♀; Columbus, Texas [USA]; USNM, Washington

Stephanoderes fiebrigi Hopkins, 1915:27. Holotype ♀; San Bernardino, Paraguay; USNM, Washington

Stephanoderes floridensis Hopkins, 1915:27. Holotype ♀; Haw Creek, Florida [USA]; USNM, Washington

Stephanoderes pini Hopkins, 1915:27. Holotype ♀; Kanawha Station, West Virginia [USA]; USNM, Washington

Stephanoderes salicis Hopkins, 1915:27. Holotype ♀; Morgantown, West Virginia [USA]; USNM, Washington

Stephanoderes tamarindi Hopkins, 1915:27. Holotype ♀; Manila, Philippine Islands; USNM, Washington

Stephanoderes ficus Hopkins, 1915:28. Holotype ♀; Alabama [USA]; USNM, Washington

Stephanoderes lucasi Hopkins, 1915:28. Holotype ♀; southern United States [USA]; USNM, Washington

Stephanoderes soltau Hopkins, 1915:28. Holotype ♀; New Orleans, Louisiana [USA]; USNM, Washington

Stephanoderes virentis Hopkins, 1915:28. Holotype ♀; Lakeland, Florida [USA]; USNM, Washington

Stephanoderes nitidipennis Hopkins, 1915:29. Holotype ♀; Cayamas, Cuba; USNM, Washington

Stephanoderes nitidulus Hopkins, 1915:29. Holotype ♀; Cayamas, Cuba; USNM, Washington

Stephanoderes pecanis Hopkins, 1915:29. Holotype ♀; Orlando, Florida [USA]; USNM, Washington

Stephanoderes subopacicollis Hopkins, 1915:30. Holotype ♀; Cayamas, Cuba; USNM, Washington

Stephanoderes niger Hopkins, 1915:31. Holotype ♀; Brownsville, Texas [USA]; USNM, Washington

Hypothenemus tonsus Eggers, 1919:242. Lectotype ♀; Amani (Ostafrika); USNM, Washington, designated by Anderson & Anderson 1971:34

Hypothenemus robustus Blackman, 1922:88. Syntypes ♀; Newton, Mississippi [USA]; USNM, Washington

Hypothenemus casavaensis Schedl, 1938:453. Lectotype ♀; Uganda, Kampala; NHMW, Wien, designated by Schedl 1979:54

Stephanoderes hawaiiensis Schedl, 1941:112. Lectotype ♀; Honolulu, Oahu, Hawaiian Islands; BPBM, Honolulu; designated by Schedl 1979:116

Hypothenemus striatulus Schedl, 1942:12. Lectotype, sex?; Java, Buitenzorg, Nr. 388 Kalshoven, Walikoeko; NHMW, Wien, designated by Schedl 1979:237

Stephanoderes darwinensis Schedl, 1942:178. Lectotype, sex?; Australia; NHMW, Wien, designated by Schedl 1979:75

Hypothenemus marovoayi Schedl, 1953:81. Lectotype, sex?; Madagascar, plaine de Marovoay, Madagascar, plantation du Sambirano; NHMW, Wien, designated by Schedl 1979:149

Stephanoderes andersoni Wood, 1954:1045. Holotype ♀; Coconut Grove, Florida [USA]; USNM, Washington

Stephanoderes liquidambarae Wood, 1954:1046. Holotype ♀; Jacksonboro, South Carolina [USA]; SMUK, Lawrence

Stephanoderes asperatus Schedl, 1967:226. Holotype ♀; Kindamba, Meya, Bangou forest Sibiti, IRHO rain forest; NHMB, Budapest

Diagnosis: Distinguished from *obscurus* (Fabricius) by the smooth, shining elytral interstriae; and by the shorter median groove on the frons that is narrower and not as deep.

Male: Length 0.9 mm, 2.2 times as long as wide; resembling female, except frontal groove obsolete, eye greatly reduced in size, antennal funicle 3-segmented; interstitial setae slightly longer, more slender; all features poorly formed.

Female: Length 1.4–1.6 mm, 2.4 times as long as wide; mature color very dark reddish brown. Frons rugose-reticulate from upper level of eyes to vertex; area below upper level of eyes irregularly rugose-punctate to smooth, shining on epistoma; a small, narrow, shallow, median groove at upper level of eyes, extending one-third distance toward epistomal margin, median area (on median one-sixth) below groove smooth, shining to

epistoma; vestiture sparse, hairlike from upper level of eyes to epistoma, of short to moderate length. Pronotum 0.9 times as long as wide; anterior margin armed by 6 serrations; about as in *obscurus*. Elytra 1.5 times as long as wide, 1.8 times as long as pronotum; disc occupying two-thirds of elytra length; striae not impressed, punctures rather coarse, deep; interstriae as wide as striae, smooth, shining, punctures uniseriate, not vulcanate, each bearing an erect scale. Declivity convex, steep; sculpture about as on disc, striae and interstriae slightly narrower. Vestiture of rows of minute, fine strial hair, and rows of erect interstitial scales, each scale about three (disc) to almost six times (declivity) as long as wide, each slightly shorter than distance between rows.

Distribution: Africa, Asia Minor, Indonesia and Micronesia to Australia, E USA and Antilles Islands to Argentina.

Argentina: Specimens intercepted in Mexico from Argentina plant material on 16-IX-1982.

Brazil: Selviria, Frazenda, UNESP, SP, 1-III-1990, ethanol trap, *Pinus* stand, C.A.H. Flechtmann; Tres Lagoas, CPC, Horto Barra do Moeda, MS, 27-VII-1993, 10-VII-1993, 10-III-1994, *Eucalyptus* stand, Flechtmann; Telemaco Borba, KPC, Pstms, 5-II-1989, 26-III-1999, 23-IV-1999, ethanol trap, *Pinus taeda* stand, Flechtmann; UFARRJ Campus, Rio de Janeiro, numerous records; Agudos, Duraflora, Sao Paulo, 27-III-1984, 3-IV-1984, 8-V-1984, ethanol trap, *Pinus c. caribaea* stand, Flechtmann; Botuatu, Duratex, Sao Paulo, 14-IX-1988, ethanol trap, Patio de serraria, *Pinus e Eucalyptus* stand, Flechtmann; Ibate, Lripasa, SP, IX-1984, *Eucalyptus* stand, C.D. Santos; Lencois Paulista, Duratex, Sao Paulo, 23-VIII-1989, ethanol trap, *Eucalyptus grandis* stand, Flechtmann; Itaguai, "RJ" (?), poipa de pavferro, A.G. Carvalho; Porto Lamiao, sm, SC, 22-IX-1998, 1-hexanol trap, *Populus deltoides* stand, Flechtmann.

Colombia: Cali, Valle de Cauca, 15-XII-1966, *Pinus montezuma*, R. Velez.

Paraguay: San Bernardino.

Venezuela: Finca Monasterios, Cacaugua, Miranda, 1971, *Theobroma cacao*, J.L. Saunders.

Hosts: *Acacia feresiana*, *Acras sapota*, *Acrocomia sclerocarpa*, *Aleurites fordii*, *Cassia glauca*, *Bauhinia tomentosa*, *Bursera* sp., *Cajanus cajon*, *Calliandra confusa*, *Callicarpa* sp., *Canavalia* sp., *Carya* spp., *Cecropia* sp., *Citrus aurantifolia*, *Coccothrinax alta*, *Coffea bukowensis*, *Cordia* sp., *Dipholis salicifolia*, *Eleagnus pungens*, *Erythrina* sp., *Eugenia buxifolia*, *Ficus* spp., *Galactia spiciformis*, *Guaceea quara*, *Hyracryptans* sp., *Ipomoea cathartica*, *Juglans nigra*, *Liquidambar styraciflua*, *Maclura pomifera*, *Mangifera indica*, *Muouinia* sp., *Ochroma* sp., *Ocotea catesbiana*, *Persea americana*, *P. borborea*, *Philabertella clausa*, *Pinus* spp., *Pithecellobium guateloupense*, *Pittospermum* sp., *Populus deltoides*, *Prunus persica*, *Quercus* spp., *Rhamnus* sp., *Rhus glabra*, *Saba parviflora*, *Salix* sp., *Serjania* sp., *Sida rhombifolia*, *Tectona grandis*, *Theobroma cacao*, *Thespertia pulpulnea*, *Trachylobium narrucosum*, *Trema floridana*, *Trichilia arborea*, *Wisteria* sp., *Urena* sp., *Yucca* sp.

Biology: This common species breeds in twigs and small branches of trees, shrubs, lianas, and stems of common garden weeds. It also breeds in leafstocks, pods and large seeds of a wide variety of plants. Its true economic impact is obscured by its confusion with *H. crudiae*, *H. obscurus*, and *H. eruditus*, etc.

Notes: The above treatment was based on the lectotype of *Stephanoderes seriatus* (Eichhoff), the holotypes of *S. georgiae* Hopkins, *S. texanus* Hopkins, *S. tamarindi* Hopkins, *S. pini* Hopkins, *S. salicis* Hopkins, *S. floridensis* Hopkins, *S. soltau* Hopkins, *S. lucasi* Hopkins, *S. virentis* Hopkins, *S. pecanis* Hopkins, *S. niger* Hopkins, *H. robustus* Blackman, *S. andersoni* Wood, and *S. liquidambarae* Wood, on syntypes of *S. darwinensis* Schedl, and on specimens of *S. pulverulentus* Eichhoff and *S. vulgaris* Schaufuss identified by Eggers and compared by him to the types of those species, and on more than 400 other specimens. The large number of synonyms calls attention to the variability of this species, especially characters on the frons and the width of interstitial scales (Wood 1982:896). It is a very common species that is found in a multitude of habitats.

Hypothenemus californicus Hopkins

Hypothenemus californicus Hopkins, 1915:19. Holotype ♀; Pomona, California [USA]; USNM, Washington (Synonymy and references in Wood & Bright c1992:912)

Hypothenemus tritici Hopkins, 1915:19. Holotype ♀; Dallas, Texas [USA]; USNM, Washington

Hypothenemus thoracicus Hopkins, 1916:598. Holotype ♀; Clark Co., Indiana [USA]; USNM, Washington

Stephanoderes zaeae Schedl, 1973:169. Holotype ♀; Brasilien, Sao Paulo, Pinhal; MZUSP, Sao Paulo

Diagnosis: Distinguished from *vesculus* Wood by the slender body; by the rather deeply, closely punctured posterolateral areas of the pronotum; and by the broadly rounded anterior margin of the pronotum. This species is closely allied to *Hypothenemus leprieuri* (Perris), of Europe, but it is quite distinct (holotypes compared directly by me).

Male: Length 0.7–0.8 mm; vaguely resembling female except body much smaller; eye greatly reduced in size; antennal funicle 3-segmented; all features poorly formed, interstitial setae slightly longer, more slender.

Female: Length 1.1–1.3 mm, 2.6 times as long as wide; mature color almost black. Frons broadly, rather narrowly convex from epistoma to vertex; surface rugose-reticulate from vertex to slightly below upper level of eyes, lower areas finely rugose to epistoma; a small, obtuse, shining, slightly elevated median tubercle at upper level of eyes; vestiture of sparse, fine, moderately long hair on lower half and epistomal margin; ocular emargination very weak. Pronotum 0.94 times as long as wide; widest behind middle, sides on basal half weakly arcuate, converging toward broadly rounded anterior margin; anterior margin armed by 6 coarse serrations; anterior slope coarsely asperate, summit at middle, prominent; posterolateral and basal areas smooth, shin-

ing, closely, rather coarsely punctured (margins of some punctures often weakly granulate); vestiture of rather short, stout hair on asperate area, a mixture of fine hair and erect scales in lateral and basal areas. Elytra 1.6 times as long as wide, 1.7 times as long as pronotum; disc occupying 60 percent of elytra length; striae not impressed, punctures moderately large, deep; interstriae as wide as striae, almost smooth, shining, punctures very small, uniseriate. Declivity convex, steep; sculpture about as on disc. Vestiture of rows of fine, short striae hair and a small amount of similar ground cover on interstriae on posterior half of elytra, and interstitial rows of erect scales, each scale about four times as long as wide and equal in length to distance between rows.

Distribution: USA to Brazil.

Brazil: Pinhal; Sao Paulo (Schedl 1973:155, 169).

Hosts: *Aloe vera*, *Bauhinia alba*, *Bidens pilosa*, *Boehmeria scabra*, *Cajanus cajan*, *Cappria bifolia*, *Galactia spiciformis*, *Ipomoea cathartica*, *I. litoralis*, *Iva imbricata*, *Malvastrum* sp., *Mangifera indica*, *Paspalum vaginatum*, *Quisqualis indica*, *Salix babylonica*, *Uniola paniculata*, *Verbena* sp., *Zea mays*.

Biology: Breeds in a wide variety of unrelated hosts. Details of the habits have not been studied.

Notes: This is a valid species closely allied to *H. leprieuri* (Perris), originally named in *Dryocoetes*. The female holotype of *leprieuri* (labeled: "Edough" [Constantine Dep., Algeria], Jun. [18]58, B110, Paris Museum), is 1.5 mm long, similar to *californicus*, except the punctures behind the pronotum summit are smaller, not tuberculate, and the interstitial setae on the declivity are much longer (as long as the distance between rows) and sharply pointed. In *californicus* the declivital interstitial setae are shorter and with their apex blunt. It is rather common in the southern USA and in Mexico.

Hypothenemus parvistriatus Wood, n. sp.

Hypothenemus parvistriatus Wood. Holotype ♀; 1 mile W Ochopee, Collier Co., Florida; USNM, Washington, details below

Diagnosis: Distinguished from *vesculus* Wood by the black mature color; by the very small striae punctures; by the much more slender, erect interstitial setae; and by the rather abundant ground setae on the declivity.

Female: Length 1.2 mm, 2.2 times as long as wide; mature color black. Frons broadly convex from epistoma to vertex; area from upper level of eyes to vertex rugose-reticulate, lower area smooth, shining, punctures small, moderately close, a feeble median impressed line on two of 4 specimens; vestiture hairlike, rather short, sparse except on epistoma. Pronotum 0.85 times as long as wide; widest on basal third, sides moderately arcuate, rather narrowly rounded in front; anterior margin armed by six to eight serrations, median four larger; summit at middle, asperities rather small; posterior areas smooth, shining, area behind summit with all punctures replaced by tubercles, lateral areas closely, rather coarsely punctured, a few minute granules present; vestiture hairlike,

rather short, intermixed on basal third with slender scales. Elytra 1.2 times as long as wide, 1.4 times as long as pronotum; disc occupying basal 60 percent of elytra length; striae not impressed, punctures very small; interstriae four or more times as wide as striae, smooth, shining, punctures uniseriate, about as large as those of striae. Declivity convex, steep; sculpture similar to disc; striae punctures of reduced size below; interstriae with rather numerous, confused, very small punctures. Vestiture with rows of fine, very short striae hair from base to apex and similar hairlike ground cover on declivity, and rows of erect, slender interstitial scales, each scale about six to eight times as long as wide.

Type material: The female holotype and 3 female paratypes were taken 1 mile W Ochopee, Collier Co., Florida, 26 May 1976, in dead fern fronds, *Acrostichum danaeaeifolium*, by O'Brien & Marshall. The holotype and paratypes are in the U.S. National Museum, Washington.

Notes: This species is obviously of American origin, as indicated by the anatomical structure of the pronotum, and was probably introduced to Florida. The probability is very high that it also occurs in South America.

Hypothenemus eximius Schedl

Plate CXLVI

Hypothenemus eximius Schedl, 1951:99. Lectotype ♀; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien, designated by Schedl 1979: 94 (References in Wood & Bright c1992:925–926)

Diagnosis: Remotely allied to *gossypii* (Hopkins), but stouter, with very different elytral vestiture, and the setiferous interstitial tubercles small, conspicuous from base to apex.

Female: Length 1.3–1.4 mm, 2.3 times as long as wide; mature color almost black. Frons rugose-reticulate from upper level of eyes to vertex, more finely subrugose and with minute subgranulate punctures below; median area below upper level of eyes forming a low, obtuse callus, its upper end bearing a small, indefinite fovea; vestiture of sparse, short hair, more conspicuous on epistoma; antennal club strongly flattened, wider than normal, width equal to width of an eye. Pronotum 0.90 times as long as wide; widest slightly behind middle, sides moderately arcuate, broadly rounded in front; anterior margin armed by 6 serrations, lateral pair very small; summit at middle, asperities rather small; posterior and lateral areas strongly reticulate, with scattered tubercles, punctures mostly obsolete; vestiture of fine, rather short hair of moderate abundance. Elytra 1.4 times as long as wide, 1.5 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae weakly impressed near base of declivity, not impressed at base of disc, punctures small, distinct; interstriae almost twice as wide as striae, surface somewhat rugose at base, obscurely subrugose toward base of declivity, punctures uniseriate on basal half of disc, weakly sub-

vulcanate, on posterior half of disc and declivity punctures replaced by setiferous tubercles (some as high as wide). Declivity convex, steep; striae 1 and 2 weakly impressed (others not impressed), punctures distinct; interstriae almost smooth, shining, uniseriate tubercles continue to apex. Vestiture of rather abundant interstitial ground cover on declivity and posterior third of disc, of fine, rather short hair, and rows of erect interstitial setae, slightly shorter on disc, longer on declivity, each very slender, almost hairlike (apex of most pointed), length slightly greater than distance between rows.

Distribution: Brazil to Colombia.

Brazil: Aracruz, Espirito Santo, 20-X-1992, 4411, at light; Pocone, Mato Grosso do Sul, 26-XI-1999, fogging in *Shellea phalerata* vegetation, G.B. Santos; Secopedica, UFRRJ campus, Rio de Janeiro, 1999–2000, Atlantic forest, ethanol trap, A.M. Lunz; Nova Teutonia, Santa Catarina, 1944, F. Plaumann (type).

Colombia: Montegrande, Caicedonia, Valle de Cauca, Colombia, 19-VI-1959, cafe ramas secas, J. Restrepo.

Hosts: *Coffea* sp.

Biology: Removed from twigs of the host.

Notes: The above treatment was based on the female holotype and 2 female paratypes from Brazil, and on 2 females from Colombia.

Hypothenemus eruditus Westwood

Hypothenemus eruditus Westwood, 1936:34. Syntypes ♀; England; some in BMNH, London (Synonymy and references in Wood & Bright c1992:919–925)

Cryphalus aspericollis Wollaston, 1860:365. Syntypes, sex?; Madera; BMNH, London

Bostrichus boieldieui Perroud, 1864:188. Holotype ♀; Kanala, New Caledonia; not located

Cryphalus obscurus Ferrari, 1867:17. Holotype ♀; Cuba; NHMW, Wien, preoccupied by Fabricius 1801:395

Stephanoderes germari Eichhoff, 1878:159. Syntypes, sex?; America borealis (Mexico); Hamburg Museum, lost

Stephanoderes myrmedon Eichhoff, 1878:160. Holotype ♀; Colombia; IRSNB, Brussels

Stephanoderes ehlersi Eichhoff, 1878:493. Syntypes, sex?; Spain; Hamburg Museum, lost

Stephanoderes communis Schauffuss, 1891:11. Holotype ♀; Madagascar; NHMW, Wien

Hypothenemus insularis Perkins, 1900:181. Syntypes, sex?; Kauai, Hawaiian Islands; BMNH, London

Cryphalus tectonae Stebbing, 1903:263. Syntypes ♀; India, Berar, Melghat teak forests; FRI, Dehra Dun

Cryphalus striatopunctatus Lea, 1910:142. Syntypes, sex?; National Park, Sydney, New South Wales, Australia; SAM, Adelaide

Cryphalus tantillus Lea, 1910:142. Holotype, sex?; N.S. Wales: Richmond River, Australia; SAM, Adelaide

Cryphalus basjoo Niisima, 1910:9. Syntypes, sex?; Tokyo, Japan; Nobuchi Collection, Ibaraki

Hypothenemus tuberculatus Hagedorn, 1912:339. Syntypes, sex?; Congo; Hamburg Museum, lost

Cosmoderes schwarzi Hopkins, 1915:11. Holotype ♀; Haw Creek, Florida [USA]; USNM, Washington, lost except for a slide mount of an antenna

Hypothenemus bradfordi Hopkins, 1915:15. Holotype ♀; Honolulu, Hawaii; USNM, Washington

Hypothenemus flavosquamosus Hopkins, 1915:15. Holotype ♀; Mount Coffee, Liberia, West Africa; USNM, Washington

Hypothenemus asiminae Hopkins, 1915:16. Holotype ♀; Plummers Island, Maryland [USA]; USNM, Washington

- Hypothenemus hamamelidis* Hopkins, 1915:16. Holotype ♀; Morgantown, West Virginia; USNM, Washington
- Hypothenemus myristicae* Hopkins, 1915:16. Holotype ♀; Buitenzorg, Java; USNM, Washington
- Hypothenemus nigricollis* Hopkins, 1915:16. Holotype ♀; Capetown, South Africa; USNM, Washington
- Hypothenemus pruni* Hopkins, 1915:16. Holotype ♀; Tryon, North Carolina [USA]; USNM, Washington
- Hypothenemus runseyi* Hopkins, 1915:16. Holotype ♀; Little Falls, West Virginia; USNM, Washington
- Hypothenemus tenuis* Hopkins, 1915:16. Holotype ♀; Trece Aguas, Alta Verapaz, Guatemala; USNM, Washington
- Hypothenemus koebelei* Hopkins, 1915:17. Holotype ♀; Brazil; USNM, Washington
- Hypothenemus lineatifrons* Hopkins, 1915:17. Holotype ♀; Cayamas, Cuba; USNM, Washington
- Hypothenemus mali* Hopkins, 1915:17. Holotype ♀; Capetown, South Africa; USNM, Washington
- Hypothenemus parvus* Hopkins, 1915:17. Holotype ♀; Cayamas, Cuba; USNM, Washington
- Hypothenemus sacchari* Hopkins, 1915:17. Holotype ♀; Nevis, West Indies; USNM, Washington
- Hypothenemus webbi* Hopkins, 1915:17. Holotype ♀; Calapan, Mindoro, Philippine Islands; USNM, Washington
- Hypothenemus flavipes* Hopkins, 1915:18. Holotype ♀; Cayamas, Cuba; USNM, Washington
- Hypothenemus punctifrons* Hopkins, 1915:18. Holotype ♀; Lakeland, Florida [USA]; USNM, Washington
- Hypothenemus nigripennis* Hopkins, 1915:19. Holotype ♀; Tallulah, Louisiana [USA]; USNM, Washington
- Hypothenemus ferrugineus* Hopkins, 1915:20. Holotype ♀; Trece Aguas, Alta Verapaz, Guatemala; USNM, Washington
- Hypothenemus heathi* Hopkins, 1915:20. Holotype ♀; Independencia, Parahyba, Brazil; USNM, Washington
- Hypothenemus punctipennis* Hopkins, 1915:20. Holotype ♀; Capetown, "West" Africa; USNM, Washington
- Stephanoderes flavicollis* Hopkins, 1915:24. Holotype ♀; Cayamas, Cuba; USNM, Washington
- Stephanoderes pygmaeus* Hopkins, 1915:24. Holotype ♀; Pagbilao, P.I.; USNM, Washington
- Stephanoderes elongatus* Hopkins, 1915:25. Holotype ♀; Cayamas, Cuba; USNM, Washington
- Stephanoderes subconcentralis* Hopkins, 1915:25. Holotype ♀; Cayamas, Cuba; USNM, Washington
- Stephanoderes unicolor* Hopkins, 1915:25. Holotype ♀; Cayamas, Cuba; USNM, Washington
- Stephanoderes eonymi* Hopkins, 1915:26. Holotype ♀; Morgantown, West Virginia [USA]; USNM, Washington
- Hypothenemus bicolor* Eggers, 1919:241. Lectotype ♀; Amani, East Africa; USNM, Washington, designated by Anderson & Anderson 1971:6
- Hypothenemus ehlersi rotroui* Peyerimhoff, 1919:255. Syntypes, sex?; Sidi-bel-Abbes, Oran, North Africa; MNHN, Paris
- Hypothenemus juglandis* Blackman, 1922:88. Syntypes, sex?; Port Gibson, Mississippi [USA]; USNM, Washington
- Hypothenemus pusillus* Eggers, 1927:173. Lectotype ♀; Mayumbe, Belgian Congo; USNM, Washington, designated by Anderson & Anderson 1971:27
- Stephanoderes intersetosus* Eggers, 1928:85. Lectotype ♀; Brazil, Sao Paulo (Umgegend der Stadt); USNM, designated by Anderson & Anderson 1971:16
- Stephanoderes gracilis* Eggers, 1929:51. Holotype ♀; Cuba; NHMW, Wien, automatic, replacement name for *obscurus* Ferrari
- Hypothenemus lezjavai* Pjatkitskii, 1929:15. Syntypes, sex?; Georgia, USSR [Russia]; not located
- Hypothenemus citri* Ebeling, 1935:21. Holotype ♀; Orange, California [USA]; CAS, San Francisco
- Stephanoderes erythrinae* Eggers, 1936:628. Holotype ♀; Sakalaspur, India; BMNH, London
- Hypothenemus bicolor* Schedl, 1939:32. Lectotype ♀; Java, Pengandaran; NHMW, Wien, designated by Schedl 1979:38, preoccupied by Eggers 1919:241
- Hypothenemus argentinensis* Schedl, 1939:408. Lectotype, sex?; Corrientes, Buenos Aires; NHMW, Wien, designated by Schedl 1979:24
- Hypothenemus cylindricus* Schedl, 1939:409. Lectotype, sex?; Isla Martin Garcia, Buenos Aires, Argentina; NHMW, Wien, designated by Schedl 1979:74, preoccupied by Hopkins 1915:25
- Hypothenemus asaroriensis* Beeson, 1940:195. Holotype ♀; United Provinces: Asarari, Dehra Dun Division; FRI, Dehra Dun
- Hypothenemus dubiosus* Schedl, 1940:207. Lectotype, sex?; Hamburg farm, Limon, Costa Rica; NHMW, Wien, designated by Schedl 1979:84
- Stephanoderes subcylindricus* Eggers, 1940:233. Holotype ♀; Mosolo Kwenge, Kwango, Congo; MRCB, Tervuren
- Hypothenemus maiensis* Schedl, 1941:110. Lectotype, sex?; Iao Valley, Maui; NHMW, Wien, designated by Schedl 1979:150
- Hypothenemus glabratus* Schedl, 1942:175. Lectotype ♀; Kuala Lumpur, Malaya; NHMW, Wien, designated by Schedl 1979:105
- Archeophalus ealaensis* Eggers, 1944:94. Syntypes ♀; Eala, Belgian Congo; MRCB, Tervuren
- Stephanoderes nanulus* Schedl, 1948:263. Lectotype, sex?; Fernando, Noronha; NHMW, Wien, designated by Schedl 1979:163
- Hypothenemus parilis* Schedl, 1951:100. Lectotype, sex?; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien, designated by Schedl 1979:185
- Hypothenemus hirtipennis* Schedl, 1952:450. Lectotype ♀; Tigre, Buenos Aires, Argentina; NHMW, Wien, designated by Schedl 1979:118 (References in Wood & Bright c1992:930–931). *New synonymy*
- Hypothenemus longipilus* Schedl, 1952:45. Lectotype ♀; Tigre, Buenos Aires, Argentina; NHMW, Wien, designated by Schedl 1979:141 (References in Wood & Bright c1992:934). *New synonymy*
- Hypothenemus obscuripes* Schedl, 1952:449. Lectotype ♀; Pilar, Buenos Aires, Misiones, Argentina, Dep. Concep., Santa Maria; NHMW, Wien, designated by Schedl 1979:175
- Stephanoderes tigrensis* Schedl, 1952:452. Lectotype, sex?; Tigre, Buenos Aires, Argentina; NHMW, Wien, designated by Schedl 1979:253
- Hypothenemus glabratellus* Schedl, 1953:292. Lectotype, sex?; Selangor, Kepong, Malaya; NHMW, Wien, designated by Schedl 1979:105
- Hypothenemus parcius* Schedl, 1957:449. Lectotype, sex?; Yangambi, Mabikwa, Congo Belg.; MRCB, Tervuren
- Hypothenemus cylindripennis* Schedl, 1957:51. Holotype, sex?; Kivu, Mulungu; Congo Belg.; MRCB, Tervuren
- Hypothenemus vianai* Schedl, 1958:42. Lectotype, sex?; Tigre, Buenos Aires, Argentina; NHMW, Wien, designated by Schedl 1979:267
- Hypothenemus mesoleius* Schedl, 1959:480. Syntypes ♀; Millawitiya Estate, Ceylon; NHMW, Wien
- Hypothenemus minutulus* Schedl, 1972:225. Holotype, sex?; Peradeniya, Central-North Central, Ceylon, 550 m; MHNG, Geneva
- Cryphalus minutus* Schedl, 1978:299. Holotype, sex?; Nova Teutonia, Santa Catarina, Brazil, 300–500 m, 27°11'Br., 52°23'W; NHMW, Wien, preoccupied by Hopkins 1915:26

Diagnosis: This appears to be the most widely distributed and the most abundant species of Scolytidae in the world. It is somewhat variable and not always identified with ease. It is distinguished by the rather small size; by the presence of hairlike interstitial ground vestiture at least on and near the declivity; by the presence of 6 rather closely set serrations on the anterior margin of the pronotum; by the absence of a median tubercle or broad impression on the frons (a weak, short, median groove usually present); and by the erect interstitial scales that vary from two to eight times as long as wide.

Male: Length 0.7 mm; similar to female except body smaller, eye half as large, antennal funicle 3-segmented; all features poorly formed.

Female: Length 1.0–1.3 mm, 2.4 times as long as wide; mature color dark brown to almost black. Frons broadly convex from epistoma to vertex; surface rugose-reticulate from vertex to upper level of eyes, more finely rugose below, punctures rather numerous, small to obscure; a median fovea or short groove usually, not always present; vestiture of fine, rather sparse hair. Pronotum 0.90 times as long as wide; widest on basal third, sides weakly arcuate on basal half, rather broadly rounded in front; anterior margin armed by 6 serrations; summit at middle, anterior slope coarsely asperate; posterior areas mostly reticulate, a few tubercles behind disc to base, lateral areas with shallow punctures small to almost obsolete. Elytra 1.7 times as long as wide, 1.8 times as long as pronotum; disc occupying basal 60 percent of elytra length; striae not impressed, punctures small, distinct; interstriae twice as wide as striae, shining, almost smooth, punctures small, uniseriate. Declivity convex, steep; sculpture about as on disc. Vestiture of rows of minute strial hair, with similar supplemental microhairs at least on lateral declivity (variable from sparse to abundant), and rows of erect interstitial scales, each scale varying from about three to eight times as long as wide.

Distribution: Common in virtually all tropical and subtropical terrestrial areas of the earth, including all South American countries below elevations of about 1500 m. Collection records are too numerous to list.

Hosts: Hundreds of host species have been recorded, including fungal fruiting bodies, twigs, weeds, pods, seeds, and other unexpected places. The original series was removed from active tunnels in the cover of an old book.

Biology: The female parent excavates an irregular chamber in which eggs are deposited in the frass. The larvae extend the parent tunnel. The excavations are usually irregular, without a definite pattern. Flightless males mate with female siblings.

Notes: The above treatment was based on a female syntype of *eruditus*, on the holotypes of *bradfordi*, *flavosquamosus*, *nigricollis*, *pruni*, *rumseyi*, *asiminae*, *hamamelidis*, *tenuis*, *myrmidon*, *myristicae*, *lineatifrons*, *obscurus*, *sacchari*, *webbi*, *koebeleri*, *mali*, *parvus*, *flavipes*, *punctifrons*, *nigripennis*, *ferrugineus*, *heathi*, *punctipennis*, *elongatus*, *evonymi*, *flavicollis*, *pygmaeus*, *subcentralis*, *unicolor*, *erythrinae*, and *subcylindricus*, on lectotypes (where designated) or syntypes of *aspericollis*, *insularis*, *basjoo*, *bicolor*, *juglandis*, *intersetosus*, *dubiosus*, *glabratus*, and *ealensis*, and on paratypes of *citri*. I have not seen authentic specimens of *germari*, *ehlersii*, *boieldieui*, *tuberculosis*, *rotroui*, *lezjavai*, and *glabratellus*; they are listed here because they have been previously placed in synonymy by the authors cited in Wood & Bright (c1992:920–925). In addition to the above type material, more than 2000 specimens of this species were examined.

The large number of synonyms has resulted partly from diversity among the specimens examined, partly

from the inability of taxonomists to see the minute characters due to limitations of their optical equipment, partly from the inaccessibility of previously described material, and largely from a faulty host selection principle conceived by Hopkins. Almost no 2 series of this species taken from different localities are exactly alike in the sculpture of the frons; the variability of other characters is insignificant by comparison. The beetles inbreed, thus producing the genetic diversity in a series or in a local population derived from 1 female. The resulting uniformity of characters seen in material from one locality contrasted with similar uniformity of a slightly different form at another has been difficult to interpret without more knowledge of the genetics of this species than is now available (Wood 1982:903).

Hypothenemus ebenus Wood, n. sp. 

Hypothenemus ebenus Wood: Holotype ♀; Aracruz, Espirito Santo, Brazil; MZUSP, Sao Paulo, designated below

Diagnosis: Distinguished from *parallelus* (Hopkins) by the slightly larger size; by the deeper transverse impression on the frons; by the darker color; and by total absence of hairlike setae on the discal interstriae.

Female: Length 1.3–1.5 mm, 2.4 times as long as wide; mature color black. Frons strongly convex from upper level of eyes to vertex, moderately, broadly, transversely impressed from epistoma to moderate median tubercle just below upper level of eyes [resembling *crudiae* (Panzer) except no indication of a median groove and transverse impression deeper]; a small, median elevation on epistoma; surface rugose-reticulate above upper level of eyes, smooth, shining on median one-eighth between epistoma and median tubercle; lateral areas on lower half, very finely rugose; antennal club small, 1.6 times as long as wide, typical of genus. Pronotum 0.9 times as long as wide; sides on basal half of pronotum length weakly arcuate and converging slightly toward rather broadly rounded anterior margin; anterior margin armed by 6 moderate serrations; summit at middle of pronotum length; anterior slope very steep; asperities coarse, narrow, rather numerous; discal area with numerous micropunctures, some of them weakly subvulcanate; vestiture rather abundant, a mixture of hairlike and scalelike setae. Elytra 1.5 times as long as wide, 1.7 times as long as pronotum; disc occupying 76 percent of elytra length; striae not impressed, punctures deep, moderately large, close; interstriae as wide as striae, smooth, shining, punctures minute, uniseriate. Declivity very steep, rather narrowly convex; sculpture about as on disc. Vestiture of minute, fine strial hair, and interstitial rows of erect scales (no hairlike setae), each scale four to six times as long as wide.

Distribution: Brazil (Espirito Santo).

Type material: The female holotype was taken at Aracruz, Espirito Santo, Brazil, 8-XII-1995, No. 7324. Seven paratypes are from the same locality, taken on dates

from 18-XI-1992 to 16-I-1996 Nos. 4917-7359. The holotype and 5 paratypes are in the Museum de Zoologie, Universidade de Sao Paulo, Sao Paulo. Two paratypes are in the U.S. National Museum, Washington.

Hypothenemus teretis Wood

Hypothenemus teretis Wood, 1971:35. Holotype ♀; Finca La Lola, Limon, Costa Rica; USNM, Washington (References in Wood & Bright c1992:946)

Diagnosis: Distinguished by the weak, transverse elevation on the frons just below the upper level of the eyes; and by the erect interstitial scales on the basal half of the elytral disc being replaced by minute, hairlike setae on the posterior disc and declivity.

Female: Length 1.0–1.2 mm, 2.3 times as long as wide; color dark brown to black. Frons with a weak, transverse, median callus at upper level of eyes, area from callus to epistoma shallowly, transversely impressed; surface above eyes strongly reticulate; impressed area below smooth, shining on median third, reticulate and finely punctured laterally; vestiture hairlike, sparse, short. Pronotum 0.90 times as long as wide; as described for *eruditus* Westwood. Elytra 1.5 times as long as wide, 1.6 times as long as pronotum; disc occupying basal two-thirds; striae not impressed at base, feebly impressed near declivity; punctures rather small, distinct; interstriae slightly wider than striae, shining, punctures very small, close, somewhat confused. Declivity convex, rather steep, striae slightly impressed, punctures smaller than on disc, some obscure; interstriae feebly convex, rather closely micropunctate. Vestiture of rows of minute striae hair at least on disc; interstriae with rows of erect, flattened setae on slightly more than basal half of disc, these setae each about four to six times as long as wide, replaced on posterior disc and all of declivity by minute, hairlike setae resembling those of striae.

Distribution: Costa Rica to Venezuela.

Venezuela: 9 km S Barrancas, Barinas, 5-XI-1969, 150, No. 101, *Serjania*, SLW; 40 km E Canton, Barinas, 8-III-1970, 70 m, No. 352, *Serjania*, SLW; Campamento Rio Grande 30 km E Palmar, Bolivar, 12-VI-1970, 200 m, No. 575, *Sterculia pruriens*, SLW; 20 km SW El Vigia, Merida, 10-XII-1969, 50 m, No. 184, SLW; El Vigia, Merida, 22-X-1969, *Cecropia* leaf petiole, SLW; El Pino, Zulia, 20-X-1969, 10 m, No. 137, *Inga* twigs, SLW.

Hosts: *Canavalia villosa*, *Cecropia* sp., *Inga* sp., *Serjania* sp., *Sterculia pruriens*, *Theobroma cacao*.

Biology: Breeds in bark of small stems in tropical rain forest.

Notes: The above treatment was based on the type series of 14 females from Costa Rica and 4 females from Venezuela.

Hypothenemus parallelus (Hopkins)

Hypothenemus parallelus Hopkins, 1915:25 (*Stephanoderes*) Holotype ♀; Tampico, Tamaulipas, Mexico; USNM, Washington (References in Wood & Bright c1992:938)

Diagnosis: Distinguished from *plumeriae* (Nordlinger) by the slightly smaller size; by the smaller median tubercle near the upper level of the eyes; and by the smaller median impression between the epistoma and the frontal tubercle; the erect interstitial scales on the declivity are two to three times as long as wide.

Female: Length 1.0–1.1 mm, 2.6 times as long as wide; color almost black. Very close to *plumeriae*, except as noted in the diagnosis.

Distribution: Hawaiian Islands, and Mexico (Colima, Tamaulipas) to Brazil (Mato Grosso do Sul).

Brazil: Tres Lagoas, Mato Grosso do Sul, 1-IX-2001, International Paper area, riparian forest, fallen *Cecropia* petiole, C.A.H. Flechtmann.

Notes: One specimen from Brazil was compared to my series that had been compared by me to the holotype of *parallelus* (Hopkins). This rare species is very close to *plumeriae* and may eventually be found to be a synonym when more material is available for study. A DNA analysis is needed to resolve this problem.

Hypothenemus plumeriae (Nordlinger)

Hypothenemus plumeriae (Nordlinger), 1856:74 (*Bostrichus*). Holotype ♀; Venezuela; NHMW, Wien (Synonymy and references in Wood & Bright c1992:938)

Hypothenemus pallidus Hopkins, 1915:18. Holotype ♀; Mt. Coffee, Liberia; USNM, Washington

Stephanoderes cylindricus Hopkins, 1915:25. Holotype ♀; Trece Aguas, Alta Verapaz, Guatemala; USNM, Washington

Stephanoderes transatlanticus Eggers, 1941:99. Holotype ♀; Trois Rivières, Guadeloupe; MNHN, Paris

Hypothenemus guadeloupensis Schedl, 1951:98. Syntypes ♀; Guadeloupe; NHMW, Wien

Stephanoderes ituriensis Schedl, 1957:55. Holotype, sex?; Kivu, Veni, Belgian Congo; MRCB, Tervuren

Diagnosis: This species and *parallelus* (Hopkins) are distinguished from *eruditus* only by characters of the frons. Both have a small, conspicuous median tubercle very slightly below the upper level of the eyes. In *parallelus* the frons is more broadly convex and lacks a small median impression immediately below the tubercle; in *plumeriae* the frons is more strongly convex and has a definite, very small impression below the tubercle. Both species are rare.

Female: Length 1.1–1.3 mm, 2.7 times as long as wide; mature color very dark brown. Frons rather strongly convex from near epistoma to vertex; surface finely rugose-reticulate from vertex at least half distance to epistoma, lower areas becoming subrugose, with very small, obscure punctures; a small, conspicuous median tubercle very slightly below upper level of eyes, a very shallow, narrow, median impression immediately below tubercle; vestiture hairlike, sparse, mostly on or near epistoma. Pronotum and elytra essentially as in *eruditus*.

Distribution: Africa (Liberia, Zaire), Antilles Islands, Guatemala to Honduras and Colombia to Brazil.

Brazil: Pacone, Mato Grosso do Sul, 29-XI-1999, fogging in *Shellea phalerata* vegetation, G.B. Santos;

Agudos, Duraflora, Sao Paulo, 3-IV-1984, 27-I-1984, 2-IV-1986, ethanol trap, *Pinus c. carabaea* stand, C.A.H. Flechtmann; Lencois Paulista, Duraflora, Sao Paulo, 7-III-1990, ethanol trap, *Eucalyptus grandis* stand, C.A.H. Flechtmann.

Colombia: Campo Capote 27 km NE Montoya, Santander, 2-VII-1970, 150 m, No. 648, *Chrysophyllum caimito*, SLW, same No. 589, *Eichweilera*, SLW, same No. 590, Leguminose tree twigs; Carton de Colombia forest 8 km S Colonia, near Buenaventura, Valle de Cauca, 9-VII-1970, 30 m, No. 615, *Lecythis*, SLW, same No. 648, *Chrysophyllum caimito*.

Venezuela: Campamento Rio Grande 30 km E Palmar, Bolivar, 12-VI-1970, 200 m, No. 575, *Sterculia pruriens*, SLW; 9 km S Barrancas, Barinas, 5-XI-1969, 150 m, No. 111, *Inga*, SLW; 40 km E Canton, Barinas, 8-III-1970, No. 352, *Serjania*, SLW; 30 km N Canyon Zancudo, Zulia, 4-VI-1970, 10 m, No. 522, liana, SLW.

Hosts: *Canavalia villosa*, *Cayaponia microdonta*, *Chrysophyllum caimito*, *Coffea* sp., *Daphnopsis seibertii*, *Dioclea megacarpa*, *Eichweilera* sp., *Harungana madagascariensis*, *Inga* sp., *Qualea wittrockii*, *Serjania* sp., *Sterculia pruriens*.

Biology: Breeds in small stems of its hosts in tropical rain forests.

Notes: The above treatment was based on 22 females from Central America, 6 from Colombia, and 29 from Venezuela, plus the female holotypes of *Bostrichus plumeriae* Nordlinger, *Hypothenemus pallidus* Hopkins, *Stephanoderes cylindricus* Hopkins, *S. transatlanticus* Eggers, and *S. ituriensis* Schedl, and the syntypes of *H. guadeloupensis* Schedl. Great confusion surrounded the identity of this species until the holotype of *plumeriae* was found in NHMW, Wien, in 1983.

Hypothenemus suspectus Wood

Hypothenemus suspectus Wood, 1974:22. Holotype ♀; Pandora, Limon, Costa Rica; USNM, Washington (References in Wood & Bright c1992:946)

Diagnosis: Distinguished from *plumeriae* (Nordlinger) by characters of the frons as described above and below.

Female: Length 1.1–1.3 mm, 2.5 times as long as wide; mature color dark brown. Frons with a median, transverse callus at upper level of eyes on median fifth, a distinct, subconcave impression on median fifth from callus to epistomal margin; lateral areas rather coarsely, closely punctured from immediately above epistoma to well above upper level of eyes, vertex strongly reticulate; vestiture hairlike, mostly on and near epistoma. Pronotum and elytra essentially as in *eruditus* Westwood; erect interstitial scales each six to eight times as long as wide.

Distribution: Mexico (Nayarit) to Panama and Venezuela.

Venezuela: 20 km SW El Vigia, Merida, 10-XII-1969, 50 m, No. 188, liana, SLW.

Hosts: *Albizzia caribaea*, *Cecropis* sp., *Inga* sp., *Theobroma cacao* (Wood & Bright c1992:946).

Biology: Specimens were taken from small stems.

Notes: The above treatment was based on the type series of 17 specimens.

Hypothenemus areccae (Hornung)

Hypothenemus areccae (Hornung), 1842:117 (*Bostrichus*). Lectotype ♀; Ostindien nuts intercepted in Germany; MNB, Berlin, designated by Wood 1974:282 (Synonymy and references in Wood & Bright c1992:906–908)

Stephanoderes obscurus Eichhoff, 1872:133. Holotype ♀; Antilles; IRSNB, Brussels, preoccupied by Fabricius 1801:395. *New synonymy*

Stephanoderes depressus Eichhoff, 1878:155. Holotype ♀; Antilles; IRSNB, Brussels, automatic, replacement name for *obscurus* Eichhoff. *New synonymy*

Hypothenemus vafer Blandford, 1896:241. Syntypes 4, sex? Noumea, New Caledonia; BMNH, London

Stephanoderes fungicola Eggers, 1908:216. Holotype ♀; Java; Fiori Collection, Bologna

Stephanoderes polyphagus Eggers, 1924:104. Syntypes, sex?; Mayumbe and Barumba, Congostaat; MRCB, Tervuren; 4 in NHMW, Wien

Stephanoderes hispidus Eggers, 1925:156. Lectotype, sex?; Birma and India orient., both apparently Tenasserim; NHMW, Wien, designated by Schedl 1979:119

Hypothenemus heterolepsis Costa Lima 1928:117. Syntypes, sex?; Bahia, Brazil; Collecao Entomologica do Instituto, Brazil (presumably MZUSP, Sao Paulo)

Hypothenemus capitalis Beeson, 1935:102. Lectotype ♀; Hadehetau Valley 1000 feet, Uapou, Marquesas Islands; BPBM, Honolulu, designated by Wood 1982:906

Hypothenemus eupolyphagus Beeson, 1940:193. Holotype ♀; Dehra Dun, United Provinces, India; FRI, Dehra Dun

Stephanoderes subvestitus Eggers, 1940:232. Holotype ♀; Mosolo Kwenge, Kwango, Congo; MRCB, Tervuren

Stephanoderes bambesanus Eggers, 1940:232. Holotype ♀; Congo-staat: Bambesa; MRCB, Tervuren

Stephanoderes martiniquensis Eggers, 1941:99. Holotype ♀; St. Pierre, Martinique; USNM, Washington

Hypothenemus oahuensis Schedl, 1941:110. Syntypes ♀; Punaluu, Oahu, Hawaiian Islands; BPBM, Honolulu

Hypothenemus subglabratus Schedl, 1942:174. Holotype, sex?; Fiji; NHMW, Wien

Hypothenemus bauhaniae Schedl, 1950:19. Lectotype, sex?; Sierra Leone, Njala; NHMW, Wien, designated by Schedl 1979:36

Stephanoderes occidentalis Schedl, 1954:76. Lectotype, sex?; Mpraeso, Ghana; NHMW, Wien, designated by Schedl 1979:177

Diagnosis: Distinguished from *columbi* Hopkins by the slightly larger average size; by the longer, much more slender interstitial scales; by the more strongly, more extensively flattened frons; and by the smoother, more shining posterior and lateral areas of the pronotum.

Female: Length 1.2–1.4 mm, 2.6 times as long as wide; mature color dark brown. Frons transversely, rather strongly impressed on slightly more than median half from epistoma to upper level of eyes, upper margin of impression an obtuse crest, a weak tubercle at median line on crest; surface below crest smooth, shining, very finely, rather closely punctured; area above crest strongly reticulate, a few punctures near crest; vestiture of fine hair, rather short and moderately abundant in impressed area, longer and more abundant on epistoma. Pronotum 0.94 times as long as wide; widest at middle, sides feebly arcuate on basal half, rather broadly rounded in front; anterior margin armed by 8 serrations; summit at

middle, anterior slope coarsely asperate; areas between asperities and basal and lateral areas smooth, shining, several granules behind summit, lateral areas closely, rather coarsely, deeply punctured; vestiture hairlike, rather short, several erect, slender scales near base. Elytra 1.7 times as long as wide, 1.7 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed, punctures small; interstriae almost twice as wide as striae, surface almost smooth, shining, punctures minute, uniseriate, not granulate. Declivity convex, steep, sculpture as on disc. Vestiture of rows of minute striae hair supplemented behind by sparse, similar interstitial ground setae, and rows of erect interstitial scales, each scale about six times as long as wide and about equal in length to distance between rows.

Distribution: Africa, SE Asia to Indonesia, Micronesia, introduced to USA (Florida), Antilles Islands, and Brazil.

Brazil: Bahia (*heterolepsis* type); UFRRJ campus, Rio de Janeiro, 1999–2002, A.M. Lunz.

Hosts: Numerous species of herbs, shrubs, and trees (Brown 1961:77–78). Schedl records are confused with those of *eruditus*.

Biology: Common in fruits, nuts, seeds, twigs, etc.

Notes: The above treatment was based on 43 female specimens from Africa, Asia, Micronesia, Florida, Antilles Islands, etc. The lectotypes of *Bostrichus areccae* Hornung, *H. capitalis* Beeson, *H. hispidus* Eggers, *H. bahiniae* Schedl, and *Stephanoderes occidentalis* Schedl were examined, along with the holotypes of *H. eupolyphagus* Beeson, *S. bombesanus* Eggers, *S. martiniquensis* Eggers, and *H. subglabratus* Schedl, and syntypes of *H. oahuensis* Schedl.

Hypothenemus columbi Hopkins

Hypothenemus columbi Hopkins, 1915:18. Holotype ♀; Columbus, Texas [USA]; USNM, Washington (Synonymy and references in Wood & Bright c1992:912–913)

Hypothenemus abdominalis Hopkins, 1915:18. Holotype ♀; Cayamas, Cuba; USNM, Washington

Hypothenemus brunneipennis Hopkins, 1915:18. Holotype ♀; Cayamas, Cuba; USNM, Washington

Hypothenemus rufopalliatius Hopkins, 1915:18. Holotype ♀; Charleston, South Carolina [USA]; USNM, Washington

Hypothenemus amplipennis Hopkins, 1915:19. Holotype ♀; Cayamas, Cuba; USNM, Washington

Diagnosis: Distinguished from *areccae* Hornung by the slightly smaller average size; by the shorter, more strongly flattened interstitial scales; by the less extensively flattened frons, with the transverse carina higher, more acutely elevated; and by the subreticulate posterior and lateral areas of the pronotum.

Female: Length 1.0–1.2 mm, 2.4 times as long as wide, mature color dark brown. Frons transversely impressed from epistoma to transverse carina at upper level of eyes, carina strongest and obtusely costate on median third; vertex strongly reticulate, replaced from above upper level of eyes to middle of frons by punctures, obscurely rugose at sides below, median area almost

smooth; vestiture hairlike, sparse above, mostly on epistoma. Pronotum about as in *areccae*, except basal and lateral areas mostly reticulate, punctures minute, mostly obsolete. Elytra about as in *areccae*, except striae punctures distinctly larger, deeper. Vestiture similar to *areccae*, except erect interstitial scales strongly flattened, each about three times as long as wide on disc, about twice as long as wide on declivity, declivital scales distinctly shorter than distance between rows.

Distribution: SE USA and Antilles Islands to Panama, Colombia, and Venezuela.

Colombia: Cited in Wood & Bright (c1929:912–913).

Venezuela: 9 km S Barrancas, Barinas, 1-X-1969, 150 m, No. 34, vine, SLW, same No. 35, *Cucurbita*.

Hosts: *Bauhinia alba*, *Citrus aurantifolia*, *Cucurbita* sp., *Ficus* sp., *Ichthyomethia communis*, *Morus rubra*, *Quercus* spp., *Salix* sp., *Serjania* sp.

Biology: Most commonly taken in vines and lianas; also taken in broken twigs of trees. It has not been reported from fruits, seeds, or nuts.

Notes: The above treatment was based on 35 females from North and Central America, and 6 females from Venezuela. The holotypes of *H. columbi* Hopkins, *H. abdominalis* Hopkins, *H. brunneipennis* Hopkins, *H. rufopalliatius* Hopkins, and *H. amplipennis* Hopkins were examined and compared by me directly to my specimens.

Hypothenemus africanus (Hopkins)

Hypothenemus africanus (Hopkins), 1915:30 (*Stephanoderes*). Holotype ♀; Capetown, South Africa; USNM, Washington (References in Wood & Bright c1992:906)

Diagnosis: Distinguished from *setosus* by the larger average size; by the longer, much broader erect, interstitial scales; and by the smooth, shining posterolateral areas of the pronotum.

Female: Length 1.7–1.9 mm, 2.5 times as long as wide; mature color dark brown. Frons transversely impressed on median half from well above upper level of eyes two-thirds distance toward epistomal margin, median fourth moderately concave, upper crest abruptly subcarinate; vertex rugose-reticulate, concave area below smooth, with fine punctures, lateral areas rather coarsely punctured; vestiture hairlike, moderately abundant, rather short from carina to epistoma, much longer at epistomal margin. Pronotum 0.90 times as long as wide; widest on basal third, sides weakly arcuate on basal half, broadly rounded in front; anterior margin armed by 4–8 serrations, median one or two pair often absent (leaving a wide gap in median area); summit at middle, anterior slope coarsely asperate; surface smooth, shining, very finely punctured, rather densely punctured at base and sides; vestiture of fine, abundant, rather short hair, a few scales near base. Elytra 1.5 times as long as wide, 1.7 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed, punctures small, distinct; interstriae about three times as wide as striae,

surface smooth, shining, punctures minute, confused. Declivity broadly convex, steep; striae obsolete except punctures minute near base; surface smooth, shining, punctures abundant, very small. Vestiture of minute short hair of moderate abundance in ground cover, and erect interstitial scales, those on 2 and 3 of disc confused, others in rows, each scale two to three times as long as wide, distinctly shorter than distance between rows, spaced within a row by less than length of a scale.

Distribution: S Africa, Singapore, Indonesia, New Guinea, SE USA, Antilles Islands, Central America, Brazil, Venezuela.

Brazil: Cited in Wood & Bright (c1992:906).

Venezuela: 9 km E Lagunillas, Merida, 12-I-1970, 1000 m, No. 237, *Mimosa* twig, SLW.

Hosts: Bean pods, *Caesalpinus pulcherrima* pods, *Delonix* (pods), *Mangifera indica*, *Mimosa* sp., *Morus* sp., *Pyrus malus*, *Rhizophora mangle*.

Biology: This species apparently breeds in pods or fruit. Single specimens have also been taken in twigs but may not breed there.

Notes: The above treatment was based on 12 female specimens, including the holotype. It has been transported so extensively through commerce that its area of origin is doubtful; related species are native to Africa.

Hypothenemus setosus (Eichhoff)

Hypothenemus setosus (Eichhoff), 1868:391 (*Hypoborus*). Syntypes ♀; Guadeloupe; Hamburg Museum, most lost; 1 in USNM, Washington (Synonymy and references in Wood & Bright c1992:943–944) *Stephanoderes congonus* Hagedorn, 1912:337. Lectotype ♀; Eala, Congo; MRCB, Tervuren, designated by Wood 1975:393

Diagnosis: Distinguished from *africanus* (Hopkins) by the smaller average size; by the more slender body; by the much more slender, erect interstitial scales; and by the less strongly impressed frons.

Female: Length 1.6–1.7 mm, 2.4 times as long as wide; mature color dark brown. Frons with a transverse subacute carina on median third well above upper level of eyes; area below carina longitudinally straight, transversely, slightly convex, median fifth smooth, shining, lateral areas punctured; vertex strongly reticulate; vestiture hairlike, sparse. Pronotum 0.96 times as long as wide; widest just behind middle, sides weakly arcuate on basal half, anterior margin more distinctly procurved than in *africanus*; anterior margin armed by 8 regularly spaced serrations; summit at middle, asperities smaller and more numerous than in *africanus*, posterior and lateral areas smooth, shining, closely, finely punctured; vestiture hairlike, short, rather abundant, a few erect scales behind summit. Elytra 1.5 times as long as wide, 1.6 times as long as pronotum; disc occupying two-thirds of elytra length; striae not impressed, punctures rather small, distinct; interstriae twice as wide as striae, shining, almost smooth, punctures very small, mostly uniseriate. Declivity strongly convex, steep; sculpture about as on disc, striae punctures distinctly impressed. Vestiture of rows of short, fine striae hair, and rows of

erect interstitial scales, each scale slender, six (disc) to eight (declivity) times as long as wide.

Distribution: Africa, Taiwan, Antilles Islands and Mexico (Chiapas) to Colombia, Venezuela, and Brazil.

Brazil: Cited in Wood & Bright (c1992:944); Tres Lagoas, Mato Grosso do Sul, 20-X-2001, International Paper, Hortu Barro de Moeda, riparian forest, fallen *Cecropia* petiole, C.A.H. Flechtmann; Bella Horizonte, UFMG, 1-VIII-1997, D. Yanaga; UFRRJ campus, Ilha Solteira, C.A.H. Flechtmann; Telemaco Borba, Klabin Papel e Cellulose, ethanol trap, *Pinus taeda* stand, C.A.H. Flechtmann.

Colombia: Rio Guainia, Guainia, 2-IV-1972, cacao, J. Echeverry; Libano, Tolima, 2-VI-1959, cacao, E. Piedrhitá; Finca Latribuna, El Bosque Caicedonia, Valle de Cauca, V-1959, en granos de *Coffea*, E. Vargas.

Venezuela: Campamento Rio Grande 30 km E Palmar, Bolivar, 12-VI-1970, 200 m, No. 575, *Sterculia pruriens*, SLW; 40 km E Canton, Barinas, 8-III-1970, 30 m, No. 373, in flight, SLW; 8 km SW Bumbum, Barinas, 11-II-1970, 150 m, No. 311, Curcubitaceae vine, SLW; 40 km SE Socopo, Barinas, 25-I-1970, 150 m, No. 273, bejuco blanco, SLW; 8 km E Lagunillas, 12-I-1970, 1000 m, 237, *Mimosa*, SLW; 20 km SW El Vigia, Merida, 10-XII-1969, 50 m, No. 184, SLW; 9 km S Barrancas, Barinas, 5-XI-1969, 150 m, No. 10, espinito de sabana, SLW; Finca Monasterios, Cacagua, Miranda, *Theobroma cacao*, J.L. Saunders.

Hosts: *Acacia pennatula*, *Bauhinia variegata*, *Cecropia* sp., *Coffea* sp., *Mangifera indica*, *Mimosa* sp., *Sterculia pruriens*, *Theobroma cacao*.

Biology: This species breeds in fruits and in small stems of a wide variety of hosts.

Notes: The above treatment was based on 1 syntype of *setosus*, the lectotype of *congonus*, and on 4 other specimens from Africa, 23 from Central America, 4 from Colombia, and 14 from Venezuela.

Hypothenemus javanus (Eggers)

Hypothenemus javanus (Eggers), 1908:215 (*Stephanoderes*). Lectotype ♀; Java, USNM, Washington, designated by Anderson & Anderson 1971:16 (Synonymy and references in Wood & Bright c1992:932–933)

Stephanoderes obesus Hopkins, 1915:30. Holotype ♀; Cayamas, Cuba; USNM, Washington

Stephanoderes philippinensis Hopkins, 1915:31. Holotype ♀; Angat, Philippine Islands; USNM, Washington

Stephanoderes bananensis Eggers, 1922:167. Syntypes 2, sex?; Banana, Congo; Eggers Collection (USNM, Washington, or NHMW, Wien?)

Stephanoderes kalshoveni Schedl, 1939:35. Lectotype, sex?; Pasoeroean, Java; NHMW, Wien, designated by Schedl 1979:131

Stephanoderes subagnatus Eggers, 1940:101. Holotype ♀; Eala, Congo; MRCB, Tervuren

Stephanoderes pistora Schedl, 1951:102. Syntypes 2, sex?; Havana, Cuba; NHMW, Wien

Stephanoderes prosper Schedl, 1951:103. Holotype ♀; Guadeloupe; NHMW, Wien

Diagnosis: Distinguished from *brunneus* Hopkins by the smaller average size; by the finely punctured posterolateral areas of the pronotum (no granules); by the

longer, more slender interstitial scales; and by the less acutely elevated transverse carina on the frons.

Male: Length 1.1 mm; similar to female except eye greatly reduced in size; vestiture longer, more slender.

Female: Length 1.4–1.7 mm, 2.3 times as long as wide; mature color dark brown. Frons with a transverse, subcostate obtuse carina on median third well above upper level of eyes, median half from epistoma to carina moderately concave; surface smooth, shining, finely punctured on concave area, more coarsely, closely punctured at sides and above carina. Pronotum 0.90 times as long as wide; widest on basal half, sides weakly arcuate, rather broadly rounded in front; anterior margin armed by 4 equal serrations; summit at middle, anterior slope armed by about 20 coarse asperities; basal and lateral areas subreticulate, punctures small, distinct, not granulate; vestiture of fine, short hair of moderate abundance. Elytra 1.4 times as long as wide, 1.6 times as long as pronotum; disc occupying basal 60 percent of elytra length; striae not impressed, punctures rather small; interstriae twice as wide as striae, punctures minute, mostly uniseriate. Declivity broadly convex, steep; strial punctures greatly reduced to obsolete; interstitial punctures minute, in rows. Vestiture of ground cover of fine, short hair on striae and interstriae, and erect bristles in interstitial rows, each bristle about six (disc) to eight (declivity) times as long as wide, each distinctly shorter than distance between rows.

Distribution: Africa, SE Asia to Indonesia, USA (Florida) and Antilles Islands to Venezuela and Brazil.

Brazil: Cited in Wood & Bright (c1992:932–933); UFRRJ campus, Seropodica, Rio de Janeiro, ethanol trap, A.M. Lunz.

Venezuela: Finca Monasterios, Cacagua, Miranda, 1971, *Theobroma cacao*, J.L. Saunders.

Hosts: *Bauhinia alba*, *B. tomentosa*, *Budianana sessilifolia*, *Caesalpinia pulcherrima*, *Conocarpus erecta*, *Dipterocarpus zeylanicus*, *Dryobalanops aromatica*, *Dyera costulata*, *Eleagnus pungens fruitlandi*, *Ficus aurea*, *Gossypium hirsutum*, *Hevea brasiliensis*, *Leucania glauca*, *Mangifera indica*, *Ochroma* sp., *Ocotea catesbiana*, *Personia borbonia*, *Rheedia* sp., *Rhizophora mangle*, *Sterculia macrophylla*, *Tamarindus indica*, *Theobroma cacao*, *Trema floridana*, *Vitis* sp.

Biology: Breeds in small stems of lianas and twigs and small branches of trees and shrubs.

Notes: The lectotypes of *Stephanoderes javanus* Eggers and *S. kalshoveni* Schedl, the holotypes of *S. obesus* Hopkins, *S. philippinensis* Hopkins, *S. subagnatus* Eggers, and *S. prosper* Schedl, and syntypes of *S. bananensis* Eggers and *S. pistora* Schedl were examined. The above treatment was based on 2 females from Java, 1 from Africa, 21 from North and Central America, and 2 from Venezuela.

Hypothenemus brunneus (Hopkins)

Hypothenemus brunneus (Hopkins), 1915:31 (*Stephanoderes*). Holotype ♀; Brownsville, Texas [USA]; USNM, Washington (Synonymy and references in Wood & Bright c1992:911)

Stephanoderes frontalis Hopkins, 1915:31. Holotype ♀; Brownsville, Texas [USA]; USNM, Washington

Hypothenemus cryphalomorphus Schedl, 1939:14. Holotype ♀; Trinidad, British West Indies; BMNH, London

Stephanoderes bituberculatus Eggers, 1940:126. Holotype ♀; Env. de Trois Rivières, Guadeloupe; MNHN, Paris

Diagnosis: Distinguished from *javanus* (Eggers) by the smaller average size; by the less closely punctured posterolateral areas of the pronotum, with most punctures granulate or vulcanate; by the broader, shorter interstitial setae; and by the more acutely elevated transverse carina on the frons.

Male: Length 1.0–1.1 mm; similar to female except antennal funicle 3-segmented; eye half as large; vestiture distinctly longer.

Female: Length 1.3–1.5 mm, 2.3 times as long as wide; color brown to dark brown. Frons similar to *javanus*, except transverse carina much more strongly, acutely elevated; area between carina and epistomal margin much less concavely impressed on median third. Pronotum similar to *javanus*, except posterior and lateral areas strongly reticulate, punctures either partly vulcanate or replaced by tubercles. Elytra similar to *javanus*, except erect interstitial scales wider, each about four times as long as wide, and shorter, length of each equal to two-thirds distance between rows.

Distribution: SE USA and Antilles Islands to Panama and South America (reported only from the Galapagos Islands).

Galapagos Islands: Cited in Wood & Bright (c1992:911).

Hosts: *Acacia farnesiana*, *Albizia labbekoides*, *Annona* sp., *Ardesia paniculata*, *Bauhinia grandiceps*, *Berria amonilla*, *Cajanus cajon*, *Canavalia* sp., *Celtis iguanae*, *C. laevigata*, *Clematis* sp., *Condalia obtusifolia*, *Dalbergia ecastophyllum*, *Ficus* sp., *Galactia spiciformis*, *Giricidia sepium*, *Grewia asiatica*, *Hovenia dulcis*, *Ichthyomethia communis*, *Leucania glauca*, *Lysiloma bahamensis*, *Mimosa* sp., *Ocotea catesbyana*, *Poinsettia heterophylla*, *Serjania* sp., *Trema floridana*, *Vachellia farnesiana*.

Biology: This species breeds in small, dying, cut, broken, or injured stems of small diameter, in vines, lianas, twigs, and small branches. The habits are essentially as described for the genus.

Notes: The above treatment was based on the holotypes of *Stephanoderes brunneus* Hopkins, *S. frontalis* Hopkins, *H. cryphalomorphus* Schedl, and *S. bituberculatus* Eggers, and on more than 250 other specimens from SE USA and the Antilles Islands to Panama and Trinidad. It is probably widely distributed in South America but has been confused with other similar species or has been overlooked by collectors. This species almost certainly is not native to America. An African or Indonesian origin is probable.

Hypothenemus costatus (Eichhoff)

Hypothenemus costatus (Eichhoff), 1878:386. Holotype ♀; America septentrionalis (Venezuela); Hamburg Museum, lost (References in Wood & Bright c1992:913)

Original description: "Oblongus, subdepressus, fusco-brunneus, opacus, squamulis albidis adpersus, thorace semi-elliptico, margine apicali medio tuberculis duobus parvis, confertissimis notato, dorso anterius late tuberculato-scabro, postrius subtiliter alutaceo-punctulato, elytris late punctato-striatis, interstitiis costatis, granulis et setis erectis uniseratrum notatis. Long. 1,5 mm.

"Magnitudine medius inter *S. opacum* et *hampei*, prae omnibus generis sculptura peculiari elytrorum facile distinctus. Caput fusco-brunneum, fronte le iter convexa, subtiliter punctulata, linea subelevata, media laevi, nitida, setisque palliis adpersa. Antennae fusco-testaceae, capitulo orbiculato, subcomprso, apice pubescente. Prothorax semi-ellipticus, longitudine latior, basi truncatus, angulis posticul (desuper insipienti) acute rectis, lateraliter a basi ad apiceu subaequaliter rotundatus, in margine apicali medio tuberculis duobus confertissimis parvis vel obsoletis notatus; dorso convexism medio utrinque oblique subimpressus, anterius tuberculis numerosis, sparsis late exasperatus, posterius subtilissime alutaceus et granulis obsoletis, inaequilibus punctulaus; fusco-brunneus, opacus, squamulis albidis tenue adpersus. Elytra cylindrica latitudine thoracis et illo amplius duplo longior, basi truncata, humeris acute rectangulis, lateraliter recta, a basi ultra medium, apice obtuse rotundata; supra fusco-brunnea, opaca, punctato-striata, striis latis, subsulcatis, in fundo sulcorum subtiliter seriatim punctatis, interstitiis elevatis, versus basin latioribus, irregulariter tuberculatis, posterius angustioribus, costatim elevatis et granulis elevatis setisque brevibus, squamulaeformibus, albidis, uniseriatum notatis. Corpus subtus fusco-brunneum, punctulatum, subpubescens. Pedes fusco-testacei.

"Patria: America septentrionalis (Venezuela).

"Adnotatio.—Forma peculiaris in hoc genere forte proprium constituere meretur, sed hoc loco interim optissime insereendus videtur." (Eichhoff 1878:154–155).

Notes: The unique type of this species was lost in the destruction of the Hamburg Museum. Eichhoff (1878:45) placed in his *Stephanoderes* (now a synonym of *Hypothenemus*) among species having (1) four serrations on the anterior margin of the pronotum, (2) punctured striae, (3) with "tuberculis numerosus" arming the anterior

slope of the pronotum, and (4) discal striae impressed, interstriae costate ("costatis"). The size was given as 1.5 mm, the location "Venezuela." The interstriae are described as elevated (convex) and posteriorly costately elevated and granulate. No known *Hypothenemus* matches this description. It may belong to another genus not yet known to me.

GENUS *TRISCHIDIAS* HOPKINS

Trischidias Hopkins, 1915:7, 12. Type-species: *Trischidias georgiae* Hopkins, original designation (References in Wood & Bright c1992:947)

Diagnosis: Distinguished from *Hypothenemus* by the smaller size and (usually) stouter body form; by the entire eye; by the 3-segmented antennal funicle; and by the larger antennal club with both sutures aseptate, but indicated by rows of setae.

Description: Male (*atoma* Hopkins) dwarfed, flightless, 0.5 mm, 2.0 times as long as wide; eye reduced to one-third size of female; antennal funicle 2-segmented; habitus resembling female except setae longer and all characters poorly formed.

Female: Length 0.65–1.1 mm, 2.0–2.3 times as long as wide; frons broadly convex; eye finely faceted, entire; antennal funicle 3-segmented, club rather large, flat, sutures aseptate, marked by rows of setae. Pronotum with basal and posterior third of lateral margin with a fine, raised line, asperate on anterior slope, anterior margin armed by 2–4 serrations. Elytra striate, punctures rather coarse; sculpture conservative. Vestiture of hairlike and scalelike setae.

Biology: Four of the 6 known species were observed to occur under bark of small twigs and branches. Two of these 4 species were found in minute fungus pustules immediately below the living but weakened bark surface. One species was found in the cambium area of small twigs and, at least some larvae, made very short individual mines. The mating system is thought to be inbreeding.

Notes: Wood & Bright (c1992:947) record 6 species from SE USA (4), Mexico (1), Africa (1), and Brazil (2).

Key to the Species of *Trischidias*

- 1. Body not as stout, 2.1–2.3 times as long as wide; anterior margin of pronotum armed by four serrations; discal interstriae as wide or wider than striae, striae punctures smaller, not as deep . . . 2
- Body much stouter, 2.0 times as long as wide; anterior margin of pronotum armed by two to four serrations; discal interstriae narrower than striae, striae punctures larger, deeper 5
- 2(1). Pronotum strongly, uniformly reticulate on posterior half; erect interstitial scales broad, almost as wide as long, length distinctly shorter than distance between rows; declivity more gradual, occupying half of length; SE USA, Brazil (Santa Catarina, Sao Paulo); 0.65–0.80 mm *atoma* (Hopkins)
- Pronotum mostly smooth, shining, occasional limited reticulation at basal margin; declivity occupying posterior third of elytra length, steeper, more strongly convex 3

- 3(2). Posterior profile of elytra more broadly rounded; declivital interstriae 1–3 smooth, without any tubercles; erect interstitial scales slender, each six (disc) to eight (declivity) times as long as wide; USA (Florida) and Mexico (Campeche); 0.80–0.90 mm *exigua* Wood
- Posterior profile of elytra narrowly rounded; declivital interstriae 1–3 each with a row of minute tubercles at least on lower half; erect interstitial scales stout, each two (disc) to one (declivity) times as long as wide; Ghana, Africa; 0.80 mm *spinata* (Schedl)
- 4(1). Strial punctures increasing conspicuously in size posteriorly; declivital interstriae less than one-half as wide as striae, strial punctures larger than on disc; pronotal margin with two serrations; USA (Georgia); 1.1 mm *georgiae* Hopkins
- Strial punctures not increasing in size posteriorly; declivital interstriae about as wide as striae, strial punctures larger than on disc 5
- 5(4). Striae not impressed; scales on declivity about one to two times as long as wide; anterior margin of pronotum with two to four serrations; USA (Florida); *Rhizophora*, *Avicennia*; 0.65–0.80 mm *minutissima* Wood
- Striae deeply impressed; scales about four times longer than wide; anterior margin of pronotum with four serrations; USA (Florida); 0.6–0.8 mm *striata* Atkinson

Trischidias atoma (Hopkins)

Trischidias atoma (Hopkins), 1915:15 (*Hypothenemus*). Holotype ♀; Morgantown, West Virginia (USA); USNM, Washington (Synonymy and references in Wood & Bright c1992:947)

Hypothenemus impressifrons Hopkins, 1915:15. Holotype ♀; Morgantown, West Virginia (USA); USNM, Washington

Hypothenemus marylandicae Hopkins, 1915:15. Holotype ♀; Pregnall, South Carolina (USA); USNM, Washington

Hypothenemus robiniae Hopkins, 1915:15. Holotype ♀; Chevy Chase, Maryland (USA); USNM, Washington

Hypothenemus toxicodendri Hopkins, 1915:15. Holotype ♀; Morgantown, West Virginia (USA); USNM, Washington

Ernoporos nigrinus Schedl, 1967:7. Holotype ♀; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:947). *New synonymy*

Diagnosis: Distinguished from *exigua* Wood (Central America) and *spinata* (Schedl) (Africa) by the strongly reticulate pronotum; and by other characters given in the above key and below.

Male: Length 0.53 mm; similar to female except dwarfed, flightless.

Female: 0.65–0.80 mm, 2.3 times as long as wide; color yellowish brown to brown. Frons convex, reticulate, a weak transverse impression above epistoma, a variable median impression from near middle to upper level of eyes; punctures and pubescence obscure; antennal funicle 3-segmented, club large, longer than scape, 1.28 times as long as wide, without a septum, sutures almost straight. Pronotum 0.91 times as long as wide; widest near base, slightly produced at narrowly rounded anterior margin; anterior margin armed by 4 serrations; summit at middle, anterior slope moderately asperate; posterior areas strongly reticulate, with a few granules; vestiture of hair and scales intermixed. Elytra 1.3 times as long as wide, 1.6 times as long as pronotum; striae not impressed, punctures small, shallow, distinct; interstriae wider than striae, punctures small, borne on

minute setiferous granules, evenly spaced in uniseriate rows. Declivity rather steep, convex, occupying posterior third, sculpture about as on disc. Vestiture of rows of minute strial hair, and interstitial rows of erect scales, each scale slightly longer than wide, about half as long as distance between rows, spaced within a row by length of a scale.

Distribution: SE USA and S Brazil.

Brazil: Nova Teutonia, Santa Catarina, X-1965, 300–500 m, F. Plaumann (*nigrinus* holotype); Sao Paulo, 1984, C.A.H. Flechtmann.

Hosts: In USA, *Acer rubrum*, *Asimina trilobata*, *Carya* spp., *Castanea dentata*, *Liriodendron tulipifera*, *Pinus* sp., *Quercus marylandica*, *Rhizophora mangle*, *Rhus toxicodendron*, *Robinia pseudacacia*, *Salix nigra*, *Ulmus rubra*.

Biology: Cut, broken and unthrifty twigs are attacked by the female. She forms a small, irregular cavity at or near the cambium. Larval mines are short and irregular if they depart from the parent chamber. Males mate with their sisters in the brood chamber before the males are fully sclerotized.

Notes: The above treatment was based on 22 specimens from the USA and on 4 from Brazil, 1 of which was the female holotype of *Ernoporos nigrinus* Schedl. The holotypes of *T. atoma* Hopkins and of all other synonyms were examined by me and compared directly to my series.

Trischidias striata Atkinson

Trischidias striata Atkinson, 1993:422. Holotype ♀; Sugar Key, Florida; USNM, Washington (Not seen)

Note: The omission of this species was discovered when this manuscript was in press. It is very similar to *T. spinata* (Schedl) (Wood & Bright, 1992:947) and is the only known *Trischidias* species outside of Florida,

except for the introduction of *T. atoma* Hopkins to Nova Teutonia, Santa Catarina, Brazil (Wood 2007:528). If *T. spinata* is not a senior synonym of *T. striata*, future workers should be alerted to possibility that *T. spinata* is a species endemic to subtropical America.

GENUS *PERIOCRYPHALUS* WOOD

Periocryphalus Wood, 1971:33. Type-species: *Periocryphalus pullus* Wood, original designation (References in Wood & Bright c1992:948)

Diagnosis: Distinguished from *Trischidias* by the complete absence of sutures on the antennal club; by the emarginate eye; by the near absence of stria punctures; and by the flared costal margin of the elytra at and near the apex.

Description: Length 0.9–1.2 mm, 2.2–2.3 times as long as wide; frons convex; eye shallowly emarginate;

antennal scape elongate, funicle 3-segmented, club sub-circular, strongly flattened, sutures entirely obsolete. Pronotum with basal and posterior third of lateral margins marked by a fine, raised line; asperate on anterior slope, anterior margin armed by 4 serrations. Elytra feebly striate, punctures minute to obsolete; sculpture conservative, costal margin near apex moderately to rather strongly flared caudad. Vestiture in partial ground cover of fine, short hair, and slender erect scales on base of pronotum and elytral interstriae.

Biology: The 2 observed species bored axial tunnels in minute stems of small lianas. Although males were not seen, the species are presumed to inbreed.

Notes: Wood & Bright (c1992:948) record 2 species, both from South America.

Key to the Species of *Periocryphalus*

- 1. Posterior half of pronotum mostly smooth, shining, weak reticulation may occur near basal margin; elytra with rather abundant, hairlike ground cover on posterior half, represented on anterior half by rows of stria hair, erect interstitial scales on both disc and declivity, those on declivity closer, longer; apical flange on costal margin rather weak; Venezuela (Barinas); 0.9–1.1 mm ***pullus* Wood**
- Posterior half of pronotum rather strongly, uniformly reticulate; elytra with rows of short stria hair from base to apex, without supplemental hairlike ground setae, erect interstitial scales restricted to declivity, shorter, broader, each scale about three times as long as wide, distinctly shorter than distance between rows; apical flange on costal margin rather strong; Brazil (Mato Grosso); 1.2 mm ***sobrinus* Wood**

Periocryphalus pullus Wood

Periocryphalus pullus Wood, 1971:33. Holotype ♀; 40 km SE Socopo, Barinas, Venezuela; USNM, Washington (References in Wood & Bright c1992:948)

Diagnosis: Distinguished from *sobrinus* Wood as indicated in the above key.

Female: Length 0.9–1.1 mm, 2.2 times as long as wide; color dark brown. Frons rather strongly, broadly convex from epistoma to vertex; surface obscurely reticulate, coarsely rather closely punctured from epistoma to slightly above upper level of eyes, a small, median, smooth, shining area slightly above epistoma. Eye elongate-oval, finely faceted, anterior margin distinctly emarginate. Antennal scape elongate, funicle 3-segmented, club subcircular, 1.5 times as long as scape, strongly flattened, no indications of sutures, hairlike vestiture mostly near margins. Pronotum 1.0 times as long as wide; widest behind middle, sides weakly arcuate, narrowly rounded in front; anterior margins armed by 4 median serrations, anterior slope coarsely asperate, summit at middle; posterior areas mostly smooth, shining, some weak reticulation on disc near base, punctures minute in lateral areas, replaced by fine granules on disc; vestiture sparse, short, hairlike. Elytra 1.3 times as

long as wide, 1.3 times as long as pronotum; disc occupying almost basal 60 percent of elytra length; striae not impressed, punctures minute, almost obsolete; interstriae at least four times as wide as striae, punctures minute, not clearly visible at 80X. Declivity broadly convex, rather steep; surface obscured by vestiture, apparently stria punctures significantly larger than on disc; scale-bearing interstitial punctures larger than on disc; costal margin from suture to level of striae 3 flared caudad. Vestiture of fine, short stria hair in rows on basal half of disc, supplemented on and near declivity by interstitial ground setae similar to those of striae, and rows of erect interstitial ground scales, scales on disc shorter, each about four times as long as wide, longer, wider, closer on and near declivity, each six or more times as long as wide and equal in length to distance between rows.

Distribution: Venezuela.

Brazil: Code 112, R.A. Beaver, presumably from Manaus, Amazonas.

Venezuela: 40 km SE Socopo, Barinas, 25-I-1970, 150 m, No. 273, bejuco blanco, SLW.

Hosts: A small liana locally known as bejuco blanco.

Biology: Boring axial pith tunnels in stems 1–2 mm in diameter; adults and larvae were present.

Notes: The above treatment was based on the type series of 16 specimens.

Periocyphalus sobrinus Wood

Periocyphalus sobrinus Wood, 1974:22. Holotype ♀; 260 km N Xavantina, Mato Grosso, Brazil; BMNH, London (References in Wood & Bright c1992:948)

Diagnosis: Distinguished from *pullus* Wood as indicated in the above key.

Female: Length 1.2 mm, 2.3 times as long as wide; color very dark brown. Frons about as in *pullus*, except punctures smaller, and smooth, shining area absent. Pronotum as in *pullus*, except posterior half rather strongly, uniformly reticulate. Elytra 1.3 times as long as wide; disc occupying half of elytra length; surface minutely subrugose; striae not impressed, punctures apparently entirely obsolete; interstriae on disc each

indicated by a row of very minute, interstitial granules. Declivity more gradual, less strongly convex; minute punctures on striae 1 and 2 obscurely indicated on lower half; interstitial granules in rows as on disc, very slightly larger; flange on costal margin near suture more strongly present. Vestiture of minute striae hair from base to apex; supplemental interstitial hair present only on lower fourth of declivity, very sparse, erect interstitial scales in rows, short, each about four to six times as long as wide on disc, not longer on declivity, each much wider than in *pullus*, three to four times as long as wide, spaced about as on disc, length slightly shorter than distance between rows.

Distribution: Brazil: [Mato Grosso], RS/RGS Expedition, 12°31'S, 51°46'W, 7-XI-1969, R.A. Beaver.

Notes: The above treatment was based on 2 females, the holotype and 1 paratype, both from Brazil.

LABEL DATA FOR FIGURED SPECIMENS

Plates I–CCXXX are found on unnumbered pages following this Label Data list.

Label data for the figured specimens are listed in phylogenetic order of the genus, alphabetical order of the species within a genus, and consecutive plate numbers (PLATE I, etc.), with the scientific name of the species, sex of the specimen, kind of specimen (holotype, etc.), collection and host data, and an indication of the aspect from which the photograph was taken (A = antenna, C = cephalic, frons or face, D = dorsal, E = elytral declivity, L = lateral, and V = ventral, actually a view of the second visible abdominal sternum in the tribe Scolytini). The individual figures on each plate are labeled A–H for practical location and do not relate to the aspect from which the photograph was taken that is presented in the data list below.

Non-type specimens were mostly compared by myself or other specialists to authentically identified specimens. By comparing the complete or partial collection data on the Label Data list with the more complete Distribution data and Notes given in the text treatment of each species, one can usually ascertain the exact specialist making the determination.

HYLASTINI

PLATE I.

Hylastes ater (Paykull): ♀ det. SLW; CDL; Wurstwezel, Belgium, 25-II-1945, T.O. Thatcher.

HYLESININI

Hylastinus obscurus (Marshall): ♀ det. SLW; CDEL; Wooster, Ohio, USA, 1979.

Hylesinus toranio (Danthione): ♂ det. SLW; CD; Salop, England, 18-VIII-1938, H. Hignet.

PLATE II.

Phloeoborus grandis (Erichson): ♂ SLW homotype; CDEL; Ypirangacap, Sao Paulo, Brazil, 4-I-1933, Thalik.

P. procerus (Erichson): ♀ homotype det. SLW; CDEL; Wotatuba, Sao Paulo, Brazil, 22-X-1964, Moses.

PLATE III.

P. rudis Erichson: ♂ det. SLW; CDEL; Barro Colorado Island, Panama, 10-17-V-1964, W. & S.S. Duckworth.

P. signatus Strohmeier: ♂ det. SLW; CDEL; Sani Beni, Dep. Junin, Peru, 18-X-1935, F. Woytkowski.

TOMICINI

PLATE IV.

Xylechinosomus contractus (Chapuis): ♂ det. SLW; CD; Curitiba, Panama, Brazil, 13-I-1969.

X. valdivianus (Eggers): ♂ det. SLW; CD; Carmavida, Chile, 5-II-1953, L.E. Pena.

Simphloeus destructor Eggers: ♂ det. SLW; CD; Carmavida, Chile, 25-I-1953, L.E. Pena.

PLATE V.

Xylechinus imperialis (Schedl): ♂ det. SLW; CDEL; San Salvador de Jujuy, Argentina, 21-X-1968.

Hylurgus ligniperda (Fabricius): ♂ det. SLW; CDL; Jaen, Spain, 20-IX-1984, T. Yelamos.

PLATE VI.

Hylurgonotus antipodius (Eggers): ♂ det. SLW; CDEL; Alto Caicupil, Chile, 7-I-1954, L.E. Pena.

H. solidus (Schedl): ♂ det. SLW; CDLE; Sierra de Nahuelbuta, W of Angol, Chile, 2-I-1954, L.E. Pena.

PLATE VII.

H. tuberculatus (Eggers): ♂ det. SLW; CDEL; Cherquenco, Chile, I-1954, L.E. Pena.

H. tuberculatus ♀ det. SLW; CDLE; Caramavida, Chile, 25-I-1953, L.E. Pena.

PHRIXOSOMINI

PLATE VIII.

Phrixosoma viriosa Wood: ♂ det. SLW; CDL; 40 km SE Socopo, Barinas, Venezuela, 25-I-1970, 150 m, *Rheedea madruno*, SLW.

BOTHROSTERNINI

Cnesinus colombianus Wood: ♀ paratype; CDL; El Bosque, Caicedonia, Valle de Cauca, Colombia, 23-VI-1959, J. Restropo.

PLATE IX.

C. gracilis Blandford: ♀ det. SLW; CDL; Fort Clayton, Canal Zone, Panama, 22-XII-1963, SLW.

C. porcatus Blandford: ♀ det. SLW; CDL; Volcan Chirqui, Panama, 11-I-1964, SLW.

PLATE X.

Pagiocerus frontalis (Fabricius): ♀ det. SLW; CDL; Mason Cave, Tingo Maria, Peru, 15-XII-195_.

Bothrosternus truncatus (Fabricius): ♂ SLW homotype; CDL; 40 km E Canton, Barinas, Venezuela, 8-III-1970, 70 m, No. 337, *Serjania*, SLW.

Bothrosternus truncatus: ♀ det. SLW; DL; same data.

PHLOEOTRIBINI

PLATE XI.

Phloeotribus amplus Wood: ♂ paratype; CDL; La Carbonera 50 km NW Merida, Merida, 14-X-1969, log, SLW.

P. biguttatus Blandford: ♂ det. SLW; CDL; 27 km NE Montoya, Santander, Colombia, 2-VII-1970, 150 m, No. 591, SLW.

PLATE XII.

P. collaris Chapuis: ♂ det. SLW; CDL; 10 km E Medellin, Antioquia, 15-VII-1970, No. 681, SLW.

P. hebes Schedl: ♂ det. SLW; CDL; Ilheus, Cepec, Bahia, Brazil, blacklight, Kaston.

PLATE XIII.

P. hirticulus Wood: ♂ det. SLW; CDL; La Carbonera, 50 km NW Merida, Merida, Venezuela, 14-X-1969, No. 52, SLW.

P. incanus Wood: ♂ metatype, SLW; CDL; Chanchamayo, Peru.

PLATE XIV.

P. pilula Erichson: ♂ det. SLW; CDL; 9 km S Barrancas, Barinas, Venezuela, 1-X-1969, No. 30, SLW.

P. venezus Wood: ♂ paratype; CDL; 10 km E Medellin, Antioquia, Colombia, 15-VII-1970, No. 654, SLW.

LABEL DATA

PLATE XV.

P. setulosus Eichhoff: ♂ det. SLW; CDL; 8 km S Colonia, Valle del Cauca, Colombia, 9-VII-1970, No. 623, SLW.

P. squamiger Wood: ♂ det. SLW; CDL; Colonia Tovar, Aragua, Venezuela, 4-V-1970, No. 495, SLW.

PLATE XVI.

P. subovatus Blandford: ♂ det. SLW; CDL; 20 km SW El Vigia, Merida, Venezuela, 2-XI-1969, No. 147, SLW.

P. transversus Chapuis: ♂ det. SLW; CDL; Colonia Tovar, Aragua, Venezuela, 4-V-1970, No. 504, SLW.

PLATE XVII.

P. truncatus Wood: ♂ holotype; CDL; Quindio, Colombia, 1-III-1995.

P. venezuelensis Schedl: ♂ det. SLW; CDL; La Carbonera, 50 km NW Merida, Merida, Venezuela, 12-I-1970, No. 234, SLW.

PHLOEOSININI

PLATE XVIII.

Dendrosinus ater Eggers: ♀ det. SLW; CDL; Nova Teutonia, Santa Catarina, Brazil, X-1963, F. Plaumann.

D. globosus (Eichhoff): ♂ det. SLW; CDL; 9 km S Barrancas, Barinas, Venezuela, 5-XI-1969, 150 m, SLW.

PLATE XIX.

Cladoctonus corumbensis (Eggers): ♂ det. SLW; CDL; 27 km NE Montoya, Santander, Colombia, 2-VII-1971, No. 601, SLW.

C. interruptus (Eggers): ♂ det. SLW; CDL; La Cuchilla, Sevilla, Colombia, 19-VII-1959, J.H. Lasso.

PLATE XX.

Pseudochramesus acuteclavatus (Hagedorn): ♀ det. Blackman; CDL; Yhancoroinca, Chuquca, Bolivia, IV-1924, G.L. Harrington.

Chramesus aberrans Schedl: ♂ det. Schedl; CDL; Ilheus, Cepec, Bahia, Brazil, 11-III-1981, Kaston.

PLATE XXI.

C. aspericollis Schedl: ♂ det. Schedl; CDL; Nova Teutonia, Santa Catarina, Brazil, X-1956, F. Plaumann.

C. bispinus Wood: ♂ paratype; CDL; Tenerife, Valle de Cauca, Colombia, IX-1980, 2800 m, *Passiflora mallisima*.

PLATE XXII.

C. dentellus Wood: ♂ paratype; CDL; 10 km NW Banos, Ecuador, 26-IV-1978.

C. impolitus Wood: ♂ paratype; CDL; 30 km E Palmar, Bolivar, Venezuela, No. 567, SLW.

PLATE XXIII.

C. macrocornis Wood: ♂ paratype; CDL; Merida, Merida, Venezuela, 22-IX-1969, No. 14, SLW.

C. simplicis Wood: ♂ paratype; CDL; La Carbonera, 50 km NW Merida, Merida, Venezuela, 12-I-1970, No. 231, SLW.

PLATE XXIV.

C. sollicitatus Wood: ♂ paratype; CDL; 30 km E Palmar, Bolivar, Venezuela, 12-I-1970, No. 569, SLW.

HYPOBORINI

Chaetophloeus andinus Wood: ♂ paratype; CDL; 3 km E Lagunillas, Merida, Venezuela, 12-I-1971, No. 237, SLW.

PLATE XXV.

C. brasiliensis (Blackman): ♂ topotype det. Blackman; CDL; Cerra, Brazil, 1947, No. 129, D. de Raha.

Liparthrum carapae Wood: ♂ paratype; CDL; 30 km E Palmar, Bolivar, Venezuela, 12-VI-1970, No. 580, SLW.

PLATE XXVI.

L. meridensis Wood: ♂ paratype; CDL; 3 km E Lagunillas, Merida, Venezuela, 12-I-1970, No. 238, SLW.

SCOLYTINI

Cnemonyx insignis Wood: ♂ det. SLW; CDL; 27 km E Montoya, Santander, Colombia, 150 m, No. 592, *Virola*, SLW.

PLATE XXVII.

C. maculicornis Blandford: ♂ det. SLW; CDL; 27 km E Montoya, Santander, Colombia, 150 m, No. 594, *Virola*, SLW.

C. panamensis Blandford: ♂ det. SLW; CDL; 8 km W Bumbum, Barinas, Venezuela, 12-II-1970, 150 m, No. 312, *Protium*, SLW.

PLATE XXVIII.

C. rugulosus (Eggers): ♂ det. SLW; CDL; 30 km E Palmar, Bolivia, Venezuela, 12-VI-1970, 200 m, No. 562, *Trichilla propingua*, SLW.

C. vestitus (Eggers): ♂ det. SLW; CDL; 30 km E. Palmar, Bolivia, Venezuela, 12-VI-1970, 200 m, No. 562, *Trichilla propingus*, SLW.

PLATE XXIX.

C. vismiacolens Wood: ♂ paratype; CDL; 30 km E Palmar, Bolivar, Venezuela, 9-IV-1970, 1100 m, No. 432, Guttiferae, SLW.

Campocerus aeneipennis (Fabricius): ♂ det. SLW; CDL; 40 km E Socopo, Barinas, Venezuela, 25-I-1970, 150 m, No. 262, SLW.

PLATE XXX.

C. angustior Eggers: ♂ homotype; CD; 15 mi. NE Tingo Maria, Peru, 11-XI-1954, E.I. Schlinger & E.S. Ross.

C. aterrimus (Fabricius): ♂ det. SLW; CDL; Mato Grosso, Brazil, 12-18-XI-1968, RS-RGS, C69D, R.A. Beaver.

PLATE XXXI.

C. auricomus Blandford: ♂ det. SLW; CDL; Rio Damitas, Dota Mts., San Jose, Costa Rica, 18-II-1970, *Rheedia edulis*, SLW.

C. costatus Chapuis: ♂ det. SLW; CDL; Morne Blue, Trinidad.

PLATE XXXII.

C. niger (Fabricius): ♂ det. SLW; CDL; Mato Grosso, Brazil, 7-X-1968, RS-Rgs A85-86, R.A. Beaver.

C. opacicollis Eggers: ♂ homotype; CDL; 69 km N Manaus, Brazil, 7-XII-1979, G. Stevens.

PLATE XXXIII.

C. quadridens Blackman: ♂ det. SLW; CDL; Cerro Jeffe, Panama, 24-II-1973, 700 m.

C. suturalis (Fabricius): ♂ det. SLW; CDL; 69 km N Manaus, Amazonas, Brazil, 7-XII-1979, G. Stevens.

PLATE XXXIV.

Scolytopsis orinocanus Wood: ♂ paratype; CDL; 30 km E Palmar, Bolivar, Venezuela, 22-VI-1970, 200 m, No. 523, SLW.

S. orinocanis Wood: ♀ paratype; CDL; same as for ♂.

PLATE XXXV.

S. peruanus Eggers: ♂ det. SLW; CDL; Brazil, 1986.

S. peruanus Eggers: ♀ det. SLW; C; same as for ♂.

Scolytus antennatus Schedl: ♂ det. SLW; CDLV; Cepec, Bahia, Brazil, 11-III-198_.

PLATE XXXVI.

S. antennatus Schedl: ♀ det. SLW; CDLV; same as for ♂.

S. barinensis Wood: ♂ paratype; CDLV; 40 km E Canton, Barinas, Venezuela, 8-III-1970, 70 m, No. 356, SLW.

PLATE XXXVII.

S. caudatus Eggers: ♂ SLW homotype; CDLV; Mission Memberg, Argentina, 12-I-1943.

S. costellatus Chapuis: ♂ det. SLW; CDLV; Guapiles, Limon, Costa Rica, 22-VIII-1966, 100 m, No. 107, liana, SLW.

PLATE XXXVIII.

S. costellatus Chapuis: ♀ det. SLW; CV; same as for ♂.

S. cristatus Wood: ♂ det. SLW; CDLV; 8 km S Barrancas, Barinas, Venezuela, 2-XII-1969, liana, SLW.

PLATE XXXIX.

S. dimidiatus Chapuis: ♂ det. SLW; CDLV; 40 km E Canton, Barinas, Venezuela, 8-III-1969, liana, SLW.

S. excavatus Wood: ♂ holotype; CDLV; Warones near Santa Cruz [de la Sierra], Bolivia.

PLATE XL.

S. novateutonicus Schedl: ♂; CDLV; Tibillas, Salta, Argentina, Harrington.

S. obscuriceps Wood: ♂ holotype; CD; Rio Caraquata, Brazil, 21-IV-1953, 400 m, F. Plaumann.

PLATE XLI.

S. plaumanni Wood: ♂ holotype; CD; Nova Teutonia [Santa Catarina], Brazil, III-1941, F. Plaumann.

S. plaumanni Wood: ♀ allotype, same as for ♂.

S. proximus Chapuis: ♂ homotype; CDLV; 9 km S Barrancas, Barinas, Venezuela, 1-X-1969, 150 m, No. 31, SLW.

PLATE XLII.

S. submarginatus Schedl: ♂ det. SLW; CDLV; Nova Teutonia, Santa Catarina, Brazil, F. Plaumann.

S. submarginatus Schedl: ♀ det. SLW; CDLV; same as for ♂.

PLATE XLIII.

S. thoracicus Chapuis: ♂ det. SLW; CDLV; Nova Teutonia, Santa Catarina, Brazil, F. Plaumann.

S. thoracicus Chapuis: ♀ det. SLW; C; same as for ♂.

CTENOPHORINI

PLATE XLIV.

Microborus aberrans Wichmann: ♂ det. SLW; DEL; Ilheus, Cepec, Bahia, Brazil, II-III-1981, light, Kaston.

M. lectus Wood: ♂ paratype; CDEL; Carbonera 50 km NE Merida, Merida, Venezuela, 14-X-1969, No. 57, SLW.

PLATE XLV.

Pycnarthrum brosimi Wood: ♂ det. SLW; CDL; Isla del Cano, Costa Rica, IV-1980, G. Stevens.

P. hispidum (Ferrari): ♂ det. SLW; CDL; Rodeo, Esquintla, Guatemala, 4-VI-1964, Ficus, SLW.

PLATE XLVI.

P. pallidum (Chapuis): ♂ det. SLW; CDL; 5 km W El Pino, Zulia, Venezuela, 20-X-1969, Ficus, SLW.

P. subcarinatum Wood: ♂ det. SLW; CDL; 8 km W Bumbum, Barinas, Venezuela, 2-II-1970, *Brosimum*, SLW.

PLATE XLVII.

P. uniseriatum Schedl: ♀ SLW holotype; DE; Faz. Taperinha prox. Santarem, Para, Brazil, 29-XII-1967-9-I-1968.

Gymnochilus consocius (Blandford): ♂ det. SLW; CDL; La Carbonera, 50 km NW Merida, Merida, Venezuela, 16-IX-1969, No. 20, SLW.

PLATE XLVIII.

Scolytodes alni Wood: ♀ paratype; CDL; Volcan Irazu, Cartago, Costa Rica, 26-IX-1963, No. 21, SLW.

S. brevis (Eggers): ♂ holotype; DEL; Cochabamba, Bolivia.

PLATE XLIX.

S. brasiliensis (Eggers): ♂ holotype; DE; Blumenau, Brazil.

S. canaliculus Wood: ♀ paratype; CDL; La Carbonera, 50 km NW Merida, Merida, Venezuela, 9-XII-1969, No. 177, SLW.

PLATE L.

S. chapuisi Wood: ♀ det. SLW; CDL; Colonia Tovar, Aragua, Venezuela, 4-V-1970, No. 501, SLW.

S. constricta Wood: ♀ paratype; CDL; 11 km W Medellin, Antioquia, Colombia, 17-VII-1970, No. 688, SLW.

PLATE LI.

S. genialis Wood: ♀ paratype; CDL; 30 km N Merida, Merida, Venezuela, 8-I-1970, No. 224, SLW.

S. glabrescens Wood: ♀ det. SLW; CDL; 24 km E Barbosa, Antioquia, Colombia, 8-VII-1970, No. 701, SLW.

PLATE LII.

S. guyanaensis (Schedl): ♀ det. SLW; CDL; 30 km E Palmar, Bolivar, Venezuela, 12-VII-1970, No. 580, SLW.

S. imitans (Eggers): ♀ det. SLW; CDL; 40 km SE Socopo, Barinas, Venezuela, 25-I-1970, No. 251, SLW.

PLATE LIII.

S. jucunda Wood: ♀ paratype; CDL; Rancho Grande, Aragua, Venezuela, 9-VII-1970, No. 403, SLW.

S. laevicollis (Eggers), ♂ holotype; DEL; Cochabamba, Bolivia.

PLATE LIV.

S. maura (Blandford): ♀ det. SLW; CDL; 18 km E Coatzacoalcos, Veracruz, Mexico, 26-IV-1967, No. 109, SLW.

S. ommatea Wood: ♀ paratype; CDL; 8 km S Colonia, Valle del Cauca, Colombia, 9-VII-1970, *Clusia*, SLW.

PLATE LV.

S. opaca Wood: ♂ paratype; CDL; Merida, Merida, Venezuela, 27-II-1970, No. 331, SLW.

S. (opimus) Wood (=) *opaca* Wood: ♂ paratype; CDL; La Carbonera, 50 km NW Merida, Merida, Venezuela, 9-XII-1969, No. 172, SLW.

PLATE LVI.

S. phoebeae Wood: ♀ paratype; CDL; Tapanti, Cartago, Costa Rica, 24-X-1963, No. 241, SLW.

S. pilifer (Eggers): ♂ holotype; DEL; Cochabamba, Bolivia.

PLATE LVII.

S. pilosula (Eggers): ♂ holotype; DEL; Cochabamba, Bolivia.

S. plumeriae Wood: ♀ paratype; CDL; Playa del Coco, Guanacaste, Costa Rica, 11-VII-1966, No. 20, SLW.

PLATE LVIII.

S. schoenmanni Wood: ♂ holotype; DE; Marcapata, Peru.

S. varia Wood: ♂ paratype; CDL; La Mucuy, 20 km W Merida, Merida, Venezuela, 12-IX-1969, No. 129, SLW.

MICRACINI

PLATE LIX.

Hylocurus dimorphus Schedl: ♂ det. Schedl; CDEL; Rondon, Parana, Brazil, 196_, 500 m, F. Plaumann.

H. dimorphus Schedl: ♀ det. Schedl; CDEL; same data as ♂.

PLATE LX.

H. elegans Eichhoff: ♂ det. SLW; CDEL; Los Corchos, Nayarit, Mexico, 11-VII-1965, 20 m, No. 218, *Acacia*, SLW.

H. elegans Eichhoff: ♀ det. SLW; CDEL; same data as ♂.

PLATE LXI.

H. flagellatus Wood: ♂ paratype; CDEL; Rancho Grande, Aragua, Venezuela, 9-IV-1970, 1100 m, No. 431, *Nectandra*, SLW.

H. flagellatus Wood: ♀ paratype; CDEL; same data as ♂.

PLATE LXII.

H. giganteus (Schedl): ♀ paratype; CDEL; Nova Teutonia, Santa Catarina, Brazil, IV-1941, F. Plaumann.

H. impar Schedl: ♀ det. Schedl; CDEL; Nova Teutonia, Santa Catarina, Brazil, VII-1957, F. Plaumann.

PLATE LXIII.

H. singularis Wood: ♀ paratype; CDEL; 8 km SW Bumbum, Barinas, Venezuela, 11-II-1970, 150 m, No. 313, SLW.

H. verrucosus Wood: ♂ paratype; CDEL; 9 km S Barrancas, Barinas, Venezuela, 5-XI-1969, No. 111, SLW.

PLATE LXIV.

H. villifrons Wood: ♂ paratype; CDEL; Rancho Grande, Aragua, Venezuela, 9-IV-1970, No. 432, SLW.

H. villifrons Wood: ♀ paratype; CDEL; same data as ♂.

PLATE LXV.

Micracis sentus Wood: ♂ holotype; CDEL; 12 km SW Caracas, 1-V-1970, 1300 m, No. 460, SLW.

LABEL DATA

M. vitulus Wood: ♂ paratype; CDEL; La Carbonera 50 km NW Merida, Merida, Venezuela, 10-XI-1969, No. 128, SLW.

PLATE LXXVI.

M. vitulus Wood: ♀ paratype; CDEL; same data as ♂.

CARPHODICTICINI

Carphodicticus cristatus Wood: ♀ paratype; CDEL; 8 km SW Bumbum, Barinas, Venezuela, 11-II-1970, No. 326, SLW.

IPINI

PLATE LXXVII.

Orthotomicus erosus (Wollaston): ♂ det. SLW; CDEL; Barcelona, Spain, 9-V-1982, T. Velamos.

Acanthotomicus analogus (Wood): ♂ det. SLW; CDEL; 40 km E Canton, Barinas, Venezuela, 8-III-1970, No. 394, SLW.

PLATE LXXVIII.

A. bidentis Wood: ♂ det. Wood; CDEL; 8 km S Colonia, Valle del Cauca, Colombia, 9-VII-1970, No. 628, SLW.

A. granulatus (Ferrari): ♂ det. SLW; CDEL; Colonia Tovar, Aragua, Venezuela, 4-V-1970, No. 483, SLW.

PLATE LXXIX.

A. mimicus (Schedl): ♂ det. SLW; CDEL; Barrancas, Barinas, Venezuela, 5-XI-1969, No. 115, SLW.

A. ocularis (Wood): ♂ det. SLW; CDEL; 8 km S Colonia, Valle del Cauca, Venezuela, 9-VIII-1970, No. 628, SLW.

DRYOCOETINI

PLATE LXX

Dendrocranulus auctus Wood: ♂ paratype; CDEL; Rancho Grande, Aragua, Venezuela, 1-X-1969, vine, SLW.

D. auctus Wood: ♀ paratype; CDEL; same data as ♂.

PLATE LXXI.

D. columbianus Schedl: ♀ det. Schedl; CDEL; Bumbum, Barinas, Venezuela, 29-I-1970, No. 276, SLW.

D. costalimai Schedl: ♂ det. SLW; CDEL; Ilheus, Cepec, Bahia, Brazil, 11-III-1986, blacklight, Kaston.

PLATE LXXII.

D. limitaris Wood: ♀ paratype; CDEL; Rancho Grande, Aragua, Venezuela, 9-IV-1970, SLW.

D. pinguis Wood: ♂ det. SLW; CDEL; Bumbum, Barinas, Venezuela, 29-I-1970, No. 276, SLW.

PLATE LXXIII.

D. reditus Wood: ♂, det. SLW; CDEL; 9 km S Barrancas, Barinas, Venezuela, 1-X-1969, vine, SLW.

Coccotrypes aciculatus Schedl: ♀ SLW homotype; CDEL; Barro Colorado Island, Panama, XI-1930, F.C. Lutz.

PLATE LXXIV.

C. advena Blandford: ♀ det. SLW; CDEL; Labugama, Col. Distr., Sri Lanka, 23-VI-1975, fallen fruit, SLW.

C. carpophagus (Hornung): ♀ det. SLW; CDEL; Lombe, Cameroon, 1978, *Pachyepanthium*, D.B. McKey.

PLATE LXXV.

C. cyperi (Beeson): ♀ SLW homotype; CDEL; Dominical, Puntarenas, Costa Rica, 9-XII-1963, fallen fruit, SLW.

C. dactyliperda (Fabricius): ♀ det. SLW; CDEL; Kapioleni Park, Hawaii, 22-IX-1929, O.H. Swezey.

PLATE LXXVI.

C. distinctus (Motschulsky): ♀ det. SLW; CDEL; Melbourne, Florida, USA, 9-VII-1917, at light, SLW.

C. rhizophorae (Hopkins): ♀ SLW homotype; CDEL; Stann Creek Distr., Cocoplum Cay, Belise, 23-III-198_, *Rhizophora mangle* roots.

XYLEBORINI

PLATE LXXVII.

Premnobius ambitiosus (Schauffuss): ♀ det. SLW; DEL; Mt. Coffee, Liberia, IV-1897, O.F. Cook.

P. cavipennis Eichhoff: ♀ det. SLW; DEL; Finca Monasterios, Cacagua, Miranda, Venezuela, 1971, *Theobroma cacao*, J.L. Saunders.

PLATE LXXVIII.

P. sexnotatus (Schedl): ♀ SLW homotype; DEL; Jodensavanne, Suriname, Camp 8, 1961, Schulz.

Samponius buculus (Schedl): ♀ SLW homotype; DEL Ilheus, Cepec, Bahia, Brazil, 1966-1968, at light, Kaston.

PLATE LXXIX.

S. dampfi Schedl: ♀ det. SLW; DEL; 40 km SE Socopo, Barinas, Venezuela, 25-I-1970, No. 275, SLW.

S. expulsus Wood: ♀ holotype; DEL; 8 km S Colonia, Valle del Cauca, Colombia, 9-VII-1970, No. 619, *Pasteria*, SLW.

PLATE LXXX.

S. obtusicornis Schedl: ♀ SLW homotype; CDEL; Pampa Jungle, vic. Lea, Pep. Huanuco, Peru, 800 m, No. 3811, F. Woytkowski.

S. pennatus (Schedl): ♀ det. SLW; DEL; INPA, Manaus, Amazonas, Brazil, 23-XI-1987, ethanol trap, R.L.S. Abreu.

PLATE LXXXI.

Dryocoetoides capucinus (Eichhoff): ♀ det. SLW; DEL; Madden Forest, Canal Zone, Panama, 2-I-1964, SLW.

D. cristatus (Fabricius): ♀ det. SLW; DEL; Valle de Choroni, Venezuela, 3-IV-1964, *Theobroma cacao*, J.L. Saunders.

PLATE LXXXII.

D. flavus (Fabricius): ♀ det. SLW; DEL; 40 km SE Socopo, Barinas, Venezuela, 25-I-1970, No. 245, SLW.

D. indolatus Wood: ♀ paratype; DEL; 30 km E Palmar, Bolivar, Venezuela, 12-IV-1970, No. 578, SLW.

PLATE LXXXIII.

D. insculptus Wood: ♀ paratype; DEL; 8 km S Colonia, Valle del Cauca, Colombia, 9-VII-1970, No. 605, SLW.

D. monachus (Blandford): ♀ det. SLW; DEL; Rancho Grande, Aragua, Venezuela, 9-IV-1970, No. 426, SLW.

PLATE LXXXIV.

D. obtusitrunccatus (Schedl): ♀ det. SLW; DEL; San Barnardino, Paraguay, 1909, K. Fiebrig.

D. pileatus Wood: ♀ paratype; DEL; 10 km SE Miri, Barinas, Venezuela, 8-II-1970, No. 295, SLW.

PLATE LXXXV.

D. pseudosolitaris (Eggers): ♀ det. SLW; DEL; 9 km S Barrancas, Barinas, Venezuela, 1-X-1969, *Cassia fistula*, SLW.

D. rusticus Wood: ♀ holotype; DEL; Serra Navio, Terr., Amapa, Brazil.

PLATE LXXXVI.

D. vexans (Schedl): ♀ holotype; DE; Caraca, Santa Barbara, Minas de Gerais, Brazil.

D. velutinus Wood: ♀ det. SLW; DEL; 30 km E Palmar, Bolivar, 12-VI-1970, No. 238, SLW.

Theoborus coartatus (Sampson): ♀ det. SLW; DEL; Costa Rica.

PLATE LXXXVII.

T. crinitulus (Wood): ♀ paratype; DEL; 40 km SE Socopo, Barinas, Venezuela, 25-I-1970, No. 280, SLW.

T. ricini (Eggers): ♀ det. SLW; DEL; El Coco, Guanacaste, Costa Rica, 18-X-1963, 10 m, *Citrus* limb, SLW.

PLATE LXXXVIII.

T. theobromae Hopkins: ♀ det. SLW; DEL; 9 km S Barrancas, Barinas, Venezuela, 5-IX-1969, No. 102, SLW.

T. villosulus (Blandford): ♀ SLW homotype; DEL; Rancho Grande, Aragua, Venezuela, 9-IV-1970, No. 404, SLW.

PLATE LXXXIX.

Coptoborus catulus (Blandford): ♀ det. SLW; DEL; 20 km SW El Vigia, Merida, Venezuela, 21-XI-1969, No. 149, SLW.

C. pseutotenius (Schedl): ♀ det. SLW; DEL; El Palmar, Veracruz, Mexico, 22-III-1959, rubber tree.

PLATE XC.

C. spicatus Wood: ♀ det. SLW; DEL; Doelburg, 1952, Suriname.

C. tolimanus (Eggers): ♀ det. SLW; DEL; 17 km SE Miri, Barinas, Venezuela, 17-XII-1969, No. 199, SLW.

PLATE XCI.

C. vespatorius (Schedl): ♂ det. SLW; DEL; Finca Monasterios, Cacagua, Miranda, Venezuela, 1971, J.L. Saunders.

C. vespatorius: ♀ det. SLW; DEL; Rancho Grande, Aragua, 9-IV-1970, 1100 m, tree bole, SLW.

PLATE XCII.

Ambrosiodmus coffeicus (Schedl): ♀ det. SLW; DEL; Ospina Perez, Palmero, Huila, Colombia, 19-IV-1959, cafe, A. Ibarra.

A. hagedorni (Iglesias): ♀ det. Schedl; DEL; Guapiles, Limon, Costa Rica, 22-VIII-1966, *Terminalia*, SLW.

PLATE XCIII.

A. obliquus (LeConte): ♂ det. SLW; DEL; Siberia, Caldonia, Valle del Cauca, Colombia, 8-V-1959, cafe, C.M. Sanchez.

A. obliquus: ♀ det. SLW; DEL; Nicholson, Mississippi, USA, 21-I-1945, 45-2839.

PLATE XCIV.

A. opimus Wood: ♀ holotype; DEL; Sebring, Florida, USA, 1951, SLW.

A. rubricollis (Eichhoff): ♀ det. SLW; DEL; Ridgely, Maryland, USA; 15-IX-1942, *Quercus*, W.H. Anderson.

PLATE XCV.

A. scalaris (Schedl): ♀ det. SLW; DEL; Moravia, Cartago, Costa Rica, 11-III-1964, log, SLW.

Eucallacea fornicatus (Eichhoff): ♀ det. SLW; DEL; Davao, Mindanao, Philippine Islands, 1964, N.L.H. Krauss.

PLATE XCVI.

E. validus (Eichhoff): ♂ det. SLW; CDEL; Newton Square, Delaware Co., Pennsylvania, USA, 2-VII-1980, *Quercus*.

E. validus: ♀ det. SLW; CDEL; Tamayoiva, Honshu, Japan, 29-VII-1980, *Fagus crenatus*, SLW.

PLATE XCVII.

Xyleborus acuminatus Schedl: ♀ det. Schedl; CDEL; Brazil, 21-III-1967, intercepted at Mobile, Alabama, 10-918, Lot 67-6969.

X. vitiosus Schedl: ♀ det. SLW; CDEL; Nova Teutonia, Santa Catarina, Brazil, 6-I-1954, F. Plaumann.

PLATE XCVIII.

X. affinis Eichhoff: ♀ det. SLW; CDEL; 8 km S Colonia, Valle de Cauca, Colombia, 9-VII-1970, 30 m, SLW.

X. atilis Schedl: ♀ paratype; DE; Campo Grande, Dep. Cainguas, Misiones, Argentina.

PLATE XCIX.

X. asper Eggers: ♂ det. SLW; CDEL; La Lola, Limon, Costa Rica, VI-1972, *Theobroma cacao*, J.L. Saunders.

X. asper: ♀ det. SLW; CDEL; same data as ♂.

PLATE C.

X. associatus Schedl: ♀ holotype; DE; Brazil.

X. biconicus Eggers: ♀ det. Eggers; CDEL; Ilheus, Cepec, Bahia, Brazil, 1966-1968, at light, Kaston.

PLATE CI.

X. bolivianus Eggers: ♀ det. SLW; CDEL; La Selva, Heredia, Costa Rica, *P. maculobata*, K. Thunes.

X. cacuminatus Eggers: ♀ holotype; DE; Amazonas [probably Peru], Oberthur.

PLATE CII.

X. caldensis Wood: ♀ paratype; CDEL; Anserma, Valle de Cauca, Colombia, 15-VI-1959, naranjo, J.A. Solarte.

X. carabicus Eggers: ♀ det. SLW; CDEL; Rincon, Osa Peninsula, Costa Rica, 11-VIII-1966, No. 52, SLW.

PLATE CIII.

X. concentus Wood: ♀ paratype; CDEL; Osa Peninsula, Costa Rica, 11-VIII-1966, No. 90, SLW.

X. confluens Schedl: ♀ holotype; DE; Buenos Aires, Argentina, H. Richter.

PLATE CIV.

X. congruens Schedl: ♀ holotype; DE; Bolivia.

X. demissus Wood: ♀ det. SLW; CDEL; La Selva, Heredia, Costa Rica, 17-IX-1994, K. Thunes.

PLATE CV.

X. deplanatus Eggers: ♀ det. SLW; CDL; Bartica-Potaro Road, Mile 21, Guiana, X-1948-III-1949, A.J. Atkinson.

X. discretus Eggers: ♀ det. SLW; CDEL; 12 km SW Caracas, Venezuela, 1-V-1970, No. 46, SLW.

PLATE CVI.

X. falsus Schedl: ♀ holotype; DE; Colonia Tovar, Aragua, Venezuela.

X. ferox Blandford: ♀ det. SLW; CDEL; Concepcion, Chiriqui, Costa Rica, 7-I-1964, balsa, SLW.

PLATE CVII.

X. ferrugineus (Fabricius): ♀ det. SLW; CDEL; 8 km S Colonia, Valle del Cauca, Colombia, 9-VII-1970, 30 m, SLW.

X. foederatus Schedl: ♀ holotype; DE; Dirkshoop, Suriname, V-1959.

PLATE CVIII.

X. geayi Hagedorn: ♀ det. SLW; CDEL; 30 km E Palmar, Bolivar, Venezuela, 12-VI-1970, No. 536, SLW.

X. horridatus Wood: ♀ paratype; CDEL; San Isidro del General, San Jose, Costa Rica, 5-XII-1963, *Citrus*, SLW.

PLATE CIX.

X. horridicus Wood: ♀ holotype; CDEL; Reyes, Bolivia, W.M. Mann.

X. incertus Schedl: (= *X. oneratus* Schedl, ♀ holotype); CDEL; Vera, Mato Grosso, Brazil.

PLATE CX.

X. latipennis Schedl: ♀ holotype; DE; V. Vera, Mato Grosso, Brazil, 1971, *Theobroma cacao*, J.L. Saunders.

X. macer Blandford: ♀ det. SLW; CDEL; Finca Monasterios, Cacagua, Miranda, Venezuela, J.L. Saunders.

PLATE CXI.

X. magnificus Wood: ♀ paratype; CDEL; Junin, Peru, 1-IX-1979, EESC, 5-80, S. Pancar.

X. majusculus Schedl: ♀ lectotype; DE; Cachoerinha-Una, Brazil.

PLATE CXII.

X. mutabilis Schedl: ♂ det. SLW; CDEL; La Carbonera, 50 km NW Merida, Merida, Venezuela, 23-IV-1970, No. 250, SLW.

X. mutabilis: ♀ det. SLW; CDEL; same data as ♂.

PLATE CXIII.

X. neivai Eggers: ♀ det. SLW; CDEL; Rondon, Parana, Brazil, 195_, 500 m, F. Plaumann.

X. neotruncatus: (Schedl) ♀ SLW homotype; DE; Parque Esala, Piracicaba, Sao Paulo, Brazil.

PLATE CXIV.

X. parallelocolis Eggers: ♀ det. SLW; CDEL; Tapanti, Cartago, Costa Rica, 17-IX-1963, No. 178, liana, SLW.

X. parcellus Wood: ♀ paratype; CDEL; Bartica-Potaro Road, Mile 21, Guiana, X-1948-III-1949, A.T. Atkinson.

PLATE CXV.

X. perlongus Schedl: ♀ holotype; DE; Cochabamba, Bolivia.

LABEL DATA

- X. peruvianus* Schedl: ♀ holotype; DE; Chanchamajo, Peru.
X. politus Hagedorn: ♀ det. SLW; CDEL; 30 km E Palmar, Bolivar, Venezuela, 12-VI-1970, No. 545, SLW.

PLATE CXVI.

- X. posticus* Eichhoff: ♂ det. SLW; CDEL; Finca La Lola, Limon, Costa Rica, 14-XI-1962, *Theobroma cacao*, J.L. Saunders.
X. posticus: ♀ det. SLW; CDEL; same data as ♂.

PLATE CXVII.

- X. princeps* Blandford: ♀ det. SLW; CDEL; Rio Negro, 25 km NE La Union, Costa Rica, 20-II-1965, J.B. Karren.
X. procer Eichhoff: ♀ det. SLW; CDEL; Ilheus, Cepec, Bahia, Brazil, 1966-1968, at light, Kaston.

PLATE CXVIII.

- X. productus* Hagedorn: ♀ det. SLW; CDEL; Rincon, Osa Peninsula, Costa Rica, 11-VIII-1966, 30 m, SLW.
X. pusio Eggers: ♀ SLW homotype; CDEL; 30 km E Palmar, Bolivar, Venezuela, 12-VI-1970, No. 450, SLW.

PLATE CXIX.

- X. schildi* Schedl: ♀ det. SLW; CDEL; San Isidro, Valle del Cauca, Colombia, 10-XI-1977, *Brosium utile*.
X. sextuberculatus Schedl: ♀ holotype; DE; Rio Dulce, Chaco de Santiago del Estero, Argentina.

PLATE CXX.

- X. sparsepilosus* Eggers: ♀ det. SLW; CDEL; 7 km S Colonia, Valle del Cauca, Colombia, 9-VII-1970, No. 626, SLW.
X. spathipennis Eichhoff: ♂ det. SLW; CDEL; Gromaco on Rio Coto Brus, Puntarenas, Costa Rica, 14-VII-1963, palm log, SLW.

PLATE CXXI.

- X. spathipennis*: ♀ det. SLW; CDEL; 30 km E Palmar, Bolivar, Venezuela, 12-VI-1970, No. 554, SLW.
X. spinulosus Blandford: ♀ det. SLW; CDEL; Finca Monasterios, Cacagua, Miranda, Venezuela, 1971, J.L. Saunders.

PLATE CXXII.

- X. squamulatus* Eichhoff: ♀ det. SLW; CDEL; Rancho Grande, Aragua, Venezuela, 9-IV-1970, 1100 m, *Nectandra*, SLW.
X. subplanatus Eggers: ♀ holotype; DE; Cochabamba, Bolivia.
X. subductus Schedl: ♀ holotype; DE; V. Vera, Mato Grosso, Brazil.

PLATE CXXIII.

- X. tribulatus* Wood: ♀ det. SLW; CDEL; San Isidro, Valle del Cauca, Venezuela, 10-XI-1977, H. Schmitzenhofer.
X. tumucensis Hagedorn: ♀ det. SLW; CDEL; Rincon, Osa Peninsula, Costa Rica, 11-VIII-1966, 30 m, SLW.

PLATE CXXIV.

- X. vittosus* Schedl: ♀ det. SLW; DE; 8 km S Colonia, Valle del Cauca, Colombia, 9-VII-1970, No. 650, SLW.
X. volvulus (Fabricius): ♀ det. SLW; CDEL; 27 km NE Montoya, Colombia, 2-VII-1970, No. 589, SLW.

PLATE CXXV.

- Taurodemus bicornutus* Wood: ♀ det. SLW; CDEL; 40 km SE Socopo, Barinas, 25-I-1970, No. 264, SLW.
T. ebenus Wood: ♀ det. SLW; CDEL; Carton de Colombia forest, 8 km S Colonia, Valle del Cauca, 9-VII-1970, Colombia, SLW.

PLATE CXXVI.

- T. flavipes* (Fabricius): ♀ det. SLW; CDEL; Finca Monasterios, Cacagua, Venezuela, *Theobroma cacao*, J.L. Saunders.
T. splendidulus (Schaufuss): ♂ det. SLW; CDEL; 30 km E Palmar, Bolivar, 12-VI-1970, No. 556, SLW.

PLATE CXXVII.

- T. splendidulus*: ♀ det. SLW; CDEL; same data as ♂.
T. varians (Fabricius): ♂ det. SLW; CDEL; Trinidad River Estate, 8-IV-1964, J.L. Saunders.

PLATE CXXVIII.

- T. varians*: ♀ det. SLW; CDEL; same data as ♂.

- T. varulus* Wood: ♀ paratype; CDEL; 13 km SW El Vigia, Merida, Venezuela, 22-X-1969, No. 76, SLW.

PLATE CXXIX.

- Xylosandrus compactus* (Eichhoff): ♀ det. SLW; CDEL; Davala, Nilgiri Hills, South India, X-1960, 3200 ft., P.S. Nathan.
X. curtulus (Eichhoff): ♀ det. SLW; CDEL; Volcan de Agua, Guatemala, 19-V-1964, 1000 m, SLW.

PLATE CXXX.

- X. laticeps* Wood: ♂ det. SLW; CDEL; Merida, Merida, Venezuela, 22-IX-1969, 1700 m, SLW.
X. laticeps: ♀ paratype; CDEL; 20 km SE El Vigia, Merida, Venezuela 21-IX-1969, *Jacaranda*, SLW.

PLATE CXXXI.

- X. morigerus* (Blandford): ♀ det. SLW; CDEL; 8 km S Colonia, Valle del Cauca, Colombia, 9-VII-1970, No. 641, SLW.
X. retusus (Eichhoff): ♀ det. SLW; CDEL; Nova Teutonia, Santa Catarina, Brazil, V-1956, F. Plaumann.

PLATE CXXXII.

- Xyleborinus bicornatulus* Wood: ♀ det. SLW; CDEL; Moravia, Cartago, Costa Rica, 2-III-1964, 500 m, log, SLW.
X. celatus Wood: ♀ det. SLW; CDEL; 8 km S Colonia, Valle del Cauca, Colombia, 9-VII-1970, No. 631, SLW.

PLATE CXXXIII.

- X. durus* (Wood): ♂ paratype; CDEL; Rincon, Osa Peninsula, Costa Rica, 11-VIII-1966, No. 94, SLW.
X. durus: ♀ paratype; CDEL; same data as ♂.

PLATE CXXXIV.

- X. gracilicornis* Schedl: ♀ holotype; DL; Guadeloupe Island.
X. gracilis (Eichhoff): ♀ det. SLW; CDEL; Nova Teutonia, Santa Catarina, Brazil, XI-1956, 300-500 m, F. Plaumann.

PLATE CXXXV.

- X. intersetosus* (Blandford): ♀ det. SLW; CDEL; La Lola, Limon, Costa Rica, J.L. Saunders.
X. buscki (Hopkins) (= *Xyleborus longulus* Schedl): ♀ holotype; DE; El Salvador.

PLATE CXXXVI.

- X. reconditus* (Schedl): ♀ det. SLW; CDEL; Finca Monasterios, Cacagua, Miranda, Venezuela, 1971, *Theobroma cacao*, J.L. Saunders.
X. saginatus Wood: ♀ paratype; CDEL; Sao Paulo, Brazil, D-D, C. Flechtmann.

PLATE CXXXVII.

- X. saxeseni* (Ratzeburg): ♀ det. SLW; DEL; Oak Creek Canyon, Arizona, USA, 1-VIII-1962, blacklight, SLW.
X. sentosus (Eichhoff): ♀ det. SLW; CDEL; Rondon, Parana, Brazil, 196_, 50 m, F. Plaumann.

CRYPHALINI

PLATE CXXXVIII.

- Stegomerus mirandus* Wood: ♀ paratype; CDEL; 12 km SW Caracas, Venezuela, 1-IV-1970, vine, SLW.
Neocryphus argentinensis Numburg: ♂ topotype; CDEL; Cordoba, Argentina, Davis.

PLATE CXXXIX.

- Acorthylus bosqi* (Schedl): ♀ holotype; DEL; Prov. de Jujuy, Argentina, IX-1928, J.M. Bosqi.
A. gracilis (Schedl): ♀ det. SLW; DE; 12 km S Calboza, Guarico, Venezuela, 6-12-II-1969, ultraviolet light, P.J. Spangler.

PLATE CXL.

- A. pruni* (Wood): ♀ paratype; CDEL; La Carbonera 50 km NW Merida, Merida, Venezuela, 6-IX-1969, No. 21, SLW.
Scolytogenes jalapae (Letzner): ♀ (?); CDEL; 6 km S Chiapa de Corzo, Chiapas, Mexico, 17-VI-1964, vine, SLW.

PLATE CXLI.

Hypocryphalus mangiferae (Stebbing): ♂ det. SLW; CDEL; La Foa, Nouvelle Caledonia, 12-VII-1996, *Mangifera indica*, B. Chauvea.
Cryptocarenum brevicollis Eggers: ♀ paratype; CDEL; 40 km SE Socopo, Barinas, Venezuela, 25-I-1970, No. 255, SLW.

PLATE CXLII.

C. diadematus: ♀ det. SLW; CDEL; 40 km E Socopo, Barinas, Venezuela, 25-I-1970, No. 248, SLW.
C. heveae (Hagedorn): ♀ det. SLW; CDEL; 20 km SW El Vigia, Merida, Venezuela, 21-IX-1969, No. 150-B, SLW.

PLATE CXLIII.

C. pilosus Eggers: ♀ paratype; CDEL; RS/RGS Exped., Brazil, 30-X-1968, c11/2, R.A. Beaver.
C. pubescens Wood: ♂ holotype; CDEL; 69 km N Manaus, Amazonas, Brazil, 7-XII-1979, G. Stevens.

PLATE CXLIV.

C. seriatus Eggers: ♀ det. SLW; CDEL; 3 km E Lagunillas, Merida, Venezuela, 12-I-1970, No. 236, SLW.
Hypothenemus aterrimus Schedl: ♀ lectotype; DEL; Cochabamba, Bolivia.

PLATE CXLV.

H. birmanus (Eichhoff): ♀ det. SLW; CDL; Key Largo, Florida, USA, 25-VI-1951, *Ardesia paniculata*, SLW/Playon, San Jose, Costa Rica, 9-VII-1963, 20 m, legume shrub, SLW.
H. erectus LeConte: ♀ det. SLW; CDEL; 20 mi. SW Veracruz, Veracruz, Mexico, 30-VI-1953, SLW.

PLATE CXLVI.

H. eximius Schedl: ♀ lectotype; DL; Nova Teutonia, Santa Catarina, Brazil, 1944, F. Plaumann.
H. hampei (Ferrari): ♀ det. SLW; CDEL; Jamaica, 23-IX-1980, coffee berry, A. Marsingh.

PLATE CXLVII.

H. novateutonicus Schedl: ♀ holotype; DL; Nova Teutonia, Santa Catarina, Brazil, 1946, F. Plaumann.
H. opacus (Eichhoff): ♀ det. SLW; CDEL; 8 km S Colonia, Valle del Cauca, Venezuela, 9-VII-1970, No. 620, SLW.

PLATE CXLVIII.

H. stigmatus Schedl: ♀ homotype; DL; Isla Martin Garcia, Buenos Aires, Argentina, 1-X-1921.

CORTHYLINI (PITYOPHTHORINA)

Styphlosoma boliviae (Schedl): ♂ holotype; CD; Do. Santo Cruz, Prov. Jaita, Buena Vista, Bolivia.
S. brasiliensis (Schedl): ♂ holotype; CD; Corcovado, Guanabara, Brazil, X-1970, Alvaranga.

PLATE CXLIX.

S. subulatum Wood: ♂ paratype; CDEL; 9 km S Barrancas, Barinas, Venezuela, 2-XII-1969, No. 165, SLW.
S. subulatum: ♀ paratype; CDEL; same data as ♂.

PLATE CL.

Araptus amazonicus (Eggers): ♂ det. SLW; CDEL; Maturin, Monagas, Venezuela, 5-II-1973, No. 620, D.H. Janzen.
A. frontis Wood (= *frontalis* Schedl): ♀ allotype; CD; Encruzilhada, Bahia, Brazil, XI-1972, 980 m, M. Alvaranga.

PLATE CLI.

A. hymenaeae (Eggers): ♂ det. SLW; CDEL; Guiana, *Cajanus indicus*, lot 12.
A. impensis (Wood): ♀ det. SLW; CDEL; La Carbonera, 50 km NW Merida, Merida, Venezuela, 27-X-1969, 2500 m, SLW.

PLATE CLII.

A. limax (Schedl): ♂ det. SLW; CD; Nova Teutonia, Santa Catarina, Brazil, 1-I-1957, 500 m, F. Plaumann.
A. limax: ♀ det. SLW; CDEL; same data as ♂.

PLATE CLIII.

A. liminaris Wood: ♀ paratype; CDEL; 13 km SW El Vigia, Merida, Venezuela, 22-X-1969, No. 78, SLW.
A. mirus Wood: ♀ paratype; CDEL; 20 km W Merida, Merida, Venezuela, 10-X-1969, bejuco de chirica, SLW.

PLATE CLIV.

A. mucunae Blackman: ♂ det. SLW; CDEL; 40 km SE Socopo, Barinas, Venezuela, 7-II-1970, 150 m, *Mucuna*, SLW.
A. mucunicorus Wood: ♂ paratype; CDEL; Porce, Antioquia, Colombia, I-1977, *Mucuna* seeds, R. Velez.

PLATE CLV.

A. novateutonicus (Schedl): ♀ same data as holotype; CD; Nova Teutonia, Santa Catarina, Brazil, VIII-1941, F. Plaumann.
A. plaumannianus Wood (= *Brachydendrus plaumanni* Schedl): ♀ det. SLW; CDEL; Mato Grosso, Brazil, RS/RGS, R.A. Beaver.

PLATE CLVI.

A. plicatus Wood: ♂ paratype; CDEL; Merida, Merida, 7-X-1969, No. 43, bejuco negro, SLW.
A. rufopaliatus Eichhoff: ♂ det. SLW; CDEL; La Carbonera, 50 km NW Merida, Venezuela, 16-IX-1969, No. 21-B, SLW.

PLATE CLVII.

A. rufopaliatus: ♀ det. SLW; CD; same data as ♂.
A. uruguayensis Wood: ♀ paratype; CEL; Colonia del Sacramento, Colonia, Uruguay, 22-I-1977, J.J. Morrone.

PLATE CLVIII.

Dacnophthorus pertusus (Wood): ♀ paratype; CD; 20 km SW El Vigia, Merida, Venezuela, 21-XI-1969, No. 50-A, SLW.
Phelloterus tersus Wood: ♂ paratype; CDEL; Colonia Tovar, Aragua, Venezuela, 4-V-1970, No. 507, SLW.

PLATE CLIX.

Pseudopitophthorus colombianus Wood: ♂ paratype; CDEL; 10 km E Medellin, Antioquia, Colombia, 15-VII-1970, *Quercus humboldtii*, SLW.
Pityophthorus anticus Schedl: ♀ allotype; CD; Rio Negro, Para, Brazil, B-76, *Araucaria angustifolia*, J. Schoenherr.

PLATE CLX.

P. crotonis Wood: ♂ paratype; CDEL; 30 km E Merida, Merida, Venezuela, 8-I-1970, No. 210, *Croton*, SLW.
P. kuscheli Schedl: ♂ paratype; CDL; Chili (Chile), Coll. Paulsen.

PLATE CLXI.

P. mandibularis Schedl: ♂ paratype; CD; Nova Teutonia, Santa Catarina, Brazil, 1946, F. Plaumann.
P. splendens Wood: ♂ paratype; CDEL; La Carbonera, 50 km NW Merida, Merida, Venezuela, 14-X-1969, No. 62, SLW.

PLATE CLXII.

P. venezuelensis Schedl: ♀ det. SLW; CDEL; 40 km E Canton, Barinas, Venezuela, 8-III-1970, No. 331, SLW.

CORTHYLINI (CORTHYLINA)

Gnathotrupes assiduus (Schedl): ♀ holotype; CDEL; Cerro Duida, Amazonas, Venezuela, 4-XI-1928, Ac. 29,500, Tate No. 99.

PLATE CLXIII.

G. colaphus Wood: sex?; DEL; La Carbonera 50 km Merida, Merida, Venezuela, 9-XII-1969, SLW.
G. consobrinus (Eichhoff): ♂ det. SLW; CDEL; Puerto Puyuhuapi, S Chile.

PLATE CLXIV.

G. consobrinus: ♀, det. SLW; CDEL; data same as for ♂.
G. fimbriatus (Schedl): ♀ lectotype; CDEL; P. Arenas, Termas de Puyehue, Chile; also ♂ allotype, ♀ holotype (= *frontalis* Schedl, CDEL, ♀ DEL).

LABEL DATA

PLATE CLXV.

G. herbertfranzi (Schedl): ♂ holotype; DE; Montealto, Megallanes, Chile, 3-XI-1977.

G. impressus (Schedl): ♀ paratype; CDEL; Puerto Varas, Chile, 24-II-1945, E.A. Chapin.

PLATE CLXVI.

G. kirkendalli Wood: ♀ holotype; DEL; Zurqui de Moravia, San Jose, Costa Rica, VI-1995, 1600 m, L.R. Kirkendall.

G. longipennis (Blanchard): ♂ det. SLW; CDEL; Bosque Quintero, Chile, 29-V-1968, J. Solervicens.

PLATE CLXVII.

G. nectandrae Wood: ♂?, paratype (head lost after photo taken); CDL; La Carbonera, 50 km NW Merida, Merida, Venezuela, 23-IV-1970, No. 449, *Nectandra*, SLW.

G. neoadjunctus (Schedl): ♂ holotype; ACDEL; Nova Teutonia, Santa Catarina, Brazil; VIII-1966, 300-500 m, F. Plaumann.

PLATE CLXVIII.

G. pustulatus Schedl: ♀ holotype; DE; Nahuel Huapi National Park, Argentina, 22-IX-1971, *Nothofagus dombeyi*, K. Naumann.

Tricolus abacus Wood: ♂ paratype; CDEL; 11 km W Medellin, Antioquia, Colombia, 17-VII-1970, 689, *Vismia*, SLW.

PLATE CLXIX.

T. angustatus Wood: ♀ paratype; CDEL; 30 km E Palmar, Bolivar, Venezuela, 12-VI-1970, No. 566, *Suiipo*, SLW.

T. bicavus Wood: ♀ paratype; CDE; 30 km E Palmar, Bolivar, Venezuela, No. 566, *Suiipo*, SLW.

PLATE CLXX.

T. collaris (Blandford): ♂ det. SLW; L; Tapanti, Cartago, Costa Rica, 17-IX-1963, No. 178, SLW.

T. coloreus Wood: ♀ paratype; DL; La Mucuy, 20 km W Merida, Merida, Venezuela, 20-X-1969, No. 72, bromeliad, SLW.

PLATE CLXXI.

T. intrusus Wood: ♀ paratype; CDL; 12 km SW Caracas, Venezuela, 1-V-1970, No. 475, *Cecropia* leaf petiole, SLW.

T. myrti Wood: ♂ paratype; DL; 11 km W Medellin, Antioquia, Colombia, 17-VII-1970, No. 690, *Myrtus*, SLW.

PLATE CLXXII.

T. parvus Wood: ♀ paratype; CDE; Rancho Grande, Aragua, Venezuela, 9-IV-1970, No. 420, *Tabebuia*, SLW.

T. plaumanni Schedl: ♀ det. SLW; CDEL; Rancho Grande, Aragua, Venezuela, 9-IV-1970, No. 431, *Nectandra*, SLW.

PLATE CLXXIII.

T. scitulus Wood: ♀ det. SLW; CDEL; La Carbonera 50 km NW Merida, Merida, Venezuela, 28-IV-1970, No. 453, SLW.

T. subopacus Wood: ♂, det. SLW; DEL; Rancho Grande, Aragua, Venezuela, 9-IV-1970, No. 420, *Tabebuia*, SLW.

PLATE CLXXIV.

Amphicranus acus Wood: ♂ paratype; DL; 12 km SW Caracas, Venezuela, 1-V-1970, No. 457, SLW.

A. attenuatus Wood: ♀ paratype; DL; 11 km E Medellin, Antioquia, Colombia, 15-X-1970, No. 668, SLW.

PLATE CLXXV.

A. cracens Wood: ♂ paratype; DL; Rancho Grande, Aragua, Venezuela, 9-IV-1970, No. 431, SLW.

A. dohrni (Eichhoff): ♂ det. SLW; DL; Nova Teutonia, Santa Catarina, Brazil, IX-1956, F. Plaumann.

PLATE CLXXVI.

A. dorni: ♀, det. SLW; DL; same data as ♂.

A. thoracicus Erichson (= *elegans* Schedl): ♂ SLW homotype; DL; 67 km N Manaus, Amazonas, Brazil, 7-XII-1979, G. Stevens.

PLATE CLXXVII.

A. explicitus Wood: ♂ paratype; DL; La Carbonera, 50 km NW Merida, Merida, Venezuela, 14-X-1969, No. 50, SLW.

A. laureli Wood: ♂ paratype; DL; La Carbonera, 50 km NW Merida, Merida, Venezuela, 10-IX-1969, No. 225, SLW.

PLATE CLXXVIII.

A. spinachius (Schedl): ♂ det. Schedl; DL; Nova Teutonia, Santa Catarina, Brazil, 1952, F. Plaumann.

A. terebella Blandford: ♂ det. SLW; DL; Rancho Grande, Aragua, Venezuela, 9-IV-1970, No. 444-A, SLW.

PLATE CLXXIX.

Monarthrum amphicranoides (Schedl): ♂ holotype; DEL; Nova Teutonia, Santa Catarina, Brazil, VIII-1941, F. Plaumann.

M. bicallosum (Schedl): ♂ det. Schedl; DEL; Nova Teutonia, Santa Catarina, Brazil, IV-1940, F. Plaumann.

PLATE CLXXX.

M. bicallosum: ♀ det. Schedl; DEL; same data as ♂ except VIII-1939.

M. bicolor (Ferrari): ♂ det. SLW; DEL; La Carbonera, 50 km NW Merida, Merida, Venezuela, 14-X-1969, No. 50-A, *Clusia*, SLW.

PLATE CLXXXI.

M. bicolor: ♀ SLW homotype; CDL; same data as ♂.

M. bicoloratum Wood: ♂ paratype; DEL; Mile 10 Bartica-Potaro Road, Guiana, X-1948-III-1949, *Caryocare nuciferum*, D.J. Atkinson.

PLATE CLXXXII.

M. bifoveatum Wood: ♂ det. SLW; DEL; 12 km SW Caracas, Venezuela, 1-V-1970, No. 512, SLW.

M. bifoveatum: ♀ det. SLW; CDEL; same data as ♂.

PLATE CLXXXIII.

M. bituberculatum Wood: ♀ paratype; DEL; 12 km SW Caracas, Venezuela, 1-V-1970, No. 457, SLW.

M. bituberculatum: ♀ paratype; DEL; same data as ♂.

PLATE CLXXXIV.

M. carinifrons Wood: ♂ paratype; DEL; Teleferico, Merida, Merida, Venezuela, 3-I-1970, No. 217, *Clusia*, SLW.

M. carinifrons: ♀ paratype; DEL; same data as ♂.

PLATE CLXXXV.

M. chapuisi Kirsch: ♂ SLW homotype; DEL; vic. Chachapoyas, Dep. Amazonas, Peru, 10-VII-1936, 2000 m, F. Woytkowski.

M. cristatum (Ferrari): ♀ neotype; DEL; Moritz 1758 (Colonia Tovar?), Aragua, Venezuela.

PLATE CLXXXVI.

M. dimidiatum (Ferrari): ♂ det. SLW; DEL; 12 km SW Caracas, Venezuela, 1-V-1970, No. 458, SLW.

M. dimidiatum: ♀ det. SLW; CDE; same data as ♂.

PLATE CLXXXVII.

M. minutum Schedl (= *distans* Schedl): ♂ det. SLW; DEL; 12 km SW Caracas, Venezuela, 1-V-1970, No. 458, SLW.

M. exornatum (Schedl): ♂ det. SLW; DEL; Apulco, Puebla, Mexico, 5-IV-1981, T.H. Atkinson.

PLATE CLXXXVIII.

M. fimbraticorne (Blandford): ♂ det. SLW; CDEL; San Jose, San Jose, Costa Rica, 22-X-1963, No. 188, SLW.

M. fimbraticorne: ♀ det. SLW; CDEL; same data as ♂.

PLATE CLXXXIX.

M. gracilior (Schedl): ♂ det. SLW; DEL; Nova Teutonia, Santa Catarina, Brazil, IV-1944, F. Plaumann.

M. gracilior: ♀ det. SLW; CDEL; 10 km W Medellin, Antioquia, Colombia, 17-VII-1970, No. 692, *Weinmania*, SLW.

PLATE CXC.

M. granulosum Wood: ♂ paratype; DEL; Merida, Merida, Venezuela, 29-II-1970, No. 336, SLW.

M. granulosum: ♀ paratype; DEL; same data as ♂.

PLATE CXCI.

M. hagedorni (Schedl): ♂ det. SLW; DEL; 8 km SW Bumbum, Barinas, Venezuela, 11-II-1970, No. 312, *Protium*, SLW.

M. hagedorni: ♀ det. SLW; DEL; same data as ♂.

PLATE CXCH.

M. ingens (Eichhoff): ♂ det. SLW; DEL; La Carbonera, 50 km NW Merida, Merida, Venezuela, 14-X-1969, No. 123, log, SLW.

M. ingens: ♀ det. SLW; CDL; same data as ♂.

PLATE CXCHII.

M. intermedium Schedl: ♂ homotype; DEL; vic. Shishmar, Dep. Huanuco, Peru, 15-20-IX-1937, No. 3787, F. Woytkowski.

M. laevigatum (Eichhoff): ♂ det. SLW; DEL; Urubici, Santa Catarina, Brazil, 1975, apple.

PLATE CXCV.

M. laterale (Eichhoff): ♂ det. SLW; CDEL; Rancho Grande, Aragua, Venezuela, 9-VII-1970, No. 413, SLW.

M. laterale: ♀ det. SLW; CDEL; same data as ♂.

PLATE CXCV.

M. lobatum Ferrari: ♂ det. SLW; DEL; 12 km SW Caracas, Venezuela, 14-V-1970, No. 474, SLW.

M. lobatum: ♀ det. SLW; CDEL; same data as ♂.

PLATE CXCVI.

M. lobellum Wood: ♀ holotype; CDL; Jalapa, Veracruz, Mexico, 23-VIII-1983, *Leucana pulverulenta*, FA. Noguera.

M. marcidum (Schedl): ♂ holotype; DEL; Yungas del Palmar, Bolivia, 10-X-1950.

PLATE CXCVII.

M. nudum Schedl: ♀ SLW homotype = holotype of *appendiculatum* Schedl; DEL; Nova Teutonia, Santa Catarina, Brazil, VI-1966, F. Plaumann.

M. obesum (Schedl): ♀ holotype; DEL; "Peru."

PLATE CXCVIII.

M. obscurum Wood: ♂ paratype; DEL; 12 km SW Caracas, Venezuela, 1-V-1970, No. 459, SLW.

M. obscurum: ♀ paratype; DEL; same data as ♂; also ♂ holotype = *quadridentatum* Eggers, CDL, "Venezuela."

PLATE CXCVI.

M. parvum (Eggers): ♂ det. SLW; DEL; San Isidro, Valle del Cauca, Colombia, 10-IX-1977, *Dialyanthera cordonifolis*.

M. parvum: ♀ det. SLW; DEL; same data as ♂.

PLATE CC.

M. peruanum (Schedl): ♂ holotype; DEL; "Peru."

M. quadridens (Eichhoff): ♂ holotype = *brasiliensis* Schedl holotype; DEL; Nova Teutonia, Santa Catarina, Brazil; VII-1957, F. Plaumann.

PLATE CCI.

M. quadridens: ♀ allotype of *brasiliensis*; DEL; same data as ♂.

M. robustum (Schedl): ♂ det. SLW; DEL; Santa Ana, San Jose, Costa Rica, 9-X-1963, No. 228, SLW.

PLATE CCII.

M. robustum: ♀ det. SLW; DEL; same data as ♂.

M. septulosum Wood: ♂ holotype; DEL; El Bosque, Cacedonia, Valle de Cauca, Colombia, VI-1959, J. Restrepo.

PLATE CCIII.

M. bicolor Ferrari (= *sexdentatum* Eggers): ♀ allotype renamed as ♂ holotype of *M. eggersi* Wood; DEL; Cochabamba, Bolivia.

M. subductum (Schedl): ♂ holotype; DEL; Torantoy Canyon, base Machu-Picchu, Peru, V-VII-1964, B. Molkin.

PLATE CCIV.

M. sulcipenne (Schedl): ♂ holotype; DEL; Torantoy Canyon, base Machu-Picchu, Peru, V-VII-1964, B. Molkin.

M. surinamensis Wood: ♂ paratype; DE; Jodensavane, Camp 8, Suriname, 1969, Schultz.

M. surinamensis Wood: ♀ allotype; L; same data as ♂.

PLATE CCV.

Metacorthylus costatulus Wood: ♂ holotype; DEL; Braulio Carillo, Costa Rica, 1987, G. Stevens.

M. mutilus Wood: ♂ holotype; DEL; Sherman, Canal Zone, Panama, 10-XI-1952, SLW.

PLATE CCVI.

M. mutilus: ♀ allotype; CDEL; same data as ♂.

M. subcostatulus Wood: ♂ holotype; DEL; Colonia Tovar, Aragua, Venezuela, 4-V-1970, 1700 m, SLW.

PLATE CCVII.

M. subtruncatus (Schedl): ♂ det. SLW; CDEL; Colonia Tovar, Aragua, Venezuela, 6-V-1970, No. 477, SLW.

M. subtruncatus: ♀ holotype; CDEL; Cauca, Colombia.

PLATE CCVIII.

M. truncatorus (Schedl): ♂ paratype; CDEL; Nova Teutonia, Santa Catarina, Brazil, 1944, F. Plaumann.

M. truncatorus: ♀ paratype; CDEL; same data as ♂.

PLATE CCIX.

M. velutinus (Wood): ♂ paratype; CDEL; Moravia, Cartago, Costa Rica, 11-III-1964, SLW.

M. velutinus: ♀ paratype; CDEL; same data as ♂.

PLATE CCX.

M. volvulus (Chapuis): ♀ homotype; DEL; Merida, Merida, Venezuela, 3-I-1970, No. 217, *Clusia*, SLW.

Microcorthylus concisus Wood: ♂ det. SLW; CDL; 12 km SW Caracas, Venezuela, 1-V-1970, No. 470, SLW.

PLATE CCXI.

M. puerulus Schedl (= *contractus* Wood): ♂ paratype; CDL; 7 km W Socopo, Barinas, Venezuela, 13-II-1970, No. 322, *Nectandra*, SLW.

M. curtus Wood: ♂ paratype; CDL; El Vigia, Merida, Venezuela, 10-XII-1969, No. 190, SLW.

PLATE CCXII.

M. diversus Wood: ♂ paratype; CDEL; La Carbonera 50 km NW Merida, Merida, Venezuela, 10-IX-1969, No. 126, *Nectandra*, SLW.

M. grandeclavatus Eggers: ♂ det. SLW; CDL; Volcan Chiriqui, Panama, 11-I-1964, SLW.

PLATE CCXIII.

M. minimus Schedl: ♂ det. Schedl; CDL; Merida, Merida, Venezuela, 29-XII-1969, No. 214, *Miconia*, SLW.

M. obscurus Eggers: ♂ homotype; CDL; vic. Cunyabampa, Peru; 4-VIII-19__, Lot 3617, F. Woytkowski.

PLATE CCXIV.

M. parvulus Ferrari: ♂ det. SLW; CDL; Merida, Merida, Venezuela, 22-IX-1969, SLW.

M. puerulus Schedl: ♂ det. SLW; CDL; Nova Teutonia, Santa Catarina, Brazil, IX-1956, F. Plaumann.

PLATE CCXV.

M. suggrandis Schedl: ♂ det. SLW; CDL; Nova Teutonia, Santa Catarina, Brazil, X-1956, F. Plaumann.

M. umbraticus Wood: ♂ det. SLW; CDL; La Carbonera, 50 km NW Merida, Merida, Venezuela, 10-XI-1969, *Nectandra*, SLW.

PLATE CCXVI.

Corthyloxiphus emarginatus (Eggers): ♂ det. SLW; CDL; Tingo Maria, Monson Valley, Peru, 23-IX-1956, E.I. Schlinger & E.S. Ross.

C. punctatus (Wood): ♀ paratype; CDL; La Carbonera, 50 km NW Merida, Merida, Venezuela, 14-XI-1969, No. 135, SLW.

LABEL DATA

PLATE CCXVII.

C. truncatus (Wood): ♀ holotype; CDEL; 13 km SW El Vigia, Merida, Venezuela, 22-X-1969, No. 95, SLW.

C. usticus (Wood): ♀ paratype; CDL; La Carbonera 50 km NW Merida, Merida, Venezuela, 9-XII-1969, No. 134-B, SLW.

PLATE CCXVIII.

Brachyspartus moritzi Ferrari: ♀ homotype; CDEL; Rancho Grande, Aragua, Venezuela, 22-23-II-1971, H. & A. Howden.

Corthylocurus barbatus (Blandford): ♀ det. SLW; CDL; Teziutlan, Puebla, Mexico, 2-VII-1967, No. 149, SLW.

PLATE CCXIX.

C. moritzi Wood: ♀ det. SLW; CDL; Colonia Tovar, Aragua, Venezuela, 4-V-1970, No. 484, Melastomaceae, SLW.

C. reticulatus Wood: ♀ det. SLW; CDL; Escasu, San Jose, Costa Rica, 2-X-1963, No. 218, SLW.

PLATE CCXX.

C. vernaculus (Schedl): ♀ det. Schedl; CDL; Nova Teutonia, Santa Catarina, Brazil, 1-VIII-1961, F. Plaumann.

Corthylys abbreviatus Eichhoff: ♀ det. SLW; CDL; Merida, Merida, Venezuela, 29-XII-1969, No. 208, *Ficus*, SLW

PLATE CCXXI.

C. additus Wood: ♀ paratype; CDL; La Carbonera, 50 km NW Merida, Merida, Venezuela, 10-XI-1969, No. 123, SLW.

C. attenuatus Wood: ♀ paratype; CDL; La Carbonera, 50 km NW Merida, Merida, Venezuela, 9-XII-1969, *Nectandra*, SLW.

PLATE CCXXII.

C. castaneus Ferrari: ♀ det. SLW; CDL; La Carbonera, 50 km NW Merida, Merida, Venezuela, 14-X-1969, No. 50, *Clusia*, SLW.

C. cecropii Wood: ♀ paratype; CDL; Turrialba, Cartago, Costa Rica, 5-VII-1963, *Cecropia* petioles, SLW.

PLATE CCXXIII.

C. cirrifer Wood: ♀ holotype; CDL; Rancho Grande, Aragua, Venezuela, 9-IV-1970, No. 413, SLW.

C. cirritus Wood: ♀ paratype; CDL; Rancho Grande, Aragua, Venezuela, 9-IV-1970, No. 445, SLW.

PLATE CCXXIV.

C. compressicornis (Fabricius): ♀ det. SLW homotype; CDEL; Campamento Rio Grande, 30 km E Palmar, Bolivar, 12-VI-1970, 200 m, *Alexa imperatrix*, SLW.

C. convexifrons Wood: ♀ paratype; CDL; La Carbonera 50 km NW Merida, Merida, Venezuela, 9-XII-1969, No. 174, *Nectandra*, SLW.

PLATE CCXXV.

C. donaticus Wood: ♀ homotype; CDL; Colonia Tovar, Aragua, Venezuela, 6-V-1970, No. 497, SLW.

C. excisus Ferrari: ♀ det. SLW; CDL; La Carbonera, 50 km NW Merida, Merida, 10-XI-1969, SLW.

PLATE CCXXVI.

C. letzneri (Ferrari): ♀ det. SLW; CDL; Merida, Merida, Venezuela, 11-IX-1969, SLW.

C. macrocerus Eichhoff: ♀ holotype; CDL; Cassilla, Quito, Ecuador, 14-VI-1954, No. 6261.

PLATE CCXXVII.

C. panamensis Blandford: ♀ det. SLW; CDL; Rincon, Osa Peninsula, Costa Rica, 11-VIII-1966, No. 5, *Bursera simarubra*, SLW.

C. peruanus Schedl: ♀ det. Schedl; CDL; 12 km SW Caracas, 1-V-1970, No. 458, SLW.

PLATE CCXXVIII.

C. pinguis Wood: ♀ holotype; CDL; 30 km E Palmar, Bolivar, Venezuela, 12-VI-1970, No. 557, *Alexa imperatrix*, SLW.

C. robustus Schedl: ♂ det. SLW; DEL; Brazil, J.L. Saunders.

PLATE CCXXIX.

C. sanguineus Schedl: ♀ det. SLW; CDL; Pto. Tejada, Valle del Cauca, Colombia, 22-VIII-1955, Cacao, M. Benavides, No. 6881.

C. truncatus Wood: ♀ holotype; CDL; vic. Leonpampa, Dep. Huanuco, Peru, VI-1937, No. 88, jungle, F. Woytkowski.

PLATE CCXXX.

C. tuberosus Wood: ♀ det. SLW; CDL; Rancho Grande, Aragua, Venezuela, 9-IV-1970, No. 433, Guttiferae, SLW.

C. villosus Wood: ♀ det. SLW; CDL; Merida, Merida, 11-IX-1963, No. 2, *Piper*; SLW.

TRIBE CORTHYLINI

Description: Male and female similar in size, except the allies of *Araptus laevigatus* (Eggers), where males are dwarfed and flightless. The spine at the anterior end of the metepisternum, forming an important element of the locking mechanism that holds the elytra in place when at rest, is lost in all members of this tribe. It is replaced by a diagonal groove at the anterior end of the metepisternum that assumes the same function formerly performed by the spine. This structural change enabled the costal margin of the elytra to move ventrad and to cover at least the posterior half of the metepisternum when the elytra are at rest. The antennal club is also strongly flattened and has the sutures almost equal on both sides of the club (those on the posterior face not strongly displaced toward the apex, as in most other groups). The tibiae are very slender and usually have a reduced number of socketed denticles on the lateral margin. The group is divided into 2 distinct subtribes primarily on the basis of habits; anatomical differences are somewhat obscure and not always consistent (see also couplet 1 in the key to genera, below).

Subtribe Pityophthorina: The species feed directly on host tissue and are phloeophagous, myelophagous, or spermophagous. There are no truly xylophagous species. The elytra tend to be striate, with punctures and setae in rows, the vestiture on the disc is commonly lost. Most species are small.

Subtribe Corthyliina: Most species bore into xylem tissues of the host, introduce spores of mutualistic symbiotic fungi to the tunnel walls, then feed primarily on the fungus spores and mycelium. Special mycetangia

occur at various sites on the insect body in which spores are stored and nourished. It is presumed that most larvae of this subtribe feed on a mixture of mycelium and boring frass, although some *Corthylyus* larvae are apparently fed only mycelium (including spores) of the fungus.

Biology: Except for the inbreeding *Araptus laevigatus* species group, all species in the tribe outbreed. The male initiates the new parent gallery to which he admits 1 or more females. The mating system is usually characteristic of a genus, but both monogynous and polygynous genera occur in both subtribes. Most species in both subtribes are sexually dimorphic. Because the male is inside of the host, in his newly formed tunnel, and uses the posterior parts of his body to protect the entrance hole, an approaching female must be able to recognize a male from his exposed elytral declivity and, at the same time, notify him that she is a potential mate. She does so by using the anterior parts of her body. Consequently, in most genera species-specific characters used for intraspecific identification are most commonly found on the head of the female and on the elytral declivity of the male.

Notes: Approximately one third of the Scolytidae species of South America are members of this tribe. Except for the widely distributed *Pityophthorus* and 2 small genera from Madagascar (*Pityodendron*, *Sauropitilius*), 1 from Africa (*Mimiocurus*), and 1 from Asia (*Gnatharus*), this tribe is exclusively of American distribution. The Pityophthorina are especially numerous in North and Central America, and the Corthyliina in Central and South America.

Key to the Genera of Corthylini
(Adapted from Wood 1986:94–97)

- | | | |
|-------|---|---------------------------|
| 1. | Phloeophagous, myelophagous, or spermophagous, species feed directly on host tissue; antennal funicle mostly 5-segmented, club usually smaller, symmetrical; prosternal intercoxal piece acutely pointed (except obsolete in <i>Dacnophthorus</i>); pubescence more abundant, usually in rows on elytra; elytral declivity mostly convex to bisulcate, armature absent or conservative (subtribe PITYOPHTHORINA) | 2 |
| — | Xylomycetophagous; antennal funicle 1- to 5-segmented, club usually much larger, commonly asymmetrical; prosternal intercoxal piece absent (except obtuse in <i>Gnathotrupes</i>); pubescence usually greatly reduced to minute or obsolete and commonly strongly confused (not in rows); elytral declivity convex to truncate to deeply excavated, commonly with spinelike processes (subtribe CORTHYLINA) | 9 |
| 2(1). | Basal and lateral margins of pronotum rounded, without a fine, raised line; elytral declivity usually subvertical, somewhat flattened on lower half, never bisulcate, discal vestiture abundant, interstitial setae scalelike; antennal club with aseptate sutures very strongly procurved; male strongly, transversely carinate at upper level of eyes, female epistoma deeply emarginate to accommodate a pair of mandibular spines; phloeophagous in bole; Costa Rica to Bolivia and Brazil; <i>Astronium</i> , <i>Spondias</i> ; 1.3–1.6 mm | <i>Styphlosoma</i> |

- Basal and usually lateral margins of pronotum marked by a fine, raised line (see couplet 4); elytral declivity usually more gradual, convex to bisulcate, often ornamented by granules or small denticles 3
- 3(2). Sutures of antennal club moderately to very strongly procurved, only suture 1 septate (or if all sutures obsolete, then suture 1 marked internally by a strongly procurved septum at least on mesal side; phloeophagous, myelophagous, spermophagous; SE USA to Argentina; 1.3–3.3 mm ***Araptus***
- Sutures 1 and 2 clearly, equally marked by rows of setae and/or grooves, straight to moderately procurved, if procurved then both sutures at least partly septate (sutures always straight when both mostly obsolete) 4
- 4(3). Lateral margins of pronotum rounded, without a fine, raised line 5
- Lateral margins of pronotum subacute, marked by a fine, raised line (sometimes obscure in *Spermophthorus*, and some *Pityophthorus* having asperities of pronotum in subconcentric rows) 6
- 5(4). Antennal club rather large, at least 2.5 times as long as scape, suture 3 indicated by a row of setae; female oral area normal; monogynous species; *Clematis* and Bignoniaceae vines; 1.2–2.0 mm ***Dacnophthorus***
- Antennal club rather small, about 1.5 times as long as scape; female oral region abnormally large and, usually with mandibles greatly enlarged; polygynous species; *Dacreoides*, *Cedrela*, *Protium*; 1.3–1.8 mm ***Gnatholeptus***
- 6(4). Pronotum without a transverse impression behind summit, transition between asperate and smooth areas gradual, asperities always confused; interstitial bristles usually stout to scalelike 7
- Pronotum almost always with a distinct, transverse impression behind summit, if doubtful then asperities almost always in concentric rows; interstitial setae hairlike (if stout then pronotum asperities concentric) 8
- 7(6). Strial punctures coarse, mostly in rows, declivity moderately to rather strongly impressed, lateral margins armed or not; frons never armed; epistomal margin with a small, median premandibular lobe; polygynous; phloeophagous; transverse axis of tabular nuptial chamber of gallery perpendicular to cambium, longest axis parallel to grain of wood; Colombia, Venezuela; 1.3–3.1 mm ***Phelloterus***
- Strial punctures either very small or confused; declivity not as steep, convex to shallowly impressed, lateral margins never armed; male frons usually excavated and armed; spermophagous; Central and South America; 1.3–1.9 mm ***Spermophthorus***
- 8(6). Sutures of antennal club moderately procurved, segment 1 shorter than 2 or 3; greater frontal pubescence a male character; elytral punctures very small, usually confused; short pubescence abundant; phloeophagous; monogynous; North America, 1 in China, 1 in Colombia; *Quercus*; 1.2–2.6 mm ***Pseudopityophthorus***
- Sutures of antennal club straight to moderately procurved, segments 1 and 2 subequal in length; pubescence usually much less abundant; female frons usually with greater abundance of setae; mostly phloeophagous; monogynous or polygynous; America, Europe, Asia, Africa; 0.9–3.9 mm ***Pityophthorus***
- 9(1). Antennal funicle 5-segmented, club always symmetrical, with 2 or 3 clearly marked sutures (3 a false suture, if present); protibia widest near its apex, its posterior face usually flat, unarmed (a few minute granules sometimes present); elytral declivity mostly conservatively sculptured; sutures

CORTHYLINI

- of antennal club moderately to strongly procurved, segment 1 distinctly smaller; elytral apex at least weakly divaricate, broadly rounded to emarginate at suture; monogynous; 1.3–4.0 mm **Gnathotrupes**
- Antennal funicle 1- to 4-segmented, club commonly asymmetrical, often greatly enlarged, sutures often reduced or absent; tibiae variously sculptured 10
- 10(9). Antennal funicle 2- to 4-segmented, club with 2 sutures clearly marked; elytra apex divaricate (except some *Metacorthylus*), commonly explanate, declivity often elaborately excavated and armed by spines; protibia always slender, with posterior face inflated and tuberculate; body usually slender 11
- Antennal funicle 1-segmented, club with 1, 2, or no sutures; elytral apex entire (except *Brachyspartus*, *Corthyloxiphus emarginatus*), declivity convex to rather weakly excavated, never explanate; posterior margin of prothoracic precoxal piece transversely straight, not extended between coxae; protibia variable; body comparatively stout 14
- 11(10). Procoxae contiguous, anterior wall of combined cavities and precoxal piece transversely straight (very thin longitudinally); protibia similar in male and female, with a longitudinal marginal row of tubercles, posterior face either unarmed or with a longitudinal row of up to about 4 tubercles; posterior face of female antennal club with long hair sparse to absent; antennal funicle usually 3-segmented, less commonly 2-segmented; frons commonly with a sharply defined granular area 12
- Prothoracic precoxal piece moderately large, posteriorly angulate, occupying anterior portion of area between coxae; male protibia armed by coarse marginal serrations and a row of equally coarse serrations on posterior face, female protibia with posterior face moderately inflated and armed by numerous, confused, small tubercles in addition to a coarser marginal row; posterior face of female antennal club ornamented by more abundant, long hair; frons never ornamented by a sharply defined granular area; antennal funicle 2- or 3-segmented 13
- 12(11). Elytra broadly rounded behind, posterior margin of declivity feebly if at all explanate, weakly divaricate; lateral margins of declivity armed by as many as 3 pair of spines; antennal club oval to subtriangular, little if any longer than wide; anteroventral margin of prosternum flanged, bent or folded caudad of ventrad away from head, usually bearing a tuft of hair; pronotum usually stouter; anterior margin usually serrate; antennal funicle 3-segmented; monogynous; Mexico to South America; 1.5–3.9 mm **Tricolus**
- Posterior margin of elytral declivity strongly to profoundly explanate, weakly to profoundly divaricate; declivital armature variable, often remarkable; antennal club oval to very elongate; anteroventral margin of prosternum fitting closely against head (not bent caudad), sparsely pubescent; pronotum usually much more elongate, anterior margin variously sculptured, rarely serrate; antennal funicle usually 3-segmented, occasionally 2-segmented; monogynous; Mexico to South America; 2.5–8.0 mm **Amphicranus**
- 13(11). Elytral apex divaricate, often also explanate; antennal funicle 2-segmented, club oval to broadly triangular; lateral margins of pronotum usually with a fine, raised line (rounded in a few species); body moderately to very slender; mostly polygynous; North and South America; 1.4–4.8 mm **Monarthrum**
- Elytral apex entire, never explanate; lateral margins of pronotum always rounded, without a raised line; antennal club more than twice as long as wide (except some males), its apex narrowly rounded; funicle 2-segmented; elytra minutely, closely pubescent; monogynous; Costa Rica to Colombia; 1.9–2.7 mm **Metacorthylus**
- 14(10). Lateral margins of pronotum rounded; elytral disc usually impunctate, declivity short, very steep, narrowly sulcate on basal third, triangularly impressed below, costal margins near apex ascending slightly; antennal club subcircular, symmetrical, with 2 aseptate sutures marked by rows of setae; female frons convex, pubescence inconspicuous; monogynous; Mexico to South America; 1.2–2.4 mm **Microcorthylus**

- Lateral margins of pronotum marked by a fine, raised line (except some *Corthycyclon*), elytral disc usually with clearly marked, confused punctures, declivity convex, truncate, or variously sculptured (but not as above); female frons usually moderately to strongly concave, often ornamented by hair; antennal club symmetrical to strongly asymmetrical 15
- 15(14). Antennal club often aseptate, without sutures (some species with weak, transverse grooves, without rows of setae), usually very elongate; lateral margins of pronotum either with or without a fine, raised line; posterior face of protibia inflated and tuberculate; female frons broadly, evenly concave and ornamented by fine hair; monogynous; Mexico to South America; 1.3–2.4 mm *Corthyloxiphus*
- Antennal club with 1 or 2 sutures, its outline subcircular to strongly asymmetrical (if sutures absent then posterior face of protibia flat, smooth); female frons variable 16
- 16(15). Elytral apex strongly, obtusely divaricate; female antennal club with suture 1 septate, tapered on apical half to strongly acuminate apex, posterior face of club without a tuft of long hair; female protibia inflated, armed on posterior face; Venezuela; 2.5 mm *Brachyspartus*
- Elytral apex entire (a small sutural cleft in *Corthyloxiphus emarginatus*); female antennal club not tapered or acuminate at apex 17
- 17(16). Elytral declivity narrowly, weakly sulcate (except uniformly convex in 1 species), lateral margins armed by 2 or 3 pair of pointed granules; antennal scape elongate, club-shaped; female frons variously impressed, with a pair of median carinae narrowly separated by a sulcus over part or all of median line; color pale yellow to yellowish brown; antennal club symmetrical, broadly oval, with 2 finely marked sutures; female protibia inflated, posterior face tuberculate; monogynous; Mexico to South America; 1.5–2.8 mm *Corthylocurus*
- Sculpture of elytral declivity convex, truncately concave, or variously impressed (but never shallowly sulcate); antennal scape subquadrate, stout; female frons never with a pair of median, longitudinal carinae; antennal club slightly to profoundly asymmetrical, sutures (when present) rather strongly marked; posterior face of protibia smooth or tuberculate; monogynous; North and South America; 1.2–4.3 mm *Corthylus*

EXCLUDED SPECIES

Mimiocurus oleanderi (Schedl), n. comb.

Neodryocoetes oleanderi Schedl, 1961:187. Holotype ♂; Turkei bei Gilindire; NHMW, Wien (References in Wood & Bright c1992:960)

Schedl (1961:187) named a species taken in Turkey from Oleander stems as *Neodryocoetes oleanderi*. It was later assigned to the genus *Araptus* (Wood & Bright c1992:960). Because this was the only known *Araptus* occurring outside of tropical America, among 147 nominate species, special attention was given to an examination of the type series of this species.

The male holotype, female allotype, and 2 male paratypes were examined. The lateral margins of the pronotum are rounded except very near the base. All characters, except for 1, suggest that this species is of African origin and should be assigned to the genus *Mimiocurus*. In the few species of *Mimiocurus* known to me, the antennal club is entirely without sutures and is minutely pubescent from base to apex. In *oleanderi*, suture 1 of the club is procurved and conspicuously present. A short median carina is present at and near the epistoma in both sexes.

The general habitus of head, pronotum, elytra, and tibiae do not conform to those of the tropical American genus *Araptus*. For this reason, *Neodryocoetes oleanderi* Schedl is here transferred to the African genus *Mimiocurus*.

SUBTRIBE PITYOPHTHORINA

GENUS *STYPHLOSOMA* BLANDFORD

Styphlosoma Blandford, 1904:232. Type-species: *Styphlosoma granulatum* Blandford, monobasic (References in Wood & Bright c1992:950)

Diagnosis: Distinguished from other genera of Pityophthorina by the strongly procurved sutures 1 and 2 of the antennal club; by the partial scalelike interstitial vestiture; by the uniquely, sexually dimorphic frons; and by the rounded basal and lateral margins of the pronotum.

Description: Length 1.1–1.6 mm, 2.4 times as long as wide; color dark brown to almost black. Frons sexually dimorphic, male transversely impressed from epistoma almost to upper level of eyes, with a strong transverse carina at upper level of eyes, female somewhat flattened,

with epistoma very deeply emarginate, a pair of mandibular spines projecting into this emargination (Wood 1982:917, Fig. 195). Antennal scape elongate; funicle 5-segmented; club flattened, rather small, with sutures strongly procurved, suture 1 extending one-fourth and 2 three-fourths of club length from base. Pronotum finely asperate on declivous anterior half; summit poorly defined, transition from asperate to punctured area gradual; basal and lateral margins rounded. Elytra striate; declivity steep, unarmed.

Biology: The 2 observed species infested the thick bark of the bole in large fallen trees in rain forest. The tabular nuptial chamber in phloem tissue had its trans-

verse axis perpendicular to the cambium surface and the longer, longitudinal axis parallel with the grain of the wood. From the inner extremity of this chamber 1 or 2 egg galleries branched from the upper and 1 or 2 from the lower corner near the cambium. The egg galleries descended through the phloem to the cambium, then continued along the cambium for about two-thirds of their length. Eggs were deposited in niches only along that part of the gallery in contact with the cambium. Larval mines followed an erratic course in the cambium area. Only very young larvae were observed.

Notes: Wood & Bright (c1992:950) record 4 species, 1 from Costa Rica and Panama, 3 from South America.

Key to the Species of *Styphlosoma*

1. Antennal club rather broad, only slightly longer than wide, its apex rather broadly rounded, with sutures 1 and 2 about equally, rather broadly procurved; elytral declivity convex, interstriae 2 not impressed 2
- Antennal club conspicuously longer than wide, its apex subacutely rounded, with suture 1 strongly, rather broadly procurved, 2 subacutely angulate, almost attaining apex of club 3
- 2(1). Body larger, stouter, 2.3 times as long as wide; transverse carina on male frons attaining upper level of eyes in median area, area from epistoma to above carina with rather abundant, short setae uniformly distributed; punctures on basal half of discal interstriae 2 confused; Bolivia; 1.1–1.6 mm *boliviae* (Schedl)
- Body much more slender, 2.7 times as long as wide; transverse carina on male frons well above upper level of eyes in median area, area from epistoma to above carina subglabrous; punctures on discal interstriae 2 uniseriate to base; Brazil (Guanabara); 1.4 mm *brasiliensis* (Schedl)
- 3(1). Female frons planoconvex from epistoma to well above upper level of eyes, dorsal margin of flattened area less abrupt, punctures slightly larger, with no granulation or reticulation on flattened area; female epistomal emargination more broadly U-shaped; male above transverse frontal carina more coarsely punctured, reticulation rather weakly impressed; Costa Rica to Panama; *Spondias mombin*; 1.3–1.5 mm *granulatum* Blandford
- Female frons planoconcave from epistoma to well above upper level of eyes, dorsal margin more abrupt, punctures slightly smaller, with minor granulation and stronger reticulation on upper fourth; female epistomal emargination more narrowly U-shaped; male above transverse frontal carina with punctures finer, closer, reticulation more strongly impressed; Venezuela (Barinas); *Astronium graveolens*; 1.4–1.6 mm *subulatum* Wood

Styphlosoma brasiliensis (Schedl)

Plate CXLVIII

Styphlosoma brasiliensis (Schedl), 1972:58 (*Stephanopodius*). Holotype ♂; Corcovado, Guanabara, Brazil; NHMW, Wien (References in Wood & Bright c1992:950)

Diagnosis: Distinguished from *boliviae* (Schedl) by the smaller size and more slender body; by the uniseriate punctures on discal interstriae 2 to the base; and by the different male frons.

Male: Length 1.4 mm, 2.7 times as long as wide; color almost black. Frons resembling *boliviae*, except impressed area more strongly concave, extending well above (20

percent) upper level of eyes; carina more strongly arched; floor of concave area smooth, shining, sparsely, very finely punctured; lateral margins of impressed area more acutely rounded as a continuation of ends of carina; antennal club smaller than in *boliviae*, sutures similarly marked but less strongly arcuate, apical margin rather broadly rounded; eye distinctly emarginate. Pronotum 1.05 times as long as wide; widest on basal half, sides weakly arcuate, rather narrowly rounded in front; anterior margin armed by 6 weak serrations; summit at middle, rather coarsely, closely asperate; small asperities behind summit to base; lateral and basal areas rather coarsely, closely punctured; vestiture of short, rather abundant

hair, distinctly longer on asperate area. Elytra 1.5 times as long as wide, 1.5 times as long as pronotum; striae not impressed, punctures rather coarse, deep, in rows; interstriae as wide as striae on posterior half, slightly wider near declivity, punctures uniseriate, a third as wide as those of striae, smooth, shining, no impressed lines. Declivity very broadly convex, very steep; sculpture about as on disc except striae punctures smaller. Vestiture of rows of minute striae hair on disc and declivity; and rows of erect interstitial scales from base to apex, each scale three to four times as long as wide, longest setae almost as long as distance between rows, spaced within a row by distance slightly less than length of a scale.

Distribution: Brazil: Corcovado, Guanabara, XI-1970, Alvarenga & Seabra.

Notes: The above treatment was based on the male holotype from Brazil.

Styphlosoma boliviae (Schedl)

Plate CXLVIII

Styphlosoma boliviae (Schedl), 1961:224 (*Stephanopodius*). Holotype ♂; Do Santa Cruz, Prov. Jaita, Buenavista, Bolivia; NHMW, Wien (References in Wood & Bright c1992:950)

Diagnosis: Distinguished from *brasiliensis* (Schedl) by the larger size and stouter body; by the confused punctures on the basal half of discal interstriae 2; and by the very different male frons.

Male: Length 1.1–1.6 mm, 2.3 times as long as wide; color very dark reddish brown. Frons moderately concave on median three-fourths from epistoma to upper level of eyes, upper margin of concave area with a strongly elevated arched carina, carina apparently not continued down sides of impressed area; floor of impressed area not clearly visible (apparently finely punctured); vestiture of moderately short, rather abundant, coarse hair uniformly distributed in concave area and slightly above carina; eye moderately emarginate; antennal club rather large, flat, slightly longer than wide, apical margin broadly rounded, sutures 1 and 2 strongly procurved, clearly marked by grooves and setae. Pronotum 0.90 times as long as wide; widest on basal fourth, sides weakly, arcuately converging to broadly rounded anterior margin; anterior margin armed by 6 very weak serrations; summit at middle of pronotum length, anterior slope coarsely, rather closely asperate; area behind summit finely, closely subasperate, lateral areas rather coarsely, rugosely punctured; vestiture of fine, short hair on posterior and lateral areas, of coarser, longer bristles on asperate area. Elytra 1.4 times as long as wide, 1.5 times as long as pronotum; striae very feebly impressed on posterior half of disc, punctures rather small, deep, in rows; interstriae about three times as wide as striae, smooth, shining, with numerous, rather strongly impressed transverse lines, punctures half as large as those of striae, strongly confused on 2, almost uniseriate to weakly confused on 1, 3, and 4. Declivity broadly convex, very steep; striae 1–3 more distinctly impressed;

interstriae 1–3 slightly wider than striae, each armed by a uniseriate row of small, rounded, closely set tubercles. Vestiture of rows of minute, fine, striae hair on declivity; and rows of closely set erect interstitial scales, each scale about twice as long as wide, less than half as long as distance between rows (scales mostly abraded on specimens at hand).

Distribution: Bolivia: “Do. Santa Cruz, Prov. Jaita, Buenavista.”

Notes: The above treatment was based on the male holotype and 1 male paratype from Bolivia. The type locality appears to be Buena Vista, Yungas Distr., Santa Cruz Province about 60 km NW of the city of Santa Cruz.

Styphlosoma subulatum Wood

Plate CXLIX

Styphlosoma subulatum Wood, 1971:43–44. Holotype ♀; 9 km S Barrancas, Barinas, Venezuela; USNM, Washington (References in Wood & Bright c1992:950)

Diagnosis: Distinguished from *granulatum* Blandford by the planoconcave female frons, with the frontal punctures smaller; the surface more strongly reticulate on upper fourth; and by the narrower female epistomal emargination.

Male: Similar to female except frons with a strongly elevated transverse carina at upper level of eyes, area above carina more coarsely punctured and more strongly reticulate than in male *granulatum*.

Female: Length 1.4–1.6 mm, 2.4 times as long as wide; color very dark brown. Frons as in *granulatum*, except feebly planoconcave, upper margin more abrupt, surface reticulate, punctures smaller, obscured in central area by minute subgranulation; sides of epistomal emargination more nearly parallel; mandibular spine very slightly larger. Pronotum 1.1 times as long as wide; as in *granulatum* but slightly more finely sculptured. Elytra 1.4 times as long as wide; sides almost straight and parallel on basal two-thirds, very broadly rounded behind; striae 1 weakly impressed, punctures moderately coarse, rather deep, close; interstriae as wide as striae, smooth, punctures fine, close, in rows except slightly confused toward base (larger and more strongly confused in *granulatum*). Declivity very steep, appearing somewhat flattened from dorsal aspect; striae punctures smaller than on disc; interstitial punctures about as on disc; interstriae 2 narrowed, strongly, narrowly impressed on central two-thirds of declivity length. Vestiture on striae and alternate interstitial setae of short, suberect, rather coarse hair; alternate interstitial setae forming rows of longer scales, each scale about three times as long as wide (alternate arrangement of hair and scales on interstriae of *granulatum* not at all regular).

Distribution: Venezuela: 9 km S Barrancas, Barinas, 2-XII-1969, 150 m, No. 165, *Astronium graviolens*, SLW.

Biology: The above description for the genus was based on this species.

Notes: The above treatment was based on the type series of 53 specimens.

GENUS *ARAPTUS* EICHHOFF

- Araptus* Eichhoff, 1872:136. Type-species: *Araptus rufopalliatu*s Eichhoff, monobasic (Synonymy and references in Wood & Bright c1992:952–963)
- Neodryocoetes* Eggers, 1933:9. Type-species: *Neodryocoetes hymenaeae* Eggers, monobasic
- Thamnophthorus* Schedl, 1938:174. Type-species: *Thamnophthorus volastos* Schedl, subsequent designation by Blackman 1942:178
- Breviophthorus* Schedl, 1938:176. Type-species: *Breviophthorus brasiliensis* Schedl, monobasic
- Neopityophthorus* Schedl, 1938:180. Type-species: *Pityophthorus laevigatus* Eggers, subsequent designation by Wood 1982:928
- Sphenoceros* Schedl, 1939:565. Type-species: *Sphenoceros limax* Schedl, monobasic
- Hypertensus* Hagedorn, nomen nudum, cited in Schedl 1950:164, for *Hypertensus reitteri*, nomen nudum, = *Sphenoceros limax* Schedl, no status
- Brachydendrulus* Schedl, 1951:114. Type-species: *Brachydendrulus eggersi* Schedl, monobasic
- Gnathocranus* Schedl, 1951:116. Type-species: *Gnathocranus novateutonicus* Schedl, monobasic
- Gnathoborus* Schedl, 1970:93. Type-species: *Breviophthorus argentiniae* Schedl, original designation

Diagnosis: Distinguished from *Pityophthorus* by the partly to entirely septate suture 1 of the antennal club, suture 2 is never septate, all external evidence of sutures absent in some species; and by denticles or rugae on the posterolateral margin of the protibia that sometimes extend to the basal fourth of the tibia length. Most species lack a transverse impression behind the poorly developed pronotum summit, and the transition from the asperate to the punctured area on the pronotum is gradual.

Description: Length 1.1–3.3 mm, 2.4–3.2 times as long as wide; color yellowish brown to almost black. Frons usually sexually dimorphic, varying in either sex from convex to elaborately excavated; greater abundance of

vestiture on frons usually a female character. Eye oval, emarginate. Antennal scape elongate; funicle 5-segmented; club small to very large, external sutures distinct to obsolete, straight to profoundly procurved, 1 at least partly septate in all species, 2 never septate. Pronotum usually without a definite summit, anterior slope finely asperate, transition from asperate to punctured area gradual. Elytra weakly striate, declivity convex to moderately impressed, conservatively sculptured. Protibia similar to *Pityophthorus*, except denticles and/or rugae on lateral margin extend closer to base.

Biology: The species are phloeophagous, myelophagous, or spermophagous; a few may adapt to more than 1 habit. The mating system may be one of monogyny, heterosanguineous (outbreeding) polygyny, or consanguineous (inbreeding) polygyny where males are dwarfed and flightless [allies of *laevigatus* (Eggers)]. The male apparently initiates the new gallery system in all except the *laevigatus* group, where males are flightless and, therefore, unavailable for this important task. Males of these inbreeding species mate in the brood chamber with sibling sisters and die in the brood chamber. The species breed in unthrifty, cut, broken, or injured host material, including fallen fruit containing large seeds. Larval mines are always individual, apparently never communal.

Notes: This is a large and diverse genus. Wood & Bright (c1992:952–963) list 114 nominate species, 53 of which were recorded from South America. Wood (1982:927–963) record 54 species from Mexico and Central America. The remaining species are from the Antilles Islands. Two species were intercepted in Europe, but they are not established there. Because of enormous difficulties in species identification and faunal overlap, the following key lists all mainland species from Mexico to Argentina. For descriptions and details on species from Mexico and Central America see Wood (1982:927–963).

Key to the Species of *Araptus*
(Modified from Wood 1982:928–935)

- 1. Male frons moderately to profoundly excavated, median carina entirely absent except in species with major part of excavated area above upper level of eyes; female frons usually convex, with a conspicuous, low, median carina (impressed and ornamented by hair in three species, but conspicuous carina also present); elytral declivity convex to shallowly impressed 2
- Male frons convex, with or without a median carina, or if impressed then impression confined to area below upper level of eyes and all cusps confined to lower margin of impression; female frons convex to rather strongly impressed, usually ornamented by hair, never with a median carina; elytral declivity convex to strongly impressed 13
- 2(1). Male frons without a median denticle below upper level of eyes, excavation at upper level of eyes usually occupying less than half distance between eyes; female frons convex to weakly, transversely impressed, with a fine median carina, frontal vestiture sparse, inconspicuous; in Leguminosae seeds and pods 3

- Male frons armed by a conspicuous median denticle below upper level of eyes, excavation at upper level of eyes broad, occupying at least three-fourths of distance between eyes; female frons flattened to concave, ornamented by rather abundant hair, and by a conspicuous median carinate elevation; in vine or liana stems 10
- 3(2). Smaller; male frons triangularly, rather strongly impressed from near epistoma to upper level of eyes; interstrial punctures on disc sparse to obsolete 4
- Larger; male frontal excavation strongly impressed and armed above upper level of eyes by a pair of longitudinal, subcarinate cusps, unarmed by tubercles or other prominences below upper level of eyes; discal interstriae regularly punctured 8
- 4(3). Lateral margin of male frons not armed by a pair of denticles near base of mandibles; strial punctures on disc larger, interstrial punctures as large as those of striae 5
- Lateral margin of male frons armed at bases of mandibles by a pair of small tubercles, upper crest of impression more abrupt, usually forming a subacute cusp; pronotum disc with micropunctures to weak reticulation in spaces between punctures; strial punctures on disc smaller, interstrial punctures very sparse, widely spaced 6
- 5(4). Larger; strial punctures on disc regularly spaced, only slightly confused; female frons more strongly impressed, less smooth; Argentina to Venezuela; 1.8–2.2 mm *amazonicus* (Eggers)
- Smaller; strial punctures on disc mostly confused; female frons less strongly impressed, smoother; Argentina; 1.6 mm *araucariae* (Schedl)
- 6(4). Larger; stouter, 2.5 times as long as wide; strial punctures on disc slightly larger, not as deep, in moderately staggered rows; irregular lines on discal interstriae more numerous, more strongly impressed; Venezuela; *Mucuna* seeds; 2.0–2.5 mm *mucunae* (Blackman)
- Smaller; often more slender, 2.5–2.7 times as long as wide; strial punctures on disc smaller, deeper, in more definite rows; irregular impressed lines on discal interstriae less numerous, not as deep 7
- 7(6). Body more slender, 2.7 times as long as wide; strial punctures on disc uniseriate to base; impression on male frons deeper, abrupt on upper margin and cusps rather poorly formed; female frons more strongly convex; Costa Rica and Jamaica to Venezuela and Colombia; 1.4–1.7 mm *hymenaeae* (Eggers)
- Body 2.5 times as long as wide; strial punctures confused on basal fourth of disc; male frons less strongly impressed, more gradually rounded, a pair of small, subtuberculate cusps present; female frons less strongly convex, especially on lower half; French Guyane to Trinidad; 1.5–1.7 mm *caribaeus* (Blackman)
- 8(3). Male frons strongly impressed eye to eye on lower half, cusps at upper extent of impression joined transversely, extended longitudinally only slightly, lateral margins bearing a weak tuft of short hair; female similarly, more strongly impressed and with lateral margins ornamented by abundant long hair; Mexico (Jalisco); 2.2–2.8 mm *excavatus* Wood
- Male frons strongly impressed only on median half of upper half, mostly above upper level of eyes, longitudinal cusps not joined transversely, lateral vestiture sparse; female frons convex, setae short, uniformly distributed 9
- 9(8). Elytral declivity narrowly impressed at sutural striae only; female frons weakly, transversely impressed near middle; Mexico (Nayarit) to Guatemala; 1.8–2.4 mm *fossifrons* Wood
- Elytral declivity with entire width of interstriae 2 distinctly, moderately impressed; female frons not visible in material at hand; Mexico (Veracruz) to Honduras; 1.6–2.1 mm [see also *brevisetosus* (Eggers)] *deyrollei* (Blandford)

CORTHYLINI

- 10(2). Male frons transversely excavated from middle to well above eyes, its upper margin unarmed, armed on lower half at extreme lateral margins by a pair of denticles and by a stronger median denticle at same level midway between epistomal margin and upper level of eyes; female frons flattened to weakly impressed on median half from epistoma to vertex, with an obtuse median carina, and with a rather sparse brush of moderately long hair in lateral areas; discal interstriae with punctures sparse to obsolete; Mexico (Jalisco) to Guatemala; 2.4–2.7 mm *foveifrons* (Schedl)
- Upper limits of male frontal excavation at vertex armed by acutely projecting margin, a conspicuous median elevation or carina occupying two-thirds length of floor of excavation, a small tubercle at its lower end; lateral areas of male frons unarmed below upper level of eyes; female frons essentially as in male except more broadly impressed and ornamented on all margins by a fringe of very long, yellow hair; discal interstriae sparsely to regularly punctured 11
- 11(10). Upper margin of male impressed frontal area rounded on median line, lateral cusps acute; upper margin of female frontal impression unarmed; Mexico (Puebla); 2.1–2.5 mm . . . *accinctus* Wood
- Upper margin of male and female frontal impression acutely projecting 12
- 12(11). Upper limits of frontal excavation armed by 1 continuous U-shaped costa; median frontal carina low, narrow, long, evanescent above; Mexico (Jalisco to Nayarit); 1.7–2.5 mm . . . *delicatus* Wood
- Upper limits of frontal excavation armed by a median and a pair of lateral cusps; frontal carina thick, rather high, ending abruptly above; Guatemala; 2.8–3.4 mm *genialis* Wood
- 13(1). Male frons armed by a conspicuous subacutely elevated median carina (rarely absent in *politus*), either from epistoma to vertex or reduced to only part of upper half; suture on antennal club more broadly procurved, lateral and mesal halves about equally septate, most species with suture 2 weakly indicated 14
- Male frons entirely devoid of a median carina, female frons sometimes concave, vestiture usually longer, more abundant; antennal club with suture 1 strongly procurved, its lateral half usually obsolete, 2 rarely indicated 40
- 14(13). Declivital interstriae 2 with a uniseriate row of punctures between punctures of striae 1 and 2, those interstitial punctures bearing setae 15
- Declivital interstriae 2 either entirely devoid of punctures or punctures restricted to basal fourth or near apex (more than central half without punctures or setae) 16
- 15(14). Punctures on declivital interstriae 2 in a uniseriate row, bearing setae equal in length to those on 1 and 3; body stouter, 2.4 times as long as wide; declivity evenly convex, not bisulcate; Colombia; *Mucuna*; 1.9–2.4 mm *mucunavorus* Wood
- Punctures on declivital interstriae confused, each bearing a minute hair much smaller than on 1 or 3; body more slender, 2.9 times as long as wide; declivity very steep, weakly bisulcate; Brazil (Santa Catarina); 1.8–2.2 mm *celatus* (Schedl)
- 16(14). Body stouter, less than 2.5–2.6 times as long as wide; pronotum disc reticulate (shining in *tabogae*); discal interstriae regularly punctured 17
- Body more slender, 2.7 or more times as long as wide; pronotum disc smooth, shining; discal interstriae impunctate or with not more than one or two punctures 20
- 17(16). Pronotum and frons reticulate in both sexes; strial punctures very fine, interstriae about six times as wide as striae; elytra glabrous 18
- Granules on pronotum disc higher, closer; frons finely, densely punctured in both sexes; strial punctures rather coarse, interstriae less than four times as wide as striae; setae on declivity moderately long 19

- 18(17). Punctures on male frons moderately coarse; punctures on pronotum disc distinctly larger, granules at margin of each puncture smaller; punctures on discal striae about twice as large; odd-numbered declivital interstriae each with a row of setae; Colombia to Brazil (Para); *Mucuna andreana*; 2.2 mm ***perniciosis* Wood**
- Punctures on male frons minute to absent, area mostly granulate; punctures on pronotum disc distinctly smaller, granules at margin of each puncture larger; all declivital interstriae devoid of setae; Costa Rica to Haiti and Jamaica; in seeds or nuts; 1.5–1.8 mm ***politus* (Blandford)**
- 19(17). Smaller; pronotum disc smooth, shining; punctures on declivital striae 1 and 2 almost as large as on disc, declivital surface almost smooth, brightly shining; elytral vestiture largely confined to declivity, on odd-numbered interstriae, sparse, striae setae minute to obsolete; Mexico (Veracruz) to Panama; liana; 1.5–1.8 mm ***tabogae* (Blackman)**
- Larger; pronotum disc obscurely reticulate; punctures on declivital interstriae 1 and 2 minute to obsolete, declivital surface subreticulate, rather dull; elytral vestiture attaining at least middle of disc, on all interstriae, at least twice as abundant, striae setae longer; Guatemala; 2.2 mm ***incommodus* (Blandford)**
- 20(16). Male frontal carina extending from near epistoma but not extending above upper level of eyes; female frontal vestiture less abundant, more generally distributed, shorter, longest setae capable of extending less than one-third distance toward epistoma; a subcarinate median line or weak elevation indicated 21
- Male frontal carina on less than upper half of frons or extending from just below upper level of eyes to vertex; female frontal vestiture above upper level of eyes abundant, long, some setae capable of extending more than half distance to epistoma 35
- 21(20). Male and female frons convex, with a slight to moderately transverse impression, and with a subacute median carina from epistoma two-thirds distance to upper level of eyes, surface coarsely punctured, vestiture sparse, inconspicuous in both sexes; declivity strongly bisulcate, interstriae 1 and 3 armed by pointed tubercles; Venezuela (Merida); liana bejuco negro; 2.3–2.5 mm ***plicatus* Wood**
- Male frons with a median carina, female without a carina, but with either a spongy area or a tuft of hair; declivity convex 22
- 22(21). Body rather slender, 2.8 times as long as wide (3.0 in *subaciculatus*); male frontal carina extending from epistoma to upper level of eyes, low, of almost uniform height, female frons densely punctured and finely, uniformly pubescent; antennal club rather large, its width 1.2 times length of scape; striae punctures on declivity rather coarse 23
- Body very slender, 3.0 times as long as wide; male frontal carina much shorter, sometimes more nearly dentate, female frons smooth to granulate to subaciculate; antennal club smaller, its width equal to length of scape; striae punctures on declivity small to minute 29
- 23(22). Pronotum disc dull, strongly reticulate; body very slender, 3.0 times as long as wide; male frons weakly aciculate, punctures minute to obscure, weak median carina strongest on lower half, feeble to obsolete at upper level of eyes; Brazil (Para); 1.3 mm ***subaciculatus* Wood**
- Pronotum smooth, shining between punctures; body less slender, 2.8 times as long as wide; male frons smooth with distinct punctures; larger species 24
- 24(23). Male frontal carina weak but distinctly elevated from epistoma to upper level of eyes; female frons moderately convex, punctured less closely on area below upper level of eyes, vestiture rather short, moderately abundant, uniformly distributed; declivital interstriae 1 weakly elevated; Uruguay; 2.0–2.4 mm ***uruguayensis* Wood**
- Male frontal carina moderately strong (not at all dentate), attaining or exceeding upper level of eyes; female frons either shallowly concave on central two-thirds or flat and with a carina, vestiture rather abundant, long, uniformly distributed; declivital interstriae 1 more distinctly elevated . . . 25

CORTHYLINI

- 25(24). Punctures on basal third of elytra disc confused, in definite rows only on posterior half of disc; declivity very shallowly bisulcate, interstriae 2 with punctures on apical fourth and on basal fourth; punctures on pronotum and on disc and declivity of elytra rather coarse, deep, close; vestiture on pronotum and elytra abundant, rather long; Argentina; 2.3 mm *pubescens* (Schedl)
- Punctures of striae in rows to base of disc; declivital sulcus more distinctly impressed; pubescence less abundant 26
- 26(25). Pronotum disc reticulate, punctures much smaller, each accompanied on its margin by a small, shining granule; male frontal carina shorter, not extending above upper level of eyes; female frons without a carina, shallowly concave on central two-thirds, very closely punctured; declivital interstriae 2 narrower, not impressed; Mexico (Veracruz) to Panama; liana; 1.7–1.9 mm *carinifrons* (Blandford)
- Pronotum disc smooth, shining, punctures rather coarse, close, without tubercles associated with punctures; male frontal carina rather strong, extending from epistoma toward vertex 27
- 27(26). Male frons with median carina extending to vertex, lateral areas of frons weakly aciculate; declivital interstriae 2 distinctly, shallowly impressed; female frons narrowly planoconvex, with a shorter, weaker carina to upper level of eyes; declivital interstriae 2 wider, shallowly impressed; Brazil (Mato Grosso); 1.7–1.8 mm *plaumannianus* Wood
- Male frons smooth, punctured, median carina ending before vertex; declivital interstriae 2 weakly impressed only on mesal side 27
- 28(27). Male frons more evenly convex, very weakly impressed on lateral thirds, median carina subacutely, weakly elevated on its lower half; female frons convex, setae rather short, moderately abundant; Brazil (?Santa Catarina); 1.8 mm *brasiliensis* (Schedl)
- Male frons more strongly, transversely impressed on its lower fourth, median carina more strongly, obtusely elevated on its lower half; Colombia; 1.5 mm *columbianus* (Schedl)
- 29(22). Carina on male frons longer, rather strongly extending from well above upper level of eyes to at least half distance from epistoma toward upper level of eyes; very slender species 30
- Carina on male frons very short, rather weak to very strong 31
- 30(29). Vestiture on male frons moderately abundant above, longer and more abundant below; punctures on pronotum disc partly to entirely replaced by small, rounded tubercles; anterior margin of pronotum armed by about 8 rather coarse serrations; declivital interstriae 2 broadly, rather shallowly impressed, 1 and 3 slightly, equally elevated; Bolivia; 2.1 mm *linearis* (Schedl)
- Vestiture on male frons short, sparse above, slightly more abundant at epistoma; punctures on pronotum disc visible, their lateral margin elevated into a small, longitudinal crest; anterior margin of pronotum armed near median line by about 4 weak serrations; elytral declivity with striae 1 moderately impressed, interstriae 1 not impressed, interstriae 2 about as high as 1 and 3; Bolivia; 1.7–1.8 mm *punctatissimus* (Schedl)
- 31(29). Male frons flat to feebly convex, median carina moderately strong, longitudinally very short, occupying about one-fourth of distance from upper level of eyes toward epistoma; female frons smooth to punctate-granulate 32
- Male frons rather strongly impressed, median carina very strong, sometimes almost subquadrate in profile; female frons subaciculate, vestiture largely confined to margins; strial punctures rather coarse on disc, fine on declivity 34
- 32(31). Male and female frons shallowly impressed on lower area below upper level of eyes, planoconvex in male; male median carina on frons, weak, distinct on lower third, punctures minute on lower

- third, slightly larger above; female frons coarsely punctured, without a median carina, setae rather short, moderately numerous from epistoma to upper level of eyes; declivity rather strongly convex, without any tubercles, interstriae 2 without punctures; Argentina; *Erythrina cristagalli* seeds; 1.9–2.1 mm **hostilis** **Blackman**
- Frons of male flat to strongly impressed, median carina more strongly, laterally compressed, either very short or strongly elevated, female frons variable 33
- 33(32). Male frons shining, punctures minute to obsolete, median denticle very weakly, laterally compressed; female frons flat from eye to eye from epistoma to vertex, surface smooth, shining, almost impunctate, a dense fringe of long yellow hair at sides and above; pronotum shining, with numerous micropunctures, punctures small; striae punctures smaller, micropunctures on interstriae numerous; Venezuela; liana; 1.5–1.8 mm **liminaris** **Wood**
- Male frons subaciculate, median denticle laterally compressed; female frons much less extensively impressed, surface obscurely subaciculate, vestiture more uniformly distributed, longer at margins; pronotum obscurely reticulate, punctures larger, closer; striae punctures larger, micropunctures obscure to absent; Guatemala; liana; 1.8–2.0 mm **confinis** (**Blandford**)
- 34(31). Smaller; frons less strongly impressed in both sexes; punctures on pronotum and elytra slightly smaller; Mexico (Sinaloa); 1.1–1.3 mm **gracilens** **Wood**
- Larger; frons more strongly impressed in both sexes; punctures on pronotum and elytra slightly larger; Mexico (Colima, Puebla) to Honduras; 1.6–1.9 mm **dentifrons** **Wood**
- 35(20). Median elevation on male frons occupying less than dorsal half of area from epistoma to upper level of eyes 36
- Median elevation on male frons extending from upper level of eyes toward vertex 39
- 36(35). Median elevation on male frons very weak, but present; declivital interstriae 2 and 4 devoid of setae; anterior margin of pronotum rather narrowly rounded; French Guyane to Brazil (Bahia); *Mucuna* seeds; 1.5–1.9 mm **guyanensis** **Wood**
- Median elevation on male frons more strongly, moderately elevated; declivital interstriae 2 and 4 each bearing a row (often sparse) of erect setae as on 1 and 3; anterior margin of pronotum more broadly rounded 37
- 37(36). Declivital interstriae 2 bearing a row of erect setae as on 1 and 3; female frons broadly flattened, punctures abundant, setae rather sparse, without a conspicuous tuft of long hair toward vertex; Mexico (Veracruz); 1.5–1.8 mm **tenuis** (**Blackman**)
- Declivital interstriae 2 without a row of erect setae, 1 and 3 with setae; female frons less broadly flattened, upper area bearing a conspicuous tuft of hair 38
- 38(37). Anterior margin of pronotum armed by 2 serrations; male frons mostly subaciculate; female frons moderately pubescent, setae long, almost white, forming a small tuft at vertex, tips of a few setae capable of attaining epistoma; Mexico (Baja California Norte); *Pedialanthum macrocarpa*; 1.4–1.6 mm **attenuatus** **Wood**
- Anterior margin of pronotum armed by 6 serrations; male frons punctured; female frons densely covered by long, yellow hair; tuft on vertex with tips capable of extending three-fourths distance toward epistoma; Mexico (Jalisco); *Ficus*; 1.4–1.7 mm **consobrinus** **Wood**
- 39(35). Female frontal vestiture long above and laterally, continuing ventrad to near bases of mandibles, central area sparsely to moderately pubescent; declivital interstitial setae in rows, longest setae half as long as distance between rows; Mexico (Jalisco); *Ficus*; 1.4–1.7 mm **speciosus** **Wood**
- Female frontal vestiture long, entirely confined to area above eyes, lower area subglabrous; elytral declivity subglabrous, setae when present minute, shorter than distance equal to diameter of a striae puncture; Costa Rica; *Ficus*; 1.2–1.3 mm **facetus** **Wood**

- 40(13). Suture 1 of antennal club straight to very weakly procurved; lateral margin of pronotum on posterior third strongly, acutely elevated, pleuron below margin more strongly concave; asperities on posterolateral areas of pronotum low, continue to base; most species with a weak, subacutely elevated median crest from epistoma to upper level of eyes and/or declivital interstriae 2 very narrow, half as wide as 1; inbreeding, males dwarfed, flightless; breed in either fallen fruit or phloem 41
- Suture 1 of antennal club moderately to profoundly procurved, mesal half of suture septum remaining internally when external evidence lost; outbreeding system either monogynous or outbreeding polygyny, male participates in formation of new gallery system 49
- 41(40). Female frons with a low, inconspicuous, subcarinate median crest from epistoma to upper level of eyes 42
- Female frons evenly convex, with no indication of a median crest 46
- 42(41). Declivital interstriae 2 as wide as 1 or 3, with 2 not impressed 43
- Declivital interstriae 2 conspicuously narrower than 1 or 3 and usually weakly impressed; discal interstriae 3 and 5 usually impunctate (two punctures or less) 45
- 43(42). Elytral surface brilliantly shining, strial punctures minute, in rows; interstitial punctures minute, sparse; frons smooth, brightly shining, median crest very weak, extending from epistoma almost to upper level of eyes; elytra tapered on posterior half, narrowly rounded behind; pronotum disc smooth, shining, narrowly rounded in front, serrations small; very dark brown, almost black; Costa Rica; *Ochroma* petioles; 1.1–1.2 mm **kirkendalli** Wood
- Frons usually partially reticulate; strial punctures larger, mostly in rows; anterior margin of pronotum and posterior margin of elytra more broadly rounded 44
- 44(43). Surface of elytral disc with numerous impressed points; pronotum disc with a few punctures and a few obscure rugae; median carina on frons not as strong, shorter; body 2.5 times as long as wide color reddish brown; Colombia to Suriname; *Clusia*; 1.8 mm **nitidipennis** (Schedl)
- Surface of elytral disc without impressed points; pronotum disc with almost no punctures, rugae more conspicuous; frons with median carina stronger, longer; body 3.0 times as long as wide; color black; Brazil (Parana); 1.4 mm **nitidulus** (Schedl)
- 45(42). Larger; stouter, averaging 2.7 times as long as wide; frontal punctures averaging larger, deeper; color dark brown to almost black; Costa Rica and Panama to French Guyane; in fallen fruit; females 1.5–1.7 mm, males 1.2–1.3 mm **laevigatus** (Eggers)
- Smaller; more slender, averaging 2.9 times as long as wide; frontal punctures smaller, obscure; color pale brown; Costa Rica to Panama; in phloem; females 1.2–1.4 mm, males 1.0 mm **costaricensis** (Schedl)
- 46(41). Punctures of discal striae minute on disc, variable on declivity; pronotal rugae in lateral areas not attaining basal fourth of pronotum; pronotum with coarse asperities and rugae on anterior half of pronotum length, entirely absent on basal third, punctures on basal third moderately coarse; frons rather strongly convex, some reticulation between coarse, close punctures; Mexico (Jalisco); 1.2 mm **jaliscoensis** Wood
- Punctures on striae clearly indicated on disc and declivity; pronotal rugae present to base in lateral areas 47
- 47(46). Pronotum disc and sides with numerous deeply impressed micropunctures (in some specimens appearing subreticulate on all areas); disc of elytra with micropunctures as on pronotum; strial punctures in rows near base of declivity, becoming confused on basal third of disc; Brazil (Amazonas to Mato Grosso); 1.2–1.3 mm **splendidulus** (Schedl)

—	Pronotum and elytral disc and sides smooth, shining, micropunctures absent or exceedingly minute and shallow; stria punctures on disc in definite rows from base of declivity to base of elytra	48
48(47).	Female frons evenly, more strongly convex, with no indication of a transverse impression below (profile from epistoma to vertex clearly convex), impunctate area conspicuously wider, punctures finer; Peru; palm nuts; 1.7 mm <i>convexifrons</i> Wood	
—	Female frons transversely impressed, profile from epistoma to vertex straight to feebly concave, impunctate area below occupying median fifth of area between eyes, lateral punctures distinctly larger; Brazil (Amazonas) and Peru; 1.3–1.7 mm <i>varius</i> Wood	
49(40).	Suture 1 of antennal club moderately procurved, club smaller, about as long as scape; pronotum asperities confused, never in concentric rows	50
—	Suture 1 of antennal club strongly to profoundly procurved (sutures sometimes obsolete on surface, but with mesal half of 1 visibly septate internally); club often either smaller and asymmetrical or very strongly flattened and about twice as long as scape (pronotum asperities concentric in 4 species)	99
50(49).	Elytral declivity either evenly convex or with striae 1 or interstriae 2 impressed, entirely unarmed by tubercles (one Mexican and one Venezuelan species with minute tubercles on interstriae 3)	51
—	Elytral declivity moderately to strongly sulcate, lateral margins armed by denticles on interstriae 3 (very small in one species), interstriae 1 sometimes armed	69
51(50).	Body very stout, less than 2.0 times as long as wide; protibia broad, almost twice as wide as either meso- or metathoracic tibia; pronotum with a distinct lateral constriction on anterior third; pronotum conspicuously wider than long	52
—	Body moderately slender, at least 2.5 times as long as wide; protibia not wider than meso- or metathoracic tibia; pronotum not strongly constricted on anterior third; pronotum as long or longer than wide	53
52(51).	Asperities on anterior slope of pronotum smaller, more numerous; posterolateral areas of pronotum weakly subreticulate, impressed micropunctures not evident; interstitial punctures on declivity impressed, their anterior margin not elevated; Panama; 2.1–2.3 mm <i>crassulus</i> Wood	
—	Asperities on anterior slope of pronotum larger, less numerous; posterolateral areas of pronotum almost smooth, impressed micropunctures obscure but present; declivital punctures on interstriae 1–3 weakly to distinctly elevated; Brazil (Para); 1.7–1.8 mm <i>obesus</i> Wood	
53(51).	Elytral declivity evenly convex, striae 1 not impressed	54
—	Declivital striae 1 impressed, forming a continuous groove; groove weak in <i>chilensis</i> , stria punctures larger	60
54(53).	Male frons with profile moderately concave (feeble in <i>obsoletus</i>) from epistoma to upper level of eyes	55
—	Male frons with median profile convex from epistoma to upper level of eyes	57
55(54).	Male frons feebly concave from epistoma to upper level of eyes, median callus on vertex rather weak; pronotum reticulate, punctures rather coarse; female frons flattened from eye to eye from epistoma to vertex, tips of longest vestiture on vertex capable of attaining epistoma; Guatemala; 1.3–1.5 mm <i>obsoletus</i> (Blandford)	
—	Profile of male frons rather strongly concave from epistoma to vertex, upper margin rather abrupt; female frons less extensively flattened, vestiture less abundant, shorter on lower third	56

CORTHYLINI

- 56(55). Upper margin of frontal impression less abrupt, rounded; pronotum strongly reticulate; strial punctures slightly smaller; hair on female frons rather long, moderately abundant; Mexico (Nayarit); in a vine; 1.3–1.4 mm *micaceus* Wood
- Upper margin of frontal impression abrupt, subangulate; pronotum weakly reticulate in some areas; strial punctures slightly larger; interstriae smooth, brightly shining; hair on female frons apparently slightly shorter, less abundant; Mexico; intercepted in unidentified seed; 1.2–1.4 mm *schedli* (Blackman)
- 57(54). Strial punctures on declivity almost obsolete 58
- Strial punctures small but distinct on declivity; female frons without long hair; interstitial setae on elytra in rows, each as long as distance between rows; pronotum shining, with numerous micropunctures 59
- 58(57). Female frons convex, with very sparse, short setae from epistoma to upper level of eyes, a dense brush of very long hair on vertex; setae on elytra very short, of fine hair; pronotum reticulate; Brazil; 1.2–1.3 mm *minutissimus* (Schedl)
- Female frons broadly, shallowly concave eye to eye from epistoma to above upper level of eyes pile not evident; mesal apex of female mandible extended into a slender spine directed cephalad, epistomal margin moderately emarginate to accommodate movement of spine; Costa Rica; *Nectandra*; 0.9–1.2 mm *spicatus* Wood
- 59(57). Strial punctures on disc and declivity minute to obsolete, rows obscure; rows of erect setae on all interstriae from base to apex; pronotum summit at middle, asperities rather coarse, close; Mexico (Tamaulipas); gall on *Quercus*; 1.0–1.3 mm *nanulus* Wood
- Strial punctures on disc and declivity small, in definite rows; interstitial setae confined to sparse rows on odd-numbered interstriae, restricted to declivity or very near; pronotum summit indefinite, behind summit, asperities rather small; Venezuela (Aragua); *Clusia* phloem; 2.2–2.4 mm *clusiae* Wood
- 60(53). Declivital striae 1 impressed into a continuous groove, interstriae 2 equal in height to 1 or 3, elytral setae short, about equal in length to two-thirds distance between rows (except longer in *chilensis*) 61
- Declivital interstriae 2 distinctly impressed below level of 1 or 3; length of elytral setae variable 68
- 61(60). Punctures on declivital striae 1 and 2 coarse, deep, interstriae 2 as wide as striae; interstitial setae as long or longer than distance between rows; Chile; 1.9 mm *chilensis* (Schedl)
- Punctures on declivital striae 1 and 2 small, shallow, interstriae 2 twice as wide as striae 62
- 62(61). Pronotum disc reticulate; central half of female frons appearing spongy, glabrous, margin of spongy area bearing a tuft of rather short, incurved hair 63
- Pronotum disc smooth, shining between punctures 66
- 63(57). Body slender, 3.0 times as long as wide; central half of female frons shallowly concave, a narrowly impressed median shining area from epistoma almost to upper level of eyes; Brazil (M. Gerais); 1.4 mm *gracilentus* (Schedl)
- Body less slender, 2.5–2.7 times as long as wide 64
- 64(63). Body 2.7 times as long as wide; declivity less strongly arched, striae 1 more strongly impressed, interstriae 2 clearly impressed; declivital interstitial setae much more slender, slightly longer; Venezuela (Aragua); 1.4 mm *virtus* Schedl

- Body 2.5 times as long as wide; declivity more strongly arched, striae 1 more weakly impressed, interstriae 2 more weakly impressed; declivital interstitial setae stout, distinctly shorter; central half of female frons flat, spongy 65
- 65(64). Punctures on elytra disc mostly in strial rows; female frons with spongy area smaller; space between eye and spongy area rather coarsely punctured, longest setae on fringe of pilose area fimbriate (subplumose), facets of eye smaller; Mexico (Veracruz); 1.2–1.5 mm *micropilosus* Wood
- Punctures on elytral disc confused, not in rows; female frons more broadly flattened, pilose area wider, punctures between margin of eye and pilose area minute to obsolete, setae on periphery of spongy area larger, slender, not fimbriate; eye facets distinctly larger; Costa Rica; *Virola koschynyi*; 1.3–1.4 mm *micropilifer* Wood
- 66(62). Profile of male frons distinctly concave from epistoma to upper level of eyes, a median subcarinate crest extending from upper level of eyes to vertex; Costa Rica; 1.5 mm *playonensis* Wood
- Profile of male frons clearly convex 67
- 67(66). Male frons without a median carina; male declivital interstriae 3 with about three small granules; female frons on lower fifth with a transverse band of very long hairlike setae; Mexico (Oaxaca); 1.3–1.6 mm *epistomalis* Wood
- Male frons with a definite median subcarinate crest extending from epistoma to vertex; male declivital interstriae 3 without tubercles; female frons with a weak, median subcarinate crest and moderately numerous, short, randomly distributed hair; Brazil (Piracicaba); 2.0–2.4 mm *xylotrupes* (Eichhoff)
- 68a(60). Pronotum disc with spaces between punctures mostly smooth, shining; discal punctures of striae in definite rows; predeclivital striae 1 moderately impressed, not on face of declivity; declivital interstriae 2 shallowly impressed, distinctly lower than crests on interstriae 1 and 3; Bolivia (Cochabamba); 2.6 mm *volastos* (Schedl)
- Pronotum disc either reticulate or smooth; strial punctures either in rows or confused; smaller than 2.0 mm 68b
- 68b(68a). Discal punctures on interstriae 2 and 3 confused; pronotum finely reticulate; female frons with a transverse median crest at upper level of eyes, flattened below, ornamented by a marginal ring of long hair; Costa Rica; 1.8–1.9 mm *decorulus* Wood
- Discal punctures in strial rows; pronotum weakly reticulate; female frons moderately concave, central area with dense micropunctures, pubescence confined to marginal fringe of long hair; Panama; 1.3–1.4 mm *exigialis* Wood
- 69(50). Posterior margin of male sternum 5 with median area narrowly projected into a short, somewhat spinelike process, tergum 8 with median area of both sexes with margin narrowly rounded, its posterior edge sharp, formed to meet sternal process of male; eyes very coarsely faceted; female frons moderately convex, vestiture rather short, of about uniform length 70
- Posterior margins of male sternum 5 and tergum 8 normal, not specially modified 71
- 70(69). Male frons more broadly concave, space between eyes equal to or greater than width of an eye, median third of frons smooth, shining, impunctate; declivital impression shallow, not as wide, tubercles (absent on male) on interstriae 1 and 3 much smaller, absent on base of 2, setae shorter, finer; female frons with median third impunctate, glabrous, setae on lateral thirds slightly longer, more abundant, elytral features as in male, tergum 8 weaker than in male, sternum 5 not modified; Brazil; 1.3–1.6 mm *falaciosus* Wood

CORTHYLINI

—	Male frons more narrowly convex, a weak, transverse impression between eyes, space between eyes narrower than width of an eye, frons without an impunctate area, punctures more uniformly distributed; declivital impression distinctly deeper, twice as wide on lower half, tubercles on interstriae 1, 3, and base of 2 larger, setae stouter, longer; female frons with impunctate area much smaller, vestiture shorter, less abundant, elytral features as in male, tergum 8 and sternum 5 as in male; Mexico (Oaxaca) to Panama; 1.5–1.8 mm	<i>eruditus</i> (Schedl)
71(69).	Strial punctures on disc in rows, interstriae impunctate, rarely each with one or two punctures . . .	72
—	Punctures on elytral disc mostly to entirely confused, interstriae punctured (when recognizable)	81
72(71).	Strial punctures on declivity minute to obsolete; declivital interstriae 2 about as wide as 1 or 3 . . .	73
—	Strial punctures on disc and declivity larger, more strongly impressed; declivital interstriae 2 about twice as wide as 1 or 3, widest on lower half, rather strongly narrowed near apex; pronotum smooth, shining between punctures; larger species	75
73(72).	Declivity not as steep, interstriae 2 much more strongly, broadly impressed, crest on interstriae 3 higher, narrower, some punctures feebly granulate, setae on interstriae 1 not erect, but diverging from suture by about 45 degrees; pronotum disc smooth, shining between punctures; Brazil (Para); 1.4 mm	<i>micrographus</i> (Schedl)
—	Declivity steeper, interstriae 2 less strongly impressed, ascending laterad, lateral crest on 3 not as high, much more broadly rounded, interstitial setae on 1 erect, not diverging laterad; pronotum disc reticulate	74
74(73).	Pronotum reticulate; declivital striae 1 armed by about three small tubercles; male frons convex, closely, coarsely, deeply punctured; Costa Rica; vine; 1.1–1.2 mm	<i>vesculus</i> Wood
—	Pronotum smooth, shining between punctures; declivital striae 1 unarmed by tubercles; male frons impressed and with a pair of lateral protuberances on lower half; Brazil (Santa Catarina); 1.6 mm	<i>dubius</i> (Schedl)
75(72).	Female frons broadly convex, without obvious elevations or impressions; declivital interstriae 2 weakly to moderately impressed, punctures on 1 and 3 small to obsolete	76
—	Male and female frons variously impressed or with protuberances	77
76(75).	Declivity rather weakly bisulcate, lateral margins with sparse punctures without any tubercles, punctures on striae 1 and 2 small, present; female frons broadly convex, coarsely, closely punctured, vestiture of sparse short hair uniformly distributed; Brazil (Blumenau); 2.2 mm	<i>obscurus</i> (Eggers)
—	Declivity strongly bisulcate, punctures on striae 1 and 2 entirely obsolete, interstriae 1 armed by a row of granules, 2 armed by small, pointed tubercles; male frons broadly convex, obscurely reticulate, punctures minute, vestiture sparse, short; Brazil (Para) 1.1 mm	<i>plaumanni</i> (Schedl)
77(75).	Male frons weakly impressed on median fourth of epistoma, a pair of small, weak elevations extend laterad from this impression (frons of type in poor condition, only partly visible); body 2.7 times as long as wide; declivital interstriae 2 very weakly impressed, minute punctures on 1, minute tubercles on 3; Argentina; 1.4 mm	<i>gracilis</i> (Schedl)
—	Male frons with a conspicuous excavation on lower half or with a median crest either below or above	78
78(77).	Male frons convex from epistoma to vertex, a weak median elevation at epistoma; female frons convex, with or without a weak subcarinate crest from epistoma to vertex	79

- Male frons with a strongly excavated, transverse impression from eye to eye from just above epistoma to near upper level of eyes; female frons rather weakly impressed, either without a subcarinate crest or carina restricted to lower third 80
- 79(78). Pronotum disc reticulate; frons reticulate, coarsely punctured, male with a weak median carina at epistoma, crest obscurely visible to upper level of eyes; female similar to male, crest obsolete, vestiture short, sparse; declivital interstriae 2 much less strongly impressed, female usually with a partial row of minute tubercles on lower half; Venezuela (Merida); liana, 1.4–1.9 mm *spiculatus* Wood
- Pronotum disc smooth, shining between punctures; frons smooth, shining, rather coarsely punctured, male with weak median carina at epistoma, female with a weak median crest, punctures fine, with a sparse tuft of long hair; Guatemala; shrub; 2.0–2.5 mm *refertus* Wood
- 80(78). Male frons with transverse impression moderate, lower crest almost obtuse, impression with a median, subcarinate crest; median half of female frons on more than lower half with a smooth, shining, impunctate, convex bulla, upper area to vertex almost flat, very closely, rather finely punctured and ornamented by long, yellow hair; hair longer on margins and continued at sides to epistoma; Mexico (Puebla) to Guatemala; liana; 1.5–1.8 mm *trepidus* Wood
- Male frons deeply excavated on median two-thirds from slightly above epistomal margin to distinctly above upper level of eyes, lower margin of excavation strong, acute, median line of cavity with a weak median crest at its deepest point; female frons mostly convex, a weak impression on central third, densely punctured and with moderately long hair on central half, a weak median carina on lower third; Guatemala; shrub; 2.3–2.7 mm *praevius* Wood
- 81(71). Body stouter, 2.3–2.7 times as long as wide; female frons flat to weakly convex, setae in central area longer, definitely hairlike; average size slightly larger; declivity shorter, much steeper, tubercles small, usually rounded 82
- Body more slender, 2.6–3.0 times as long as wide; female frons flat to concave, setae on central area replaced by velvetlike micropile or entirely glabrous, margins with or without a row of long hair; declivity more gradual, tubercles more sharply pointed 93
- 82(81). Declivital interstriae 2 with a row of punctures 83a
- Declivital interstriae 2 without punctures 85
- 83a(82). Male frons rather weakly convex, transverse impression above epistoma feeble to shallow; female frons planoconvex, vestiture in central area short, setae in marginal fringe three to four times as long (female *corpulentus* not seen) 83b
- Male frons rather strongly, transversely impressed; female frons planoconcave, vestiture in central area present or absent 84
- 83b(83a). Male frons very weakly impressed, epistomal margin unarmed by a small, median tubercle; body form stouter (2.3 times as long as wide), larger; base of pronotum disc with several transverse rugae near basal margin; Bolivia (Beni); 2.5 mm *corpulentus* (Schedl)
- Male frons very shallowly impressed, epistomal margin with a small median tubercle; body 2.5 times as long as wide; body much smaller; Colombia; *Couma macrocarpa*; 1.5–1.8 mm *coumacomis* Wood
- 84(83). Male frons moderately, transversely impressed from epistoma to upper level of eyes on median half, a small, median, acutely pointed tubercle on epistoma, its weak crest extending dorsad into impressed area, punctures in impressed area rather coarse, dense; female frons feebly concave eye to eye from epistoma to above eyes, shining, rather finely, densely punctured, vestiture abundant, evenly distributed, moderately long, setae on peripheral fringe about twice as long; Brazil (Mato Grosso); 2.1–2.3 mm *beaveri* Wood

- Male frons more strongly, transversely impressed on median three-fourths from epistoma to upper level of eyes, punctures less numerous, median tubercle on epistoma obscure, without a median crest extending dorsad; female frons moderately, subconcavely impressed from epistoma to upper level of eyes, an obtuse crest on lower half, surface reticulate, sparsely, minutely punctured, vestiture sparse, of minute hair uniformly distributed; Brazil (Santa Catarina); 1.8–1.9 mm
 *frontalis* (Schedl)
- 85(82). Punctures on pronotum disc and elytra rather coarse, deep; female frons bearing a very dense brush of very long hair, tips of setae almost capable of attaining or exceeding epistoma 86
- Punctures on pronotum disc and elytra rather small; female frons with vestiture much shorter and less abundant 88
- 86(85). Central area of female frons apparently flat, setae on sides and vertex very dense, very long, tips capable of exceeding epistomal margin; sulcus on female declivity slightly deeper; lateral convexities more abruptly rounded, tubercles distinctly larger; Guatemala; at light; 1.7 mm
 *gloriosus* Wood
- Central area on female frons planoconcave, peripheral row of setae long, rather dense, tips of longest setae on vertex not capable of attaining epistoma, setae in central area much shorter, rather sparse; male frons weakly, transversely impressed on lower half; declivital sulcus not as deep, lateral convexities not as abrupt, tubercles smaller 87
- 87(80). Pronotum disc obscurely reticulate, punctures smaller, not as close; tips of longest setae on female frons almost capable of attaining epistoma; anterior margin of pronotum armed by about 6 large serrations; lower male frons more distinctly impressed, median crest obscure; Colombia (Antioquia); liana; 2.2–2.3 mm *mirabilis* Wood
- Pronotum disc smooth, shining between punctures, punctures larger, very close; tips of longest setae on female vertex capable of attaining middle of frons; anterior margin of pronotum armed by about 10 smaller serrations; lower male frons obscurely impressed, median line obtusely more distinct; Venezuela (Merida); liana; 2.3–2.8 mm *mirus* Wood
- 88(85). Declivital interstriae 1 with punctures, never with tubercles, 3 with tubercles absent or strongly reduced in size 89
- Declivital interstriae 1 and 3 with tubercles (feeble in *frenatus*) 90
- 89(88). Declivital interstriae 2 shallowly, rather broadly impressed, much wider than 1, continued to apex, 3 without tubercles; Bolivia; 2.3 mm *elongatus* (Schedl)
- Declivital interstriae 2 rather deeply impressed above, narrower than 1, obsolete before apex, tubercles on 3 minute to obsolete; Brazil (Para); 1.7–2.0 mm *robustus* (Schedl)
- 90(88). Declivity not as steep, more gradual, interstriae 1 almost as high as 3; interstitial setae on declivity short, very stout, each about two-thirds as long as distance between rows; Argentina; 1.8–2.2 mm *frenatus* (Schedl)
- Declivity very steep, interstriae 3 much higher than 1; interstitial setae on declivity hairlike, each much longer than distance between rows 91
- 91(90). Larger species; declivital striae 2 not as strongly impressed, punctures smaller, more distinctly impressed; lower male frons weakly, transversely impressed, more coarsely punctured; Brazil (Amazonas); 2.0 mm. *subsimplis* (Schedl)
- Smaller species; declivital striae 2 more strongly impressed, punctures obscure; lower male frons more uniformly convex, punctures smaller 92
- 92(91). Frons about equally, rather broadly convex in male and female, female vestiture very fine, much less abundant; interstitial setae on declivity hairlike, most with tips pointed; Costa Rica; *Persea americana*; 1.6–1.8 mm *mendicus* Wood

SCOLYTIDAE OF SOUTH AMERICA

—	Frons more strongly convex in male, weakly convex in female, female hair coarser, more abundant, setae in central area about as long as those on margins; interstitial setae on declivity rather stout, blunt, often slightly flattened at their apex; Costa Rica; tree branch; 1.4–1.7 mm	
	.....	<i>medialis</i> Wood
93(81).	Female frons with central area flat to weakly concave, covered by dense micropile	94
—	Female frons moderately to strongly concave, surface smooth, shining devoid of setae	96
94(93).	Female pilose area on head flat beginning slightly below upper level of eyes and extending to vertex, lower frons separated on a definite line from pile, lower area smooth, shining, with sparse, minute punctures, a marginal fringe of long hair on sides and above; male frons slightly impressed, profile almost straight, rather coarsely punctured; Venezuela; <i>Virola</i> ; 1.5–1.8 mm . . .	
	.....	<i>virolae</i> Wood
—	Female pilose area on frons shallowly concave, extending dorsad from epistoma; male frons convex	95
95(94).	Female frons with marginal fringe of long hair sparse, mostly above upper level of eyes, concave area wider, more uniformly impressed; male frons more brightly shining, punctures slightly smaller; Mexico (Jalisco, Veracruz) to Costa Rica; vine; 1.2–1.3 mm	<i>leptus</i> (Bright)
	Female frons with marginal fringe more dense, extending at sides to epistoma, concave area narrower, less regularly impressed; male frons obscurely reticulate; Venezuela; Leguminosae vine; 1.3–1.5 mm	<i>barinensis</i> Wood
96(93).	Female frons concave, shining, and glabrous from epistoma to vertex; smaller species; 1.3–2.0 mm	97
—	Female frons concave, shining, and glabrous from epistoma to slightly above upper level of eyes, upper third of concave area spongy, dull; larger species 2.3–2.7 mm	98
97(96).	Female frons rather shallowly concave eye to eye from epistoma to vertex, surface brilliantly shining, impunctate; female epistoma not emarginate, mandibles unarmed by a denticle; male frons transversely impressed to upper level of eyes; Mexico (Jalisco); <i>Pithecellobium</i> sp.; 1.3–1.4 mm	<i>pumilus</i> Wood
—	Female frons strongly concave eye to eye from epistoma to vertex, surface smooth, shining, uniformly, finely punctured, epistoma deeply emarginate on median half, mandible armed by a denticle projecting into this emargination; male frons convex; Mexico (Oaxaca); 1.5–1.7 mm	<i>equihuai</i> Wood
98(96).	Female frons in concave area with fine, sparse, erect hair uniformly distributed, spongy area smaller, separated from eye by distance equal to combined diameters of 8 facets of eye; declivital setae slender, rather long; male frons with a subcarinate, median callus; Brazil (Santa Catarina); 2.3–2.5 mm	<i>novateutonicus</i> (Schedl)
—	Female frons in concave area with fine setae almost obsolete, irregularly distributed, spongy area larger, separated from eye by distance equal to combined diameters of four facets of eye; declivital setae stout, half as long; male frons usually without a median callus; Argentina; 2.3–2.6 mm	<i>argentiniae</i> (Schedl)
99(49).	Pronotum asperities basally fused into 4–6 concentric rows, never confused	100
—	Pronotum asperities confused	103
100(99).	Antennal club rather small, sutures 1 and 2 about equally arcuate, 2 clearly marked by a row of setae; strial punctures on disc in definite rows, interstriae almost impunctate; female frons almost flat, setae on vertex not conspicuously longer than those below; Mexico (Jalisco to Oaxaca); shrub; 1.3–1.7 mm	<i>centralis</i> (Schedl)

- Antennal club larger, more strongly flattened, suture 1 conspicuously procurved, 2 obsolete; discal interstriae either punctured or all punctures confused; female frons moderately concave, setae on vertex conspicuously longer and more dense than below 101
- 101(100). Male frons rather weakly convex, without a transverse impression at epistoma; female frons mostly, weakly convex, a feeble impression on median half of lower half of area below upper level of eyes, impressed area closely, finely, uniformly punctured, peripheral margin from near upper margin of eye to vertex with a somewhat sparse row of rather long, hairlike setae, longest setae on vertex extending less than half distance toward epistomal margin; punctures on declivity larger, more strongly impressed, striae 1 more strongly, narrowly impressed (not interstriae 2); Cuba; 1.5–1.7 mm *cubensis* (Blackman)
- Male frons with a moderate to rather strongly transverse impression immediately above epistomal margin; female frons extensively flattened or concave to vertex; peripheral fringe on lateral areas of female frons extending vertrad to level of antennal insertions; declivital interstriae 2 at least shallowly impressed 102a
- 102a(101). Punctures rather large, confused at least on basal third of elytra disc; female frons shallowly concave, densely punctured, peripheral margin from eye to eye bearing a tuft of moderately long, yellow, hairlike setae, tips of longest setae on vertex capable of extending half distance to epistoma or less 102b
- Discal striae with punctures small, mostly in discernible rows; female frons shallowly concave (apparently densely punctured), peripheral margin dorsad from mandible to vertex then down to opposite mandible bearing a dense fringe of very long, golden hair, tips of longest setae on vertex capable of attaining epistoma 102c
- 102b(102a). Female frons transversely impressed to shallowly concave on lower half of area below upper level of eyes, upper half and area toward vertex broadly planoconvex, setae on central area usually absent, setae on dorsal margin short, capable of attaining about a fourth distance to epistoma; pronotum disc smooth, shining between punctures, punctures on pronotum disc and elytral disc conspicuously larger; Venezuela; vine; 1.5–1.8 mm *subconcentralis* Wood
- Female frons shallowly concave from epistoma to slightly above upper level of eyes, central area above more strongly convex, setae extending to center, marginal setae above longer, more numerous, tips capable of extending half distance to epistoma; pronotum disc at least partly reticulate; punctures on pronotum disc and elytra disc much smaller; Brazil (Santa Catarina); 1.5–1.6 mm *confluens* (Schedl)
- 102c(102a). Male frons moderately concave on median half from epistoma to upper level of eyes; lateral crest of declivity unarmed by tubercles, sulcus at interstriae 2 with rather coarse, confused punctures and setae, setae much stouter; Brazil (Mato Grosso); 1.3–1.4 mm *declivis* Wood
- Male frons with a transverse groove immediately above epistoma margin, upper margin of groove extending to less than half distance toward upper level of eyes; declivital interstriae 3 armed by minute tubercles, 2 slightly impressed and without punctures, setae slender, in rows on 1 and 3, absent on 2 102d
- 102d(102c). Transverse epistomal groove smaller, shallow, less broadly impressed; punctures on elytral disc and on male frons smaller; Mexico (Veracruz) to Honduras; unidentified liana; 1.3–1.4 mm *macer* Bright
- Transverse epistomal groove on male much deeper; transversely wider; punctures on pronotum disc and on elytral disc larger; Brazil (Mato Grosso); 1.3–1.4 mm *vertus* Wood
- 103(99). Body slender, declivity moderately to strongly impressed, lateral margins often armed by denticles, interstriae 2 without a row of erect setae, a row of punctures sometimes present; antennal club usually, conspicuously longer than wide, suture 1 indicated but often reduced to an internal septum of mesal half, 2 often obsolete 104

SCOLYTIDAE OF SOUTH AMERICA

- Body stout to slender, declivity convex, unarmed, stria punctures in rows; declivital interstriae 2 with a row of punctures or erect setae (except sparse punctures in *eggersi*); antennal club strongly flattened, only slightly longer than wide, sutures 1 and 2 strongly procurved, 1 weakly, partly septate 136
- 104(103). Declivital interstriae 2 impressed, with a uniseriate row or confused punctures between striae 1 and 2 105
- Declivital interstriae 2 impressed, without any punctures between striae 1 and 2 111
- 105(104). Punctures of discal striae mostly in rows, basal half of interstriae 2 with punctures giving slight confusion with punctures on striae 1 and 2; elytral declivity less strongly sulcate, lateral convexities on interstriae 3 with a row of punctures; vestiture on female frons apparently longer, more abundant 106
- Punctures on elytral disc strongly confused from base to margin of declivity; declivity more strongly impressed, lateral convexities on interstriae 3 armed by a row of tubercles 107
- 106(105). Body stouter; lower male frons not impressed, epistoma not conspicuously elevated; female frons apparently with much shorter, less abundant vestiture; elytral vestiture mostly on declivity, interstitial setae shorter, sparse, crest of interstriae 3 with about five setae, none anterior to base of declivity; Argentina to Brazil (Sao Paulo, D.F) and Paraguay; 1.7–1.8 mm *nudus* (Schedl)
- Body more slender; male frons with a strong, transverse impression immediately above epistoma, epistomal margin abruptly, moderately elevated on median three-fourths; female frons weakly convex from epistoma to well above upper level of eyes, vestiture densely, uniformly distributed, moderately long; declivital interstitial vestiture on 1 extending from base to apex, from posterior disc to apex on 3; Brazil (Mato Grosso); 1.5–1.7 mm *cribricollis* (Schedl)
- 107(105). Body 2.0–2.6 mm, stouter, 2.4 times as long as wide; female frons almost flat on median three-fourths from epistoma to above upper level of eyes, vestiture short, rather abundant, uniformly distributed; declivital interstriae 3 slightly higher than 1; tubercles on 1 and 3 of equal size, rather small (about equal in height and basal width) 108
- Body 1.7–2.0 mm, 2.6 or more times as long as wide; frons convex in both sexes; lateral convexities of declivity much higher than suture, lateral convexities armed by pointed tubercles 109
- 108(107). Smaller species; female frons flat and longitudinally planoconcave on median three-fourths, ornamented by abundant setae of about moderate, uniform length, slightly longer on periphery; pronotum disc smooth, shining; declivital interstriae 3 armed by about four to five small pointed tubercles, tubercles not evident on lateral areas; Brazil (Amazonas); 2.0 mm *pseudosimilis* Wood
- Larger species; female frons planoconvex on median three-fourths, ornamented by rather short hair of uniform length, slightly longer on periphery; pronotum disc obscurely reticulate; declivital interstriae 3 armed by about eight pointed tubercles, with several similar tubercles in lateral areas; Suriname; 2.6 mm *crassus* (Schedl)
- 109(107). Female frons rather weakly convex, ornamented by short, abundant, uniformly distributed hair; male frons moderately impressed from epistoma to upper level of eyes, epistoma conspicuously elevated; declivital interstriae 1 and 3 each armed by a row of stout, pointed tubercles; Brazil (Mato Grosso); 2.6–2.8 mm *grandis* (Schedl)
- Frons convex and almost glabrous in both sexes; declivital interstriae 1 either unarmed or armed by small granules, those on 2 more slender; smaller species 110
- 110(109). Frons rather strongly reticulate in both sexes; male declivital interstriae 1 unarmed by tubercles; Costa Rica; *Daphnopsis seibertii*; 1.8–2.0 mm *laudatus* Wood

CORTHYLINI

- Frons surface between punctures smooth, shining, with no reticulation; male declivital interstriae 1 with a row of small tubercles; Colombia to Venezuela; *Virola* sp.; 1.7–2.0 mm ***violavorus* Wood**
- 111(104). Antennal club with sutures 1 and 2 usually visible; body more slender; declivity more strongly impressed and denticles on lateral margins larger, more sharply pointed; female frons convex to flattened, with or without setal ornamentation 112
- Antennal club with sutures 1 and 2 obsolete except for internal septum of mesal half of 1; body stouter; impression on declivity present but rather shallow, lateral margins either unarmed or armed by small, rounded granules 123
- 112(111). Female frons strongly convex, glabrous; elytral punctures strongly confused; male frons very weakly impressed on central area below, a weak median callus at upper level of eyes; female frons a bit more broadly impressed, mandible with a spine that fits into median epistomal emargination; Venezuela; tree seedling; 2.1 mm ***araguensis* Wood**
- Female frons somewhat flattened and pubescent; strial punctures in definite rows, interstitial punctures either present or absent 113
- 113(112). Male frons transversely, shallowly to rather strongly impressed, frons armed by a conspicuous median tubercle 114
- Male frons evenly convex, unarmed; female frons convex or moderately concave, long hair restricted (when present) to upper margin 116
- 114(113). Male frons moderately impressed, with a short, median, subcarinate, longitudinal elevation on upper fourth; some interstitial punctures on disc (not on declivity); female frons convex, vestiture rather sparse, moderately long; Brazil (Mato Grosso); 1.9–2.1 mm ***ocularis* Wood**
- Male frons shallowly to moderately impressed on lower half, armed by a central tubercle; striae on disc with punctures in rows; interstitial punctures absent or nearly so 115
- 115(114). Male frons rather shallowly impressed, median tubercle near middle of frons rather small; French Guyane; 1.4 mm ***guyanae* Wood**
- Male frons much more strongly impressed, median tubercle much larger; female frons irregularly flattened and ornamented by a fringe of long hair (shorter in central area); Brazil (Mato Grosso); 1.3–1.5 mm ***minulus* Wood**
- 116(113). Declivity steeper, sulcus shallowly impressed and not extending to extreme base of declivity, interstriae 1 and 3 each bearing a sparse row of minute granules 117
- Declivity more gradual, sulcus conspicuously deeper, lateral convexities armed by very small, pointed denticles 119
- 117(116). Declivity steeper, sulcus deeper, interstriae 1 and 3 each armed by a row of small tubercles; female frons flat to feebly concave, densely pubescent, setae in peripheral fringe about twice as long as setae in central area, tips of longest setae on vertex capable of attaining a fourth of distance toward epistoma; Brazil (Parana); 2.0 mm ***paranae* (Schedl)**
- Declivity not as steep, interstriae 1 and 3 each with a row of small punctures, no tubercles; setae on female frons less abundant, those in central area shorter; smaller species 118
- 118(117). Posterior profile of elytral apex rather narrowly rounded; reticulation on pronotum disc very weak, very weak punctures indefinite; eyes separated in front by 1.3 times width of an eye; female not seen; Brazil (Mato Grosso); 1.3–1.4 mm ***micarius* Wood**

- Posterior profile of elytral apex broadly rounded; reticulation on pronotum disc much stronger; punctures small, more clearly impressed; eyes separated by 1.5 times width of an eye; female frons shallowly concave, concave area densely, finely punctured, fringe of long hair on upper margin; Brazil (Mato Grosso); 1.3–1.5 mm *cracens* Wood
- 119(116). Pronotum disc almost smooth, shining; punctures small; lateral aspect of profile of suture on declivity evenly arched from base to apex 120
- Pronotum disc moderately, finely reticulate, punctures minute; profile of suture on declivity more weakly arched on basal two-thirds 122
- 120(119). Larger species; female frons rather weakly convex, punctures very small, not close, setae hairlike, minute; declivity rather strongly bisulcate, striae 2 with punctures obsolete, 1 with punctures minute to mostly obsolete, interstriae 1 as high as 3, with 1 and 3 armed by small tubercles; Brazil (Parana); 1.7–1.8 mm *subsulcatus* (Schedl)
- Smaller species; declivital interstriae 3 higher than 1 121
- 121(120). Male frons convex from epistoma to vertex, without a median tubercle; declivity steeper, more strongly arched, sulcus slightly wider, deeper, lateral margins armed by small definite tubercles; setae on declivital interstriae 1, with 3–9 more numerous, slightly flattened; female frons shallowly concave from eye to eye, long setae generally distributed, longer on upper margin; Brazil (Mato Grosso); 1.3 mm *granulosus* (Schedl)
- Male frons moderately concave from epistoma almost to upper level of eyes, a weak, median tubercle above; declivity not as steep, less strongly arched, sulcus narrower, lateral margins with granules almost entirely obsolete, declivital vestiture very sparse, not regular, almost hairlike; female not seen; Brazil (Jacareacanga); 1.2 mm *imitatrix* (Schedl)
- 122(119). Male elytral declivity not as steep, tubercles on lateral elevations restricted to crest of interstriae 3, declivital setae longer, each slightly flattened on its apical half; serrations on anterior margin of pronotum conspicuously larger; male frons more strongly convex, reticulate, punctures much smaller; Brazil (Mato Grosso); 1.6 mm *reticulatus* Wood
- Male elytral declivity slightly steeper; tubercles on lateral elevations on crest and 10 or more confused tubercles on lateral areas; serrations on anterior margin of pronotum small, most inconspicuous; male frons less strongly convex, surface smooth, shining, punctures larger, irregular in size and shape; Brazil (Mato Grosso); 1.8 mm *cribripennis* (Schedl)
- 123(111). Suture 1 of antennal club marked by a groove as well as by an internal septum on anterior half, club almost circular in outline; Mexico (Jalisco); 1.7 mm *parvistriatus* Wood
- Antennal club elongate, unmarked by sutures except for internal septum on mesal half of 1 124
- 124(123). Male epistomal margin normal, straight to shallowly, evenly recurved, mandibles normal, overlapping when closed 125
- Male epistomal margin broadly, moderately emarginate, mandibles enlarged and meet on median line without overlapping when closed 128
- 125(124). Female frons shallowly impressed, feebly concave to above upper level of eyes, coarsely, closely, deeply punctured from just above epistoma almost to vertex, smooth shining area restricted to epistomal area (lower fifth of punctured area below upper level of eyes), frontal vestiture short, of almost uniform length; male mandibles slightly enlarged, epistoma obscurely emarginate; Mexico (Michoacan); *Persea americana*; 1.8–2.0 mm *placetulus* Wood
- Female frons moderately, more broadly concave to well above upper level of eyes, most or all of frontal setae long 126

CORTHYLINI

- 126(125). Female frons broadly, rather deeply concave eye to eye from epistoma to vertex, concave area rather coarsely, closely punctured, vestiture moderately abundant, rather long; male frons broadly convex, a moderate, transverse impression on lower half; declivital interstriae 2 moderately impressed; Venezuela; *Podocarpus raspigliosii* fallen fruit; 2.9–3.8 mm ***impensus*** (Wood)
- Smaller; female frons concavely impressed on median two-thirds from epistoma to well above upper level of eyes, hair longer, especially above; declivital interstriae 2 less strongly impressed 127
- 127(126). Female frons without a median tubercle on frons; body 2.7 times as long as wide; Mexico (Veracruz); 1.8 mm ***blanditus*** Wood
- Female frons armed by a small, median tubercle on epistoma; body 2.5–2.6 times as long as wide; Panama; tree branch; 1.5–2.1 mm ***morigerus*** Wood
- 128(124). Female frons broadly convex, surface shining, punctures rather small, deep, spaced by 1 to 2 diameters of a puncture, vestiture short, sparse, inconspicuous; female mandibles normal, overlapping when closed; Honduras; in rust cones; 1.9–2.3 mm ***sobrinus*** Wood
- Female frons transversely, subconcavely impressed, punctures small, often dense 129
- 129(128). Female frons subconcave on central half, punctures small, more widely spaced, setae minute, inconspicuous, superficially glabrous; declivital interstriae 1 unarmed by tubercles, 3 armed, 2 impressed, shining, impunctate; Costa Rica; liana; 1.9–2.2 mm ***frugalis*** Wood
- Female frons broadly flattened to weakly concave, punctures small, dense, spaced by less than half diameter of a puncture, ornamented by a brush of long hair; male frons either convex or with a transverse impression on lower half; declivital interstriae 2 with a row of interstitial punctures 130
- 130(129). Female frons rather shallowly, subconcavely impressed to slightly above upper level of eyes on median three-fourths, surface dull, vestiture very short in central area, slightly longer on periphery 131
- Female frons broadly, shallowly concave from epistoma to vertex, surface shining, closely punctured, vestiture much longer, more abundant 133
- 131(130). Male mandibles smaller, emargination of epistoma not as deep; female epistoma not as broad, flattened, forming a longitudinally wider, transverse, impunctate band, pronotum disc slightly shagreened, punctures smaller; Brazil (Santa Catarina); 1.7–1.8 mm ***nitens*** Wood
- Male mandible smaller; epistomal emargination deeper; female epistoma wider, inclined toward margin, transverse impunctate band longitudinally narrower; pronotum disc shining, punctures larger; Mexico 132
- 132(131). Anterior margin of pronotum more narrowly rounded and constriction on anterior half of pronotum more conspicuous in both sexes; declivital interstriae 2 more strongly impressed in both sexes; female frons almost identical in these 2 species; male mandibles slightly smaller, mesal margin of mandible near base armed by a large conspicuous spine about 1.5 times longer than its basal width, lateral parts of epistoma modified to accommodate movement of spines; Costa Rica; 1.9–2.2 mm ***calcaratus*** Wood
- Anterior margin of pronotum more broadly rounded, lateral constriction on anterior half not as deep in both sexes; declivital interstriae 2 less strongly impressed; female frons almost identical in these species; male mandibles larger, without a projecting spine on mesal base, epistoma less modified; Mexico (Michoacan to Hidalgo) and Estado de Mexico to Panama (report from Ecuador not confirmed); *Persea mexicana* seeds; 1.7–2.4 mm ***schwarzi*** (Blackman)
- 133(130). Posterolateral areas of pronotum smooth, shining between punctures, impressed points on disc sparse to obsolete; female frons planoconcave, densely, finely punctured, vestiture rather long,

- evenly distributed, slightly longer at margins; lateral margins of declivity more narrowly rounded, tubercles larger; Costa Rica; liana; 1.8–2.2 mm *conditus* Wood
- Pronotum finely reticulate in posterolateral areas, reticulation replaced on disc by numerous impressed points 134
- 134(133). Declivital interstriae 2 weakly impressed, 1 as high as 3, with 1 armed by four very weak granules, 3 by three granules; elytral (and declivital) surfaces much smoother, punctures small; male frons broadly convex; female frons flat eye to eye from epistoma to vertex, surface densely, finely punctured, a fringe of long hair at periphery, apparently shorter in central area; Brazil (Bahia); blacklight; 1.7–1.8 mm *simplicis* Wood
- Declivital interstriae 2 much more strongly impressed, 3 higher than 1, with 1 armed by about seven moderate tubercles, striae and interstitial punctures moderately coarse, surfaces more rugose; male frons with profile distinctly concave, a weak, transverse callus in median area at upper level of eyes; female frons apparently, weakly convex, setae moderately abundant, uniformly distributed, moderately long at margins 135
- 135(134). Body stouter, about 2.6 times as long as wide; female vestiture on frons much longer (tips of longest setae on vertex capable of extending half distance to epistoma); posterolateral areas of pronotum smooth, shining; striae 1 on disc impressed only near base of declivity; declivity not as steep, interstriae 3 slightly higher, tubercles larger; Brazil (Mato Grosso); 1.8–1.9 mm *eusimplicis* Wood
- Body more slender, 2.8 times as long as wide; female vestiture on frons distinctly shorter; posterolateral areas of pronotum with some reticulation; striae 1 on disc impressed almost to base; declivity slightly steeper, interstriae 3 not as high, tubercles not as large; Argentina to Paraguay; 1.8 mm *semisulcatus* Wood
- 136(103). Body slender, 2.7–2.9 times as long as wide; female frons glabrous to sparsely covered by inconspicuous hair mostly below upper level of eyes; declivital striae 1 impressed more strongly than 2 or 3; interstitial setae very slender 137
- Body mostly stouter, 2.2–2.6 (2 species 2.7–2.9) times as long as wide; female frons ornamented by a spongy area or a conspicuous tuft of long hair, mostly above upper level of eyes; declivital interstriae 1–3 equally or not impressed; interstitial setae usually flattened 145
- 137(136). Antennal club sutures 1 and 2 more broadly procurved, angle formed at center of each suture slightly greater than 90 degrees; striae punctures on disc small, not sharply but deeply impressed, irregular short lines radiating from punctures; declivity with numerous impressed points; pronotum strongly reticulate; Venezuela; *Clematis*; 2.0–2.3 mm *clematicolens* Wood
- Antennal club sutures 1 and 2 much more acutely procurved; elytral disc more nearly smooth, with few irregular lines 138
- 138(137). Female frons shallowly concave, moderately to rather sparsely, uniformly pubescent from epistoma to vertex, longest setae on upper margin; male frons shallowly impressed on lower half 139
- Female frons planoconvex on a limited area, setae long; male frons convex, reticulate 140
- 139(138). Pronotum disc mostly reticulate; female frons shallowly concave, vestiture less abundant; interstitial setae on declivity in definite rows, stouter, longer, each about equal in length to two-thirds distance between rows; declivital interstriae 1 to 3 each with a row of small tubercles; Venezuela; *Podocarpus* seedling; 1.8–2.0 mm *andinus* Wood
- Pronotum disc smooth, shining; female frons moderately concave, vestiture on sides and dorsal margin much more abundant; interstitial setae on declivity very slender, short, each equal in length to less than half distance between rows; declivital interstriae 1 to 3 with sparse punctures, tubercles absent; Bolivia; 2.0 mm *eggersi* (Schedl)

CORTHYLINI

- 140(138). Female frons moderately convex, almost glabrous (setae very minute, when present); strial punctures in rows 141
- Female frons at least weakly convex, bearing a small tuft of long hair 144
- 141(140). Pronotum disc reticulate; female frons usually with a low median carina; punctures on declivital striae 1 and 2 obsolete 142
- Pronotum disc smooth, shining; female frons without a median carina; punctures on declivital striae 1 and 2 clearly marked 143
- 142(141). Pronotum strongly reticulate; female frons (always) with a median carina; body 2.4 times as long as wide; strial punctures on disc minute; color almost black; Colombia; *Roupala*; 1.3–1.5 mm ...
..... *roupalae* Wood
- Pronotum weakly reticulate, sometimes with shining areas (female not seen); body 2.7 times as long as wide; strial punctures on disc small; color dark reddish brown; Brazil (Santa Catarina); 1.3–1.7 mm *granulipennis* (Schedl)
- 143(141). Frons smooth, shining between punctures; elytral disc with many impressed points and irregular lines; punctures near declivity on discal striae 1 and 2 of reduced size, minute; interstitial setae on declivity much more slender; Bolivia; 2.2–2.4 mm *bolivianus* (Schedl)
- Upper frons to vertex reticulate; elytral disc smooth, shining, without impressed irregular lines; punctures on discal striae near declivity of normal size; interstitial setae on declivity stouter, flattened on apical half; Costa Rica; *Mucuna pubescens*; 1.7–2.0 mm *nigrellus* Wood
- 144(140). Female frons moderately convex, rather coarsely punctured on median three-fourths, pubescence on subcircular area, less dense, slightly shorter; strial punctures on disc minute (half as large), impressed lines weak; Costa Rica; *Roupala complicata*; 1.1–1.5 mm *vinnulus* Wood
- Female frons more strongly convex, rather finely punctured, pubescence on a definite circular area on more than central half, setae longer, incurved; strial punctures on disc rather small (about twice as large), impressed lines more numerous, deeper; Colombia; *Panopsis jolombo*; 1.1–1.4 mm *parvulus* Wood
- 145(136). Body more slender, 2.4–2.6 times as long as wide; anterior margin of pronotum more broadly rounded, armed by at least 12 serrations; female frons never with a conspicuous area of minute velvet 146
- Body stouter (2.2–2.3 times as long as wide) to slender (2.7–2.9 times as long as wide); anterior margin of pronotum more narrowly rounded to acutely pointed in female, armed by 0–12 serrations; female frons with a conspicuous area of minute, spongy (velvet) pubescence, sometimes overlapped and partly hidden by long setae from vertex 151
- 146(145). Punctures on elytral disc confused; elytral declivity very steep, with strial punctures obsolete, discal interstriae with rows of tubercles; Venezuela; 3.6 mm *muticus* Wood
- Strial punctures in rows on disc and declivity; smaller species 147
- 147(146). Female frons with vestiture absent except sparse on epistomal margin; frons bearing a pair of rather large, moderately elevated cusps at upper level of eyes, cusps separated by a distance equal to a third of distance between eyes, area between cusps and dorsad concavely impressed; surfaces shining, punctures minute in concave area, of moderate size laterally and below; posterior and lateral areas of pronotum smooth, shining; Costa Rica; tree branch; 1.6–2.0 mm
..... *lepidus* Wood
- Female frons with long vestiture present; pronotum at least partly reticulate in most species 148

SCOLYTIDAE OF SOUTH AMERICA

- 148(147). Female frons with tips of longest setae on vertex shorter, capable of extending only half distance from vertex to epistoma; male frons with a weak, transverse elevation on median third, a moderate transverse line between shining epistoma and reticulate elevation (as in male *furvescens*), a weak band of setae arising in this transverse line; Venezuela; tree limb (?*Roupala*); 1.7–2.0 mm
 *partilis* Wood
- Female frons with tips of longest setae on vertex capable of attaining epistomal margin 149
- 149(148). Discal striae with punctures moderately large on basal two-thirds; male elevation on frons above transverse groove at epistomal margin very feeble; lower lateral female frons with punctures rather coarse, more numerous; Panama; tree limb; 1.8–2.0 mm *furvus* Wood
- Discal striae with punctures minute to obsolete to base; male elevation above transverse groove at epistomal margin more conspicuously elevated on median fourth 150
- 150(149). Discal surface on elytra shining, much smoother, few weak, impressed lines present, with numerous impressed points; punctures of striae 1 and 2 on lower declivity minute; Guatemala; tree limb; 1.5–1.9 mm *furvescens* Wood
- Discal surface of elytra shining, with numerous rather strongly impressed irregular lines, few impressed points; punctures on striae 1 and 2 on lower declivity rather large; Colombia; *Panopsis jolombo*, *Roupala*; 1.7–2.0 mm *expers* Wood
- 151(145). Female epistomal margin rather weakly recurved; anterior margin of female pronotum rather broadly rounded, armed by about 8–12 serrations 152
- Female epistoma more strongly recurved to deeply emarginate, spongy area on female frons not attaining margin of eye 154
- 152(151). Body stouter, 2.4 times as long as wide; spongy area on female frons extending eye to eye from epistoma to vertex, tips of longest setae on dorsal margin capable of attaining epistoma; Venezuela; *Nectandra*; 1.5–1.9 mm *subemarginatus* Wood
- Body more slender, 2.7 times as long as wide; spongy area on female frons mostly above upper level of eyes, occupying slightly more than half of space between eyes, fringe of setae on dorsal margin of spongy area variable 153
- 153(152). Female spongy area on frons slightly above upper level of eyes, peripheral fringe of hair absent to very short, sparse; elytral punctures smaller; Brazil (Santa Catarina); 1.7–1.8 mm
 *umbraticus* (Schedl)
- Lower margin of female spongy area on frons slightly below upper level of eyes, peripheral fringe of hair much more dense and longer; elytral punctures larger; Brazil (Para); 2.2 mm
 *schedlianus* Wood
- 154(151). Female epistomal margin deeply emarginate; spongy area on female frons small, restricted to upper third of flattened area (above upper level of eyes); anterior margin of female pronotum rather narrowly rounded, armed by about 8–12 serrations; male frons almost flat from unmodified parts of epistoma to upper level of eyes 155
- Female epistomal margin less deeply, more uniformly recurved; anterior margin of female pronotum projected to an acutely pointed angle, margin with very feeble serrations; spongy area on female frons extending ventrad below upper level of eyes, much larger 156
- 155(154). Emargination of female epistoma somewhat obtuse (90 degrees), extending from level of lateral areas of epistoma one-third distance toward upper level of eyes; female frons with a fringe of long hair on dorsal margin of spongy area; body stout, 2.2 times as long as wide; lateral parts of female epistoma with a conspicuous tuft of hair; Colombia; *Nectandra*; 2.3–2.7 mm
 *rufopalliatius* Eichhoff

- Emargination of female epistoma much deeper, narrowly acute, extending from lateral areas of epistoma two-thirds distance toward upper level of eyes; female spongy area without a fringe of long hair on dorsal margin; body slender, 2.9 times as long as wide; lateral female epistoma with sparse hair; Brazil (Bahia); 2.1–2.4 mm *frontis* Wood
- 156(154). Spongy area on female frons clearly convex, its lower margin more broadly procurved, more evenly elevated; male frons more strongly convex, punctures smaller, median elevations not as high; punctures on declivital striae and interstriae small to minute; Brazil (Santa Catarina); 1.8–2.3 mm *limax* (Schedl)
- Spongy area on female frons shallowly concave, its lower margin more narrowly procurved, more strongly elevated into one median and a pair of lateral rugae; male frons less strongly convex, more coarsely punctured, median elevation higher; punctures on declivital striae and interstriae distinctly larger; Mexico (Nayarit to Veracruz); 1.7–2.2 mm *aztecus* Wood

Araptus amazonicus (Eggers)
Plate CL

Araptus amazonicus (Eggers), 1936:391 (*Neodryocoetes*). Holotype ♂; Manaus, Amazonas, Brazil; NHMW, Wien (References in Wood & Bright c1992:953)
Neodryocoetes sparsepunctatus Schedl, 1938:26. Syntypes, ♂ ♀?; Tigre, Prov. Buenos Aires, Argentina; NHMW, Wien, Viana (References in Wood & Bright c1992:961). *New synonymy*

Diagnosis: Male frons rather strongly impressed, without a median elevation or denticles near mandible bases; interstitial punctures regular, often confused.

Male: Length 1.8–2.2 mm, 2.5 times as long as wide; color reddish brown. Frons subtriangularly rather strongly impressed from epistoma to upper level of eyes, deepest on middle third, without a median carina or lateral cusps; surface smooth, shining on median third of lower half, subrugose above and laterally; vestiture short, sparse above, mostly on epistomal margin. Pronotum 1.0 times as long as wide; widest on basal half, distinctly constricted on anterior half, rather narrowly rounded in front; summit indefinite, in front of middle, anterior slope closely, rather finely asperate, shining, posterior area mostly reticulate, punctures deep, rather coarse; vestiture of short, inconspicuous hair. Elytra 1.5 times as long as wide, 1.5 times as long as pronotum; striae not impressed, punctures rather small, deep; interstriae about three times as wide as striae, smooth, shining, punctures as on striae, close, usually partly confused with those of striae. Declivity occupying posterior third of elytra length, steep, strongly convex; sculpture similar to disc except punctures smaller, those on interstriae 1 partly replaced by small granules. Vestiture mostly confined to declivity and sides, consisting of rows of rather slender interstitial setae on all interstriae, each almost as long as distance between rows.

Female: Similar to male except frons broadly, weakly convex, punctures close, shallow, indistinct, a feeble median carina on upper two-thirds.

Distribution: Argentina to Venezuela.

Argentina: In *Erythrina flacata* seeds from Argentina, intercepted at New York, N.Y. 2-IV-1942, No. 92113, Lot No. 42-4030; Tigre, Buenos Aires.

Brazil: Manaus, Amazonas; Caldas Novas, Goias, 13-IV-1993, at light, J. Sar.

Venezuela: Maturin, Monagas, 5-II-1973, *Mauritia flexuosa*, D.H. Janzen.

Notes: The above treatment was based on 3 specimens from Argentina that were compared to Schedl's syntypes of *Neodryocoetes sparsepunctatus* Schedl, on 3 from Brazil, and on 103 from Venezuela, all of which were compared to the male holotype of *N. amazonicus* Eggers.

Araptus araucariae (Schedl)

Araptus araucariae (Schedl), 1966:109 (*Conophthocranulus*). Holotype ♀; Santa Maria, Dep. Concepcion, Misiones, Argentina; NHMW Wien (References in Wood & Bright c1992:953)

Diagnosis: Apparently allied to *amazonicus* (Eggers) but distinguished by the smaller size; by the less strongly impressed, smoother female frons; by the moderately confused punctures on the elytra; by the stouter elytral setae; and by other characters cited below.

Female: Length 1.6 mm, 2.3 times as long as wide; color yellowish brown. Frons mostly concealed by pronotum, apparently broadly convex (less strongly convex than in *amazonicus* and with a smoother surface); vestiture of sparse, rather short setae as in *amazonicus*. Pronotum 1.0 times as long as wide; widest at base, sides weakly arcuate, converging toward slight constriction on anterior half, rather narrowly rounded in front; anterior margin a weak, subserrate costa; summit indefinite, near middle; anterior slope rather coarsely, closely asperate, posterior areas shining, punctate-subrugose almost to base, punctures small. Elytra 1.3 times as long as wide, 1.5 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed except 1 slightly near declivity; striae obscure, punctures moderately large, shallow, mostly confused. Declivity steep, rather broadly convex; striae 1 narrowly impressed, small punctures obscure, 2 and 3 indicated by small punctures; interstriae 1 very narrow, 1, 2, and 3 with very small punctures, those on 2 and 3 somewhat confused. Vestiture consisting of sparse interstitial hair on 1–9.

Distribution: Argentina: Santa Maria, Misiones, Dep. Concepcion, XI-1952, in semilla (seeds) de *Araucaria brasiliensis*, M.J. Viana.

Notes: The above treatment was based on the female holotype from Argentina.

Araptus mucunae (Blackman)

Plate CLIV

Araptus mucunae (Blackman), 1942:181 (*Neodryocoetes*). Holotype ♀; Perene River, Peru; USNM, Washington (References in Wood & Bright c1992:959)

Diagnosis: Allied to *hymenaeae* (Eggers) but larger; male frons strongly impressed from epistoma almost to upper level of eyes, a conspicuous tubercle at base of mandible, mandible somewhat cycle-shaped; punctures on elytra disc moderately confused; declivital interstriae 2 without a row of setae.

Male: Length 2.0–2.5 mm, 2.3 times as long as wide; color rather dark reddish brown. Frons strongly, triangularly impressed from epistomal margin almost to upper level of eyes, upper crest abrupt, without cusps, concave area deeply impressed, shining, without punctures; upper areas strongly reticulate, rather coarsely, closely punctured from crest almost to vertex; lateral area at articulation of mandible subcarinate, anterior end of this crest forming a tubercle; frons almost glabrous, except epistomal brush dense, setae long. Pronotum 1.1 times as long as wide; summit indefinite, slightly in front of middle of pronotum length; widest on basal half, rather narrowly rounded in front; anterior slope rather coarsely, closely asperate; posterior and lateral areas finely, strongly reticulate, punctures moderately coarse, most with anterior or lateral margin shining, those near summit feebly elevated; almost glabrous except short setae near anterior and lateral margins. Elytra 1.5 times as long as wide, 1.3 times as long as pronotum; striae not impressed, punctures small, rather deep, most in staggered rows, confused near base; interstriae about four times as wide as striae, smooth, shining, with many impressed points, and moderately numerous impressed irregular lines. Declivity strongly convex, steep; striae 1 slightly impressed, punctures small, distinct; interstriae three times as wide as striae, shining, with numerous impressed points, 2 impunctate, 3 with regular small punctures, 1 with obscure punctures very close to striae 1. Vestiture of sparse, short, erect setae on odd-numbered interstriae, mostly on or near declivity.

Female: Similar to male except frons convex, reticulate, closely, rather finely punctured, a fine, low median carina from epistoma to upper level of eyes.

Distribution: Peru to Venezuela.

Peru: Perene River, in parrot bean (type series).

Venezuela: 40 km SE Socopo, Barinas, 7-II-1970, 150 m, No. 288, *Mucuna* seeds, SLW.

Biology: Larvae and young adults were boring in the large seeds.

Notes: The above treatment was based on the female holotype, male allotype, 4 female paratypes of *Neodryocoetes mucunae* Blackman and on 54 specimens from Venezuela.

A male specimen of this species, 2.0 mm, was found among the Chapuis material at the Brussels museum labeled "Coll. R.I.Sc.N.B., Venezuela, Cumana (an undecipherable 5-letter word), Dejean, Coll. Chapuis, *Pityophthorus fimbriolatus* m., type; *Prodryocoetes* cf. *palidus* [sic] Blackm." This Chapuis name and the Schedl use of *Prodryocoetes* are nomen nudums. The name does not appear in any Dejean catalogue list. In my long series of *A. mucunae*, Field No. 288 (above), are males equal in size to the Chapuis specimen, and other slightly larger males that share the identical pronotum disc structure. The Chapuis name has no standing in nomenclature.

Araptus hymenaeae (Eggers)

Plate CLI

Araptus hymenaeae (Eggers), 1933:9 (*Neodryocoetes*). Holotype ♂; Gourdonville, French Guyane; MNHN, Paris (Synonymy and references in Wood & Bright c1992:957–958)
Neodryocoetes insularis Eggers, 1940:128. Holotype ♀; Guadeloupe; Fleutiaux Collection in MNHN, Paris
Neodryocoetes guianae Blackman, 1942:186. Holotype ♀; British Guiana; USNM, Washington
Neodryocoetes hoodi Blackman, 1942:187. Holotype ♀; Taboga Island, Panama; USNM, Washington
Neodryocoetes humilis Blackman, 1942:188. Holotype ♀; Bonito, Pernambuco, Brazil; USNM, Washington

Diagnosis: Male frons rather strongly impressed, without a median elevation, but with weak denticles near the mandible bases; interstitial punctures sparse, widely spaced; striae punctures on disc very small; body more slender.

Male: Length 1.4–1.7 mm, 2.7 times as long as wide; color reddish brown. Frons resembling *amazonicus* (Eggers) in having a pair of denticles near bases of mandibles, cusps on upper margin of impression usually more definite. Pronotum 1.1 times as long as wide; widest on basal half, without a constriction on anterior half, anterior margin broadly rounded; summit indefinite, anterior to middle, anterior slope closely, rather finely asperate; posterior areas with obscure reticulation mostly replaced by micropunctures; punctures rather small, distinct; vestiture mostly abraded, of sparse, short hair. Elytra 1.6 times as long as wide, 1.5 times as long as pronotum; striae not impressed, punctures rather small, deep, mostly in rows; interstriae two to three times as wide as striae, smooth, shining, with numerous micropunctures, punctures very sparse, mostly near declivity. Declivity restricted to posterior third, convex, steep; sculpture about as on disc except striae punctures smaller; interstitial punctures absent on 2 and 4, smaller, more regularly spaced on 1, 3, and 5, without any tubercles on 1. Vestiture restricted to declivity and sides on odd-numbered interstriae, setae weakly flattened, rather short.

Female: Similar to male except frons strongly convex, reticulate, closely, rather finely punctured, with a weak median crest on upper half.

Distribution: Costa Rica to Jamaica and Colombia to Suriname.

Colombia: Cacedonia, Valle de Cauca; Sopenan, Antioquia, VII-1978, A. Madrigal.

French Guyane: Corantijn River, 1919, V.K. Douglas; Gourdonville.

Guiana: 10-I-1947, *Cajanus indicus*, Lot No. 47-1326.

Suriname: Corantijn River, 1919, V.K. Douglas.

Venezuela: Intercepted at San Francisco, California from pods of *Hymenaea courbaril* originating in Venezuela, 18129, Lot 42-8777.

Hosts: *Cajanus indicus*, *Hymenaea* pods and seeds.

Notes: The above treatment was based on 5 specimens from Costa Rica (4 erroneously labeled Santa Rosa, Brazil), 1 from Panama, 2 from Guiana, 2 from Suriname, 2 from Colombia, and 4 from Venezuela. A Suriname male of *Neodryocoetes hymenaeae* Eggers was compared by me directly to the female holotype of that species. The holotypes of *N. insularis* Eggers, *N. guianae* Blackman and *N. hoodi* Blackman were examined and compared to my material. The female holotype of *N. humilis* Blackman also appears to be this species.

Araptus caribaeus (Blackman), n. status

Araptus caribaeus (Blackman), 1942:185 (*Neodryocoetes*). Holotype ♀; Trinidad, West Indies; USNM, Washington (References in Wood & Bright c1992:957)

Diagnosis: Distinguished from *hymenaeae* (Eggers) by the less strongly impressed male frons, with the upper margin rounded (not abrupt), represented by a pair of small, subtuberculate cusps, the mandibular tubercles are also present; and by the greater confusion of tubercles on striae 1 and 2 on the basal fourth of the disc; female frons less strongly convex than female *hymenaeae*, especially on the lower half.

Male: Length 1.5–1.7 mm, 2.5 times as long as wide; color reddish brown. Frons less strongly impressed than in *hymenaeae*, the upper margin more gradually rounded, the upper margin mostly represented by a pair of subtuberculate rounded cusps. Pronotum without any reticulation. Elytra with punctures on basal fourth of disc on striae 1 to 2 much more strongly confused.

Female: Similar to male except frons convex (less strongly than female *hymenaeae*), particularly on lower half.

Distribution: Trinidad to French Guyane.

French Guyane: Cayenne, Chemin du Rorota, 11-I-1991, ex graines de la liane *Mucuna*, F. LeCorre.

Hosts: *Hymenaeae courbaril*, *Mucuna* sp.

Biology: Boring in seeds and pods of the host.

Notes: The above treatment was based on 1 male and 1 female taken from *Hymenaea courbaril* seeds at Port of Spain in Trinidad (the type locality of *Neodryocoetes caribaeus* Blackman) in 1945. This female was com-

pared by me directly to the female holotype of *N. caribaeus*. One male from French Guyane was also examined. These specimens represent a distinct species and are removed from synonymy with *N. hymenaeae* Eggers.

Araptus excavatus Wood, n. sp.

Araptus excavatus Wood: Holotype ♂; Laguna Santa Maria, Nayarit, Mexico; USNM, Washington, designated below

Diagnosis: Allied to *mucunae* (Blackman) distinguished as indicated in the above key; by the comparatively large size; and by the elaborately excavated frons and vertex in both sexes.

Male: Length 2.2–2.8 mm, 3.0 times as long as wide; color dark reddish brown except basal half of elytra pale yellowish brown. Frons rather strongly excavated from epistoma to vertex, occupying three-fourths of width at epistoma, narrowed to one-fourth of width at vertex, then continued on an inverted U-shaped pattern dorsad, crest of U-shaped portion acutely carinate; a low median carina from epistoma to above upper level of eyes; floor of concave area obscurely aciculate; vestiture in concave area short, rather sparse, more abundant on epistomal margin. Pronotum 1.2 times as long as wide; sides feebly arcuate on posterior two-thirds, broadly rounded in front; anterior margin armed by about 16 low serrations; summit one-fourth pronotum length from anterior margin, indefinite; posterior two-thirds smooth, shining, with numerous minute impressed points, punctures rather coarse, close; vestiture hairlike, restricted to anterior and lateral margins. Elytra 1.7 times as long as wide, 1.3 times as long as pronotum; striae not impressed, punctures in rows, small, deep; interstriae two to three times as wide as striae, almost smooth, a few irregular impressed lines, punctures smaller than those of striae, about a third as numerous. Declivity occupying a third of elytra length, longitudinally convex, transversely somewhat flattened on median half; strial punctures minute, shallow; interstriae 2 slightly impressed, 1 and 3–4 each with a row of very fine punctures, 2 with punctures only on lower fourth. Vestiture hairlike, of erect interstitial setae on and near declivity except absent on basal three-fourths of 2.

Female: Similar to male, including frontal excavation, except frons with rather abundant, long hair, especially at margins; declivital interstriae 2 less distinctly impressed.

Type material: The male holotype, female allotype, and 7 paratypes were taken at Laguna Santa Maria, Nayarit, Mexico 6-VII-1965, 3000 ft., No. 192, by S.L. Wood; 34 paratypes are from 13 mi. N Juchitlan, Jalisco, Mexico 2-VII-1965, 3000 ft., No. 181, from a small vine, by S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Araptus brevisetosus (Eggers), n. comb.

Araptus brevisetosus (Eggers), 1933:3, 7 (*Pityophthorus*). Holotype ♀♀; Caracas, Venezuela; NHMW, Wien (References in Wood & Bright c1992:984)

Placement of this species from the apparently female holotype is uncertain. The frons is weakly convex and has a distinct low median carina from the epistoma to the upper level of the eyes, it also has a moderate number of fine, rather long setae on a semicircular area from the epistoma almost to the upper level of the eyes. If my determination of the sex is correct, this species should be placed near *deyrollei* (Blandford). I have not seen a closely related species to this type.

Female (?): Length 1.8 mm, 2.8 times as long as wide; color dark reddish brown. Frons broadly, moderately convex; a distinct subacute median carina of uniform height from epistoma to slightly above upper level of eyes, surface mostly smooth, shining to veretex, a small area of reticulation at median line on vertex; punctures small, deep, rather dense from epistoma to well above upper level of eyes; vestiture of moderately abundant fine setae from epistoma to upper level of eyes on a semicircular area, longest setae above equal to abundant setae in epistomal brush; antennal club twice as long as scape, 1.17 times as long as wide, rather broadly obovate, suture 1 strongly, angulately procurved to slightly less than middle of club length, both anterior and posterior halves of septum show internally; most of club with numerous microsetae. Pronotum 1.1 times as long as wide; sides widest at base, convergently arcuate from base almost to rather narrowly rounded anterior margin; anterior margin armed by a subcostate row of about 10 basally fused, low serrations; summit indefinite, at middle of pronotum length; anterior slope rather steep; asperities small, close, confused; posterior areas smooth, shining, punctures rather small, deep, spaced by average distance of diameter of a puncture, many micropunctures in spaces between punctures; vestiture of very fine, short setae over most of surface except disc. Elytra 1.5 times as long as wide, 1.6 times as long as pronotum; disc occupying basal 70 percent of elytra length; disc smooth, shining, with many impressed micropunctures and a few irregular lines; striae not impressed, except 1 narrowly, moderately impressed from middle of disc length to declivity, striae punctures small, deep, mostly in rows, partly confused on basal third, interstitial punctures mostly obsolete. Declivity steep, convex, at striae 1; striae 1 rather deeply, narrowly impressed, punctures small to obsolete, narrow groove extending from base to near apex, striae 2 and 3 not impressed, punctures very small, distinct; interstriae 1 slightly elevated, crest rounded, with many micropunctures, punctures minute, 2 ascending laterad, as wide as 1 or 3, with many micropunctures, no punctures, 3 very slightly higher than 1, with fewer micropunctures, punctures very small, in a sparse row. Vestiture sparse, restricted to odd-numbered interstriae on declivity and sides near declivity, about four to six setae in a row; each seta slightly flattened on its apical half, short, length equal to about two-thirds width of an interstriae.

Distribution: Venezuela: Caracas, 188 E S, 1897, E. Simon.

Notes: The holotype bears a label "nicht *Pit. similis* Eichhoff, mit type verglichen, Eggers 1932," and "*Pityophthorus similis* Eichh., det. M. Hagedorn 1905," and below this "*Pityophthorus breviosetosus* n. sp., type, Eggers 1932."

Araptus mucunavorus Wood, n. sp.

Plate CLIV

Araptus mucunavorus Wood: Holotype ♂; Porce, Antioquia, Colombia; USNM, Washington, designated below

Diagnosis: Distinguished by the larger size, with striae and interstitial punctures confused; by the male and female frons being about the same, with a fine median carina; and by the characters described below.

Male: Similar to female, including frons, male frons very slightly more convex on lower half, a very feeble median carina or crest present as in female; male epistomal margin more distinctly recurved.

Female: Length 2.2–2.5 mm, 2.4 times as long as wide; color dark reddish brown. Frons moderately convex except weakly impressed on median third at epistoma; surface reticulate, punctures rather small, deep, close from near epistoma to above upper level of eyes; epistomal margin weakly recurved; vestiture of short, inconspicuous hair. Pronotum 1.0 times as long as wide; widest on basal third, sides arcuately converging to narrowly rounded anterior margin; summit at middle, anterior slope rather finely, closely asperate; posterior areas almost smooth, obscure reticulation laterally, minute impressed points on disc; vestiture mostly obsolete. Elytra 1.5 times as long as wide, 1.7 times as long as pronotum; striae punctures very small, distinct, in rows; interstriae three to four times as wide as striae, shining, with rather numerous, irregular, impressed lines, punctures very sparse except on 1 and 2 near declivity. Declivity occupying posterior third of elytra length, broadly convex, steep; striae 1 distinctly impressed; striae punctures deeper than on disc; interstriae regularly punctured, punctures slightly smaller than those of striae, a few very feebly granulate, minute impressed points rather numerous. Vestiture of erect interstitial setae, mostly on or near declivity, each seta slightly flattened, blunt, slightly shorter than distance between rows, spaced within a row by distance slightly greater than length of a seta.

Distribution: Brazil (Para) and Colombia (Antioquia).

Type material: The male holotype, female allotype, and 17 paratypes were taken at Porce, Antioquia, Colombia, I-1977, en semilla de Ojo de Buey, R. Velez. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington

Hosts: *Mucuna* sp. (Ojo de Buey).

Biology: Boring in the seeds of the host.

Araptus celatus (Schedl), n. comb.

Araptus celatus (Schedl), 1967:9 (*Brevipityophthorus*). Holotype ♂; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien

Diagnosis: Distinguished from allied species by the median carina on the male frons; by the steep, weakly bisulcate elytral declivity, with interstriae 2 bearing a confused row of punctures that form the base for minute hairlike setae; and by the slender body form.

Male: Length 1.8–2.2 mm, 2.9 times as long as wide; color reddish brown. Frons broadly convex, with a low, acute median carina from epistomal margin almost to upper level of eyes; surface smooth, shining, punctures rather small, deep, very close; vestiture of sparse, fine, rather long hair (apparently most or all arising on peripheral area); antennal club moderately large, sutures 1 and 2 rather broadly procurved. Pronotum 1.1 times as long as wide; widest on basal half, sides feebly arcuate, distinctly constricted anterior to middle, rather narrowly rounded in front; anterior margin armed by 12 serrations, median 4 larger; summit at middle; anterior slope coarsely asperate; posterior areas smooth, shining, sparse impressed points present, punctures small, elongate; vestiture restricted to sides and asperate area. Elytra 1.8 times as long as wide, 1.6 times as long as pronotum; disc occupying basal 72 percent of elytra length; small striae punctures mostly in rows, 1 weakly impressed near declivity; interstriae about three times as wide as striae, punctures slightly smaller than those of striae and slightly confused from base to margin of declivity. Declivity very steep, shallowly bisulcate; striae 1 moderately, 2 weakly impressed, punctures on 1 greatly reduced to obsolete, on 2 small but distinct; interstriae 1 distinctly elevated, with a row of small, pointed granules, 3 as high as 1 and armed by small, pointed tubercles as on 1, with 2 impressed below level of 1 or 3, bearing a confused row of small punctures. Vestiture mostly confined to declivity, consisting of sparse, minute striae hair and rows of stout erect interstitial setae, setae present on all interstriae but less numerous on even-numbered interstriae, each seta about equal in length to half to two-thirds distance between rows.

Distribution: Brazil: Nova Teutonia [Santa Catarina], 27°11'B, 52°23'L, VI-VII-VIII-1966, F. Plaumann.

Notes: The above treatment was based on the male holotype and 4 male paratypes from Brazil.

Araptus pernicialis Wood, n. sp.

Araptus pernicialis Wood: Holotype ♂; Para, Brazil; USNM, Washington, designated below

Diagnosis: Remotely allied to *politus* (Blandford) and *tabogae* (Blackman) but distinguished by the smaller size, more slender form, and other features described below.

Male: Length 1.7–1.9 mm, 2.5 times as long as wide; color reddish brown. Frons rather strongly convex on upper two-thirds, weakly, transversely impressed on median third of lower third; convex area reticulate, rather coarsely, closely punctured, a feeble median crest to upper level of eyes, impressed area shining, more finely punctured; vestiture largely restricted to epis-

tomal margin. Pronotum 1.1 times as long as wide; widest on posterior half, conspicuously constricted on anterior half, anterior margin occupying median third of pronotum width, with 8 rather coarse serrations; posterior and lateral areas reticulate, punctures very small, a small, shining granule on margin of each; almost glabrous. Elytra 1.6 times as long as wide, 1.6 times as long as pronotum; striae not impressed, punctures small, rather deep, confused at base of 2; interstriae three to four times as wide as striae, smooth with many impressed points and a few irregular lines, punctures very sparse. Declivity restricted to posterior third of elytra length, strongly convex, steep; striae punctures half as large as those on disc; interstriae with numerous impressed points, 1 and 3 with a few obscure, minute punctures. Vestiture very sparse, of erect setae on odd-numbered interstriae on and near declivity.

Female: Similar to male except frons weakly concave to upper level of eyes, densely, rather finely punctured, and covered by moderately abundant, rather long hair.

Distribution: Brazil (Para).

Type material: The male holotype, female allotype, and 5 paratypes were taken at Para, Brazil from *Mucuna* seeds; 1 paratype is from Piaui, BR, 316, km 132, 30-X-1979, *Mimosa verucosa*, H.C. Hopkins, No. 30, and 1 is from Cachimbo, Para, 15-VIII-1979, H.C. Hopkins. The holotype, allotype, and paratypes are in the U.S. National Museum. A non-type specimen in poor condition is from Piaui, Brazil, 316 km 132, No. 4615, 30-X-1979, *Mimosa varucosa*, M.J.G. Hopkins [probably a beating record].

Hosts: *Mucuna* seeds, *Mimosa verucosa*.

Biology: Boring in seeds of the host.

Araptus plicatus Wood, n. sp.

CLVI

Araptus plicatus Wood: Holotype ♂; Merida, Merida, Venezuela; USNM, Washington, designated below

Diagnosis: This species is placed in the key before *uruguayensis* Wood, although its true affinities are apparently much closer to *mirus* Wood or *mirabilis* Wood. The declivity is strongly bisulcate and interstriae 1 and 3 are armed by tubercles. It is unique in having a median frontal carina in both sexes.

Male: Length 2.3–2.5 mm, 2.9 times as long as wide; color very dark reddish brown. Frons broadly, transversely impressed on lower half of area below upper level of eyes; area above eyes mostly reticulate, then smooth and coarsely, deeply punctured to impressed area; a short, subacute median carina from epistoma to upper limits of impression; vestiture limited to impressed area, very short, sparse, epistomal brush rather sparse. Pronotum 1.2 times as long as wide; widest on basal half, sides almost straight and parallel on basal half, constriction weak; broadly rounded in front; anterior margin a continuous costa, obscurely serrate on median area; indefinite summit at middle; anterior slope coarsely

asperate; posterior areas very obscurely subreticulate, subshining, punctures rather small, moderately close, median line mostly impunctate; short, sparse hair in asperate area. Elytra 1.7 times as long as wide, 1.4 times as long as pronotum; disc occupying basal 70 percent of elytra length; striae not impressed except 1 narrowly at base of declivity, punctures rather small, mostly in rows except confused on basal half of disc from suture to striae 2, with obscure reticulation in some areas. Declivity steep, broadly, strongly bisulcate; striae 1 impressed, punctures obsolete, 2 with punctures minute above to mostly obsolete below; sutural interstriae 1 moderately elevated, armed by about six small denticles, 2 wider than 1, almost flat, crest of 3 rather narrowly rounded on upper two-thirds, armed by four to six pointed denticles on upper three-fourths. Vestiture mostly restricted to declivity as long, hairlike setae in sparse rows on odd-numbered interstriae.

Female: Similar to male except frontal impression and median carina weaker, vestiture on frons slightly more abundant and longer.

Distribution: Venezuela (Merida).

Type material: The male holotype, female allotype, and 19 paratypes were taken at Merida, Merida, Venezuela, 7-X-1969, 1700 m, No. 43, from stems of a liana known locally as "Bejuco Negro," by S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Araptus subaciculatus Wood, n. sp.

Araptus subaciculatus Wood: Holotype ♂; Bocaiuva, Para, Brazil, 25°08', 49°04'; NHMW, Wien, designated below

Diagnosis: Distinguished from *plaumannianus* Wood by the very slender body form; by the strongly reticulate pronotum; by the weak median carina on the male frons, especially on its upper half, with the lateral areas very weakly aciculate.

Male: Length 1.3 mm, 3.0 times as long as wide; color dark reddish brown. Frons convex, weakly, closely, convergently aciculate from distinctly emarginate epistoma to well above upper level of eyes; surface shining; sparse punctures minute, mostly obsolete; vestiture of fine hair, moderately long laterally and toward epistoma; median carina weak, low, acute, declining in height to upper level of eyes. Pronotum 1.18 times as long as wide; widest behind middle, sides weakly arcuate on basal half, rather narrowly rounded in front; anterior margin armed by 4 weak serrations; summit indefinite, well in front of middle; anterior slope coarsely, closely asperate; posterior areas strongly reticulate, punctures small, close, median line impunctate; vestiture of fine, short, sparse hair uniformly distributed. Elytra 1.9 times as long as wide, 1.6 times as long as pronotum; disc occupying basal 72 percent of elytra length; striae not impressed, punctures small, in rows except 2 slightly confused on basal fourth; interstriae three to four times as wide as striae, smooth, shining, a few very weak, irregular lines

present, some impressed points present, impunctate. Declivity broadly convex, steep; striae 1 rather weakly impressed, punctures small to minute, distinct, 2 not impressed, punctures minute; interstriae 1 narrow, weakly elevated, 2 wider than 1, ascending slightly laterad, 3 as high as 1, crest broadly rounded, with a few fine punctures. Vestiture consisting of minute strial hair on sides and declivity, and sparse, erect setae on odd-numbered declivital interstriae.

Distribution: Brazil (Para).

Type material: The male holotype was taken at Bocaiuva, Para, Brazil, 25°08', 49°04', V-1964, 1000 m, F Plaumann. The holotype is in the Naturhistorisches Museum Wien, Wien.

Notes: The holotype of this species was previously designated as the "female" allotype of *Breviophthorus plaumanni* Schedl (1970:102). It is entirely unrelated to that species (now *Araptus plaumanni* Schedl) and is also unrelated to *Brachydendrulus plaumanni* Schedl (1976:70), which was renamed, below, as *Araptus plaumannianus*.

Araptus uruguayensis Wood, n. sp.

Plate CLVII

Araptus uruguayensis Wood: Holotype ♂; Colonia del Sacramento, Uruguay; USNM, Washington, designated below

Diagnosis: Distinguished from *plaumannianus* Wood by the much narrower declivital interstriae 2; by the much shorter, less abundant frontal vestiture of the female; and by the distinctly flattened male frons with a weak, almost obsolete carina.

Male: Length 2.0–2.4 mm, 2.7 times as long as wide; color very dark reddish brown. Frons convex above, somewhat flattened from epistoma to upper level of eyes; surface almost smooth, shining, punctures small, shallow, of moderate abundance above, obscure to obsolete toward epistoma; a low, acute median carina from epistoma to upper level of eyes; vestiture limited to epistomal margin. Pronotum 1.1 times as long as wide; sides on basal half feebly arcuate, weakly constricted on anterior half, rather narrowly rounded in front; anterior margin irregularly subserrate; summit near middle, anterior slope rather finely asperate; posterior areas smooth, shining, with numerous impressed points, punctures rather small, numerous, distinctly impressed; vestiture of fine, short inconspicuous hair. Elytra 1.7 times as long as wide, 1.5 times as long as pronotum; striae not impressed, punctures small, shallow, in slightly irregular rows; interstriae about three times as wide as striae, almost smooth, with numerous impressed points and moderately numerous weakly impressed irregular lines, punctures very sparse except on 1. Declivity restricted to posterior third; striae with punctures deeper than on disc; interstriae twice as wide as striae, smoother than on disc, 1 and 3–5 each with a row of minute punctures. Vestiture of rows of erect interstitial

setae, except absent on 2, mostly on sides and declivity; erect setae slender; blunt, short.

Female: Similar to male except frons more distinctly convex, median carina absent, vestiture of fine, short, rather sparse hair.

Distribution: Uruguay.

Type material: The male holotype, female allotype, and 10 paratypes were taken at Colonia del Sacramento, Uruguay, 22-IX-1997, *Erythrina cristagalli*, J.J. Morrone. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Notes: About 30 liquid preserved specimens share the type data.

Araptus pubescens (Schedl)

Araptus pubescens (Schedl), 1951:291 (*Neodryocoetes*). Lectotype ♂; Villa Hermosa, Cordoba, Punilla Dep., Valle Hermoso, Argentina; NHMW, Wien, present designation (References in Wood & Bright c1992:961)

Diagnosis: Distinguished by the slender body; by the more abundant pubescence; by the confused punctures on the basal third of the elytra; and by other characters described below.

Male: Length 2.3 mm, 2.9 times as long as wide; color reddish brown. Frons distinctly, rather weakly convex from epistoma to upper level of eyes; surface shining, densely, rather coarsely, deeply punctured from epistoma to upper level of eyes; median carina acute, rather weak near epistoma, more strongly elevated on upper half (not at all dentate); vestiture of moderately long, rather abundant, fine hair; antennal club obovate, suture 1 septate, rather broadly procurved. Pronotum 1.1 times as long as wide; widest on basal half, sides weakly arcuate, rather narrowly rounded in front; anterior margin armed by a subserrate costa of about 12 serrations; summit at middle, indefinite; anterior slope coarsely, closely asperate, posterior areas shining, very closely, coarsely, deeply punctured; vestiture of rather short, abundant, semirecumbent hair uniformly distributed. Elytra 1.7 times as long as wide, 1.7 times as long as pronotum; disc occupying basal three-fourths of elytra length; striae not impressed except 1 on posterior two-thirds, punctures mostly not in identifiable rows especially on basal third; interstriae not clearly identifiable, punctures present and confused with those of striae, surface smooth, shining. Declivity broadly convex, steep; interstriae 1 weakly elevated, narrower than 2 or 3, shining, with a row of fine punctures from base to apex, 2 almost twice as wide as 1, smooth, shining, basal fourth and apical fourth with a row of very small punctures, 3 as wide as 2, as high as 1, with a row of moderately coarse, close punctures from base to apex. Vestiture of fine, shorter strial hair; and longer, coarser interstitial setae of moderate abundance, except absent on middle half of declivital interstriae 2.

Distribution: Argentina: Cordoba, Dep. Punilla-V. Hermoso, M.J. Viana; San Luis, San Francisco, 6-II-1958, W. Tomsic.

Notes: This species was named from a syntypic series in the collections of Schedl and Viana. Schedl labeled his specimen, now in NHMW, Wien, subsequent to the original description, as the "holotype" of this species. Because his action was contrary to policy given in the International Code on Zoological Nomenclature, I here designate his "holotype" as the male lectotype for *Neodryocoetes pubescens* Schedl, as indicated above. Three specimens from Argentina were examined.

Araptus plaumannianus Wood, n.n.

Plate CLV

Araptus plaumannianus Wood: Holotype ♂; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien, present designation, below
Araptus plaumanni (Schedl), 1976:70 (*Brachydendrolus*). Holotype, sex?; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien, preoccupied by Schedl 1970:102, treated below (References in Wood & Bright c1992:960)

Diagnosis: Distinguished from *carinifrons* (Blandford) by the more slender body form; by the absence of reticulation on the pronotum disc; and by the more strongly convex male frons, with a stronger median carina and obscure aciculation; the female frons is flattened, armed by a median carina, and ornamented by abundant, long hair.

Male: Length 1.7–1.8 mm, 3.0 times as long as wide; color dark reddish brown. Frons broadly, strongly convex from epistoma to well above upper level of eyes; a strong, acutely elevated median carina from near epistoma to well above upper level of eyes, weakly aciculate to upper level of eyes, punctures obscurely impressed; rugose-reticulate on vertex; vestiture of sparse, short hair, longer and more abundant on epistoma. Pronotum 1.16 times as long as wide; widest on basal half, rather broadly rounded in front; anterior margin armed by about 6 irregular serrations; summit at middle, anterior slope armed by numerous, rather small, confused asperities; smooth, shining, with many impressed points, punctures rather coarse, deep; sparse hairlike vestiture restricted to margins. Elytra 1.8 times as long as wide, 1.6 times as long as pronotum; striae 1 distinctly impressed on posterior half, others not impressed; interstriae about three times as wide as striae, smooth, shining, with many minute impressed points, few irregular lines, punctures almost absent. Declivity confined to posterior third of elytra length, steep, convex except weakly impressed on median half; interstriae 2 moderately impressed, 1 and 3 weakly elevated, 3–7 each with a row of fine punctures. Vestiture of minute hair on sides and lower declivity, each seta about equal in length to diameter of a strial puncture.

Female: Similar to male except frons weakly convex from epistoma to upper level of eyes, median carina present, ending above at upper level of eyes (rather strong), vestiture of rather abundant, long, pale yellow hair.

Distribution: Brazil: Nova Teutonia, Santa Catarina, Plaumann; Mato Grosso, RS/RGS 1948 Expedition 12°49'S, 51°46'W, 8-XI-1968, R.A. Beaver, c-46.

Notes: The above treatment was based on 5 specimens from Brazil (Beaver series), 1 of which was compared by me directly to the male holotype of *Brachydendrus plaumanni* Schedl (1976:70). Because this species actually belongs to the genus *Araptus*, it is here transferred to *Araptus*, where it became a junior homonym of *Breviophthorus plaumanni* Schedl (1970:102), which was transferred to *Araptus* from *Pityophthorus* (below). For this reason, the new name, *Araptus plaumannianus* Wood, is here proposed to replace *Brachydendrus plaumanni* Schedl, as indicated above. The male holotype and female allotype of *B. plaumanni* Schedl were examined.

Araptus brasiliensis (Schedl)

Araptus brasiliensis (Schedl), 1938:178 (*Neodryocoetes*). Holotype ♂; Brazil; NHMW, Wien (References in Wood & Bright c1992:953)

Diagnosis: Doubtfully distinct from *carinifrons* (Blandford), from Mexico, as described below.

Male: Length 1.8 mm, 2.2 times as long as wide; color dark reddish brown. Frons slightly more strongly convex, punctures distinctly larger and deeper than in *carinifrons*, carina distinctly higher. Pronotum about as in *carinifrons*, except punctures on disc distinctly larger and deeper than in *carinifrons*, each puncture normal, without a slightly elevated, shining margin; setae on disc sparse to absent (short, semirecumbent, rather abundant in *carinifrons*). Elytra with strial punctures slightly larger than in *carinifrons*, discal interstriae almost smooth, shining, irregularly impressed lines few in number and much weaker. Declivity not as steep as in *carinifrons*, more broadly rounded; interstriae 2 without any setae.

Distribution: Brazil: "Brasilien, Plaumann."

Notes: The above treatment was based on the male holotype. This name is given priority over *Breviophthorus brasiliensis* Schedl (1938:177), now a synonym of *Araptus gracilentis* Schedl, by right of first revisor preference. A female cotype in USNM, Washington, is 1.6 mm long and 2.9 times as long as wide and may not be this species.

Araptus columbianus (Schedl)

Araptus columbianus (Schedl), 1938:178 (*Neopityophthorus*). Holotype ♂; Colombia; NHMW, Wien (References in Wood & Bright c1992:954)

Diagnosis: Distinguished from *brasiliensis* (Schedl) by the smaller size; and by the more strongly impressed male frons on its lower fourth, the median carina more strongly, obtusely elevated on its lower half.

Male: Length 1.5 mm, 2.5 times as long as wide; color dark reddish brown. Frons similar to *brasiliensis*, except lower fourth with a rather abrupt, long, moderate transverse impression on almost full width of frons; median carina more obtuse, stronger on lower third, extending through transverse impression to epistomal margin; glabrous. Pronotum 1.1 times as long as wide;

similar to *brasiliensis*, except punctures on posterior areas closer; setae fine, very short, rather sparse. Elytra 1.5 times as long as wide, 1.5 times as long as pronotum; disc about as in *brasiliensis* except striae 1 moderately impressed to basal third. Declivity similar to *brasiliensis*, except punctures on striae 1 and 2 half as large as those of disc, much smaller than in *brasiliensis*; interstriae 2 slightly wider than 1 or 3, without any setae. Vestiture restricted to declivity, less numerous and shorter than on *brasiliensis*.

Distribution: Colombia: "Columbien."

Notes: The above treatment was based on the male holotype.

Araptus linearis (Schedl)

Araptus linearis (Schedl), 1938:174 (*Thamnophthorus*). Holotype ♂; Cochabamba, Bolivia; NHMW, Wien (References in Wood & Bright c1992:959)

Diagnosis: Allied to *plaumannianus* Wood except male frontal carina higher and body more slender.

Male: Length 2.1 mm, 3.3 times as long as wide; color of pronotum reddish brown, elytra yellowish brown. Frons moderately convex, smooth, shining, punctures very small, close, median carina similar to but stronger than in *plaumannianus*, highest near lower end, extending half distance between epistoma and upper level of eyes, gradually declining to well above upper level of eyes; vestiture of fine, rather short hair of moderate abundance, median fourth of epistoma with a rather dense cluster of setae as in *plaumannianus*. Pronotum 1.1 times as long as wide; widest on basal half, sides weakly arcuate, rather narrowly rounded in front; anterior margin armed by about 8 coarse serrations; summit at middle, coarsely asperate on anterior slope; posterior areas smooth, shining, punctures on disc replaced by small, rounded tubercles, punctures in lateral areas small, close, not at all tuberculate. Elytra 2.3 times as long as wide, 2.1 times as long as pronotum; disc occupying slightly more than posterior fourth; striae not impressed except 1 weakly, punctures small, in rows; interstriae less than twice as wide as striae, almost smooth, shining, some impressed points and irregular lines present, punctures absent except on 1 and 3 on posterior half or less. Declivity steep, broadly convex; striae 1 moderately impressed, small punctures evident, 2 and 3 indicated by rows of small punctures; interstriae 1 weakly elevated, with a row of very small punctures, 3 as high and as wide as 1, with a row of small punctures, 2 wider than 1 and ascending slightly to 3, and with 2 having many impressed points and small punctures at base only. Vestiture short, mostly limited to sides and declivity, consisting of minute strial hair, and sparse, erect short interstitial hair apparently on all interstriae except 2 on lower declivity.

Distribution: Bolivia: Cochabamba [Woytkowski].

Notes: The above treatment was based on the male holotype from Bolivia.

Araptus punctatissimus (Schedl)

Araptus punctatissimus (Schedl), 1938:179 (*Neodryocoetes*). Holotype ♂; Cochabamba, Bolivia; NHMW, Wien (References in Wood & Bright c1992:961)

Diagnosis: Very closely allied to *linearis* (Schedl) but male distinguished by the much shorter, less abundant frontal setae; by the presence of punctures on the elytral disc, each with a longitudinal crest on its lateral margin; and by the wider, more strongly impressed declivital interstriae 2.

Male: Length 1.7–1.8 mm, 3.1 times as long as wide; color very dark reddish brown. Frons broadly convex, shining, punctures small, most rather obscure; carina low, acute, extending from upper level of eyes two-thirds distance toward epistomal margin; vestiture short, sparse, inconspicuous, mostly on epistoma much less abundant than in *linearis*. Pronotum 1.1 times as long as wide; widest slightly behind middle of pronotum length, sides rather weakly arcuate, narrowly rounded in front; anterior margin with 4 weak serrations on median area; summit indefinite, at middle; anterior slope rather finely, closely asperate; posterior areas shining, with many impressed points, punctures small, deep, lateral margin of each with a shining, distinct, longitudinal elevation; vestiture of sparse, short hair mostly on asperate area. Elytra 1.8 times as long as wide, 1.7 times as long as pronotum; disc occupying basal three-fourths of elytra length; striae not impressed except 1 weakly on posterior half, punctures small, in definite rows; interstriae two to three times as wide as striae, smooth, shining, without punctures. Declivity broadly convex, steep; striae 1–3 indicated by small punctures, 1 moderately impressed; interstriae 2 and 3 slightly higher than 1, with 1 and 3 each having a row of small punctures. Vestiture mostly restricted to declivity, short, sparse, consisting of fine setae on odd-numbered interstriae.

Female: Similar to male except frons without a median carina, a weak crest below, broadly convex, almost smooth, shining, rather closely, finely punctured from epistoma to above upper level of eyes, vestiture of fine, rather long, uniformly distributed hair.

Distribution: Peru, Bolivia, Argentina, and Brazil.

Argentina: Prov. Buenos Aires, 1-II-1904, C. Bruch; Tigre, Buenos Aires, I-1938, M.J. Viana.

Bolivia: Cochabamba [Woytkowski] (type).

Brazil: Nova Teutonia [Santa Catarina], 27°11'N, 52°23'W, 7-X-1949, F. Plaumann.

Peru: Dep. Amazonas, Andes, near Chachapayas, 10-VIII-1936, 2000 m, F. Woytkowski.

Notes: The above treatment was based on the male holotype from Bolivia, on a male and an apparent female from Argentina, and on a female (used for the above description) from Brazil. All are in NHMW, Wien.

Araptus hostilis (Blackman)

Araptus hostilis (Blackman), 1942:189 (*Neodryocoetes*). Holotype ♂; intercepted at Washington in seeds from Rio Parana near

Balnearico, Municipal, Campana, BsAs Prov., Argentina; USNM, Washington. (References in Wood & Bright c1992:957)

Dianosis: Distinguished from *liminaris* Wood and *confinis* (Blandford) by the feebly impressed lower half of the male frons, with a weak, low, median carina on the lower third of the frons; and by the weakly impressed female frons, with coarse, close punctures, setae uniformly rather short, numerous.

Male: Length 1.9–2.1 mm, 2.7 times as long as wide; color reddish brown. Frons slightly impressed (plano-concave) on lower half, surface smooth, punctures on lower third minute, small above, rather sparse, setae sparse, minute, except longer on epistomal margin; antennal club moderately small, suture 1 weakly procurved. Pronotum 1.1 times as long as wide; sides weakly arcuate, rather narrowly rounded in front; anterior margin armed by 12 low serrations; summit near middle, indefinite; asperities coarse, close, confused; posterior areas smooth, shining, impressed points numerous, punctures rather large, not close; glabrous. Elytra 1.6 times as long as wide, 1.4 times as long as pronotum; striae not impressed, punctures rather small, deep, mostly in rows near base and near base of declivity, with numerous impressed points. Declivity steep, convex; striae 1 narrowly, moderately impressed, punctures minute, obscure, 2 and 3 not impressed, punctures as large as on disc; interstriae 1–3 with punctures very small, irregularly spaced; with numerous impressed points. Interstitial setae in rows mostly on posterior half, each rather stout, shorter than distance between rows (except on 9).

Female: Similar to male except frons weakly, transversely impressed on lower half, surface smooth, shining, coarsely, closely punctured from epistoma to upper level of eyes, carina absent, setae rather numerous, uniformly short.

Distribution: Rio Parana near Balneario, Municipal, Campana, Buenos Aires Prov., Argentina, 1972 and 1973, *Erythrina cristagalli* seeds, USNM No. 2025772 (holotype ♂, allotype ♀, 1 paratype).

Notes: The above treatment was based on the holotype, allotype, and 1 paratype.

Araptus liminaris Wood, n. sp.

Plate CLIII

Araptus liminaris Wood: Holotype ♂: 40 km E Canton, Barinas, Venezuela; USNM, Washington, designated below

Diagnosis: Superficially resembling *plaumannianus* Wood, except male median carina on frons reduced to a conical or laterally compressed tubercle, female frons broadly flat, smooth, brightly shining, impunctate, surrounded by a dense fringe of long hair; declivity moderately sulcate in both sexes.

Male: Length 1.5–1.8 mm, 2.7 (female 2.8) times as long as wide; color yellowish brown. Frons transversely impressed on lower half, strongly convex above to vertex, a moderately coarse, conical median tubercle at

middle; surface mostly smooth, shining below, a pair of small tubercles at bases of mandibles, obscurely subaculate above; sparse, short hairlike vestiture mostly on epistoma. Pronotum 1.2 times as long as wide; widest on basal half, anterior margin rather broadly rounded, armed by about 16 low serrations; summit at middle, anterior slope closely, coarsely asperate; posterior areas shining, almost smooth, with weak, longitudinal rugae on disc, punctures small, obscure, lateral areas without rugae, punctures more distinct; vestiture of very short hair on asperate area and near lateral margins. Elytra 1.7 times as long as wide, 1.5 times as long as pronotum; striae 1 weakly, others not impressed, punctures small, in rows, confused on basal third of 2; interstriae twice as wide as striae, almost smooth, impressed points partly to mostly obsolete, punctures obsolete. Declivity occupying posterior third, steep, moderately sulcate; striae punctures much smaller, not as deep as on disc; interstriae 2 moderately sulcate, impunctate, 1 slightly elevated, 3 moderately elevated, higher than 1, odd-numbered interstriae each with several punctures. Vestiture of minute striae hair on disc and lateral areas of declivity (most setae equal in length to diameter of a striae puncture), and sparse, erect setae on odd-numbered interstriae (mostly on declivity).

Female: Similar to male except frons almost flat eye to eye from epistoma to vertex, about half of central area smooth, impunctate, glabrous marginal areas minutely punctured and bearing a dense peripheral fringe of very long, yellow hair.

Distribution: Venezuela.

Type material: The male holotype, female allotype, and 27 paratypes were taken 40 km E Canton, Barinas, 8-III-1970, 70 m, No. 401, liana, SLW; 50 additional paratypes are from 13 km SW El Vigia, Merida, 22-X-1969, 100 m, No. 78, liana, SLW. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Biology: Boring in small stems.

Araptus guyanensis Wood, n. sp.

Araptus guyanensis Wood: Holotype ♂; Chemin de Rorota, French Guyane; USNM, Washington, designated below

Diagnosis: Distinguished from *tenuis* (Blackman), from Mexico, by the weak median elevation on the male frons, female frons broadly flattened; by the rather strongly reticulate pronotum; by the much more strongly impressed male frons; by the larger striae punctures; and by the more slender body form.

Male: Length 1.5–1.9 mm, 2.5 times as long as wide; color reddish brown. Frons moderately, triangularly impressed from epistoma almost to upper level of eyes, median elevation very short, at upper margin of impressed area; a pair of small, rounded tubercles at bases of mandibles; surface mostly shining in impressed area, reticulation on vertex; vestiture sparse, rather short on lateral thirds, long and abundant on epistomal margin. Pronotum 1.04 times as long as wide; widest on basal

half, sides weakly arcuate, subparallel, weakly constricted on middle half, anterior margin rather narrowly rounded; anterior margin broadly costate, crest of costa weakly serrate; summit indefinite, at middle, anterior slope rather finely, closely asperate; posterior areas reticulate, punctures rather coarse, deep, moderately close; vestiture mostly on asperate area, hairlike, very short. Elytra 1.56 times as long as wide, 1.56 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed, punctures rather large, in rows except slightly confused at base of 2; interstriae almost three times as wide as striae, smooth, shining, with numerous impressed points, punctures sparse on 1 and 3, almost as large as those of striae, 2 and 4 impunctate. Declivity strongly, rather narrowly convex, steep; striae 1 weakly impressed; sculpture about as on disc. Vestiture largely restricted to declivity; consisting of sparse rows of erect setae on odd-numbered interstriae, each seta rather short, blunt, slightly flattened.

Female: Similar to male except frons more uniformly convex, a fine median carina extending from near epistoma to upper level of eyes; frontal pubescence more abundant, more uniformly distributed, rather short except on epistoma.

Distribution: Panama and French Guyane, possibly to Brazil (Bahia).

Type material: The male holotype and 2 male paratypes were taken at Chemin de Rorota, French Guyane, 11-I-1991, granes de *Mucuna*, F. LeCorre. A non-type female, presumed to be this species, is labeled Barro Colorado Island, Canal Zone, Panama, 26-II-1976, *Pseudobombax* flower, A. Newton. The holotype and paratypes are in the U.S. National Museum, Washington.

Notes: Two males labeled Cepec, Ilheus, Bahia, 11-III-1981, blacklight, Kaston, might possibly be this species.

Araptus kirkendalli Wood, n. sp.

Araptus kirkendalli Wood: Holotype ♀; Estacion Biologica La Selva, Heredia, Costa Rica; USNM, Washington, designated below

Diagnosis: Distinguished from *nitidipennis* (Schedl) by the much smaller size; by the smooth, shining frons; by the smaller striae punctures and sparse interstriae punctures; and by the more narrowly rounded anterior margin of the pronotum and posterior margin of the elytra.

Female: Length 1.1 mm, 2.6 times as long as long as wide; color very dark reddish brown. Frons smooth, brightly shining, convex above, a feeble, transverse impression on lower third, punctures small, sparse above, minute toward epistoma; vestiture of fine, short, hairlike setae above, more abundant and slightly longer on lower third; antennal club rather small, oval, sutures weakly procurved. Pronotum 1.0 times as long as wide; widest near base, sides on basal half moderately arcuate, weakly constricted before narrowly rounded anterior margin; anterior margin feebly serrate; summit slightly anterior to middle of pronotum length; anterior

slope with asperities very small, sparse, confused; posterior areas smooth, shining, punctures not evident; sparse, short setae on asperate area. Elytra 1.6 times as long as wide; disc occupying basal 60 percent of elytra length; surface smooth, shining; striae not impressed; strial punctures very minute, not close, shallow; interstitial punctures obsolete on disc. Declivity moderately steep, narrowly convex, posterior profile narrowly rounded; strial punctures as on disc but less regular; sparse interstitial punctures bear a few setae mostly on lower half, a few widely scattered setae on sides.

Distribution: Costa Rica (Heredia).

Type material: The female holotype was taken at Estacion Biologica La Selva, Heredia, Costa Rica, 25-26-XI-1993, 50 m, *Ochroma pyramadales* petiole, L. Kirken-dall. The holotype is in the U.S. National Museum, Washington.

Araptus nitidipennis (Schedl)

Araptus nitidipennis (Schedl), 1963:57 (*Neodryocoetes*). Holotype, sex?; Maripaheuvel, Suriname; NHMW, Wien (References in Wood & Bright c1992:960)

Diagnosis: Distinguished from *laevigatus* (Eggers) by the more evenly convex elytral declivity, interstriae 2 as high and as wide as 1 or 3, with 1–4 each bearing a row of setae; discal interstriae 3 and 5 regularly punctured.

Female: Length 1.8 mm, about 2.5 times as long as wide; color dark reddish brown. Frons very broadly convex, punctures small, deep; surface reticulate above a line from antennal insertion to upper end of median carina, shining below this line; median carina stronger than in *laevigatus*, subacute from near epistoma to upper level of eyes; vestiture of fine, long, sparse hair, longer than in *laevigatus*; antennal club slightly shorter than scape, sutures 1 and 2 moderately, rather broadly procurved. Pronotum 1.04 times as long as wide; widest on basal half, sides weakly arcuate, broadly rounded in front; anterior margin armed by 16 serrations; summit near middle, anterior slope coarsely, closely asperate, declining rugae from some lateral asperities attaining basal third of pronotum; fine, rather short, hairlike vestiture restricted to asperate area. Elytra about 1.6 times as long as wide, 1.5 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed, punctures small, in rows; interstriae about twice as wide as striae, punctures rather regular on posterior half of disc. Declivity convex, steep; striae 1–3 not impressed, punctures smaller than on disc; interstriae 1–3 of equal width, 2 punctured as on 1 and 3. Vestiture of rows of erect interstitial setae mostly on declivity and sides, on disc extending to base on 1 and 3, setae slender, longest each about as long as distance between rows.

Distribution: Colombia to Suriname.

Colombia: Carton de Colombia forest 8 km S Colonia near Buenaventura, Valle de Cauca, 9-VII-1970, 30 m, No. 624, *Chusia*, SLW.

Suriname: Maripaheuvel.

Notes: The above treatment was based on the female holotype from Suriname and on 1 female from Colombia.

Araptus nitidulus (Schedl)

Araptus nitidulus (Schedl), 1967:11 (*Neodryocoetes*). Holotype ♀; Caioba, Parana, Brazil, 10 m, 25°55', 48°40'; NHMW, Wien (References in Wood & Bright c1992:960)

Diagnosis: Distinguished from *nitidipennis* (Schedl) by the smaller body size and black color; by the smooth elytral disc with no micropunctures; by the pronotum disc with almost no micropunctures and more conspicuous rugae; frons with no reticulation above, median carina stronger, longer; and by the more slender body form.

Female: 1.4 mm, 3.0 times as long as wide; color black. Frons moderately convex, shining, with no reticulation above, punctures small, rather numerous, median carina rather strongly, acutely elevated from near epistomal margin to vertex; vestiture of rather abundant, fine, rather long setae. Pronotum 1.1 times as long as wide widest on basal half, sides on basal half moderately arcuate, a slight constriction on anterior half, rather narrowly rounded in front; anterior margin armed by about 14 low serrations; summit indefinite, behind middle of pronotum length; anterior slope rather coarsely, closely asperate, some rugae continued to near base; disc smooth, shining, punctures obscure to obsolete; vestiture of sparse setae on asperate area and on lateral margins. Elytra 1.9 times as long as wide, 1.6 times as long as pronotum; disc occupying basal 62 percent of elytra length; striae not impressed, punctures in rows, rather small, distinctly impressed; interstriae smooth, brightly shining, about 1.5 times as wide as striae, impunctate except minute punctures near declivity. Declivity steep, rather narrowly convex; punctures on striae 1 and 2 smaller than on disc; interstriae each with a row of setiferous punctures. Vestiture of erect, rather stout interstitial setae mostly on posterior half of elytra, in regular rows on and near declivity, those on declivity slightly shorter than distance between rows.

Distribution: Brazil: Caioba, Parana, 25°50', 48°40', 10 m, IV-1965, F. Plaumann (holotype, 1 paratype).

Notes: The above treatment was based on the female holotype (not a male, as labeled), and 1 female paratype.

Araptus laevigatus (Eggers)

Araptus laevigatus (Eggers), 1933:6 (*Pityophthorus*). Holotype ♀; St Laurent du Maroni, French Guyane; MNHN, Paris (Synonymy and references in Wood & Bright c1992:958)

Neopithophthorus insularis Eggers, 1940:130. Holotype ♀; Trois Rivieres, Guadeloupe; NHMW, Wien, preoccupied by Eggers 1940:128

Neodryocoetes guadeloupensis Schedl, 1951:73. Holotype ♀; Trois Rivieres, Guadeloupe; NHMW, Wien

Diagnosis: Distinguished from *costaricensis* (Schedl) by the larger size and less slender body; by the larger punctures on the frons; by the dark color; and by the habit of breeding in fallen fruit.

Male: Length 1.2–1.3 mm, similar to female except metathoracic wings shorter than elytra (flightless); rare.

Female: Length 1.5–1.7 mm, 2.7 times as long as wide; color very dark reddish brown. Frons broadly convex, with an obtuse, subcarinate median crest from epistoma to upper level of eyes; surface smooth, shining, punctures varying from small to moderately large, deep; vestiture of sparse inconspicuous hair. Pronotum 1.17 times as long as wide; widest at base, sides feebly arcuate on basal half, rather broadly rounded in front; anterior margin armed by about 12 serrations; summit indefinite, about a third of pronotum length from anterior margin; anterior slope armed by small, confused, close asperities; posterior areas smooth, shining, with low, longitudinal remnants of asperities continued to near base. Elytra 1.6 times as long as wide, 1.5 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed, punctures small; interstriae two to four times as wide as striae; smooth, brightly shining, obsolescent impressed points obscurely indicated. Declivity convex, steep; interstriae 2 distinctly impressed, somewhat narrower than 1 or 3. Vestiture of sparse, erect interstitial setae on odd-numbered interstriae, almost as long as distance between rows, more widely spaced within a row.

Distribution: Guadeloupe Island, Costa Rica and Panama to Colombia (and Brazil?).

Brazil: Cited in Wood & Bright c1992:958 (requires varification).

Colombia: 27 km NE Montoya, Santander, 2-VII-1970, 150 m, *Cespedesia macrophylla*, SLW; San Isidro, Valle de Cauca, 16-II-1978, 0–200 m, *Brosimum utile*, Schmutzenhofer.

Hosts: *Brosimum utile*, *Cespedesia macrophylla*, *Cynometra hemitomophylla*, *Daphnopsis seibertii*, *Entada gigas* (Wood 1982:945).

Biology: Breed in fallen, overripe fruit and seeds on the forest floor.

Notes: The above treatment was based on 61 specimens from Costa Rica and Panama, and 2 from Colombia.

Araptus costaricensis (Schedl)

Araptus costaricensis (Schedl), 1938:180 (*Neodryocoetes insularis* var. *costaricensis*). Holotype ♀; Costa Rica; NHMW, Wien (References in Wood & Bright c1992:954)

Neodryocoetes nitidulus (Schedl), 1967:11 (*Neodryocoetes*). Holotype ♀; Caioba, Parana, Brazil, 10 m, 25°50', 48°40'; NHMW, Wien (References in Wood & Bright c1992:960). *New synonymy*

Diagnosis: Distinguished from *laevigatus* (Eggers) by the smaller size and more slender body; by the smaller punctures on the frons; by the pale color; and by the phloem breeding habit.

Male: Length 1.0 mm; similar to female except flight wings shorter than elytra, presumably haploid.

Female: Length 1.2–1.4 mm, 2.9 times as long as wide; color pale brown; as in female *laevigatus*, except as noted in the above diagnosis and key.

Distribution: Costa Rica and Panama to French Guyane.

Brazil: Caioba, Parana.

French Guyane: Petit-Sault, 5°4'N, 53°3'W, X-1989, H.P. Aberlenc.

Hosts: *Cecropia* leaf petiole, *Clusia* sp., *Ochroma pyramidales* petiole, a tree limb.

Biology: Apparently petiole and phloem breeders.

Notes: The above treatment was based on 23 specimens from Costa Rica and Panama, and 1 from French Guyane, which were compared to the holotype of *costaricensis*, and on the holotype and 2 paratypes of *nitidulus*, all of which were females, were compared by me directly to my series. The median carina on the frons of the Brazilian specimens is slightly higher.

Araptus jaliscoensis Wood, n. sp.

Araptus jaliscoensis Wood: Holotype ♀; Playa Perula, Jalisco, Mexico; USNM, Washington, designated below

Diagnosis: Distinguished from *laevigatus* (Eggers) by the absence of a median crest on the female frons; by the reduced size of striae punctures on the disc, and their absence on the declivity; and by the smaller size.

Female: Length 1.2 mm, about 1.8 times as long as wide (estimated); color dark reddish brown. Frons strongly, broadly convex on upper two-thirds, moderately, transversely impressed on lower third; surface shining below upper level of eyes, coarsely, deeply, rather closely punctured; vestiture of short, sparse hair, mostly near epistoma; antennal club rather small, sutures rather weakly arcuate. Pronotum 1.06 times as long as wide; widest on basal half, rather broadly rounded in front; anterior margin armed by about 14 rather coarse serrations; summit at middle; anterior slope coarsely, closely asperate; posterior areas almost smooth, shining, punctures very small, moderately close, most of those on discal area with lateral margin distinctly elevated; vestiture of short hair, mostly on sides and asperate area. Elytra 1.6 times as long as wide, 1.5 times as long as pronotum; disc occupying basal 70 percent of elytra length; striae not impressed, punctures in rows, minute on basal two-thirds of disc, obsolete near declivity. Declivity steep, convex; striae 1 and 2 mostly obsolete; surface mostly reticulate, sparse, very minute granules at base of some setae. Vestiture mostly confined to declivity, consisting of minute striae hair, and rows of erect setae on odd-numbered interstriae, about five to seven setae in each row except ten or more on 9.

Distribution: Mexico (Jalisco).

Type material: The female holotype and 1 female paratype were taken at Playa Perula, Jalisco, Mexico, 3-III-1982, 2 m, A. Equihua. The holotype and paratype are in the U.S. National Museum, Washington.

Araptus convexifrons Wood, n. sp.

Araptus convexifrons Wood: Holotype ♀; Tenaco Herrera, Peru; USNM, Washington, designated below

Diagnosis: Distinguished from *varius* Wood by the evenly, more strongly convex female frons, with no indication of a transverse impression above the epitoma, with punctures much smaller.

Female: Length 1.7 mm, about 2.6–2.7 times as long as wide (mounted on side); color rather dark reddish brown. Frons convex from epistoma to vertex, impression above epistomal margin feeble to obsolete; surface smooth, shining, impunctate on broad median line, punctures in lateral areas small, most indefinite; vestiture short, sparse on lateral areas below; antennal club 1.2 times as long as wide, oval, sutures 1 and 2 weakly arcuate, 1 partly septate. Pronotum 1.1 times as long as wide; sides weakly arcuate on basal two-thirds of pronotum length, widest one-third distance from base; anterior margin rather broadly rounded and armed by several low serrations (broken on type, about 10 serrations on paratype); summit slightly anterior to middle of pronotum length; anterior slope with asperities rather coarse, close, confused, some lateral crenulations attaining basal third; posterior areas smooth, brilliantly shining, sparse punctures obscure to obsolete; sparse setae on asperate area and on sides almost to base. Elytra about 1.7 times as long as wide, about 1.6 times as long as pronotum; disc occupying basal 60 percent of elytra length; disc smooth, shining, striae punctures small, shallow. Declivity rather steep, convex; striae 1 weakly impressed; striae punctures small, weak; a few interstriae punctures on 1–3. Vestiture of sparse interstriae setae, mostly on declivity and sides (short on type, abraded?; moderately long on paratype).

Distribution: Peru.

Type material: The female holotype and 1 female paratype were taken at Tenaco-Herrera, Peru, V-1991, ex noix de *Jessenia bataua*, G. Couturier. The holotype and paratype are in the U.S. National Museum, Washington.

Araptus splendidulus (Schedl)

Araptus splendidulus (Schedl), 1966:107 (*Neodryocoetes*). Holotype ♀; Corumba, Mato Grosso, Brazil; NHMW, Wien (References in Wood & Bright c1992:962)

Diagnosis: This is the only known member of the *laevigatus* group with a reticulate pronotum.

Female: Length 1.2–1.5 mm, 2.6 times as long as wide; color dark reddish brown. Frons broadly convex, a shallow, transverse impression immediately above epistoma, a short, subacute median carina from epistoma almost half distance to upper level of eyes; surface with numerous impressed points, punctures small, uniformly distributed; vestiture of sparse, rather short hair. Pronotum 1.06 times as long as wide; about as in *laevigatus*, except anterior margin armed by 10 serrations. Elytra 1.6 times as long as wide, 1.6 times as long as pronotum; disc occupying anterior two-thirds of elytra length; striae not impressed, punctures very small, obscure; interstriae about three times as wide as striae, shining, numerous rather coarse impressed points present, punctures small,

obscure, in rows to base. Declivity convex, steep; striae 1 distinctly impressed, striae punctures small, obscure, in rows to base. Declivity convex, steep; striae 1 distinctly impressed, striae punctures small, obscure; interstriae punctures replaced by weak granules. Vestiture of erect interstriae setae in uniseriate rows from base to apex, each seta slightly flattened, longest setae slightly longer than distance between rows, similarly spaced within a row.

Distribution: Mexico (Chiapas) to Brazil.

Mexico: Agua Azul, Chiapas, 17-IV-1984, 160 m, SM-258, *Phoradendron*, E. Saucedo.

Brazil: Corumba, Mato Grosso; Amazonas, Reserva Campinas, BR 174, km 44, 22-X-1979, #4365, ex *Parkia pendula*, M.J.G. Hopkins.

Notes: The above treatment was based on 5 females from Brazil (1 of these was compared by me directly to the female holotype), and on 5 females from Mexico. If this is not a labeling error, it suggests the existence of a widely distributed rare species.

Araptus varius Wood, n. sp.

Araptus varius Wood: Holotype ♀; Loreto, Santa Cecilia sur Rio Maniu (150 km d'Iquitos), Peru; USNM, Washington, designated below

Diagnosis: Distinguished by the very narrow, but not impressed, declivital interstriae 2; and by the more strongly convex male frons, the median profile rather strongly convex.

Female: Length 1.5–1.7 mm, 2.6 as long as wide; frons broadly concave, almost flat on median third, smooth, shining, impunctate on median third, very finely punctured on lateral areas; a low callus on median area above eyes, profile of frons from flat to weakly concave; vestiture of short, sparse, fine hair. Pronotum about as in *laevigatus*; anterior margin armed by 10 serrations. Elytra very similar to *laevigatus* (Eggers), except declivital interstriae 2 strongly constricted, not impressed.

Distribution: Mexico (Chiapas) to Brazil, Peru, and Suriname.

Type material: The female holotype and 3 female paratypes are labeled Perou: Loreto, Sta. Cecilia sur Rio Maniu (150 km d'Iquitos), 1933, A. Dolobel. The holotype and paratypes are in the U.S. National Museum, Washington. Additional non-types are from the following localities:

Mexico: Agua Azul, Chiapas, 17-IV-1984, 160 m, SM-258, E. Saucedo.

Brazil: Amazonas, Reserva Campinas, BR 174, km 44, 11-X-1979, *Parkia condula*, H.C. Hopkins; Parana, Curitiba, VI-1971, J.A. Winder.

Peru: Loreto, Santa Cecilia sur Rio Maniu (150 km d'Iquitos), 10 m, 1993, ex noix de Palmier de *Jessenia bataua*, G. Couturier.

Suriname: 1959, in drift.

Hosts: *Jessenia bataua*, *Parkia condula*.

Biology: The Peru series was removed from palm nuts.

Notes: The above treatment was based on 5 females from Brazil, 4 females from Peru, and 2 females from Suriname. The broad geographical range suggests a restricted habitat that was previously overlooked.

Araptus obesus Wood

Araptus obesus Wood, 1977:212. Holotype ♂; 18 km NE Oriximina, Brazil; CNCI, Ottawa (References in Wood & Bright c1992:960)

Diagnosis: Distinguished by the very stout body form and broad tibiae. From *crassulus* Wood (Panama) it is distinguished by the larger, less numerous asperities on the anterior slope of the pronotum; by the smoother posterolateral areas of the pronotum; and by the punctures on declivital interstriae 1–3 weakly elevated.

Male: Length 1.7–1.8 mm, 1.9 times as long as wide; color reddish brown. Frons broadly convex eye to eye from epistoma to vertex; middle half of median line on frons forming a low, obtuse, subcarinate elevation, a longitudinal row of 4–5 punctures bearing setae on each side of carina; vertex strongly reticulate, weakly reticulate below, punctures obscure to obsolete; antennal club slightly longer than scape, oval, very slightly longer than wide; sutures 1 and 2 broadly procurved, 1 feebly septate, 2 extending very slightly beyond middle, marked by a row of setae. Pronotum 1.0 times as long as wide; widest slightly behind middle of pronotum length, sides moderately arcuate on basal half, moderately constricted on anterior half, narrowly rounded and subserrate in front; summit at middle of pronotum length, indefinite, anterior slope rather finely asperate, some asperities attaining basal fourth, lateral areas with micropunctures. Elytra 1.16 times as long as wide, 1.4 times as long as pronotum; disc occupying basal half of elytra length; striae not impressed, punctures moderately large, rather deep; interstriae three times as wide as striae, punctures similar to those of striae. Declivity broadly convex, steep; interstriae about twice as wide as striae, punctures smaller than on disc, their anterior margin elevated, subtuberculate. Vestiture of interstitial rows of erect setae, each about six to eight times as long as wide, slightly flattened, each slightly shorter than distance between rows.

Female: Similar to male except frons evenly convex, without a weak median elevation.

Distribution: Brazil: 18 km NE Oriximina, 13-14-XI-1969, J.M. & B.A. Campbell.

Notes: The above treatment was based on the type series of *Araptus obesus* Wood.

Araptus minutissimus (Schedl)

Araptus minutissimus (Schedl), 1954:35 (*Brachydendrolus*). Syntypes, sex?; Rondon, Para, Brazil, 500 m; NHMW, Wien, and Plaumann collection (References in Wood & Bright c1992:959)

Diagnosis: Distinguished from *nanulus* Wood (Mexico) by the reduced, almost obsolete punctures on the elytral declivity; by the very short hair on the female frons

from epistoma to upper level of eyes, a brush of very long hair on the vertex; and by the reticulate pronotum.

Female: Length 1.2–1.3 mm, 3.0 times as long as wide; color reddish brown. Frons broadly convex from epistoma to vertex, sparsely punctured on lower half; vestiture very sparse, short on area below upper level of eyes, vertex ornamented by a dense fringe of very long hair. Pronotum 1.2 times as long as wide; widest on basal half, sides very weakly arcuate, anterior margin rather narrowly rounded and armed by about 18 serrations; summit well in front of middle, anterior slope closely, moderately asperate; posterior areas strongly reticulate, punctures very small, rather abundant, their lateral margin smooth, shining some of them weakly elevated; vestiture of fine, short, rather abundant hair. Elytra 1.7 times as long as wide, 1.4 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed, punctures small, decreasing in size toward base of declivity; interstriae twice as wide as striae (at base), shining, almost smooth, punctures not evident. Vestiture of rows of minute strial hair; a very few interstitial setae present at base.

Distribution: Brazil: Rondon, Para, 195_, 24°38'B, 54°07'L, 300–500 m, F. Plaumann.

Notes: The above treatment was based on 2 females from Brazil; 1 of these was compared by me directly to the holotype.

Araptus clusiae Wood, n. sp.

Araptus clusiae Wood: Holotype ♂; Rancho Grande, Pittier N.P., Aragua, Venezuela; USNM, Washington, designated below

Diagnosis: Remotely allied to *minutissimus* (Schedl), distinguished by the larger size; by the distinctly impressed strial punctures; by the very long elytral setae; and by the absence of reticulation on the pronotum disc.

Male: Length 2.2–2.4 mm, 2.6 times as long as wide; color reddish brown. Frons broadly convex to weak transverse impression above epistoma; median profile convex; surface reticulate, punctures moderately large, uniformly distributed; vestiture hairlike, sparse, very short; epistomal brush sparse, very weak. Pronotum 1.1 times as long as wide; widest on basal third; sides on basal half moderately arcuate, distinctly constricted on anterior half, rather narrowly rounded in front; anterior margin armed by 10 or more moderately coarse, basally connected serrations; summit indefinite, behind middle of pronotum length; anterior slope closely, rather coarsely asperate; posterior areas shining, minutely irregular, with many impressed points, punctures very small, moderately spaced; vestiture mostly obsolete, of very short, sparse hair on asperate area. Elytra 1.6 times as long as wide, 1.5 times as long as pronotum; disc occupying basal 70 percent of elytra length; striae not impressed, punctures rather small, mostly in rows; interstriae two to three times as wide as striae, punctures obsolete, surface shining, with many impressed points. Declivity convex, moderately steep, with no indication of a sulcus; striae

1–3 not impressed, punctures distinctly impressed, in rows; interstriae 1 feebly elevated, armed by three to five minute granules, 2 and 3 as wide and as high as 1, each interstriae 3 with about four minute granules. Vestiture restricted to declivity on odd-numbered interstriae, each with about two moderately long, slender setae.

Female: Similar to male in all respects except abdominal terga 8 and 9, and punctures on frons may average slightly smaller.

Distribution: Venezuela (Aragua).

Type material: The male holotype, female allotype, and 17 paratypes were taken at Rancho Grande, Pettier N.P., Aragua, 9-IV-1970, 1100 m, No. 405, *Clusia* limb, by S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Araptus chilensis (Schedl)

Araptus chilensis (Schedl), 1955:258 (*Conophthocranulus*). Lectotype ♀; Chile, Valparaiso, Algarrobo; NHMW, Wien, present designation (References in Wood & Bright c1992:954)

Diagnosis: Distinguished from *micropilosus* Wood by the coarse, deep punctures on declivital interstriae 1 and 2; by the much narrower declivital interstriae 2; and by the longer declivital setae.

Male: Similar to female except lateral thirds of epistoma strongly, acutely elevated, median third not elevated, an acutely, deeply impressed transverse groove on lateral thirds immediately above elevation, upper frons to vertex strongly convex.

Female: Length 1.9 mm (male 1.7 mm), 2.7 times as long as wide; color dark reddish brown. Frons moderately convex, epistomal margin distinctly elevated; surface smooth, shining, rather coarsely, closely punctured; vestiture sparse, hairlike, moderately long; antennal club with sutures weakly procurved, 1 septate. Pronotum 1.2 times as long as wide; widest on basal third, sides weakly arcuate, converging toward rather narrowly rounded anterior margin; anterior margin armed by 10 basally connected, rather coarse serrations; summit at middle; anterior slope rather coarsely, closely asperate; posterior areas shining, a few obscure punctures behind summit, transcending laterally into low, rounded nodules, then to low longitudinal rugae, punctures obscure to obsolete; vestiture of sparse, short hair mostly on asperate area. Elytra 1.5 times as long as wide, 1.3 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed, punctures coarse, deep, in rows; interstriae as wide as striae, smooth, shining, 1, 2 and posterior part of 4 with a row of small punctures. Declivity broadly convex, steep; striae 1 narrowly, weakly impressed, punctures on 1 to 3 rather coarse, deep; interstriae 1–3 of equal width and height, 1 and 3 each with a row of small punctures, 2 with a few punctures at base and near apex. Vestiture sparse, hairlike, mostly on sides and declivity on odd-numbered interstriae, slender, short, hairlike.

Distribution: Chile: Valparaiso, Algarrobo, 21-VII-1951, Kuschel & Pena.

Notes: Although based on a syntypic series (Schedl 1979:56) subsequent to the original description cited a female “holotype” contrary to instructions outlined by the International Code on Zoological Nomenclature. For this reason, I here designate the Schedl female syntype (labeled as the “holotype”) as the lectotype of this species and his male syntype as the lectoallotype for his *Conophthocranulus chilensis* Schedl, as indicated above.

Araptus gracilentus (Schedl)

Araptus gracilentus (Schedl), 1972:61 (*Neodryocoetes*). Holotype ♀; Pedra Azul, Minas Gerais, Brazil; NHMW, Wien (References in Wood & Bright c1992:957)

Breviophthorus brasiliensis Schedl, 1938:177. Holotype ♂; Sao Paulo, Brazil; NHMW, Wien, preoccupied by Schedl 1938:178, by first revisor choice (References in Wood & Bright c1992:984). *New homonymy, new synonymy*

Diagnosis: Distinguished from *micropilosus* Wood by the more slender body form; by having the central area of the female frons shallowly concave; and by a narrowly impressed median, shining area on the female frons from the epistoma almost to the upper level of the eyes.

Female: Length 1.4 mm, 3.0 times as long as wide; color very dark reddish brown. Frons somewhat flattened on median three-fourths from epistoma to well above upper level of eyes, upper area very shallowly concave; narrow median line forming an impressed, narrow shining area on most of length; vestiture of fine hair forming a peripheral fringe on sides and above; much of surface apparently, obscurely punctured (obscured on type by host resins); antennae missing from type. Pronotum 1.14 times as long as wide; widest on basal half, sides weakly arcuate, a slight constriction on anterior half, rather broadly rounded in front; anterior margin armed at median line by about 4 very weak serrations; summit indefinite, anterior to middle, anterior slope closely, finely asperate; posterior areas mostly smooth, shining, very obscure reticulation present on some areas, punctures moderately coarse, rather close; vestiture of fine, short, sparse hair mostly on asperate area. Elytra 2.0 times as long as wide, 1.7 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed except 1 weakly near declivity, punctures in rows, small, shallow; interstriae two to three times as wide as striae, almost smooth, shining, punctures not evident. Declivity convex, steep; striae 1 distinctly impressed, 2 and 3 not impressed, punctures as on disc; interstriae 1–3 of equal width, 1 feebly elevated, 1 and 3 each with one or two small punctures. Vestiture of minute striae hair in lateral areas, and sparse erect interstitial setae, about one to three short setae on each odd-numbered interstriae.

Distribution: Brazil: Pedra Azul, M. Gerais, XII-1970, F.M. Oliveira.

Notes: The above treatment was based on the female holotype of *Neodryocoetes gracilentus* Schedl (1972:61)

from Brazil (M. Gerais), and the male holotype of *Breviophthorus brasiliensis* Schedl (1938:177) from Brazil (Sao Paulo). Except that the holotype of *N. brasiliensis* Schedl (1938:178) is a male and the holotype of *N. gracilentus* is a female, I see no real differences between the taxa represented by these 2 names. Because the holotype of *B. brasiliensis* has both antennae missing and the frons is concealed by the pronotum from view, the name *Neodryocoetes brasiliensis* Schedl (1938:178), a junior homonym while both were in *Neodryocoetes*, is placed in synonymy until adequate material of both nominate species is found to review this problem. This action makes necessary the removal of *Breviophthorus*, type-species *B. brasiliensis* Schedl (1938:177), from synonymy under *Pityophthorus* and the transfer of *Breviophthorus* to synonymy under *Araptus*.

Araptus virtus (Schedl), n. comb.

Araptus virtus (Schedl), 1938:186 (*Pityophthorus*). Holotype ♂; Venezuela, probably Colonia Tovar, Aragua (References in Wood & Bright c1992:1033)

Diagnosis: Distinguished from *micropilosus* Wood, from Mexico, by the more slender body form; by the less strongly arched profile of the declivital suture and the more distinctly impressed striae 1 and interstriae 2 on the basal half of the declivity; and by the much more slender, slightly longer interstitial setae on the declivity.

Male: Length 1.4 mm, 2.7 times as long as wide; color dark reddish brown. Frons convex, reticulate, punctures smaller, less abundant, not as close as on male *micropilosus*; vestiture very sparse, reticulate, punctures smaller, less abundant, not as close as on male *micropilosus*; vestiture very sparse, short; both antennae missing from type. Pronotum 1.1 times as long as wide; widest on basal third, sides very weakly arcuate, rather narrowly rounded in front; anterior margin armed by about eight coarse serrations; summit at middle; anterior slope coarsely asperate; posterior areas rather strongly reticulate, punctures small, rather close, their lateral margin distinctly, weakly elevated; vestiture apparently short, hairlike, mostly abraded. Elytra 1.8 times as long as wide, 1.9 times as long as pronotum; disc occupying basal 70 percent of elytra length; striae not impressed except 1 narrowly near declivity; striae punctures mostly in rows, very small, shallow; interstriae at least three times as wide as striae, surface almost smooth, a few weakly impressed irregular lines and many impressed points present. Declivity rather steep, sutural profile much less strongly arched than in *micropilosus*; striae 1 narrowly, rather strongly impressed, punctures very small, weak, almost obsolete, punctures on 2 and 3 minute, very shallow; interstriae 1 narrowly, distinctly elevated, bearing a row of small tubercles, 2 wider than 1, moderately impressed on mesal side, ascending laterally, 3 slightly higher than 1, armed by a row of very minute tubercles. Vestiture of minute striae hair on sides and declivity, and rows of erect interstitial setae on and near declivity, most

almost equal in length to distance between rows, each seta slender, almost hairlike, present on all interstriae, including 2.

Distribution: Colombia to Venezuela.

Colombia: Piedras Blancas, 10 km E Medellin, Antioquia, 15-VII-1970, 2500 m, No. 671, *Radonea*, S.L. Wood.

Venezuela: 1858, Dr. Moritz (holotype apparently taken near the Moritz home in Colonia Tovar, Aragua); La Carbonera Experimental Forest 50 km NW Merida, Merida, 10-X-1969, *Nectandra*, SLW; Merida, Merida, 8-XI-1969, 1700 m, Compositae shrub, SLW.

Notes: The above treatment was based on the male holotype, on 34 specimens from Colombia, and on 64 from Venezuela which were compared by me to the holotype.

Araptus playonensis Wood, n.sp.

Araptus playonensis Wood: Holotype ♂; Playon, San Jose Prov., Costa Rica; USNM, Washington, designated below

Diagnosis: Distinguished from *xylotrupes* (Eichhoff) by the smaller size; by the profile of the male frons being distinctly concave, with a median subcarinate crest extending from the upper level of the eyes to the vertex; and by other characters described below.

Male: Length 1.5 mm, 2.7 times as long as wide; color very dark reddish brown. Frons strongly convex on upper areas, shallowly, transversely impressed from epistoma to upper level of eyes, profile of median line distinctly, weakly concave; area above upper level of eyes obscurely aciculate, median costa a low carina extending toward vertex; impressed area shining, mostly smooth, with sparse, fine punctures; vestiture restricted to lower area, of sparse, fine, short hair. Pronotum 0.96 times as long as wide; sides on basal half weakly arcuate, subparallel, broadly rounded in front; anterior margin armed by 8 rather coarse serrations; summit at middle of pronotum length, anterior slope rather coarsely asperate; basal areas weakly reticulate, shining, punctures very small, rather close; vestiture of short, sparse hair behind, slightly longer on asperate area. Elytra 1.5 times as long as wide, 1.5 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed except 1 near declivity, punctures small, shallow; interstriae 1–3 smooth, shining, with many impressed points, punctures present on 1 and 3 near declivity. Declivity convex, steep; striae 1 narrowly, distinctly impressed; interstriae 1–3 about equal in width, sculpture about as on disc, 1 and 3 each with a row of small punctures. Vestiture mostly restricted to declivity, consisting of sparse rows of slightly flattened, erect setae on odd-numbered interstriae.

Distribution: Costa Rica.

Type material: The male holotype was taken at Playon, San Jose Prov., 9-VIII-1963, 15 m, No. 118, Leguminosae shrub, SLW. The holotype is in the U.S. National Museum, Washington.

Araptus epistomalis Wood, n. sp.

Araptus epistomalis Wood: Holotype ♂; La Mixtequita, Oaxaca, Mexico; USNM, Washington, designated below

Diagnosis: Distinguished from *playonensis* Wood by the more strongly convex, coarsely punctured male frons, with no aciculation or median carina; by the narrow, transverse impression immediately above the male epistoma; by the unique female frontal vestiture; by the coarse punctures on the smooth pronotum disc; and by the presence of granules on the male elytral declivity.

Male: Length 1.3–1.6 mm, 2.7 times as long as wide; color very dark reddish brown. Frons convex, median profile clearly convex; surface smooth, shining, coarsely punctured, with no aciculation or median carina; a narrow, transverse impression immediately above epistoma from mandible to mandible. Pronotum 1.1 times as long as wide; sides almost straight and parallel on basal half, anterior margin rather narrowly rounded; anterior margin an almost continuous costa; summit at middle of pronotum length, anterior slope coarsely asperate; posterior areas smooth, shining, with many impressed points, punctures rather coarse, close; vestiture hairlike, restricted to asperate area. Elytra 1.5 times as long as wide, 1.4 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed except 1 on posterior third of disc, punctures in rows, rather large on basal half, smaller near declivity. Declivity steep, mostly convex, narrowly impressed on striae 1; punctures on striae 1 and 2 reduced, almost obsolete; interstriae 1–3 almost smooth, shining, punctures on 1 sparse, very small, obsolete on 2, replaced by rounded granules on 3. Vestiture mostly restricted to declivity, consisting of sparse, erect setae on odd-numbered interstriae.

Female: Similar to male except female with a brush of very long hair along epistoma; declivital interstriae 1 and 3 with punctures replacing granules.

Distribution: Mexico (Oaxaca).

Type material: The male holotype, female allotype, and 6 paratypes were taken at La Mixtequita, Oaxaca, Mexico, S-260, 180 m, 20-V-1981, A. Equihua. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Araptus xylotrupes (Eichhoff)

Araptus xylotrupes (Eichhoff), 1872:135 (*Pityophthorus*). Syntypes, sex?; Bahia, Brazil; IRSNB, Brussels (References in Wood & Bright c1992:963)

Diagnosis: Male frons with a low, conspicuous median carina of uniform height from epistoma to vertex, female carina similar, weaker; male declivital interstriae 3 unarmed by tubercles.

Male: Length 2.0–2.4 mm, 2.6 times as long as wide; color very dark reddish brown. Frons broadly, strongly convex from epistoma to vertex; surface shining, densely, rather coarsely punctured over entire surface; a low median carina from slightly above epistoma to vertex,

acutely elevated below, crest obtusely elevated and transversely etched above; vestiture very short, rather abundant. Pronotum 1.06 times as long as wide; widest on basal half, sides weakly arcuate, rather broadly rounded in front; anterior margin armed by about 6 weak serrations; summit indefinite, in front of middle of pronotum length, anterior slope closely, rather coarsely asperate; posterior areas smooth, shining, punctures rather coarse, close, deep. Elytra 1.6 times as long as wide, 1.5 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae 1 narrowly impressed near base of declivity, others not impressed, punctures rather small, deep, decreasing in size toward base of declivity; interstriae about three times as wide as striae, surface smooth, shining, with many impressed micropunctures and a few impressed irregular lines. Declivity convex, steep, shallowly impressed at striae 1; striae 1 narrowly impressed on upper two-thirds, small punctures present on 1–3; interstriae smooth, shining, with many micropunctures, 2 impunctate, 1 and 3 each with a row of punctures almost as large as those of striae. Vestiture of sparse, erect setae on odd-numbered interstriae mostly on declivity, setae short.

Female: Similar to male except body 2.8 times as long as wide, frons more broadly convex, median carina much weaker, punctures smaller, setae longer, more numerous.

Distribution: Brazil (Bahia, Sao Paulo) to (?) Venezuela (Aragua).

Brazil: Bahia; Piracicaba, Sao Paulo, 7-VI-1971, ex *Passiflora*, L.C. Rocha.

?Venezuela: "Dr. Moritz 1858 (Apparently taken near the Moritz home at Colonia Tovar, Aragua).

Notes: The above treatment was based on 6 specimens from Brazil, originally in my collection, now in USNM, Washington. Two of these males were compared directly by me to presumed syntypes of *Pityophthorus xylotrupes* Eichhoff identified by Eichhoff, which were sent by him to Chapuis and now in IRSNB, Brussels. A female of this species identified as "*Pityophthorus ? languidus* Eichhoff" and labeled "Dr. Moritz 1858, Venezuela, Nonus Columb. Mor." is in NHMW, Wien. Although the frons of this specimen is hidden by the pronotum and both antennae are missing, this female appears to be of *xylotrupes*, even though the labels suggest an origin far from the known distribution of this species.

Araptus volastos (Schedl)

Araptus volastos (Schedl), 1938:175 (*Thamnophthorus*); Holotype, sex?; Cochabamba, Bolivia; USNM, Washington (References in Wood & Bright c1992:963)

Diagnosis: The holotype apparently is a female (?), the antennae are not clearly visible, and the body is significantly larger than allied species in the above key. For these reasons, it could be entirely unrelated to the position where it is placed. It appears to be more closely related to *xylotrupes* (Eichhoff) than to other species at hand.

Female (?): Length 2.6 mm, 2.8 times as long as wide; color moderately dark reddish brown. Frons distinctly convex, a weak, transverse impression on lower half; punctures apparently small, not deep; vestiture of moderate abundance, uniformly short, about one-third as long as setae on epistoma; antennal club about as long as scape, broadly oval, sutures moderately procurved. Pronotum 1.1 times as long as wide, widest on basal fourth, sides feebly arcuate on basal two-thirds rather narrowly rounded in front; anterior margin armed by about 12 very small serrations; summit indefinite, well behind middle of pronotum length; asperities on anterior slope numerous, low, confused; disc on slightly more than basal third of pronotum length on median half of pronotum width smooth, shining, with many impressed micropunctures (feeble reticulation at basal margin), punctures rather small, deep; short, fine, hairlike setae on asperate area and on sides near lateral margin to base. Elytra 1.7 times as long as wide, 1.7 times as long as pronotum; disc occupying basal 75 percent of elytra length; striae not impressed except 1 weakly to base, small punctures in rows, except 2 slightly confused, surface smooth, shining, with many micropunctures and a few impressed lines. Declivity basically convex, with a shallow sulcus on lower two-thirds from striae 1–3, groove on 1 continued cephalad to base; punctures on striae 1 and 2 smaller than on disc and continued to near apex, interstitial punctures of 3 at summit and continued to base. Sparse, short setae on declivital interstriae 1, 3, and lateral areas on and near base of declivity.

Bolivia: Cochabamba.

Notes: The above treatment was based on a paratype of *Thamnophthorus volostos* Schedl, a presumed female.

Araptus falaciosus Wood, n. sp.

Araptus falaciosus Wood: Holotype ♂; Cepec, Ilheus, Bahia, Brazil; USNM, Washington, designated below.

Diagnosis: Distinguished from *eruditus* (Schedl) (Mexico to Central America) by the more strongly convex, wider male frons, its median third almost impunctate; by the narrower, shallower declivital impression with tubercles on interstriae 1 and 3 much smaller, absent at base of 2; by the female frons being smooth, shining and impunctate on median third; and by male tergum 8 on abdomen weaker, sternum 5 not modified.

Male: Length 1.3–1.6 mm, 2.8 times as long as wide; color yellowish brown to light reddish brown. Frons broadly, shallowly concave on lower (visible) half, surface smooth, brightly shining, impunctate, a tuft of long hair on vertex; posterolateral margin of mandible armed on basal half by a conspicuous tubercle. Pronotum 1.3 times as long as wide; widest near base, sides on posterior two-thirds weakly arcuate and converging slightly to broadly rounded anterior margin; anterior margin armed by about 10 low serrations; summit anterior to middle of pronotum length, anterior slope rather coarsely asperate; posterior areas shining, rather coarsely, closely

punctured; vestiture of short hair on asperate area. Elytra 1.7 times as long as wide, 1.5 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed except 1 moderately near declivity; interstriae less than twice as wide as striae, almost smooth, shining, impunctate except 1 and 3 near declivity. Declivity convex, steep, shallowly impressed at striae 1; surface obscurely shagreened; although striae 1 narrowly impressed, punctures not evident, punctures on 2 and 3 greatly reduced in size and depth; interstriae 1 and 3 with a few punctures, obscure on 1, with 2 having a short uniseriate row of punctures. Sternum 5 deeply, broadly emarginate.

Female: Similar to male except frons weakly convex, median fifth smooth, shining, impunctate, setae short, more widely distributed on lateral thirds; median fifth of apical half of sternum 5 forming a conspicuous, blunt process (similar to but stouter and broader than in *eruditus*), tergum 8 dorso-ventrally, strongly flattened, its posterior margin very acute; median half of pronotum disc partly reticulate.

Distribution: Brazil (Bahia).

Type material: The male holotype, female allotype, and 4 paratypes were taken at Cepec, Ilheus, Bahia, Brazil, 11-III-1981, blacklight, Kaston; 1 paratype is from Brazil: [Mato Grosso], RS/RGS Exp., 12°49'S, 51°46'W, 19-X-1968, B47/9, R.A. Beaver. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Araptus micrographus (Schedl), n. status

Araptus micrographus (Schedl), 1972:60 (*Breviophthorus*). Holotype ♀; Jacareacanga, Para, Brazil; NHMW, Wien (References in Wood & Bright c1992:1012)

Pityophthorus micrograptinus Wood, 1989:179. Holotype ♀; Jacareacanga, Para, Brazil; NHMW, Wien, an unneeded replacement name when transferred to *Araptus*, below

Diagnosis: Distinguished from *vesculus* Wood and *dubius* Schedl by the more gradual elytral declivity, with interstriae 2 much more strongly, broadly impressed, with the lateral crest on interstriae 3 higher and more narrowly rounded, setae on sutural interstriae not exactly erect but sloping laterad at 45 degrees.

Female: Length 1.4 mm, 3.0 times as long as wide; color reddish brown. Frons concealed from view by pronotum on type. Pronotum 1.2 times as long as wide; widest on basal half; sides feebly arcuate on basal half, rather narrowly rounded in front; anterior margin armed on median area by 6–8 weak serrations; summit near middle of pronotum length; anterior slope coarsely asperate; posterior areas almost smooth, punctures small, obscure; vestiture mostly abraded on type, apparently of sparse, short hair on asperate area. Elytra 1.9 times as long as wide, 1.5 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed except 1 narrowly near declivity, punctures minute; interstriae about four times as wide as striae, smooth, shining, with numerous impressed points,

impunctate. Declivity not as steep as in allied species, moderately sulcate; striae 1 and 2 with punctures obsolete; interstriae 1 very weakly elevated, its crest marked by about six minute, weakly subgranulate punctures, 2 moderately impressed, much wider than 1, smooth, brightly shining, 3 much higher than 1, rather abruptly elevated to narrowly rounded crest, crest with a row of minute, subgranulate punctures. Vestiture limited to declivity, of very sparse, minute strial hair, and sparse interstitial setae, these setae erect except on 1, interstitial setae on 1 diverge at about 45 degrees away from suture.

Distribution: Brazil: Jacareacanga, Para, XII-1969, F.R. Barbosa.

Notes: The above treatment was based on the female holotype of *Breviophthorus micrographus* Schedl from Brazil. *B. micrographus* Schedl (1972:60) was transferred to *Pityophthorus* when *Breviophthorus* became a synonym of *Pityophthorus* (Wood 1984:227). When the type series of this species was examined, it was found to be a composite of 3 species all belonging to the genus *Araptus*. Therefore, *Breviophthorus* must be removed from synonymy with *Pityophthorus* and added to synonymy with *Araptus*. Because *Pityophthorus micrographus* Linnaeus now belongs to a genus different from *Araptus* (= *Breviophthorus*), *A. micrographus* Schedl (1972:60) is no longer a junior homonym and is automatically removed from homonymy with the Linnaeus species. The Code now permits the restoration of *micrographus* (Schedl 1972:60) to valid status.

Araptus dubius (Schedl)

Araptus dubius (Schedl), 1966:105 (*Neodryocoetes*). Holotype ♂; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:955)

Diagnosis: Distinguished from *vesculus* (Wood) by the smooth, shining pronotum disc; by having declivital interstriae 1 unarmed by tubercles; and by the male frons bearing a pair of lateral protuberances. The male type is in poor condition; adequate series may prove this to be allied to *tabogae* (Blackman).

Male: Length 1.6 mm, 2.7 times as long as wide; color dark reddish brown. Frons largely concealed by pronotum; lower area bearing a pair of lateral protuberances above a transverse epistomal groove [reminiscent of male *chilensis* (Schedl) or *tabogae*], median fifth an apparent wide groove extending dorsad. Antennae missing from type. Pronotum 1.0 times as long as wide; widest on basal third, a weak constriction on anterior third; anterior margin rather narrowly rounded, armed near median line by about 6–8 very weak, obscure serrations; summit near middle; anterior slope rather finely, closely asperate; posterior areas mostly shining, punctures small, obscure. Elytra 1.7 times as long as wide, 1.7 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed except 1 from declivity almost to base, punctures small, in definite rows; interstriae two to three times as wide as striae, mostly

smooth, shining, with many impressed points, a few irregular lines. Declivity steep, shallowly bisulcate; striae 1 moderately impressed, punctures of 1 and 2 mostly obsolete on surface; interstriae 1 distinctly elevated, narrower than 2, not as high as 3, without punctures or tubercles, 2 ascending laterally, shining, without punctures, 3 as wide as 1, with a sparse row of punctures, anterior margin of some punctures very feebly elevated into a minute granule. Vestiture of sparse interstitial setae on odd-numbered interstriae, each with about one to four slender setae.

Distribution: Brazil: Nova Teutonia [Santa Catarina], 27°11'B, 52°23'L, VI-1957, 300–500 m, F. Plaumann.

Notes: The above treatment was based on the male holotype from Brazil.

Araptus obscurus (Eggers)

Araptus obscurus (Eggers), 1936:390 (*Neodryocoetes*). Holotype, sex?; Blumenau, Santa Catarina, Brazil; USNM, Washington (References in Wood & Bright c1992:960)

Diagnosis: Possibly allied to *gracilis* (Schedl) but distinguished by the larger, stouter body form; by the very different female frons; by the evenly convex declivity; and by the very sparse, short elytral vestiture.

Female: Length 2.2 mm, 2.5 times as long as wide; color dark reddish brown. Frons broadly convex, a very weak transverse impression above epistoma; surface weakly reticulate, punctures rather small, of irregular size, moderately close; vestiture of rather sparse, short, fine, uniformly distributed hair; antennal club broadly obovate, suture 1 septate, weakly procurved, 2 not indicated by setae. Pronotum 1.1 times as long as wide; widest on basal third, sides weakly arcuate, rather narrowly rounded in front; anterior margin armed by more than 12 basally connected, weak serrations; summit at middle of pronotum length; anterior slope rather coarsely, closely asperate; posterior areas moderately reticulate, punctures rather small, close, each with its lateral margin slightly elevated and shining; vestiture hairlike, sparse, short, mostly on sides and asperate area. Elytra 1.5 times as long as wide, 1.5 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed except 1 weakly to base, punctures small, mostly in rows except slightly confused at base; interstriae two to three times as wide as striae, surface smooth, shining, with numerous impressed points, a few irregular lines. Declivity broadly convex, moderately steep, very weakly bisulcate; striae 1 moderately impressed, punctures on 1–3 small, in rows; interstriae 1 narrow, weakly elevated, with a row of very small punctures, 2 much wider than 1, ascending slightly laterad, 3 slightly higher than 1, small punctures not granulate. Vestiture of minute strial hair on sides and lower declivity, and erect interstitial setae on odd-numbered interstriae, each seta short, its length about equal to half width of an interstriae.

Distribution: Brazil: Blumenau [Santa Catarina].

Notes: The above treatment was based on 2 female cotypes from Brazil.

Araptus plaumanni (Schedl)

Araptus plaumanni (Schedl), 1970:102 (*Breviophthorus*). Holotype ♂; Bocaiuva, Para, Brazil, 25°08', 49°04', 1000 m; NHMW, Wien (References in Wood & Bright c1992:1021)

Diagnosis: Distinguished from *obscurus* (Eggers) by the smaller size; by the much more strongly impressed declivital sulcus, with the punctures on striae 1 and 2 entirely obsolete, and with interstriae 1 armed by a row of granules and 3 armed by small, pointed tubercles.

Male: Length 1.1 mm, 2.4 times as long as wide; color dark reddish brown. Frons broadly convex eye to eye from epistoma to above upper level of eyes; surface reticulate, punctures minute, uniformly, sparsely distributed; vestiture of fine, short hair above, distinctly longer below. Pronotum 1.06 times as long as wide; widest on basal third; sides weakly arcuate on basal half, rather narrowly rounded in front; anterior margin armed by about 10 serrations; summit at middle of pronotum length; anterior slope closely asperate; posterior areas weakly reticulate, punctures rather small, deep, close; vestiture of short, sparse hair on asperate area and near lateral margins. Elytra 1.6 times as long as wide, 1.5 times as long as pronotum; disc occupying basal 70 percent of elytra length; striae not impressed except 1 moderately on posterior fourth of disc; striae punctures small, in rows; interstriae two to three times as wide as striae, shining, almost smooth, with many impressed points, impunctate except 1 near declivity. Declivity steep, rather strongly bisulcate; striae 1 and 2 with punctures entirely obsolete; interstriae 1 narrowly, moderately elevated and armed by a sparse row of small, rounded tubercles, 2 strongly impressed, conspicuously wider than 1, smooth, shining, impunctate, 3 slightly higher than 1, crest rather narrowly rounded and armed by a row of small, pointed tubercles. Vestiture mostly confined to declivity, of minute striae hair on lateral areas, and rows of erect setae on odd-numbered interstriae.

Distribution: Brazil: Bocaiuva, Para, 25°08', 49°04', 1000 m, V-1964, F. Plaumann.

Notes: The above treatment was based on the male holotype. This species is here transferred to *Araptus* from *Pityophthorus* (Wood & Bright c1992:1021). The female allotype of *Breviophthorus plaumanni* is another species quite unrelated to the holotype and is named above as *Araptus subaciculatus* Wood. These species should not be confused with *Brachydendrulus plaumanni* Schedl (1976:70), which was renamed above as *Araptus plaumannianus*.

Araptus gracilis (Schedl)

Araptus gracilis (Schedl), 1966:106 (*Neodryocoetes*). Holotype ♂; Isla Maria Garcia, Buenos Aires, Argentina; NHMW, Wien (References in Wood & Bright c1992:957)

Diagnosis: Allied to *dubius* (Schedl) but distinguished by the smaller size; by the male frons; and by the slender form.

Male: Length 1.4 mm, 2.9 times as long as wide; color very dark brown, almost black. Frons convex, with an impression on median third of epistoma extending dorsad from margin (upper frons concealed by pronotum on type, lower area mostly covered by resins). Antennal club almost circular in outline, suture 1 septate, moderately procurved, 2 not evident. Pronotum 1.1 times as long as wide; widest on basal half, sides moderately arcuate, rather narrowly rounded in front; anterior margin weakly irregular in median area, without definite serrations; summit at middle of pronotum length; anterior slope coarsely, closely asperate; posterior area irregular, punctures small, indefinite, lateral areas with indefinite rugae, punctures small, obscure; vestiture hair-like, sparse, short. Elytra 1.7 times as long as wide, 1.6 times as long as pronotum; disc occupying two-thirds of elytra length; striae not impressed except 1 moderately on posterior two-thirds of disc, punctures in rows to base, small, shallow; interstriae about three times as wide as striae, surface almost smooth, impunctate except 3 near declivity. Declivity steep, convex, very weakly bisulcate; striae 1 moderately impressed, punctures obsolete, 2 with punctures minute, apparently obsolete before apex; interstriae 1 weakly elevated, rather narrow, with a sparse row of minute granules, 2 weakly impressed, twice as wide as 1, smooth, impunctate, 3 as high as 1, with a row of very minute granules. Vestiture of very minute striae hair in lateral areas on declivity, and very sparse, short, erect, interstitial setae on odd-numbered interstriae.

Distribution: Argentina: Isla Martin Garcia, Buenos Aires, I-1938, M.J. Viana.

Notes: The above treatment was based on the male holotype of *Neodryocoetes gracilis* Schedl.

Araptus spiculatus Wood, n. sp.

Araptus spiculatus Wood: Holotype ♂; La Carbonera Experimental Forest 50 km NW Merida, Merida, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *refertus* Wood, from Central America, by the slightly smaller size; by the reticulate frons and pronotum disc; by the weak, median, subcarinate elevation at epistoma; and by the more strongly convex, more coarsely punctured female frons, without a tuft of long hair.

Male: Length 1.4–1.9 mm, 2.8 times as long as wide; color very dark reddish brown. Frons strongly convex, coarsely, rather closely punctured, reticulate; an obtuse median crest above upper level of eyes, becoming weakly subacutely carinate at and near epistoma; vestiture of very sparse, short hair. Pronotum 1.2 times as long as wide; widest on basal half, sides weakly arcuate, broadly rounded in front; anterior margin armed by about 10 coarse serrations; summit at middle of pronotum length;

anterior slope coarsely asperate; disc reticulate, punctures varying from small to moderate in size, median line impunctate; hairlike vestiture sparse, short, mostly restricted to asperate area and sides. Elytra 1.8 times as long as wide, 1.7 times as long as pronotum; disc occupying basal 70 percent of elytra length; striae not impressed, except 1 weakly, punctures small, in rows; interstriae twice as wide as striae, mostly smooth, shining, with many impressed, irregular lines and a few impressed points. Declivity steep, shallowly bisulcate; striae 1 moderately impressed, punctures very small, obsolete before apex; striae 2 not impressed, punctures minute, distinct; interstriae 1 moderately elevated and armed by a row of minute, pointed denticles, 2 as wide as 1 and ascending laterally very slightly (sometimes with one or two minute denticles in lower half [compare to female]), surface somewhat smooth, 3 slightly higher than 1, crest somewhat broadly rounded, armed by a row of five or more small, pointed denticles. Vestiture mostly restricted to declivity and sides, consisting of rows of minute strial hair and erect, rather short interstitial hair on (apparently) all declivital interstriae but mostly shorter and less numerous on even-numbered interstriae.

Female: Similar to male except slightly larger in size, frons with carina at epistoma weak to obsolete, crest above obscure, setae slightly longer; declivital interstriae 2 with a row of four to six small denticles (spicules) equal in size to those on 3.

Distribution: Venezuela (Merida).

Type material: The male holotype, female allotype, and 30 paratypes were taken at La Carbonera Experimental Forest 50 km NW Merida, Merida, Venezuela, 27-X-1969, 2500 m, S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Araptus praeivius Wood, n. n.

Araptus praeivius Wood: replacement name, for *Araptus frontalis* Wood (1974:52).

Araptus frontalis Wood, 1974:52. Holotype ♀; Volcan Zunil, Quezaltenango, Guatemala, 1000 m; USNM, Washington, preoccupied by Schedl 1967:8 (References in Wood & Bright c1992:956)

Notes: The female holotype of *Breviophthorus frontalis* Schedl (1967:8) was examined. This name was incorrectly referred to *Pityophthorus* by Wood & Bright (c1992:999). The female holotype is clearly a member of the genus *Araptus* and is closely allied to *beaveri* Wood in the key above. Because *A. frontalis* Wood (1974:52) is preoccupied by Schedl (1967:8), the new replacement name, *Araptus praeivius* Wood, is proposed, as indicated above. This species is from Guatemala.

Araptus corpulentus (Schedl)

Araptus corpulentus (Schedl), 1973:371 (*Neodryocoetes*). Holotype ♂; Guayaramerin, Beni, Bolivia; NHMB, Budapest (References in Wood & Bright 1992c:945)

Diagnosis: Male distinguished from *coumacomis* Wood by the absence of a median epistomal tubercle; by the larger, stouter body form; and by the presence of several transverse rugae near the base of the pronotum disc.

Male: Length 2.5 mm, 2.3 times as long as wide; color dark reddish brown. Frons mostly convex, very shallowly, transversely impressed from unarmed epistomal margin to near upper level of eyes (obscured on type by pronotum); surface smooth, shining, with many very small punctures; vestiture sparse, short, inconspicuous. Pronotum 1.0 times as long as wide; widest near base, sides weakly arcuate on basal half and converging slightly toward narrowly rounded, costate anterior margin (feebly subserrate); summit at middle of pronotum length; anterior slope with asperities rather coarse, close, confused; area on median half from basal margin almost to summit with several low, transverse rugae, lateral areas on basal third smooth, with small, shallow punctures; glabrous. Elytra 1.3 times as long as wide, 1.3 times as long as pronotum; disc occupying basal 71 percent of elytra length; punctures rather strongly impressed, punctures from suture to striae 3 strongly confused, punctures on lateral areas in strial and interstitial rows (of equal size). Declivity very steep, sulcus at interstriae 2 moderately impressed, punctures on striae 1 and 2 small, shallow, weakly impressed, a row of small, shallow, weakly impressed punctures on interstriae 2; interstriae 1 and 3 moderately elevated (3 higher) and each armed by a row of four small, blunt denticles. Tubercles on 1, 3, and lateral areas each bearing a rather stout seta.

Distribution: Bolivia: Outskirts of Balogh, Guayaramerin, Beni, 22-XI-1966, lamping No. 391.2, Mahunka, Soil Zoological Exp.

Notes: The above treatment was based on the male holotype.

Araptus coumacomis Wood, n. sp.

Araptus coumacomis Wood: Holotype ♂; 8 km S Colonia, Valle de Cauca, Colombia; USNM, Washington, designated below

Diagnosis: Antennal club with suture 1 moderately procurved, 2 obscure; male frons moderately, transversely impressed to upper level of eyes (no carina or tubercles), declivital interstriae 2 rather strongly impressed; female frons weakly convex, densely punctured, moderately pubescent.

Male: Length 1.5–1.8 mm, 2.5 times as long as wide; color pale reddish brown. Frons moderately, transversely impressed from epistoma to upper level of eyes (transversely, weakly convex), longitudinally, moderately concave; impressed surface smooth, shining, densely punctured, convex area above similar, weakly reticulate; a small median tubercle on epistoma; upper crest of impressed area obtusely rounded. Pronotum 1.1 times as long as wide; widest on basal half, sides moderately arcuate, rather narrowly rounded in front; anterior margin armed by about 14–18 low, basally contiguous serrations; summit at middle of pronotum length, anterior

slope rather coarsely, closely asperate; posterior areas almost smooth, punctures rather coarse, close, obscurely reticulate laterally; vestiture of very short hair on anterior two-thirds, glabrous behind. Elytra 1.4 times as long as wide, 1.3 times as long as pronotum; disc occupying basal two-thirds of elytra length, striae not discernible, most punctures confused; surface smooth, shining, few impressed points. Declivity steep, rather strongly bisulcate; punctures on striae 1 and 2 small, distinctly impressed; interstriae 2 as wide as 1 or 3, rather strongly impressed, 1 moderately elevated, 3 higher than 1, punctures on 1 and 3 replaced by a row of small tubercles. Vestiture of erect interstitial setae, mostly on declivity on odd-numbered interstriae, base of 2 with one or two setae, lower interstriae 1 and 6 usually with one or two setae.

Female: Similar to male except frons weakly convex, with dense, small punctures from epistoma to vertex, vestiture hairlike, of longer peripheral hair; short in central area, longest setae equal in length to about a third width of frons.

Distribution: Colombia.

Type material: The male holotype, female allotype, and 6 paratypes were taken in Colombia at the Carton de Colombia forest near Buenaventura, 8 km S Colonia, Valle de Cauca, 9-VII-1970, 30 m, No. 622, *Couma macrocarpa*, SLW. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Araptus beaveri Wood, n. sp.

Araptus beaveri Wood: Holotype ♂; Mato Grosso, Brazil, 12°49'S, 51°46'W; BMNH, London, designated below

Diagnosis: Distinguished from *coumacomis* by the larger size; by the more abruptly impressed male frons; by the planoconcave female frons, with shorter vestiture; and by the confused punctures on declivital interstriae 2.

Male: Length 2.1–2.3 mm, 2.4 times as long as wide; color reddish brown. Frons resembling *coumacomis*, except frontal impression slightly deeper, crest at upper level of eyes more abrupt, a shining median callus from upper level of eyes extending dorsad. Pronotum about as in *coumacomis*, except disc smooth, shining. Elytra 1.3 times as long as wide, 1.26 times as long as pronotum; discal striae 1 more narrowly impressed to base; declivital sulcus wider, not as deep as *coumacomis*, usually with one or two small tubercles at base of 2, setae on declivity stouter, half to two-thirds as long as those elsewhere.

Female: Similar to male except frons planoconcave, densely, rather finely punctured, frontal vestiture similar but much shorter (longest setae about equal in length to a fifth width of frons).

Distribution: Brazil (Mato Grosso).

Type material: The male holotype, female allotype, and 6 paratypes were taken in Brazil at Mato Grosso, RS/RGS Exp., 12°49'S, 51°46'W, 2-X-1968, R.A. Beaver. The holotype and allotype are in BMNH, London; the paratypes are in the U.S. National Museum, Washington.

Araptus frontalis (Schedl), n. comb.

Araptus frontalis (Schedl), 1967:8 (*Breviophthorus*). Holotype ♀; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:999)

Diagnosis: Distinguished from *beaveri* Wood by the smaller size; by the more strongly, more broadly impressed male frons that lacks a median epistomal tubercle; and by the shallowly concave, reticulate female frons that has sparse, very short pubescence.

Male: Similar to female except frons moderately, transversely impressed on median three-fourths from epistoma to upper level of eyes.

Female: Length 1.8–1.9 mm, 2.5 times as long as wide; color very dark reddish brown. Frons moderately concave eye to eye from epistoma to well above upper level of eyes, an obtuse median crest on lower half; surface reticulate, concave area rather sparsely, finely punctured; vestiture sparse, minute, epistoma moderately emarginate on median third. Pronotum 1.05 times as long as wide; widest on basal half; sides weakly arcuate, rather broadly rounded in front; anterior margin armed by 8 serrations; summit at middle of pronotum length; anterior slope coarsely asperate; posterior areas smooth, shining, punctures rather coarse, deep, close, numerous impressed points between punctures; vestiture of short, stout hair on sides and asperate area. Elytra 1.5 times as long as wide, 1.4 times as long as pronotum; disc occupying basal 72 percent of elytra length; striae not impressed except 1 near declivity, punctures mostly in rows, rather coarse, deep; interstriae twice as wide as striae, almost smooth, with many impressed points, punctures absent except near declivity. Declivity steep, weakly bisulcate; striae 1 narrowly impressed except near apex, 2 rather weakly impressed, punctures small on 1 and 2; interstriae 1 narrow, weakly elevated, 2 below middle of declivity length and twice as wide as 1, constricted toward apex, 3 slightly higher than 1, with 1 and 2 each armed by a row of low rounded granules, 2 unarmed, a few punctures at base and near apex; numerous impressed points present. Vestiture of sparse strial hair and short, stout, erect setae on all interstriae except central two-thirds of 2.

Distribution: Brazil: Santa Catarina, Nova Teutonia, 27°11'B, 52°23'L, X-1965, 300–500, F. Plaumann.

Notes: The above treatment was based on the female holotype, male allotype, and 1 female paratype and 1 male paratype.

Araptus gloriosus Wood, n. sp.

Araptus gloriosus Wood: Holotype ♀; Peten Tikal, Guatemala; USNM, Washington, designated below.

Diagnosis: Allied to *coumacomis* Wood, except distinguished by the much longer, more dense brush of hair on the female frons; by the absence of punctures on declivital interstriae 2; and by the numerous impressed points on pronotum and elytra.

Female: Length 1.7 mm, 2.6 times as long as wide; color dark reddish brown. Frons apparently flat from epistoma to vertex, densely covered by exceedingly abundant long hair, tips of longest setae on vertex capable of extending to epistoma. Pronotum 1.2 times as long as wide; essentially as in *coumacomis*. Elytra 1.7 times as long as wide, 1.2 times as long as pronotum; disc occupying slightly more than basal two-thirds of elytra length; striae not impressed except 1 near declivity, striae not impressed except 1 near declivity, strial punctures mostly in rows, rather coarse, deep; interstriae as wide as striae, smooth, shining, with numerous impressed points, punctures very sparse. Declivity steep, moderately bisulcate; punctures on striae 1 and 2 greatly reduced, almost obsolete; interstriae 1 moderately elevated, 2 moderately impressed, wider than 1, smooth, with numerous impressed points, no punctures, 3 higher than 1, crest obtusely rounded, 1 and 3 each armed by several small, rounded tubercles. Vestiture mostly on declivity, consisting of erect, hairlike interstitial setae on 1 and 3 and lateral areas, moderately long.

Distribution: Guatemala.

Type material: The female holotype was taken at Tikal, Peten, Guatemala, 18-V-1956, 100 m, at light, T.H. Hubbell. The holotype is in the U.S. National Museum, Washington.

Araptus mirabilis Wood, n. sp.

Araptus mirabilis Wood: Holotype ♀; Piedras Blancas 10 km E Medellin, Antioquia, Colombia; USNM, Washington, designated below

Diagnosis: Distinguished from *gloriosus* Wood by the larger size; by the shorter, less dense brush of hair on the female frons; by the less deeply impressed declivital sulcus, with the lateral convexities more broadly rounded and with the tubercles smaller.

Male: Similar to female except frons convex above, rather weakly, broadly, transversely impressed from epistoma almost to upper level of eyes, surface closely, moderately punctured, a weakly elevated epistomal process on median one-sixth; declivital sulcus slightly wider, deeper, tubercles on interstriae 1 and 3 distinctly larger.

Female: Length 2.2–2.3 mm, 3.0 times as long as wide; color rather dark reddish brown. Frons broadly subconcave from epistoma to slightly above upper level of eyes; surface shining, closely, uniformly, rather coarsely punctured (size and density almost equal to male); setae in central area rather sparse, short, setae on peripheral margin rather dense, very long, tips of longest setae capable of attaining epistomal margin. Pronotum 1.2 times as long as wide; widest near base, sides on basal half weakly arcuate, a weak constriction on anterior third, narrowly rounded in front; anterior margin armed by 6 coarse serrations; summit indefinite, slightly anterior to middle; anterior slope rather coarsely asperate; posterior areas minutely reticulate, subshining, punctures moderately coarse, rather close; sparse, hairlike vestiture confined to asperate area and sides. Elytra 1.8 times as

long as wide, 1.4 times as long as pronotum; disc occupying basal 70 percent of elytra length; striae not impressed, punctures small, in rows except confused on more than basal half of striae 1 and interstriae 2; interstriae three to four times as wide as striae, smooth, shining except some areas obscurely reticulate, some punctures present or confused with those of striae. Declivity steep, moderately bisulcate; striae 1 strongly impressed, punctures minute to obsolete, 2 not impressed, punctures very small, distinct; interstriae 1 moderately elevated, armed by about two to four small granules, 2 twice as wide as 1, moderately to strongly impressed, obscurely reticulate, impunctate except at base, 3 rather broadly rounded, armed by three to four small, pointed tubercles; vestiture mostly on and near declivity, of sparse strial hair and a few erect interstitial setae.

Distribution: Colombia (Antioquia).

Type material: The female holotype, male allotype, and 1 male and 1 female paratype were taken at Piedras Blancas 10 km E Medellin, Antioquia, Colombia, 15-VII-1970, 2500 m, No. 664, liana, S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Araptus mirus Wood, n. sp.

Plate CLIII

Araptus mirus Wood: Holotype ♀; La Mucuy 20 km W Merida, Merida, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *mirabilis* Wood by the larger size; by the absence of reticulation on the pronotum disc; and by the shorter, less dense setae on the female frons.

Male: Similar to female except frons strongly convex, feebly impressed above epistoma, median crest on upper area obtuse (not carinate), distinct, almost glabrous; declivital sulcus slightly wider, deeper.

Female: Length 2.3–2.8 mm, 2.9 times as long as wide; color dark reddish brown. Frons planoconcave on median half of area below upper level of eyes; surface smooth, shining, punctures rather coarse, close, central area with fine hair of moderate length, not dense, setae in peripheral fringe twice as long, tips of longest setae on vertex capable of attaining half distance to epistoma. Pronotum 1.1 times as long as wide; widest at base, sides weakly arcuate on basal half, distinctly constricted on anterior third, narrowly rounded in front; anterior margin armed by about 10 basally connected, low serrations; summit at middle of pronotum length; anterior slope rather coarsely, closely asperate; posterior areas smooth, shining, several impressed points present, punctures coarse, deep, close, median line impunctate; sparse, very short hair on asperate area and sides. Elytra 1.8 times as long as wide, 1.7 times as long as pronotum; disc occupying basal two-thirds of pronotum length; striae not impressed except 1 slightly, punctures rather small, confused, surface shining. Declivity steep, moderately bisulcate; striae 1 strongly impressed in a narrow groove on basal third,

punctures obscure to obsolete, 2 not impressed, punctures very small, distinct; interstriae 1 moderately elevated, almost smooth, armed by about three to five widely spaced granules, 3 slightly higher than 1 on upper half, crest rather narrowly rounded above, very broadly rounded below, armed by about six to seven small, pointed denticles (most on basal half). Vestiture very short, hairlike, some strial hair on sides, erect interstitial setae mostly on odd-numbered interstriae on declivity.

Distribution: Venezuela (Merida).

Type material: The female holotype, male allotype, and 87 paratypes were taken at La Mucuy 20 km W Merida, Merida, Venezuela, 10-X-1969, 2500 m, No. 47, from a liana known locally as "Bejuco de Chirica," by S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Araptus elongatus (Schedl)

Araptus elongatus (Schedl), 1961:226 (*Thamnophthorus*). Holotype ♀; Taquina, Cochabamba, Bolivia; NHMW, Wien (References in Wood & Bright c1992:956)

Diagnosis: Distinguished from *robustus* Schedl by the larger size; by the less strongly, more broadly impressed declivital interstriae 2 that continues to the elytra apex; and by other characters described below.

Female: Length 2.3 mm, 2.9 times as long as wide; color dark reddish brown. Frons mostly concealed by pronotum on type, apparently planoconvex from epistoma to upper level of eyes, finely, closely punctured, with moderately abundant, uniformly distributed, fine, long hair; antennal club obovate, suture 1 septate, rather strongly procurved. Pronotum 1.1 times as long as wide; widest slightly behind middle, sides weakly arcuate, rather broadly rounded in front; anterior margin armed by about 10 weak serrations; summit at middle; anterior slope rather coarsely, closely asperate; posterior areas shining, punctures rather coarse, deep, very close, lateral margin of some punctures on disc weakly elevated into a very small tubercle; vestiture of moderately abundant, short hair on sides and asperate area. Elytra 1.8 times as long as wide, 1.7 times as long as pronotum; disc occupying basal three-fourths of elytra length; striae 1 moderately impressed near base of declivity, discal punctures moderately coarse, deep, confused, spaces between punctures smooth, shining. Declivity broadly convex, steep; striae 1 moderately impressed on upper two-thirds, punctures obscure to obsolete, 2 and 3 marked by small punctures; interstriae 1 weakly elevated, with a row of very small punctures, 2 twice as wide as 1, smooth, shining, impunctate, 3 as high as 1, narrower than 2, with a row of rather small punctures. Vestiture of minute strial hair on sides near declivity, and very sparse, erect interstitial hair (two at apex of 2, two at apex of 3, three at base of declivity on 5, eight on 9).

Distribution: Taquina, Cochabamba, Bolivia, 27-XII-1941, G. Kuschel.

Notes: The above treatment was based on the female holotype from Bolivia.

Araptus robustus (Schedl)

Araptus robustus (Schedl), 1964:207 (*Thamnophthorus*). Holotype ♂; Belem, Para; Servicio de Defensa Sanitaria Vegetal, Rio de Janeiro, Brazil, now at MZUSP, Sao Paulo (References in Wood & Bright c1992:961)

Diagnosis: Distinguished from *elongatus* (Schedl) by the smaller size; by the more strongly impressed declivital interstriae 2 that becomes obsolete before the apex; and by the minute to obsolete tubercles on declivital interstriae 3.

Male: Length 1.7–2.0 mm, 2.6 times as long as wide; color dark reddish brown. Frons convex, a slight transverse impression at upper level of eyes; epistoma slightly elevated above epistomal margin; area from epistoma to upper level of eyes subrugosely punctured, surface shining; median area above upper level of eyes protruding slightly; vertex rugose-reticulate; antennal club obovate, suture 1 septate, moderately procurved. Pronotum 1.1 times as long as wide; widest on basal half, sides feebly arcuate, rather broadly rounded in front; anterior margin armed by 10 basally contiguous serrations; summit at middle; anterior slope coarsely, closely asperate; posterior areas smooth, shining, with many impressed points, punctures coarse, deep, rather close, some rugae from asperities continue caudad; vestiture of short, stout hair mostly on sides. Elytra 1.4 times as long as wide, 1.3 times as long as pronotum; disc occupying basal two-thirds of elytra length; punctures confused on basal half of disc, distinguishable rows of both strial and interstitial punctures on posterior half. Declivity moderately steep, narrowly, rather strongly bisulcate; striae 1 and 2 moderately impressed, punctures obsolete except at base; interstriae 1 narrow, slightly elevated, smooth, shining, with a row of very minute, setiferous punctures, 2 as wide as 1 on upper three-fourths, constricted and obsolete before apex, smooth, shining, impunctate, 3 almost as wide as 1 and 2 combined, distinctly higher than 1, smooth, shining, crest rather narrowly rounded, with a row of very small setiferous punctures. Vestiture of rows of erect interstitial setae from base of disc to apex on all interstriae except 2, with 2 having two or three setae near base of disc; strial hair obsolete.

Distribution: Brazil: Belem, Para, 15-III-1938, E.S. Caldeira.

Notes: The above treatment was based on 2 male paratypes from Brazil.

Araptus frenatus (Schedl)

Araptus frenatus (Schedl), 1939:411 (*Thamnophthorus*). Lectotype ♀; Cordoba, San Javier [Argentina]; NHMW, Wien, present designation (References in Wood & Bright c1992:956)

Diagnosis: Distinguished from *elongatus* (Schedl) by the smaller size; by the occurrence of definite tubercles on declivital interstriae 2 and 3; and by the short, regularly spaced interstitial setae on the disc and declivity.

Female: Length 1.8–2.2 mm, 2.6 times as long as wide; color dark reddish brown. Frons median profile

moderately concave from epistoma to upper level of eyes, lower half of this area smooth, shining, punctures very small (transverse contour weakly convex), upper areas rugose-reticulate, almost glabrous; antennal club elongate-oval, suture 1 moderately procurved, septate on mesal half. Pronotum 0.98 times as long as wide; widest on basal half, sides moderately arcuate, converging to narrowly rounded anterior margin; anterior margin armed by about 12 serrations, median four larger; summit at middle; anterior slope coarsely, closely asperate; posterior areas smooth, shining, with many impressed points, punctures rather large, deep, close (without lateral rugae; vestiture of fine, short, rather abundant hair on sides and asperate area. Elytra 1.6 times as long as wide, 1.6 times as long as pronotum; disc occupying basal two-thirds of elytra length; punctures confused on basal fourth and posterior fourth of disc, strial punctures in rows on middle half and interstriae impunctate on middle half; surface smooth, shining. Declivity steep, convex, shallowly bisulcate; striae 1–3 in rows to apex, punctures smaller than on disc; interstriae 1–3 of about equal width, 1 moderately elevated and bearing a row of small punctures, 2 distinctly impressed, a few punctures near base and near apex, a few irregular lines and many impressed points present, 3 as high as 1, with a row of small punctures. Vestiture of sparse, minute strial hair, and rows of erect interstitial setae on all interstriae of declivity except most of 2, each seta stout, shorter than distance between rows.

Distribution: Argentina: Cordoba, San Javier, Pastenne, en fruto de quebracho, J.M. Bosq.

Notes: The above treatment was based on 3 syntypes from NHMW, Wien. This species was based on a syntypic series. Because a type has not been designated, I here designate a female syntype in the NHMW, Wien, collection as the lectotype for *Thamnophthorus frenatus* Schedl, as indicated above.

Araptus subsimilis (Schedl), n. comb.

Araptus subsimilis (Schedl), 1966:104 (*Breviophthorus*). Holotype ♂; Rio Caraguata, Mato Grosso, Brazil, 21°48'B, 52°27'W, NHMW, Wien (References in Wood & Bright c1992:1030)

Diagnosis: Distinguished from *mendicus* Wood and *medialis* Wood by the larger size; by the smaller, more distinctly impressed declivital striae 2 with the punctures more distinctly impressed; and by the distinct, transverse impression on the lower frons of the male.

Male: Length 2.0 mm, 2.8 times as long as wide; color dark reddish brown. Frons weakly, transversely impressed on lower half, convex above, epistoma slightly elevated; surface almost smooth, shining, punctures rather small, moderately close; vestiture not evident (abraded?). Pronotum 1.1 times as long as wide; widest on basal half, sides weakly arcuate, rather narrowly rounded in front, anterior margin armed by about 12 weak, basally connected serrations; anterior slope coarsely, closely asperate; posterior areas smooth, shining, with many impressed

points, punctures moderately large, deep, uniformly, rather closely distributed; vestiture very sparse, short (abraded? on type). Elytra 1.6 times as long as wide, 1.4 times as long as pronotum; disc occupying basal 70 percent of elytra length; striae not impressed; strial and interstitial punctures moderately large, confused. Declivity steep, strongly bisulcate; striae 1 and 2 with punctures minute, almost obsolete; interstriae 1 distinctly elevated, 2 as wide as 1, flat, smooth, shining, impunctate, 3 distinctly higher than 1, with 1 and 3 each armed by about four rather coarse, pointed tubercles. Vestiture mostly on declivity, of sparse, erect hair on odd-numbered interstriae, about two to four setae on each.

Distribution: Brazil: Rio Caraguata, 21°48'B, 52°27'W.

Notes: The above treatment was based on the male holotype. Schedl identified a female, bearing identical data to that of the type, as being this species. That female is described below as *A. pseudosimilis*. This species, *subsimilis*, was originally named in *Breviophthorus* (1966: 104). When *Breviophthorus* became a synonym of *Pityophthorus* (then later, of *Araptus*), *Breviophthorus subsimilis* Schedl became a junior homonym of *Pityophthorus subsimilis* Schedl (1955:25). Wood (1989:179) then presented the name *P. subsimilans* Wood as a replacement name. With the transfer of *B. subsimilis* Schedl (1966: 104) to *Araptus*, it is restored as a valid name in *Araptus*, and the name *P. subsimilans* Wood has no standing in nomenclature.

Araptus virolae Wood, n. sp.

Araptus virolae Wood: Holotype ♀; 8 km SW Bumbum, Barinas, Venezuela; USNM, Washington, designated below

Diagnosis: Remotely allied to *leptus* (Bright) but distinguished by the smaller size; by the much more strongly impressed, armed, bisulcate elytral declivity; and by the radically different frons in both sexes.

Male: Similar to female except frons weakly impressed on lower half, smooth, shining, with punctures small, uniformly distributed, and very different, simple sculpture.

Female: Length 1.5–1.8 mm, 3.3 (male 2.7) times as long as wide; color yellowish brown. Frons, eye to eye, from just below upper level of eyes to vertex flattened on a circular area, surface micropilose (spongy), lateral and upper margins of pilose area bearing a row of long hair, lower half (below spongy area) almost flat, smooth, shining, with few minute punctures and uniformly distributed, moderately abundant, fine, short hair; antennal club large, circular in outline, suture 1 procurved, septate. Pronotum 1.4 times as long as wide; sides on basal half almost straight and parallel, rather broadly rounded in front; anterior margin armed by a continuous costa; summit at middle of pronotum length, anterior slope coarsely, closely asperate; posterior areas subreticulate, punctures small, shallow, close; vestiture of short hair, minute on sides, longer on asperate area. Elytra 1.9 times as long as wide, 1.7 times as long as pronotum;

disc occupying basal two-thirds of elytra length; surface shining, with many impressed points, small punctures of striae 3 almost in a row, those on 1 and 2 confused. Declivity steep, moderately bisulcate; interstriae 2 moderately impressed, punctures on 2 confused with those of striae 1 and 2 (numerous, close); interstriae 1 moderately elevated, as high as 3, with 1 and 3 each having a row of three to five small, pointed denticles. Vestiture of minute strial hair, mostly on declivity, and sparse rows of erect, moderately long interstitial hair on odd-numbered interstriae and base of 2 on declivity (shorter setae sometimes present on 2 to near its apex).

Distribution: Venezuela (Barinas).

Type material: The female holotype, male allotype, and 42 paratypes were taken at 8 km SW Bumbum, Barinas, Venezuela, 11-II-1970, 150 m, No. 309, from a tree limb presumed to be *Virola*, by S.L. Wood. Additional paratypes from Venezuela include 33 from 29 km SW El Vigia, Merida, 29-XII-1969, No. 180, *Virola*, and 33 from the same locality and date, No. 192, *Virola*, S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Araptus barinensis Wood, n. sp.

Araptus barinensis Wood: Holotype ♀; 9 km S Barrancas, Barinas, Venezuela; USNM, Washington, designated below

Diagnosis: Female frons with marginal fringe of hair on frons more dense than on *leptus* (Bright) extending at sides to epistoma, concave area narrower, less regularly impressed; male frons reticulate.

Male: Similar to female except frons strongly convex, surface reticulate, rather coarsely punctured.

Female: Length 1.3–1.5 mm, 2.8 (male 2.6) times as long as wide; color yellowish brown. Frons shallowly concave eye to eye from epistoma to well above upper level of eyes; surface very densely, minutely punctured, central area with abundant pubescence short, peripheral fringe of hair three times as long as that of central area. Pronotum 1.14 times as long as wide; widest near base, sides weakly arcuate, converging slightly toward broadly rounded anterior margin; anterior margin armed by a row of 22 or more small, basally contiguous serrations; summit at middle, anterior slope rather coarsely asperate; posterior areas subshining, weakly reticulate, punctures small, rather close. Elytra 1.7 times as long as wide, 1.5 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed except 1 near declivity, punctures very small, decreasing in size toward declivity; interstriae about four times as wide as striae, surface shining, with some minute, impressed lines, a few impressed points. Declivity steep, shallowly, rather broadly bisulcate; striae 1 and 2 with punctures small, distinct; interstriae 1 moderately elevated, about equal to 3, with 2 moderately impressed, without punctures, 1 and 3 each with a row of small, rounded tubercles. Glabrous.

Type material: The female holotype, male allotype, and 38 paratypes were taken at 9 km S Barrancas,

Barinas, Venezuela, on 9-XII-1969, 150 m, No. 166, from an unidentified vine by S.L. Wood. Four paratypes were taken 3 km NE Creote, Barinas, Venezuela, 18-XII-1969, 150 m, No. 202, from *Nectandra* sp. branches, by S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Araptus pumilus Wood, n. sp.

Araptus pumilus Wood: Holotype ♀; Estacion de Biologia, Chamela, Jalisco, Mexico; USNM, Washington, designated below

Diagnosis: This species superficially resembles *Gnatholeptus*, and some specimens have 2 or more broken concentric rows of asperities on the pronotum. The female frons is planoconcave, smooth, shining, glabrous, and impunctate from eye to eye from epistoma to vertex. The male frons is moderately, transversely impressed on the lower half. All declivital interstriae bear a few erect setae.

Male: Similar to female except frons transversely impressed almost to upper level of eyes, upper margin abrupt, impressed area smooth, shining, mostly covered by small, obscure punctures; anterior margin of pronotum coarsely serrated by 10 denticles; declivity more strongly impressed.

Female: Length 1.3–1.4 mm, 3.1 (male 2.6) times as long as wide; color yellowish brown. Frons planoconcave eye to eye from epistoma to vertex, surface smooth, brilliantly shining, glabrous; antennal club small, subcircular in outline, suture 1 weakly septate, 2 obsolete. Pronotum 1.1 times as long as wide; sides almost straight and parallel on basal half, rather narrowly rounded in front; anterior margin armed by about 10 low serrations; summit at middle of pronotum length, anterior slope usually armed by 4 subconcentric rows of asperities (not basally fused) each broken on at least one place; posterior areas smooth, shining, with many impressed points, punctures small, close, glabrous except at margins. Elytra 1.8 times as long as wide, 1.6 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed except 1 weakly near declivity, punctures small, in rows; interstriae twice as wide as striae, smooth, shining, with many impressed points, 1 with minute punctures to base, 2 and 3 with a few punctures near base of declivity. Declivity steep, shallowly bisulcate; striae 1–3 with punctures in rows; interstriae 2 as wide as 1 or 3, shallowly impressed, 1 and 3 each with a sparse row of minute granules, 2 impunctate except at base. Vestiture of minute strial hair, and erect interstitial setae, a few on all interstriae, except 2 without setae except at extreme base of declivity.

Distribution: Mexico (Jalisco).

Type material: The female holotype, male allotype, and 6 paratypes were taken at Estacion de Biologia, Chamela, Jalisco, 4-III-1982, S-361, 70 m, *Pithecellobium*, A. Equihua. The holotype and paratypes are in the U.S. National Museum, Washington.

Araptus equihuai Wood, n.sp.

Araptus equihuai Wood: Holotype ♀; Uxpanapa, Oaxaca, Mexico; USNM, Washington, designated below

Diagnosis: Distinguished from *pumilus* by the more strongly concave female frons, the surface of the concave area with numerous small punctures, the epistoma deeply emarginate, a mandibular denticle projecting into this emargination; by the smooth, shining spaces between punctures on the pronotum disc; and by the more strongly impressed sulcus on the declivity; male frons convex.

Male: Similar to female except frons convex, smooth, shining, coarsely, closely punctured, with a small, median callus at upper level of eyes, without an emargination on epistoma.

Female: Length 1.5–1.7 mm, 2.7 times as long as wide; color yellowish brown. Frons moderately concave eye to eye from epistoma to vertex, punctures very small, numerous; epistoma deeply emarginate, emargination filled by denticle of mandible. Pronotum 1.1 times as long as wide; sides almost straight and parallel on basal half, rather broadly rounded in front; anterior margin armed by about 10 low serrations; summit at middle, anterior slope coarsely asperate; posterior areas smooth, shining, with numerous impressed points, punctures very small, rather close; almost glabrous. Elytra 1.7 times as long as wide, 1.5 times as long as pronotum; disc occupying basal 72 percent of elytra length; striae not impressed, punctures on disc moderately large, deep, confused, spaces between punctures smooth, shining, with many impressed points. Declivity steep, rather deeply bisulcate; striae 1 mostly impressed, punctures very small, 2 not impressed but with punctures in a row, some obscure; interstriae 2 rather strongly impressed, as wide as 1, apparently impunctate, 1 weakly elevated, with an obscure row of very small granules, 3 much higher than 1 and armed by a row of about four small, pointed denticles. Mostly glabrous, remnants of a few short setae on odd-numbered interstriae.

Distribution: Mexico (Oaxaca).

Type material: The female holotype, male allotype, and 6 paratypes were taken at Uxpanapa, Oaxaca, Mexico, 22-V-81, 300 m, S-268, A. Equihua. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Araptus novateutonicus (Schedl)

Plate CLV

Araptus novateutonicus (Schedl), 1951:116 (*Gnathocranus*). Lectotype ♀; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien, present designation (References in Wood & Bright c1992:960)

Diagnosis: Distinguished from *argentinae* (Schedl) by the sparse, uniformly distributed fine setae on the female frons; by the smaller spongy area on the female frons; and by the subcarinate callus on the male frons. It may be that *argentinae* is no more than a geographical race; more collections are needed to resolve this question.

Male: Similar to female except frons broadly convex, a slight transverse impression on lower half and with a weak, median, subcarinate callus at upper level of eyes.

Female: Length 2.3–2.5 mm, 3.1 times as long as wide; color dark reddish brown. Frons strongly concave eye to eye from vertex to moderately emarginate epistoma; upper third of concave area occupied by a dull, spongy area, lower two-thirds very smooth, brilliantly shining; lower margin of spongy area transversely straight, this margin separated from margin of eye by a distance equal to combined diameters of 8–10 facets of eye, upper margin with a peripheral fringe of short hair; dorsal spine on mandible somewhat subquadrate; vestiture on lower half of concave shining area of minute, fine, uniformly distributed setae; antennal club elongate-oval, mesal half of suture 1 septate. Pronotum 1.1 times as long as wide; widest on basal half, sides weakly arcuate, a distinct constriction on anterior half; anterior margin rather narrowly rounded, bearing a subserrate costa of about 16 weak serrations; summit at middle of pronotum length; anterior slope coarsely, closely asperate; posterior areas smooth, shining, rather finely, closely punctured; vestiture of short setae mostly on asperate area. Elytra 1.7 times as long as wide, 1.4 times as long as pronotum; disc occupying 70 percent of elytra length; striae not impressed except 1 near declivity, punctures on striae 1 and 2 almost in rows; interstriae three to four times as wide as striae, punctures on interstriae 2 smaller than those of striae, punctures confused near base and at base of declivity. Declivity steep, moderately bisulcate; striae 1–3 with punctures reduced in size to a third that of disc; interstriae 1 moderately elevated, bearing a row of eight small, pointed tubercles, 2 wider than 1, moderately impressed, smooth, shining, with a row of punctures, 3 almost as high as 1, armed by a row of about four pointed tubercles. Vestiture of sparse, minute strial setae, and erect interstitial setae on all declivital interstriae, those on 2 absent on middle half.

Distribution: Brazil: Chapeco, Santa Catarina, 27°07', 52°36', VIII-1960, 600 m, F. Plaumann; Nova Teutonia, Santa Catarina, I-1941, F. Plaumann (lectotype), same data VIII-1941 (erroneously determined as *argentinae* by Schedl).

Notes: The above treatment was based on the "holotype," "allotype," and 2 other female specimens from NHMW, Wien. Because this species was based on a syntypic series, and subsequently labeled (Schedl 1979: 172) as a female "holotype" and a male "allotype," contrary to the International Code on Zoological Nomenclature, I here designate his "holotype" as the female lectotype of *Gnathocranus novateutonicus* Schedl, and his "allotype" as the male lectoallotype of this species as indicated above.

Araptus argentinae (Schedl)

Araptus argentinae (Schedl), 1958:44 (*Breviophthorus*). Lectotype ♂; Santa Maria, Misiones, Dep. Concepcion, Argentina; NHMW, Wien, present designation (References in Wood & Bright c1992:953)

Diagnosis: Distinguished from *novateutonicus* (Schedl) by the sparse, irregular, almost obsolete setae on the female frons; by the larger spongy area on the female frons; and by the absence of a median callus on the male frons.

Male: Similar to female except frons convex, rather finely, closely punctured, median callus at upper level of eyes reduced to obsolete.

Female: Length 2.3–2.6 mm, 3.1 times as long as wide; color dark reddish brown. Frons about as in *novateutonicus*, except spongy area larger, separated from upper margin of eye by combined diameters of four eye facets (separated by eight facets in *novateutonicus*), minute setae on lower part of concave area less numerous and less evenly distributed than in *novateutonicus*. Pronotum and elytra about as in *novateutonicus*.

Distribution: Argentina: Santa Maria, Dep. Concepcion, Misiones, X-1946, M.I. Viana.

Notes: The above treatment was based on Schedl's male "holotype," female "allotype," and 1 male "paratype." Because this species was based on a syntypic series, Schedl's (1979:25) subsequent designation of a holotype is not valid under the International Code on Zoological Nomenclature. For this reason, I here designate Schedl's "holotype" as the male lectotype of *Breviophthorus argentinae* Schedl and his female allotype as the lectoallotype for this species, as indicated above.

Because the minor differences used to separate *novateutonicus* and *argentinae*, it is expected that future collecting and intergradation of characters will make it necessary to place *argentinae* in synonymy under the older name. A specimen from Nova Teutonia (Santa Catarina, Brazil), was labeled by Schedl as a member of this species. However, it bears the data of *novateutonicus* and clearly belongs to that population.

Araptus declivis Wood, n. sp.

Araptus declivis Wood: Holotype ♂; Pocone, Mato Grosso, Brazil; MZUSP, Sao Paulo, designated below

Diagnosis: Distinguished from *macer* Bright by the convex male frons that lacks a transverse groove above the epistomal margin; by the absence of tubercles on declivital interstriae 3; and by the presence of rather coarse, confused punctures on declivital interstriae 2. Setae on the female frons are long and dense, as on female *macer*.

Male: Length 1.3–1.4 mm, 2.5 times as long as wide; color light reddish brown. Frons moderately, concavely impressed on median half from epistoma to slightly above upper level of eyes; concave area smooth, shining, with a few minute punctures, upper crest rather abrupt and armed by a row of about nine minute, partly contiguous tubercles; lateral margins rather broadly rounded; vertex strongly convex, mostly rugose-reticulate, with many small punctures; glabrous; antennal club rather large, broadly oval, 1.3 times as long as wide, suture 1 finely septate, narrowly procurved, almost attaining middle of

club. Pronotum 1.1 times as long as wide; summit at middle of pronotum length, with 2, short, subserrate, transverse carinae; anterior margin rather broadly rounded and armed by about 12 basally contiguous small serrations; anterior slope steep, asperities organized into three concentric rows of basally contiguous asperities, spaces between punctures almost smooth, small subsurface punctures indicated; posterior areas smooth, shining, punctures very small; glabrous except a row of short, hairlike setae on each of concentric rows of asperities. Elytra 1.4 times as long as wide, 1.4 times as long as pronotum; disc occupying basal 67 percent of elytra length; disc smooth, punctures rather small, deep, close, mostly confused. Declivity broadly convex, shallowly bisulcate; interstriae 1 and 3 equally, weakly elevated, and without pointed tubercles, 2 shallowly impressed, striae 1 and 2 with punctures confused and mixed with those of interstriae 2 and occupying space of interstriae 2. Vestiture mostly confined to declivity and sides near declivity, consisting of numerous short, mostly stout (flattened), confused setae from suture to base of declivity.

Female: Similar to male except frons shallowly (?) concave eye to eye from epistoma to vertex (mostly concealed by setae), peripheral fringe forming a dense row of very long, hairlike setae from near mandible to vertex, longest setae on vertex attain epistomal margin, central area not visible, concealed by setae.

Distribution: Brazil (Mato Grosso).

Type material: The male holotype, female allotype, and 3 female paratypes were taken at Pocone, Mato Grosso, Brazil, 28-XII-1991 (1 paratype 29-XI-1999), fogging in *Shellea phalerata* vegetation. The holotype, allotype, and 1 paratype are in the Museum de Zoologie, Universidade de Sao Paulo, Sao Paulo; 2 paratypes are in the U.S. National Museum, Washington.

Araptus macer (Bright)

Araptus macer (Bright), 1972:1666 (*Neodryocoetes*). Holotype ♀; Ejipantla, 8 km S San Andres Tuxtla, Veracruz; CNCI, Ottawa (Synonymy and references in Wood & Bright c1992:959)

Neodryocoetes tuberculatus Bright, 1972:1665. Holotype ♀; Lago Catemaco, Veracruz, Mexico; CNCI, Ottawa

Diagnosis: Easily distinguished by having 3 or 4 concentric rows of basally fused asperities on the anterior slope of the pronotum; male frons with a rather deeply impressed, long, transverse groove immediately above the epistoma, female frons bearing a dense brush of very long, golden hair.

Male: Similar to female except frons with a narrow, deep, transverse groove extending mandible base to mandible base, less strongly from epistoma half distance to upper level of eyes, upper areas strongly convex, closely, coarsely, deeply punctured; fundus of groove smooth, shining, with three minor points of elevation; vestiture short, hairlike, sparse, longer and more numerous on epistoma.

Female: Length 1.2–1.4 mm, 2.6 times as long as wide; color dark reddish brown. Frons apparently flat eye to eye from epistoma to vertex, surface of a dense velvet pile; surface entirely concealed by a dense, elaborate brush of very long, incurved, golden setae; antennal club rather large, strongly flattened, sutures 1 and 2 strongly procurved. Pronotum 1.1 times as long as wide; widest on basal half, sides feebly arcuate, broadly rounded in front; anterior margin armed by 16 basally contiguous serrations; summit at middle of pronotum length, anterior slope armed by three (and a partial fourth) concentric rows of basally fused asperities; posterior areas smooth, shining, punctures very small, rather numerous; vestiture very short, of rather numerous hairlike setae. Elytra 1.5 times as long as wide, 1.4 times as long as pronotum; disc occupying two-thirds of elytra length; striae not impressed except 1 slightly near declivity, punctures small, mostly in rows except usually confused toward base on 2 and rarely on 1; interstriae about three times as wide as striae, smooth, shining, a few impressed lines and micropunctures usually present, punctures small, irregularly placed. Declivity steep, shallowly bisulcate; striae 1 and 2 with punctures smaller than on disc, some almost obsolete; interstriae 2 moderately impressed, at least as wide as 1 and 2 with punctures smaller than on disc, some almost obsolete; interstriae 2 moderately impressed, at least as wide as 1, with a row of minute punctures (those near base bearing a seta), smooth, shining; 1 distinctly, not strongly elevated, not as high as 3, with 1 and 3 each bearing a row of small, pointed tubercles. Vestiture of some striae setae from base to apex, and rows of erect interstitial setae on all except lower part of 2, mostly on and near declivity.

Distribution: Mexico (Veracruz), Honduras, and Brazil.

Brazil: Mato Grosso, RS/RGS Exp., 12° 49' S, 51° 46' W, 15-IX-1968, 120, ex 1015 sp. (a shrub), R.A. Beaver.

Notes: The above treatment was based on 2 paratypes of *Neodryocoetes macer* Bright from Mexico, 2 paratypes of *N. tuberculatus* Bright from Mexico, and 9 specimens from Honduras.

Araptus veritus Wood, n.sp.

Araptus veritus Wood: Holotype ♂; Mato Grosso, Brazil, 12° 49' S, 51° 46' W; BMNH, London, designated below

Diagnosis: This species is distinguished from *macer* Bright by the deeper, broader, transverse groove on the male frons; by the larger, deeper punctures on the pronotum disc; and by the geographical distributions. Setae on the periphery of the female frons very long and abundant as in *macer*.

Male: Length 1.3–1.4 mm, 2.7 times as long as wide; color light reddish brown. Frons with a moderately deep, longer, transverse impression immediately above epistoma on less than lower half of area below upper level of eyes; upper area strongly convex to vertex, surface finely rugose, punctures obscure, not clearly impressed; vesti-

ture of fine, sparse, short, hairlike setae on convex area, setae on epistoma sparse, longer; antennal club 1.2 times as long as wide, broadly oval, suture 1 narrowly procurved, almost attaining middle of club length, suture grooved, not septate. Pronotum 1.1 times as long as wide; sides on basal half feebly arcuate, subparallel; anterior margin rather broadly rounded, armed by about 12 small, basally contiguous serrations; summit at middle of pronotum length; anterior slope steep, three concentric rows of basally connected asperities arm anterior slope, two partial rows at summit; posterior areas smooth, shining, with many minute impressed micropunctures, punctures small, moderately impressed, rather deep; glabrous except for sparse, short setae on rows of asperities. Elytra 1.7 times as long as wide, 1.5 times as long as pronotum; disc occupying basal 67 percent of elytra length; disc smooth, shining, with numerous micropunctures, striae not impressed, small moderately impressed punctures mostly in striae rows on posterior half, mostly confused on basal half. Declivity very steep, shallowly bisulcate; striae 1 narrowly impressed, punctures obsolete except minute near apex, 2 with minute punctures weakly impressed in rows; sutural interstriae slightly elevated, a few indefinite granules on crest; 2 moderately impressed, impunctate; 3 slightly higher than suture and armed by a row of three to five small, pointed tubercles. Vestiture of short, stout setae, confined to declivity and on sides near declivity, organized into rows on interstriae 1 and 3, with 2 glabrous, confused on lateral areas.

Female: As in male, except frons with peripheral row of very long, golden setae as in *macer*.

Distribution: Brazil (Mato Grosso).

Type material: The male holotype, female allotype, and 1 female and 3 male paratypes were taken at 12° 49' S, 51° 46' W in Mato Grosso, Brazil, 15-IX-1968, No. 120, by R.A. Beaver, with the RS/RGS Expedition. The holotype and allotype are in the British Museum of Natural History, London; the paratypes are in the U.S. National Museum, Washington.

Brazil (non-types): Mato Grosso RS/RGS Expedition, 15-IX-1968, ex. a shrub, R.A. Beaver; Telemaco Borba, Parana, 3-XII-1999, Klabin Papel e Cellulose forest, baited funnel trap in *Pinus taeda* stand, C.A.H. Flechtmann.

Araptus subconcentralis Wood, n. sp.

Araptus subconcentralis Wood: Holotype ♀; Merida, Merida, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *macer* (Bright) by the larger size; by the much deeper, confused punctures on the declivital disc; by the weakly reticulate pronotum disc; and by the very different frons in both sexes.

Male: Similar to female except frons moderately, transversely impressed on lower third, broadly, rather strongly convex from epistoma to vertex; surface somewhat smooth, shining, minutely, obscurely punctured;

vestiture of moderately abundant, fine, rather long setae, except sparse in central area above.

Female: Length 1.5–1.8 mm, 2.5 times as long as wide; color dark brown. Frons rather strongly, broadly concave eye to eye from epistoma to vertex, margin above upper level of eyes abrupt; surface of concave area almost smooth, shining, punctures very small, deep, abundant; vestiture less abundant and shorter in concave area, peripheral fringe at and above eye very long, rather dense, tips of longest setae on vertex capable of attaining two-thirds distance toward epistoma. Pronotum 1.04 times as long as wide; sides almost straight and parallel on basal third rather broadly rounded in front; anterior margin armed by a subcostate row of 20 or more basally fused serrations; summit at middle, anterior slope armed by three concentric rows of basally fused asperities anterior to summit and about four shorter rows at summit; posterior areas partly, weakly reticulate laterally, mostly smooth, shining on disc, punctures small, close, median line often impunctate; mostly glabrous except for short hair on asperities. Elytra 1.5 times as long as wide, 1.5 times as long as pronotum; disc occupying basal two-thirds of elytra length; surface almost smooth, shining, punctures rather confused. Declivity steep, shallowly bisulcate; striae 1 and 2 marked by rows of small punctures; interstriae 1–3 about equal in width; 2 shallowly impressed, with a row of punctures equal in size to those of striae; interstriae slightly elevated, 3 slightly higher, 1 and 3 each with a row of four to six small, pointed tubercles, a few smaller tubercles on lateral interstriae. Vestiture mostly on declivity, of minute strial hair and sparse rows of erect setae on odd-numbered interstriae.

Distribution: Venezuela (Barinas, Merida).

Type material: The female holotype, male allotype, and 74 paratypes are labeled Merida, Merida, Venezuela, 28-II-1970, 2000 m, No. 335, vine, S.L. Wood. One paratype is labeled 40 km SE Socopo, Barinas, Venezuela, 25-I-1970, 150 m, No. 228, *Mucuna*, S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Araptus confluens (Schedl)

Araptus confluens (Schedl), 1964:311 (*Ctenyophthorus*). Holotype ♀; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien (Synonymy and references in Wood & Bright c1992:954)

Ctenyophthorus centralis Schedl, 1963:222. Holotype ♀; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien, preoccupied by Schedl 1951:107

Diagnosis: Distinguished from *subcentralis* Wood by the shallowly concave lower female frons, with central area above upper level of eyes more strongly convex, and with a different arrangement of setae; by the partly reticulate pronotum disc, with discal punctures much smaller; and by the distribution.

Female: Length 1.5–1.6 mm, 2.5 times as long as wide; color dark reddish brown. Frons transversely impressed from epistoma to upper level of eyes (transversely

almost flat, longitudinally distinctly concave), surface smooth, shining, minutely, uniformly punctured, a low, rounded, median tubercle at epistoma, area above eyes convex; vestiture of fine, short hair in central area, peripheral fringe much longer, tips of longest setae on vertex capable of extending a third of distance toward epistoma; antennal club rather large, subcircular; suture 1 strongly procurved, septate in both halves. Pronotum 1.0 times as long as wide; widest on basal half, sides weakly arcuate, rather broadly rounded in front; anterior margin armed by about 14 serrations; summit at middle; anterior slope armed by four concentric rows of basally fused asperities; basal areas weakly, at least partly reticulate, punctures rather small, close; vestiture of fine, rather short hair on asperate area. Elytra 1.3 times as long as wide, 1.3 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed; strial and interstrial punctures in obscure rows, punctures of about equal size, small, distinct. Declivity steep, convex, weakly bisulcate; striae 1 weakly impressed, punctures obsolete, 2 and 3 with very small punctures indicated; interstriae 1 weakly elevated, with about two minute tubercles, 2 weakly impressed, wider than 1, with 3 slightly higher than 1, armed by a row of very small tubercles. Vestiture mostly confined to declivity, of minute strial setae, and erect setae on odd-numbered interstriae, setae slightly flattened, rather short.

Distribution: Brazil: Nova Teutonia, Santa Catarina, 27°11'B, 52°23'L, III-1967, F. Plaumann.

Notes: The above treatment was based on the female holotype and 2 female paratypes from Brazil.

Araptus nudus (Schedl)

Araptus nudus (Schedl), 1938:176 (*Thamnophthorus*). Holotype ♀; Sao Paulo, Brazil; NHMW, Wien (References in Wood & Bright c1992:960)

Thamnophthorus dubiosus Schedl, 1964:206. Holotype, sex?; Jacarepagua, Rio de Janeiro, Brazil; Servicio de Defensa Sanitaria Vegetal, Rio de Janeiro, now at MZUSP, Sao Paulo (References in Wood & Bright c1992:955). *New synonymy*

Diagnosis: Distinguished from *cribricollis* (Schedl) by the stouter body; by the lower male frons lacking an impression; by the shorter, less abundant vestiture on the female frons; and by the different length and distribution of setae on the elytra.

Female: Length 1.7–1.8 mm, 2.9 times as long as wide; color very dark brown. Frons broadly convex eye to eye, feebly impressed near center; surface densely, very finely, uniformly punctured; vestiture of abundant hair, short and semirecumbent at center, twice as long on periphery, tips of longest setae above capable of attaining a fourth distance toward epistoma. Pronotum 1.1 times as long as wide; sides almost straight and parallel on basal two-thirds of pronotum length, rather broadly rounded in front; anterior margin armed by about 10 low serrations; summit at middle; anterior slope coarsely, closely asperate; posterior areas smooth, shining behind summit, becoming feebly reticulate laterally, punctures

rather small, close; vestiture of short, moderately abundant hair; mostly on asperate area. Elytra 1.6 times as long as wide, 1.4 times as long as pronotum; disc occupying basal three-fourths of elytra length; striae not impressed, except 1 slightly on posterior two-thirds, punctures small, in rows to base; interstriae about three times as wide as striae, surface smooth, shining, with many impressed points and a few irregular lines, several punctures on 1 and 2. Declivity steep, moderately bisulcate; striae 1–3 with punctures clearly marked as on disc; interstriae 1 moderately elevated, with about three small, rounded tubercles on basal half, 2 moderately impressed, twice as wide as 1, with a row of punctures equal in size to those of striae, surface shining, almost smooth, rising laterad only slightly, 3 distinctly higher than 1, crest rather broadly rounded, with a row of about six small rounded tubercles. Vestiture mostly on declivity, of erect, rather short, slender setae on odd-numbered interstriae.

Distribution: Argentina to Brazil and Paraguay

Argentina: Jacarepagua, Distrito Federal, 1-II-1934, Broqueando gachos de espenadeira, N.G. Pereira (paratypes of *dubiosus*).

Brazil: Sao Paulo (type of *nudus*).

Paraguay: San Bernardino, Lago Ypacarai, 11-X-1968, L. & C.W. O'Brien.

Hosts: *Nerium oleander*.

Notes: The above treatment was based on the female holotype of *Thamnophthorus nudus* Schedl, from Brazil, and on 3 female paratypes of *T. dubiosus* (Schedl) from Argentina. All of these specimens were compared by me directly to one another.

Araptus cribricollis (Schedl)

Araptus cribricollis (Schedl), 1954:36 (*Neodryocoetes*). Lectotype ♀; Fortaleza R.G., Brazil. NHMW, Wien, present designation (Synonymy and references in Wood & Bright c1992:955)

Breviophthorus sulcatus Schedl, 1959:552. Holotype ♀; Mato Grosso, Rio Caraguata [Brazil]; NHMW, Wien

Diagnosis: Distinguished from *nudus* (Schedl) by the slightly smaller size; by the more strongly convex female frons, with longer setae; by the more strongly impressed declivity; by declivital interstriae 2 bearing a row of erect interstitial setae; by the more numerous, stouter interstitial setae on the declivity; and by the unique male frons (male of *nudus* not seen). Schedl's male "holotype" of *cribricollis* is actually a female.

Male: Length 1.8 mm, 2.8 times as long as wide; color yellowish brown. Similar to female except frons broadly convex above, a rather strong transverse impression above epistoma, epistoma strongly, abruptly elevated above epistomal margin, shining crest of elevation rather strong on lateral thirds, rather weak on median third; upper area of frons smooth, shining, closely, finely punctured, vestiture of sparse, fine, rather long hair; eye enlarged, coarsely faceted. Pronotum 1.2 times as long as wide; sides almost straight and parallel on more than basal half; rather broadly rounded in front; anterior

margin feebly serrate, possibly 12 very weak serrations; summit indefinite, anterior to middle; posterior area smooth, shining, with numerous impressed points, punctures course, close; vestiture of fine, short hair, mostly on asperate area. Elytra 1.7 times as long as wide, 1.4 times as long as pronotum; disc occupying basal three-fourths of elytra length; striae not impressed, very small punctures in rows; interstriae about three to four times as wide as striae, surface smooth, shining, with many micropunctures. Declivity steep, moderately bisulcate; striae 1–3 with punctures clearly marked as on disc; interstriae 1 moderately elevated, with about three small, rounded tubercles on basal half, 2 moderately impressed, twice as wide as 1, with a row of punctures equal in size to those of striae, surface shining, almost smooth, rising laterad only slightly, 3 distinctly higher than 1, crest rather broadly rounded, with a row of about six small rounded tubercles. Vestiture mostly on declivity, of erect, rather short, slender setae on odd-numbered interstriae except absent on central three-fourths of 2.

Female: Length 1.5–1.7 mm, 3.0 times as long as wide; color dark reddish brown. Frons broadly flattened on median three-fourths from epistoma to above upper level of eyes, transverse axis very feebly convex, longitudinal axis weakly concave;

Distribution: Brazil: Fortaleza R.G., VII-1951 (*cribri-collis* type and allotype); Rio Caraguata, Mato Grosso, 16-IV-1953, F. Plaumann (type and allotype of *sulcatus*); Xingu, Mato Grosso, XI-1961, Alvarenga & Werner.

Notes: The above treatment was based on the "male holotype" of *Neodryocoetes cribricollis* Schedl (actually a female) and on the female holotype, male allotype, and 2 paratypes of *Breviophthorus sulcatus* Schedl, all from Brazil. Because *cribri-collis* was based on 2 female syntypes, I here designate Schedl's subsequently labeled "holotype" as the lectotype of *Neodryocoetes cribricollis* Schedl.

Araptus pseudosimilis Wood, n. sp.

Araptus pseudosimilis Wood: Maturaca, alto Rio Cauaburi, Amazonas; NHMW, Brazil; Wien, designated below

Diagnosis: Distinguished from *crassus* (Schedl) by the smaller size; by the smooth, shining pronotum disc; and by the planoconcave female frons with longer setae. It is easily distinguished from *subsimilis* (Schedl) by having a row of punctures on declivital interstriae 2.

Female: Length 2.0 mm, 2.4 times as long as wide; color dark reddish brown. Frons flattened almost eye to eye from epistoma to well above upper level of eyes, gradually elevated on less than lower fourth to epistomal margin and on upper fourth toward vertex; surface between punctures smooth, shining, punctures very small, dense; vestiture of fine, moderately long, dense hair eye to eye from epistoma to vertex, tips of longest setae above capable of attaining about one-fourth distance toward epistoma; antennal club subcircular, suture 1 very strongly procurved, only mesal half of suture 1

indicated by a septum. Pronotum 1.0 times as long as wide; widest on basal third, distinctly constricted on anterior half, narrowly rounded in front; anterior margin armed by about 12 small, basally connected serrations; summit indefinite, in front of middle of pronotum length; anterior slope closely, rather coarsely asperate; posterior areas weakly subrugose on disc, closely, deeply, rather finely punctured; vestiture of short hair on asperate area. Elytra 1.4 times as long as wide, 1.4 times as long as pronotum; disc occupying basal three-fourths of elytra length; striae not impressed except 1 narrowly on posterior half, punctures rather small, mostly confused although parts of some rows discernible. Declivity steep, moderately bisulcate; striae 1 and 2 slightly impressed, their punctures distinct, slightly smaller than on disc; interstriae 1 distinctly elevated, armed on upper two-thirds by about four small tubercles, 2 twice as wide as 1, smooth, shining, with a confused row of punctures, 3 slightly, distinctly higher than 1, armed by a row of about six small, pointed denticles. Vestiture of minute striae hair on sides and margins of declivity, and erect setae on odd-numbered interstriae of declivity; each seta very short, moderately stout.

Distribution: Brazil (Amazonas).

Type material: The female holotype was taken at Maturaca, alto Rio Cauaburi, Amazonas, Brazil, 12-17-XII-1962, J. Rechyne. The holotype is in NHMW, Wien. See Notes above treating *A. subsimilis* (Schedl).

Araptus crassus (Schedl)

Araptus crassus (Schedl), 1966:108 (*Thamnophthorus*). Holotype ♀; Moenge, Suriname; NHMW, Wien (References in Wood & Bright c1992:954)

Diagnosis: Distinguished from *grandis* (Schedl) by the much stouter body form; by the flatter, more pubescent female frons; and by the very different elytral declivity.

Female: Length 2.6 mm, stout, 2.4 times as long as wide; color dark reddish brown. Frons planoconvex on median three-fourths from epistoma to upper level of eyes (partly concealed by pronotum on type); surface minutely, closely punctured; vestiture of abundant, rather short hair of uniform length (peripheral setae apparently not longer). Pronotum 1.0 times as long as wide; widest on basal third, rather narrowly rounded in front; anterior margin a continuous costa, serrations obsolete; summit at middle of pronotum length; anterior slope coarsely, closely asperate; posterior areas on basal fourth obscurely reticulate on disc, smooth laterally, closely, deeply, rather coarsely punctured; vestiture of minute hair mostly on asperate area. Elytra 1.3 times as long as wide, 1.2 times as long as pronotum; disc occupying basal 70 percent of elytra length; striae not impressed, except 1 slightly on posterior half; surface smooth, shining, punctures rather small, deep, close, mostly confused. Declivity very steep, shallowly bisulcate; striae 1 to 3 with small punctures in rows; interstriae 1 slightly elevated, bear-

ing a row of about seven pointed tubercles, 2 moderately impressed, not ascending laterally, smooth, shining, with a row of punctures, 3 slightly higher than 1, crest rather narrowly rounded, armed by about eight pointed tubercles, a few small tubercles scattered in lateral areas. Vestiture mostly restricted to declivity, of sparse, short, slender interstitial hair on all interstriae, except 2.

Distribution: Suriname: Moengo.

Notes: The above treatment was based on the female holotype.

Araptus grandis (Schedl)

Araptus grandis (Schedl), 1954:35 (*Neodryocoetes*). Lectotype ♂; Rio Caraguata, Mato Grosso, Brazil; NHMW, Wien, present designation (References in Wood & Bright c1992:957)

Diagnosis: Distinguished from *crassus* (Schedl) by the more slender body form; by the more strongly convex frons and shorter vestiture on the central area of the female frons; by the much more strongly sulcate declivity, with interstriae 3 much higher than 1; and by other characters described below.

Male: Similar to female except frons with epistoma strongly elevated on lateral halves, weak at median line, surface shining, without punctures, crests high, narrowly rounded, a deep impression above and behind epistoma, gradually ascending toward level at upper level of eyes, a weak median crest within impression; surface of impression obscurely, rugosely punctured; glabrous.

Female: Length 2.6–2.8 mm, 2.7 times as long as wide; color reddish brown. Frons weakly convex from epistoma to upper level of eyes; surface densely, finely punctured at center, more coarsely in peripheral areas; vestiture very short in central area (velvetlike spongy area?), much longer on peripheral areas, tips of longest setae on vertex capable of attaining about one-fourth distance toward epistoma. Pronotum 1.15 times as long as wide; widest on basal half, rather broadly rounded in front; anterior margin armed by a continuous costa; summit at middle; anterior slope coarsely, closely asperate; posterior half shining, many punctures organized into shallow grooves between weak ridges, punctures often confluent, shallow, often elongate; vestiture of fine, short hair mostly on asperate area. Elytra 1.7 times as long as wide, 1.4 times as long as pronotum; disc occupying basal two-thirds of elytra length; surface smooth, shining, punctures moderately coarse, close, confused; striae 1 impressed near declivity. Declivity steep, strongly bisulcate; striae 1 to 3 with rather coarse punctures to apex; interstriae moderately elevated, wider at middle than at base or apex, bearing a row of about seven small, pointed tubercles, 2 twice as wide as 1, smooth, shining bearing a row of punctures as large as those of striae, ascending laterally, 3 much higher than 1, crest armed by a row of seven pointed tubercles. Vestiture of sparse setae on declivity, mostly on odd-numbered interstriae.

Distribution: Brazil: Rio Caraguata, Mato Grosso, V-1953, F. Plaumann.

Notes: The above treatment was based on the female "holotype," male "allotype," and 1 male and 1 female "paratype" from Brazil. This species was based on a syntypic series. Schedl (1979:109) subsequently labeled a female "holotype," male "allotype," and "paratypes" contrary to the International Code on Zoological Nomenclature. I here designate Schedl's "holotype" as the lectotype of *Neodryocoetes grandis* Schedl, his "allotype" as the lectoallotype, and his "paratypes" as lectoparatypes of this species, as indicated above.

Araptus virolavorus Wood, n. sp.

Araptus virolavorus Wood: Holotype ♂; Campo Capote 27 km NE Montoya, Santander, Colombia; USNM, Washington, designated below

Diagnosis: Distinguished from *laudatus* Wood by the absence of reticulation on the frons of both sexes; by the presence of a row of small tubercles on declivital interstriae 1 in the male; and by other characters described below.

Male: Length 1.7–2.0 mm, 2.5 times as long as wide; color reddish brown. Frons broadly convex eye to eye from epistoma to vertex; surface smooth, shining, closely, rather coarsely punctured; almost glabrous except for short, sparse epistomal brush. Pronotum 1.1 times as long as wide; sides almost straight and parallel on basal half, rather narrowly rounded in front; anterior margin armed by about 10 low serrations (lateral serrations sometimes form a continuous costa); summit at middle, anterior slope coarsely, closely asperate; posterior areas smooth, shining, with many impressed points, punctures rather small, close. Elytra 1.5 times as long as wide, 1.4 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed, punctures confused, not in identifiable rows. Declivity steep, strongly bisulcate; striae 1 and 2 not indicated, punctures confused; interstriae 1 weakly elevated, bearing a row of about 10 to 14 small, rounded tubercles, 3 much higher than 1, armed by about four moderately large, pointed denticles. Vestiture consisting of minute, confused setae (apparently derived from strial hair) on lower declivity, and erect setae very sparse on odd-numbered interstriae of declivity.

Female: Similar to male except frons narrower, a weak, transverse impression immediately above epistoma, oral area of slightly reduced size similar to *laudatus*; surface in some areas feebly reticulate in specimens from Venezuela; serrations on anterior margin of pronotum usually forming a continuous costa.

Distribution: Colombia to Venezuela.

Type material: The male holotype, female allotype, and 58 paratypes were taken at 20 km SW El Vigia, Merida, Venezuela, 10-XII-1969, 50 m, Nos. 183 and 189, *Virola*, No. 191, miscellaneous hosts, S.L. Wood. Additional paratypes include 51 labeled 27 km NE (Campo Capote) Montoya, Santander, Colombia, 2-VII-

1970, 150 m, No. 189, *Virola*, S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Araptus araguaensis Wood, n. sp.

Araptus araguaensis Wood: Holotype ♀; Rancho Grande, Pittier N.P., Aragua, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from the remotely allied *laudatus* Wood by the emarginate epistoma into which is fitted a large mandibular denticle; by the shallowly impressed male and female frons; and by the different elytral declivity.

Male: Length 2.1 mm, 2.8 (female 2.9) times as long as wide; color reddish brown. Frons shallowly impressed on more than median half, a distinct median callus at upper level of eyes; profile of frons from callus to epistoma distinctly concave; surface reticulate, punctures moderately coarse, close; vestiture minute, slightly longer on epistoma; eye enlarged, coarsely faceted. Pronotum 1.16 times as long as wide; sides almost straight and parallel on basal half, rather narrowly rounded in front; anterior margin armed by 10 coarse serrations; summit at middle of pronotum length, anterior slope armed by close, coarse asperities; posterior areas smooth, shining, with many impressed points, punctures moderately small, deep, close; vestiture of sparse, short hair on asperate area. Elytra (spread on available specimen) about 1.6–1.7 times as long as wide, 1.4 times as long as wide; disc occupying basal two-thirds of elytra length; striae not impressed, punctures slightly confused, only partly in identifiable rows, surface smooth, shining, some impressed points present. Declivity steep, rather strongly bisulcate; striae 1 and 2 apparently with punctures obsolete; interstriae 2 smooth, shining, strongly impressed, with a row of punctures, 1 moderately elevated and armed by a row of five or six pointed tubercles, 3 more strongly elevated than 1, armed by three to six pointed denticles. Vestiture of minute strial setae (almost obsolete) and sparse, erect setae on odd-numbered interstriae only on declivity.

Female: Similar to male except epistomal margin emarginate (filled by a large denticle on mandible), frons with impression slightly wider, extending higher toward vertex, surface reticulate, punctures as in male, setae very short; declivital sulcus not as deep, interstriae 1 and 3 of equal height, their tubercles smaller.

Distribution: Venezuela (Aragua).

Type material: The female holotype, male allotype, and 1 female paratype were taken at Rancho Grande, Aragua, Venezuela, 9-IV-1970, 1100 m, No. 438, tree seedling, S.L. Wood. The holotype, allotype, and paratype are in the U.S. National Museum, Washington.

Araptus ocularis Wood, n. sp.

Araptus ocularis Wood: Holotype ♂; Brazil: Mato Grosso, 12°49'S, 51°56'W; BMNH, London, designated below

Diagnosis: Anterior half of antennal suture 1 septate, very strongly procurved; elytral declivity bisulcate, interstriae 1 and 3 armed by tubercles; male frons transversely impressed, female convex; pronotum disc reticulate.

Male: Length 1.8–2.1 mm, 2.9 times as long as wide; color reddish brown. Frons shallowly, transversely impressed from epistoma two-thirds distance toward upper level of eyes (profile distinctly concave), a low, obtuse, median elevation on upper crest; surface smooth, shining, punctures rather coarse, close, uniformly distributed; vestiture of fine, long, sparse hair mostly on or near epistoma; eye greatly enlarged, very coarsely faceted. Pronotum 1.2 times as long as wide; widest on basal half, sides weakly arcuate, broadly rounded in front; anterior margin armed by 20 coarse serrations; summit slightly anterior to middle of pronotum length, anterior slope rather coarsely, closely asperate; posterior areas reticulate, punctures small, rather close, some on disc with lateral margin shining; vestiture hairlike, rather short, mostly on asperate area. Elytra 1.6 times as long as wide, 1.4 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed except 1 weakly near declivity, punctures small, in rows on 1 and posterior half of 2, others mostly confused; interstriae 2 three times as wide as striae, 1–3 each with a uniseriate row of small punctures. Declivity steep, moderately bisulcate; striae 1–3 marked by small punctures; interstriae moderately impressed, smooth, shining, as wide as 1 or 3, impunctate; 1 distinctly, weakly elevated, armed by a row of small, rounded tubercles, 3 higher than 1 and armed by a row of slightly larger tubercles. Vestiture of rows of minute strial setae and rows of erect interstitial setae on all rows except 2 on declivity, each seta slender, almost hairlike.

Female: Similar to male except frons evenly convex, without a median elevation, vestiture similar.

Distribution: Brazil (Mato Grosso).

Type material: The male holotype, female allotype, and 1 male paratype and 1 female paratype were taken in Brazil at Mato Grosso, RS/RGS Exp., 12°49'S, 51°46'W, 26-IX-1968, Nos. A01, D51/4, E81/1, 18-26-IX-1968, 9-XII-1968, R.A. Beaver. Two of the 4 were taken at light. The holotype and allotype are in the British Museum of Natural History, London; the paratypes are in the U.S. National Museum, Washington.

Araptus guyanae Wood, n.sp.

Araptus guyanae Wood: Holotype ♂; French Guyane: Petit-Saut; USNM, Washington, designated below

Diagnosis: Apparently allied to *granulosus* (Schedl). It is distinguished by the small size, slender form, and unique elytral declivity as described below.

Male: Length 1.3 mm, 2.9 times as long as wide; color yellowish brown. Frons convex, a shallow, transverse impression above epistoma gradually decreasing above to middle of frons length; surface obscurely reticulate, closely, finely, uniformly punctured, a feeble median

callus above; vestiture of fine, short hair; eye moderately enlarged, coarsely faceted. Pronotum 1.1 times as long as wide; widest on basal half, sides weakly arcuate, rather broadly rounded in front; anterior margin armed by 16 serrations, anterior slope rather finely asperate; posterior areas reticulate, punctures very small, lateral margin of most shining; sparse, short hair on asperate area. Elytra 1.7 times as long as wide, 1.5 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed, punctures small, 1–3 mostly in rows; interstriae three or more times as wide as striae, smooth, shining, some impressed points, no punctures present. Declivity steep, rather strongly, narrowly bisulcate; striae with punctures minute, largely obsolete; interstriae 2 very narrow, strongly impressed, 1 weakly elevated above, more strongly on lower half, no punctures, one small pointed tubercle just before apex, 3 conspicuously higher than 1, no punctures, with two small, pointed tubercles at one-third and two-thirds distance from base. Almost glabrous; interstitial setae on declivity consisting of one on 1, two on 3, two on 5, one on 7, four on 9.

Type material: The male holotype is labeled French Guyane, 5°4'N, 53°3'W, 23-X-1980, foret primaire, H.P. Aberlenc. The holotype is in the U.S. National Museum, Washington

Araptus minulus Wood, n. sp.

Araptus minulus Wood: Holotype ♂; Mato Grosso, Brazil, 12°44'S, 51°46'W; BMNH, London, designated below

Diagnosis: Distinguished from *guyanae* Wood by the more strongly impressed male frons that bears a conspicuous median conical tubercle just below the upper level of the eyes; the female frons is broadly flattened from epistoma to vertex and bears a tuft of long hair.

Male: Length 1.3–1.5 mm, 2.7 (female 2.9) times as long as wide; color reddish brown. Frons moderately impressed (almost flat) on median three-fourths from epistoma to upper level of eyes, shining, minute punctures obscure, a moderately large, conspicuous median tubercle on upper half slightly below upper level of eyes; vestiture of short, sparse hair above, longer and more abundant on epistoma. Pronotum 1.1 times as long as wide; sides on basal half almost straight and parallel, rather broadly rounded in front; anterior margin armed by about 10 low serrations; summit at middle, anterior slope rather coarsely, closely asperate; shining, partly smooth, partly obscurely reticulate, punctures small, close, most obscure; vestiture of short hair, slightly longer on asperate area. Elytra 1.5 times as long as wide, 1.4 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed except 1 near declivity, punctures small, shallow, in rows; interstriae about three times as wide as striae, smooth, shining, with many impressed lines and impressed points. Declivity shallowly bisulcate, rather narrow; striae 1 and 2 minute, much smaller than on disc; interstriae 2 moderately impressed, impunctate, with many impressed points, 1

and 3 almost equally, modestly elevated, sparsely punctured. Vestiture of minute strial hair (mostly on sides), and erect interstitial setae on declivity, sparse on odd-numbered interstriae.

Female: Similar to male except body more slender; frons irregularly flattened almost eye to eye from epistoma to vertex, surface densely, finely punctured, bearing a tuft of in-curved long hair on periphery, shorter in central area, tips of longest setae on vertex capable of attaining three-fourths distance toward epistoma.

Distribution: Brazil (Mato Grosso).

Type material: The male holotype and 2 paratypes were taken in Brazil at Mato Grosso, RS/RGS Exp., 12°44'S, 51°46'W, 25-X-1968, No. B90, by R.A. Beaver; the female allotype and one paratypes bear similar data except they are No. B66. The holotype is in the British Museum of Natural History, London. The allotype and paratypes are in the U.S. National Museum, Washington.

Araptus paranae (Schedl)

Araptus paranae (Schedl), 1954:34 (*Brachydendrulus*). Lectotype ♂; Rondon, Parana, Brazil, 500 m; NHMW, Wien, present designation

Diagnosis: Distinguished from *micarius* Wood by the larger size; by the more strongly impressed declivital silcus; and by the presence of a row of small tubercles on declivital interstriae 1 and 3.

Male: Similar to female except frons feebly convex from epistoma to upper level of eyes, surface smooth, shining, finely, closely punctured, vestiture less abundant, shorter, without a peripheral fringe.

Female: Length 2.0 mm, 3.0 times as long as wide; color dark reddish brown. Frons feebly concave below, flattened eye to eye to well above upper level of eyes; surface concealed by dense, yellow hair, rather short and of uniform length in central area, two to three times as long on peripheral fringe, tips of longest setae on vertex capable of attaining about one-third of distance to epistomal margin. Pronotum 1.2 times as long a wide; widest on basal third, feebly constricted on anterior half, rather narrowly rounded in front; anterior margin armed by about 10 rather coarse serrations; summit at middle; anterior slope coarsely, closely asperate; posterior areas smooth, shining, punctures small, close; vestiture short, hairlike, rather abundant from base to anterior margin; antennal club broadly oval, suture 1 strongly procurved, septum on mesal half, 2 strongly procurved, indicated by a row of setae. Elytra 1.9 times as long as wide, 1.4 times as long as pronotum; disc occupying basal 70 percent of elytra length; striae not impressed, punctures small, in rows; interstriae three to four times as wide as striae, smooth, shining, with many impressed points, a few minute punctures near base of declivity on 1 and 3. Declivity very steep, moderately bisulcate; striae 1 and 2 with surface punctures obsolete; interstriae moderately elevated, armed by a row of very small tubercles, 2 moderately impressed, wider than 1, with many im-

pressed points, 3 moderately elevated, as high as 1, armed by a row of small tubercles. Vestiture of rows of erect, slender interstitial setae on all interstriae except most of 2 (present at base and near apex).

Distribution: Brazil: Rondon, Parana, 24°38'B, 54°07'L, 194, 500 m, F. Plaumann.

Notes: This species was based on a syntypic series. Schedl (1979:185) subsequently labeled a male "holotype," female "allotype," and "paratypes" for this species. Because this action is contrary to the International Code on Zoological Nomenclature, I here designate Schedl's male "holotype" as the lectotype and his "allotype" as the lectoallotype for *Brachydendrulus paranae* Schedl, as indicated above.

Araptus micarius Wood, n. sp.

Araptus micarius Wood: Holotype ♂; Mato Grosso, Brazil, 12°49'S, 51°46'W; BMNH, London, designated below

Diagnosis: Distinguished from *granulosus* (Schedl) by the reticulate pronotum; by the steeper elytral declivity with tubercles on interstriae 3 obsolete; and by other characters described below.

Male: Length 1.3–1.4 mm, 2.9 times as long as wide; color yellowish brown. Frons broadly convex from epistoma to upper level of eyes, profile at median line weakly convex; surface reticulate, punctures rather coarse, not sharply defined; vestiture of sparse, moderately long, fine hair; eyes moderately enlarged, coarsely faceted. Pronotum 1.2 times as long as wide; sides on basal half almost straight and parallel, rather narrowly rounded in front; anterior margin armed by about 16 serrations; summit at middle, anterior slope rather coarsely, closely asperate; posterior areas reticulate, punctures small, rather close; vestiture short, sparse, hairlike, mostly on asperate area. Elytra 1.8 times as long as wide, 1.5 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed, punctures minute, some obsolete near declivity; interstriae about five times as wide as striae, surface minutely irregular, some impressed points and many irregular lines present. Declivity steep, convex, weakly bisulcate; punctures on striae 1 obsolete, minute but distinct on 2; interstriae 2 as wide as 1 or 3, shallowly impressed, smooth, shining, impunctate except about three punctures at extreme base, 1 weakly elevated, as high as 3, with 1 and 3 each with a row of small punctures. Vestiture of minute strial hair on parts of declivity, and rows of erect interstitial setae on all declivital interstriae except lower 2, with 2 having about three setae at base; mostly glabrous on disc and most of sides.

Distribution: Brazil (Mato Grosso).

Type material: The male holotype was taken in Brazil at Mato Grosso, RS/RGS Exp., 12°49'S, 51°46'W, 22-X-1968, No. B-69, at light 22 m above ground. The female allotype and 1 male paratype were taken at the same locality on 19-X-1968, B-47/4. The holotype is in the

British Museum of Natural History, London, the allotype and paratype are the U.S. National Museum, Washington.

Araptus cracens Wood, n. sp.

Araptus cracens Wood: Holotype ♂; Mato Grosso, Brazil, 12°47'S, 51°46'W, designated below

Diagnosis: Distinguished from *micarius* Wood by the narrowly rounded profile of the posterior margin of the elytra; by the stronger reticulation on the pronotum disc; and by the larger eyes.

Male: Length 1.3–1.5 mm, 2.9 (female 3.2) times as long as wide; color yellowish brown. Frons as in *micarius*. Pronotum as in *micarius*, except reticulation stronger, punctures on disc smaller. Elytra 1.7 times as long as wide, 1.6 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed, punctures small, interstriae about four times as wide as striae, almost smooth, shining, with many impressed points, few weak impressed lines. Declivity steep, weakly bisulcate; punctures on striae 1 obsolete, minute and irregular on 2; interstriae 2 weakly impressed, as wide as 1 or 3, shining, with many impressed points, a row of punctures at base and cephalad a fourth length of disc; 1 and 3 weakly, equally convex, punctures replaced by very small granules. Vestiture of minute striae hair on declivity, and rows of erect interstitial setae on posterior third of disc and on declivity on all interstriae except absent on declivital interstriae 2 below basal area.

Female: Similar to male except more slender; frons shallowly concave eye to eye from epistoma to vertex, surface minutely, closely punctured, lower area with minute, recumbent hair; upper margin bearing a fringe of long, yellow hair; tips of longest setae capable of attaining margin of epistoma; declivital interstriae 1 and 2 with small punctures replacing granules.

Distribution: Brazil (Mato Grosso).

Type material: The male holotype was taken in Brazil at Mato Grosso, RS/RGS Exp. 12°47'S, 51°46'W, 18-X-1968, at light, 22 m above ground by R.A. Beaver. The female allotype and one male paratype bear similar data, except they were taken on 9-XII-1968, ex 10 97 host sample #1. The holotype is in British Museum of Natural History, London; the allotype and paratype are in the U.S. National Museum, Washington.

Araptus subsulcatus (Schedl), n. comb.

Araptus subsulcatus (Schedl), 1963:223 (*Breviophthorus*). Holotype ♀; Rondon, Parana, Brazil; NHMW, Wien (References in Wood & Bright c1992:1030)

Diagnosis: distinguished from *granulosus* (Schedl) and *imitatrix* (Schedl) by the smaller size; by the more strongly bisulcate declivity, with interstriae 1 as high as 3; and by other characters cited below.

Female: Length 1.7–1.8 mm, 2.8 times as long as wide; color dark reddish brown. Frons weakly convex eye to

eye from epistoma to above upper level of eyes; surface almost smooth, shining, punctures minute, moderately close; vestiture of minute hair, longer only on epistomal margin; antennal club apparently ovate, longer than wide, sutures 1 and 2 weakly indicated, strongly procurved, 1 with internal septum on mesal half. Pronotum 1.1 times as long as wide; widest on basal half, sides feebly arcuate, rather broadly rounded in front; anterior margin armed by about 14 basally separate, rather coarse serrations; summit slightly anterior to middle; anterior slope coarsely, rather closely asperate; posterior areas smooth, shining, with many impressed points, median line rather broadly impunctate, punctures rather small, moderately close; vestiture moderately abundant except on disc, of rather short semirecumbent hair. Elytra 1.7 times as long as wide, 1.5 times as long as pronotum; disc occupying basal 70 percent of elytra length; striae not impressed, punctures very small, mostly in rows; interstriae about three times as wide as striae, surface shining, with many weakly impressed, irregular lines and some impressed points, punctures very small, regular to base of 1, posterior half of 2, and near declivity from 2–9, sparse elsewhere. Declivity steep, shallowly bisulcate; striae 1 with punctures obsolete, 2 with punctures greatly reduced in size, some obsolete; interstriae 1 rather narrow, moderately elevated, armed by a row of 8–10 small, pointed tubercles, 2 twice as wide as 1, moderately impressed, almost flat, smooth, shining, impunctate, 3 as high as 1, crest rather broadly convex, armed by 8–10 small, pointed tubercles. Vestiture consisting of minute striae setae, mostly on sides and declivity, and rows of erect setae mostly on declivity and posterior half of disc on all interstriae except 2 on declivity; each seta slender, longer than distance between rows.

Distribution: Brazil: Rondon, Parana, 8-27-30-X-1952, F. Plaumann.

Notes: The above treatment was based on the female holotype, 1 female paratype, and 1 other female, all from the same locality in Brazil.

Araptus granulosus (Schedl), n. comb.

Araptus granulosus (Schedl), 1972:60 (*Breviophthorus*). Holotype ♀; Jacareacanga, Para, Brazil; NHMW, Wien (References in Wood & Bright c1992:1001)

Diagnosis: Pronotum smooth, shining; female frons shallowly concave eye to eye, long setae widely distributed, longer on upper margin; declivity moderately, narrowly bisulcate.

Male: Length 1.3 mm, 2.8 times as long as wide; color yellowish brown. Frons moderately convex; surface reticulate, punctures rather small, shallow, close, a weak, transverse impression above epistoma; vestiture of fine, sparse hair, rather short above, longer on epistoma; eye moderately enlarged, coarsely faceted. Pronotum 1.1 times as long as wide; sides almost straight and parallel on basal half, rather broadly rounded in front; anterior margin armed by about 14 serrations; summit at middle,

anterior slope coarsely, closely asperate; posterior areas shining, almost smooth, punctures minute, rather sparse; vestiture short, hairlike, mostly on asperate area. Elytra 1.7 times as long as wide, 1.4 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed, punctures very small, some almost obsolete; interstriae three times as wide as striae, almost smooth, small punctures restricted to area near declivity. Declivity rather steep, moderately, narrowly bisulcate; striae 1 and 2 impressed, punctures very small; interstriae 2 as wide as 1 or 3, moderately impressed, smooth, shining, about five setiferous punctures at extreme base, 1 rather weakly elevated and with a few small punctures, 3 more strongly elevated on upper half and armed by about five small, pointed tubercles. Vestiture of striae hair on declivity, and rows of erect interstitial setae on all interstriae except lower 2, setae slightly longer than distance between rows or between setae within a row; interstitial setae restricted to declivity and, near suture, posterior third of disc.

Female: Similar to male except frons shallowly concave eye to eye from epistoma to above upper level of eyes, surface smooth, shining, small punctures shallow, rather close, vestiture of moderately abundant erect hair of moderate length uniformly distributed, setae on vertex apparently not longer.

Distribution: Brazil: Mato Grosso, RS/RGS Exp., 12°49'S, 51°46'W, 19-X-1968, B47/5, at light 22 m above ground (in forest), R.A. Beaver; Jacareacanga, Para.

Notes: The above treatment was based on the female holotype, 1 male and 1 other female, all from Brazil. The female was compared by me directly to the female holotype. This species is here transferred from *Pityophthorus* to *Araptus*.

Araptus imitatrix (Schedl)

Araptus imitatrix (Schedl), 1972:62 (*Neodryocoetes*). Holotype ♂; Jacareacanga, Para, Brazil; NHMW, Wien (References in Wood & Bright c1992:958)

Diagnosis: Distinguished from *granulosus* (Schedl) by the moderately concave male frons; declivity not as steep, less strongly arched, the sulcus narrower, the interstitial granules almost obsolete; declivital setae very sparse, almost hairlike

Male: Length 1.2 mm, 2.9 times as long as wide; color reddish brown. Frons planoconvex on median two-thirds to upper level of eyes, moderately, transversely impressed slightly above epistoma; surface almost smooth, sparse, shallow, minute punctures uniformly distributed; antennal club about 1.7 times as long as wide, suture 1 moderately procurved. Pronotum 1.1 times as long as wide; widest on basal third, rather broadly rounded in front; anterior margin armed by about 14 basally connected, low serrations; summit slightly anterior to middle, anterior slope rather coarsely, closely asperate; posterior areas subshining, obscurely reticulate; punctures very small, almost obsolete; vestiture mostly on asperate area,

of sparse hair. Elytra 1.7 times as long as wide, 1.4 times as long as pronotum; disc occupying basal 64 percent of elytra length; striae not impressed, punctures in obscure rows, small to obsolete; surface almost smooth, many impressed points and a few weak irregular lines present. Declivity moderately steep, rather weakly arched, narrowly, rather strongly bisulcate; striae 1 moderately impressed, punctures minute, almost obsolete, very narrow, with a row of minute punctures, 2 moderately impressed, twice as wide as 1, lateral half ascending to narrowly rounded crest on 3, crest with a row of minute punctures (some obscurely granulate). Vestiture confined to declivity, of slender interstitial setae on odd-numbered interstriae, about nine on 1, one to four each on 3, 5, 7, and 9.

Distribution: Brazil: Jacareacanga, Para, XII-1969, F.R. Barbosa.

Notes: The above treatment was based on the male holotype.

Araptus reticulatus Wood, n. sp.

Araptus reticulatus Wood: Holotype ♂; Mato Grosso, Brazil, 12°49'S, 51°46'W; BMNH, London, designated below

Diagnosis: Distinguished from *granulosus* (Schedl) by the reticulate pronotum; by the more weakly arched profile of the elytral declivity on the basal two-thirds; and by the slightly larger size.

Male: Length 1.6 mm, 2.8 times as long as wide; color yellowish brown. Head and pronotum about as in *granulosus* except pronotum disc reticulate. Elytra similar to *granulosus*, except striae punctures on disc small, several obsolete near declivity. Declivity about as in *granulosus*, except interstriae 1 with a row of small granules.

Distribution: Brazil (Mato Grosso).

Type Material: The male holotype was taken in Brazil at Mato Grosso, RS/RGS Exp. 12°49'S, 51°46'W, 18-IX-1968, No. 141, in forest at light 60 feet from ground, R.A. Beaver. The holotype is in the British Museum of Natural History, London.

Araptus cribripennis (Schedl)

Araptus cribripennis (Schedl), 1976:70 (*Neodryocoetes*). Holotype ♂; Xingu, Mato Grosso, Brazil; NHMW, Wien (References in Wood & Bright c1992:955)

Diagnosis: Distinguished from *reticulatus* Wood by the larger size; by the steeper elytral declivity, with 10 or more tubercles on the crest of interstriae 3; and by the male frons being less strongly convex, smooth, shining, with larger punctures.

Male: Length 1.8 mm, 3.0 times as long as wide; color yellowish brown. Frons weakly convex above, shallowly, transversely impressed on lower third; surface shining, punctures rather coarse, close; vestiture of moderately abundant, fine setae, short above, longer toward epistoma; both antennae missing from type. Pronotum 1.2 times as long as wide; widest on more than basal half;

rather narrowly rounded in front; anterior margin armed by about 12 very low, basally connected serrations; summit slightly anterior to middle of pronotum length; anterior slope coarsely, closely asperate; posterior areas rather strongly reticulate behind summit, smooth, shining on lateral areas, punctures small to obsolete; vestiture of fine, short hair mostly on asperate area and sides. Elytra 1.8 times as long as wide, 1.4 times as long as pronotum; disc occupying basal three-fourths of elytra length; striae not impressed, punctures small to minute, in rows. Declivity steep, shallowly, rather narrowly bisulcate; striae 1 impressed, punctures obsolete on 1 and 2; interstriae 1 feebly arched, narrow, distinctly elevated and armed by a row of seven or more minute tubercles, 2 twice as wide as 1, ascending laterally on upper half almost from suture, smooth, shining, with a row of several punctures at or near base, and with two small pointed tubercles in lower fifth, crest of 3 armed by six to eight small, pointed tubercles on upper two-thirds, lateral areas with a dozen or more similar to smaller tubercles. Vestiture of numerous very small, striae setae on sides and declivity, and interstitial rows of erect setae on all interstriae except middle half of 2.

Distribution: Brazil: Xingu, Mato Grosso, XI-1961, Alvarenga & Werner.

Notes: The above treatment was based on the male holotype from Brazil.

Araptus parvistriatus Wood, n. sp.

Araptus parvistriatus Wood: Holotype ♂; 2 km N Atenquique, Jalisco, Mexico, 1000 m; USNM, Washington, designated below

Diagnosis: Allied to *eggersi* (Schedl) but distinguished by the smaller size; by the different female frons; by the narrowly impressed posterior half of discal striae 1; by the weakly impressed elytral declivity at striae 1 only; and by other characters described below.

Female: Length 1.7 mm, 2.6 times as long as wide; color dark reddish brown. Frons not fully visible on specimen at hand, apparently broadly, weakly convex, with short, sparse pubescence. Antennal club rather broadly oval, suture 1 much more broadly arched than in *eggersi*. Pronotum 0.96 times as long as wide; widest near base, sides weakly arcuate, converging toward rather broadly rounded anterior margin; anterior margin very weakly serrate, about 10 serrations indicated; summit at middle, anterior slope finely closely asperate; posterior areas smooth, shining, with many impressed points, punctures rather small, deep; vestiture of short, fine hair uniformly distributed on asperate and basal areas. Elytra 1.5 times as long as wide, 1.6 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed except 1 on more than posterior half of disc, punctures on 1–3 in identifiable rows; interstriae about three times as wide as striae, almost smooth, shining, each with a row of regularly spaced punctures slightly smaller than those of striae. Declivity broadly convex, rather steep; striae 1 narrowly impressed,

punctures obscure, 2 and 3 not impressed; interstriae weakly elevated, punctures obscure to obsolete, no granules, 2 and 3 as wide as 1, with 2 smooth, with a row of small punctures on basal fourth, 3 with a row of punctures to apex. Vestiture abraded on disc and declivity, apparently of short striae hair, and erect interstitial setae (on 1–3 at base and on lateral areas from base to declivity, about twice as long as striae hair).

Distribution: Mexico (Jalisco).

Type material: The male holotype was taken in Mexico 2 km N Atenquique, Jalisco, 24-VI-1965, 1000 m, No. 115, SLW. The holotype is in the U.S. National Museum, Washington.

Araptus impensus (Wood)

Plate CLI

Araptus impensus (Wood), 1961:6 (*Thamnophthorus*). Holotype ♂; Bogota, Colombia; USNM, Washington (References in Wood & Bright c1992:958)

Diagnosis: Remotely allied to *eggersi* (Schedl) but much larger; female frons much more strongly, extensively concave; discal interstriae 1–4 with punctures; declivity more strongly bisulcate, without any interstitial granules or tubercles.

Male: Similar to female except frons broadly convex above, a weak, transverse impression on lower half, surface mostly smooth, punctures shallow, obscurely impressed; vestiture of fine, sparse, short hair.

Female: Length 2.9–3.8 mm, 2.4 times as long as wide; color reddish brown. Frons rather strongly concave eye to eye from epistoma to vertex; surface smooth, shining, punctures small, close, many with a small granule within puncture; vestiture of fine, rather long hair of moderate abundance, uniformly distributed. Pronotum 1.0 times as long as wide; widest at base, sides arcuately converging to strong constriction on anterior half, narrowly rounded in front; anterior margin weakly serrate, about 10 serrations; summit indefinite, on posterior half of pronotum length; anterior slope coarsely, closely asperate; posterior third smooth, shining, punctures small, rather widely spaced; vestiture of fine, short hair on asperate area and sides. Elytra 1.5 times as long as wide, 1.7 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed except 1 near declivity, punctures on 1–4 rather small, almost in rows; interstriae about twice as wide as striae, smooth, shining, 1 and 3 with a row of punctures, others with an occasional puncture. Declivity steep, shallowly bisulcate; striae 1–3 each with a row of punctures; interstriae 2 shallowly impressed, as wide as 1 or 3, smooth, shining, impunctate except at extreme base, 1 and 3 equally, weakly elevated, 1 and 3–9 each with a few minute punctures. Vestiture of very sparse, short hair on all interstriae except 2 on declivity.

Distribution: Colombia to Venezuela.

Colombia: Bogota, IX-1949, Pino Romeron.

Venezuela: La Carbonera Experimental Forest 50 km NW Merida, Merida, 27-X-1970, 2500 m, No. 86, *Podocarpus raspigliosii*, SLW.

Biology: Adults infested fallen fruit, after they fell to the ground, where they bored in and reared their young.

Notes: The above treatment was based on the type series of 29 specimens from Colombia and 29 specimens from Venezuela.

Araptus nitens Wood, n. n.

Araptus nitens Wood: Holotype ♂; Chapeco, Santa Catarina, Brazil, 24°07', 52°36', 600 m; NHMW, Wien, replacement name, present designation

Breviophthorus nitidipennis Schedl, 1967:10. Holotype ♂; Chapeco, Santa Catarina, Brazil, 600 m; preoccupied by Schedl (1963:57); NHMW, Wien (References in Wood & Bright c1992:1015)

Diagnosis: Distinguished from the closely allied *schwarzi* (Blackman) from Mexico by the smaller size; by the different frons in both sexes; and by the slightly shagreened pronotum disc, with distinctly smaller punctures.

Male: Similar to female except frons broadly convex, smooth, shining, punctures small, deep, rather widely spaced, epistoma broadly, moderately emarginate; lower margin of epistoma straight, not elevated.

Female: Length 1.7–1.8 mm, 2.5 times as long as wide; color dark reddish brown. Frons transversely, subconvexly impressed on median two-thirds from epistoma to slightly above upper level of eyes; surface dull, densely, very finely punctured; epistoma modestly elevated, flattened, forming a (longitudinal) broad, impunctate band; vestiture of fine, short, rather abundant setae in central area, a sparse fringe of longer setae on dorsal margin, tips of longest setae on dorsal margin capable of attaining a fourth of distance toward epistoma. Pronotum 1.08 times as long as wide; widest at base, sides arcuately convergent to distinct constriction on anterior third, rather narrowly rounded in front; anterior margin armed by about 12 weak, basally connected serrations; summit at middle, anterior slope coarsely asperate; posterior areas slightly shagreened, smooth, shining, a few impressed points, punctures moderately coarse, deep, spaced by about diameter of a puncture, vestiture of fine, sparse hair on asperate area and lateral margins. Elytra 1.6 times as long as wide, 1.5 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed, except 1 weakly near declivity, punctures mostly in rows, small, deep; interstriae twice as wide as striae, smooth, shining, not shagreened, a few impressed points present, impunctate except two or three at base of 2 and 3. Declivity convex, moderately steep; striae 1 moderately, narrowly impressed, punctures on 1 and 2 small, distinct; interstriae 1 and 2 equally narrow, 3 wider and as high as suture, 2 weakly impressed, 1 and 2 impunctate, 3 with a row of small punctures, some of them feebly granulate. Vestiture mostly restricted to declivity, of sparse, minute strial hair in lateral areas, and sparse

rows of rather short, erect setae on odd-numbered interstriae, extending to middle of disc on 1, 3, 5, and 7.

Distribution: Brazil: Chapeco, 27°07', 52°36', 600 m (holotype); Nova Teutonia, Santa Catarina, 2-VII-1972, 27°11'B, 52°23'L, 300–500 m, F. Plaumann.

Biology: The very closely related *schwarzi* was removed from seeds of *Persea americana*. This species may have similar habits.

Notes: The above treatment was based on the male holotype and 2 females and 1 other male from Brazil. The name *Breviophthorus nitidipennis* Schedl (1967:10) is here transferred to the genus *Araptus*, where it is preoccupied by *Neodryocoetes nitidipennis* Schedl (1963:57) and must be replaced. The new name, *Araptus nitens*, is here proposed as a replacement for the junior homonym, *Breviophthorus nitidipennis* Schedl (1967:10), as indicated above.

Araptus simplicis Wood, n. sp.

Araptus simplicis Wood: Holotype ♀; Cepec, Ilheus, Bahia, Brazil; USNM, Washington, designated below

Diagnosis: Distinguished from *eusimplicis* Wood by the less strongly impressed declivital interstriae 2; by the less strongly elevated declivital interstriae 3, with fewer, smaller granules; by the broadly convex male frons and flat female frons; and by other characters treated below.

Male: Similar to female except frons moderately convex, very closely punctured, sparsely pubescent; declivital impression slightly deeper.

Female: Length 1.7–1.8 mm, 2.6 times (male 2.5) times as long as wide; color dark reddish brown. Frons transversely flat eye to eye to above upper level of eyes, epistoma slightly elevated, surface smooth, shining, densely, rather finely punctured, periphery bearing a fringe of very long, yellow hair, sparse and short in central area, tips of longest setae capable of almost attaining epistomal margin. Pronotum 1.15 times as long as wide; widest on weakly arcuate basal half, a weak constriction on anterior half, rather narrowly rounded in front; anterior margin forming an almost continuous costa; summit at middle, anterior slope coarsely asperate; posterior areas subreticulate, with numerous impressed points, punctures small, close; vestiture of short hair on asperate area. Elytra 1.5 times as long as wide, 1.3 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed except 1 weakly near declivity, punctures on 1–3 small, in obscure rows; interstriae 2 and 3 about four times as wide as striae, surface almost smooth, shining, with many impressed points, punctures on 2 and 3 similar to and sometimes confused with those of striae. Declivity steep, weakly bisulcate; striae 1–3 with punctures rather small, in rows; interstriae 2 shallowly impressed, wider than on 1 or 3, with 1 distinctly elevated, as high as 3, with 1, 2, and 3 each with a row of fine punctures, one or more of those on 1 and 3 feebly granulate. Vestiture restricted to sides and

declivity, consisting of sparse, minute striae and sparse, short, erect setae on odd-numbered interstriae.

Distribution: Brazil (Bahia).

Type material: The female holotype and male allotype were taken in Cepec, Ilheus, Bahia, Brazil, 1-III-1981, blacklight, Kaston. The holotype and allotype are in the U.S. National Museum, Washington.

Araptus eusimplicis Wood, n. sp.

Araptus eusimplicis Wood: Holotype ♂; Mato Grosso, Brazil, 20°47'S, 51°46'W; BMNH, London, designated below

Diagnosis: Distinguished from *simplicis* Wood by the more strongly impressed declivital interstriae 2, with small tubercles on 1 and 3; by the slightly convex female frons, with more numerous shorter setae.

Male: Similar to female except frons shallowly, transversely impressed from epistoma to upper level of eyes, surface densely, rather coarsely punctured, a short, transverse, subcarinate callus at upper level of eyes; epistoma armed by a pointed tubercle slightly above margin, a weak median crest from tubercle extending toward callus; vestiture of sparse, fine, short setae, longer on epistomal margin.

Female: Length 1.8–1.9 mm, 2.6 times as long as wide; color dark reddish brown. Frons flattened on central half of area from epistoma to upper level of eyes; surface densely, rather finely punctured eye to eye from epistoma to upper level of eyes; epistoma bearing a minute, median tubercle; vestiture of abundant, fine hair uniformly distributed, much longer on peripheral margin, longest setae equal in length to more than half distance from epistoma to upper level of eyes. Pronotum 1.16 times as long as wide; widest on basal half, a slight constriction on anterior half, rather broadly rounded in front; anterior margin armed by about 8 basally fused serrations that form an almost continuous costa; summit at middle, anterior slope coarsely, closely asperate, posterior areas smooth, shining behind disc, partly reticulate laterally, punctures coarse, close, deep; vestiture of short, inconspicuous setae. Elytra 1.4 times as long as wide, 1.3 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed except 1 moderately on posterior half, punctures on 1–3 rather small, mostly in rows; interstriae about three times as wide as striae, 2 and 3 smooth, shining, with many impressed points, punctures confused with those of striae. Declivity steep, moderately bisulcate; striae 1–3 clearly punctured in rows; interstriae 2 moderately impressed and with a row of punctures, 1 rather weakly elevated and armed by a row of tubercles, 3 conspicuously higher than 1 and armed by a row of tubercles. All declivital interstriae with a row, erect, stout hair except lower 2 glabrous, a few setae attaining middle of disc.

Distribution: Brazil (Mato Grosso).

Type material: The male holotype, female allotype, and 1 paratype were taken at Mato Grosso, Brazil, RS/RGS Exp. 12°47'S, 51°46'W, 29-IX-1968, R.A. Beaver; 3 para-

types bear the same data except were taken 3-X-1968. The holotype and allotype are in BMNH, London; the paratypes are in the U.S. National Museum, Washington.

Araptus semisulcatus Wood, n. n.

Araptus semisulcatus Wood: Holotype, sex?; Urundel, Salta Prov., Argentina; NHMB, Budapest, a replacement name for *Neodryocoetes sulcatus* Nunberg (References in Wood & Bright c1992:955, 962)

Neodryocoetes sulcatus Nunberg, 1964:435. Holotype, sex?; Urundel, Salta Prov., Argentina; NHMB, Budapest, preoccupied by Schedl (1959:552), a junior synonym of *Araptus cribricollis* (Schedl, 1954:36), treated above

Diagnosis: Distinguished from *eusimplicis* Wood by the more slender body; by the absence of reticulation on lateral areas of pronotum; by absence of a median tubercle on the epistoma; and by other characters noted below.

Female: Length 1.8 mm, 2.8 times as long as wide; color dark reddish brown. Frons flattened eye to eye from epistoma to vertex; epistoma with a feeble median subtuberculate crest; surface finely, densely punctured; vestiture of rather abundant fine hair uniformly distributed, distinctly shorter than in *eusimplicis*. Pronotum 1.15 times as long as wide; about as in *eusimplicis*, except anterior margin more coarsely serrate and posterolateral areas without reticulation. Elytra 1.7 times as long as wide; almost as in *eusimplicis*, except discal striae 1 impressed almost to base, impressed points on discal interstriae almost absent. Declivity similar to *eusimplicis*, except slightly steeper; interstriae 3 not as high, tubercles not as large.

Distribution: Argentina to Paraguay.

Argentina: Salta Prov., Urundel (Nunberg type).

Paraguay: San Bernardino, Lago Ypacarai, 11-X-1968, L. & C.W. O'Brien.

Notes: The above treatment was based on 1 female from Paraguay that was compared to Schedl's specimen of *Neodryocoetes sulcatus* Nunberg, which he received from Nunberg.

Araptus clematicolens Wood, n. sp.

Araptus clematicolens Wood: Holotype ♂; Merida, Merida, Venezuela; USNM, Washington, designated below

Diagnosis: This comparatively slender species has the female frons covered by very short hair; the declivity is weakly impressed at striae 1, the antennal club is strongly flattened, almost as wide as long, sutures 1 and 2 are rather broadly, strongly procurved.

Male: Length 2.0–2.3 mm, 3.0 times as long as wide; color almost black. Frons broadly, rather strongly convex, a feeble impression at epistoma; surface strongly reticulate from epistoma to vertex, punctures very small, shallow, uniformly, rather closely distributed; eye normal, finely faceted; antennal club large, strongly flattened, almost symmetrical, much longer than scape, slightly longer than wide, sutures 1 and 2 strongly, broadly

procurved, 1 attaining one-fourth length of club, 2 attaining slightly more than half length of club, 1 and 2 marked by rows of setae, 1 weakly septate. Pronotum 1.06 times as long as wide; widest on basal third, weakly constricted on anterior half, rather narrowly rounded in front; anterior margin armed by about 10–12 low serrations; summit at middle, anterior slope rather coarsely, closely asperate; surface strongly reticulate between asperities and on posterior areas; punctures small, rather close, lateral margin of many smooth, shining, weakly elevated; vestiture of short, sparse hair on sides and asperate area. Elytra 1.7 times as long as wide, 1.7 times as long as pronotum, disc occupying basal 72 percent of elytra length; striae not impressed except 1 on posterior third, punctures small, mostly in rows; interstriae about four times as wide as striae, surface shining, with many impressed irregular lines and impressed points, interstitial punctures small, on posterior half of most interstriae. Declivity steep, convex, except shallowly impressed at striae 1; punctures of striae 1–3 very small but present; interstriae 1 weakly elevated, granular and/or with a row of small, rounded granules, 2 shallowly impressed on mesal side, rising laterally, 3 as high as 1, with 2 and 3 usually with a row of small granules replacing punctures. Vestiture of minute strial hair on declivity, and rows of small granules replacing punctures. Vestiture of minute strial hair on declivity, and rows of erect hair on interstriae 1–9 on declivity and posterior parts of disc.

Female: As in male except differences of abdominal terga 7 and 8.

Distribution: Venezuela (Merida).

Type material: The male holotype, female allotype, and 38 paratypes were taken at Merida, Merida, Venezuela on 29-XII-1969, 1700 m, No. 209, from *Clematis* stems, by S.L. Wood. Additional paratypes include 11 bearing the same data except they are from field collection No. 212. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Araptus andinus Wood, n. sp.

Araptus andinus Wood: Holotype ♀; Merida, Merida, Venezuela; USNM, Washington, designated below

Diagnosis: Allied to *clematicola* Wood except slightly smaller; sutures of antennal club more strongly procurved; pronotum with reticulation on disc, not between asperities; sculpture of frons and declivity very different.

Male: Length 1.8–2.0 mm, 2.8 times as long as wide; color brown, pronotum darker. Frons convex above upper level of eyes, weakly impressed on a subtriangular area on median half of lower area from epistoma to upper level of eyes; strongly reticulate above, almost smooth, shining in impressed area; punctures small, distinct, rather close; vestiture hairlike, short, sparse, longer on and near epistoma; antenna similar to *clematicola*. Pronotum 1.1 times as long as wide; widest on basal third, weakly, arcuately converging, rather narrowly rounded in front; anterior margin armed by a costa formed by

about 12 basally fused serrations; summit at middle, anterior slope rather coarsely, closely asperate; posterior areas rather strongly reticulate, reticulation not extended into asperate area; punctures on disc very small, each with a low, small, shining ruga on its lateral margin; vestiture of fine, short hair, slightly longer on asperate area. Elytra 1.7 times as long as wide, 1.5 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed except 1 moderately on posterior half of 1, punctures in rows very small, shallow; interstriae about four times as wide as striae, almost smooth, subshining, with many obscurely impressed points, a few very small punctures in rows on posterior third of disc; declivity convex, steep; striae 1 rather weakly impressed, punctures on 1 and 2 very small, distinct; interstriae 1–3 of equal width, 1 very feebly elevated, each with a row of minute granules. Vestiture of minute strial setae mostly on declivity, and rows of erect setae on all declivital interstriae and on posterior third of disc in median area.

Female: Similar to male except frons feebly concave on central half, surface smooth, shining, very closely, rather coarsely, deeply, uniformly punctured from epistoma to vertex; vestiture of fine, sparse, short hair in central area, longer laterally, much longer and rather numerous on upper margin, tips of longest setae on vertex capable of attaining three-fourths distance toward epistomal margin.

Distribution: Venezuela (Merida).

Type material: The male holotype, female allotype, and 5 paratypes were taken at Merida, Merida, Venezuela (between stops 2 and 3 on the Pico Bolivar Teleferico), 3-I-1970, 2500 m, No. 215, from a tree seedling, by S.L. Wood; 11 paratypes are from 20 km N Merida, Merida, Venezuela, 8-I-1970, 2200 m, *Podocarpus* limbs, No. 228, S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Araptus eggersi (Schedl)

Araptus eggersi (Schedl), 1951:115 (*Brachydendrus*). Holotype ♀; Cochabamba, Bolivia (Germain); NHMW, Wien (References in Wood & Bright c1992:955)

Diagnosis: Allied to *placetulus* Wood and *parvistriatus* Wood from Mexico but mandibles of normal size, and female frons more distinctly concave.

Male: Similar to female except frons feebly concave and most setae absent.

Female: Length 1.8–2.1 mm, 2.4 times as long as wide; color dark reddish brown, pronotum almost black. Frons shallowly concave from epistoma to upper level of eyes, punctures small; vestiture moderately abundant, short on central area, twice as long at lateral and dorsal margins. Pronotum 0.90 times as long as wide; widest at base, sides arcuately converging to narrowly rounded anterior margin; anterior margin armed by about 10 weak serrations; summit behind middle, anterior slope gradual, rather coarsely asperate; basal third smooth, punctures

small, close; vestiture of fine, short hair uniformly distributed. Elytra 1.5 times as long as wide, 1.6 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed except 1 moderately on posterior half of disc; striae punctures mostly in rows, rather small; interstriae slightly more than twice as wide as striae, smooth, shining, punctures sparse on 1 and 3, almost absent on 2 and 4. Declivity steep, broadly convex; striae 1–3 with punctures in rows, striae 1 moderately impressed, 1 and 3 weakly elevated, 2 as wide as 1 or 3 and shallowly impressed; interstriae 1 impunctate, 1 and 3 with punctures (some very feebly granulate). Vestiture of erect hair on odd-numbered interstriae in sparse rows from base to apex.

Distribution: Bolivia to Peru.

Bolivia: Cochabamba (Germain), 1907, H. Donckier (type).

Peru: Cutervo, 19-VI-1956, 2600 m, W. Weyrauch.

Notes: The above treatment was based on 6 specimens from Peru that were compared by me to the female holotype from Bolivia.

Araptus roupalae Wood, n. sp.

Araptus roupalae Wood: Holotype ♀; Piedras Blancas 10 km E Medellin, Antioquia, Colombia; USNM, Washington, designated below

Diagnosis: Distinguished from *vinnulus* Wood by the smaller size; by the reticulate pronotum; and by the shorter interstitial setae on the declivity.

Male: Similar to female except frons shallowly, transversely impressed from slightly elevated epistoma to upper level of eyes, a weak, subacute median carina partly or entirely present from epistoma to upper level of eyes; surface reticulate, rather coarsely, closely punctured from epistoma to vertex; vestiture of sparse, short, fine hair uniformly distributed.

Female: Length 1.3–1.5 mm, 2.5 times as long as wide; color almost black. Frons broadly convex, a feeble impression immediately above epistoma (not continued dorsad), surface reticulate from epistoma to vertex, punctures coarse, close, a feeble median carina from epistoma to upper level of eyes (weaker than in male); vestiture of very short, sparse, uniformly distributed hair. Pronotum 1.1 times as long as wide; widest on basal third, sides arcuately converging toward rather narrowly rounded anterior margin; anterior margin armed by 8 serrations; summit at middle, anterior slope coarsely, closely asperate; posterior areas minutely reticulate, minute punctures partly to entirely obsolete, their lateral margin shining, weakly elevated; vestiture of short, recumbent hair, slightly longer on asperate area. Elytra 1.6 times as long as wide, about 1.6 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed, punctures very small, in rows; interstriae about four times as wide as striae, smooth, shining, with many irregular impressed lines and impressed points, a few very small punctures in rows at base of declivity. Declivity convex, steep; striae 1 slightly, 2 feebly impressed, punc-

tures very small, distinct on 1–3; interstriae 1–3 about as on disc except each with a row of small, rounded tubercles. Vestiture of rows of minute striae hair mostly on declivity, and rows of erect interstitial setae on declivity (usually absent or reduced on 5, 6, and 7), each seta shorter than distance between rows.

Type material: The female holotype, male allotype, and 25 paratypes were taken at Piedras Blancas 10 km E Medellin, Antioquia, Colombia, 15-VII-1970, 2500 m, No. 666, *Roupala* bark, S.L. Wood; 11 additional paratypes bear identical data except for collection No. 672. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Araptus granulipennis (Schedl)

Araptus granulipennis (Schedl), 1967:12 (*Neodryocoetes*). Holotype ♀; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:957)

Diagnosis: Distinguished from *roupalae* Wood by the more slender body form; by the obscurely reticulate pronotum disc; by the larger striae punctures on the disc; and by the dark reddish brown color.

Male: Length 1.3–1.6 mm, 2.7 times as long as wide; color dark reddish brown. Frons broadly convex and reticulate on upper two-thirds of area below upper level of eyes, lower third distinctly, transversely impressed and smooth, brightly shining, punctures on both areas very small, rather close; vestiture of sparse, fine, short, uniformly distributed hair. Pronotum 1.1 times as long as wide; widest on basal third, converging toward a weak constriction on anterior half, rather narrowly rounded in front; anterior margin armed by about 12 basally connected, weak serrations; summit at middle; anterior slope coarsely, closely asperate; posterior areas shining, weakly reticulate on more than half of disc; punctures small, deep, rather close, lateral margin of most punctures shining, weakly elevated; vestiture sparse, inconspicuous, mostly on asperate area. Elytra 1.6 times as long as wide, 1.5 times as long as pronotum; disc occupying basal 70 percent of elytra length; striae not impressed, punctures moderately large on basal fourth becoming very small near declivity; interstriae three or more times as wide as striae, almost smooth, shining, with many impressed points only on 1 to base, near declivity on 2–5. Declivity convex, steep; striae 1 weakly, 2 feebly impressed, punctures almost obsolete; interstriae 1–3 of equal width, 1 very weakly elevated, 1–3 each with a row of very minute granules, some accompanied by a small puncture, surface almost smooth, shining, with many impressed points. Vestiture mostly on declivity, of minute striae hair, and erect interstitial setae, each slightly flattened on its distal half, each about equal in length to distance between rows.

Female: Similar to male except lower frons less distinctly impressed.

Distribution: Brazil: Nova Teutonia [Santa Catarina], 27°11'N, 52°23'W, VI-1966, 300–500 m, F. Plaumann; same data except taken VII-1966.

Notes: The above treatment was based on the male holotype and 3 male paratypes, and on 11 specimens erroneously placed under *A. brasiliensis* by Schedl, all from Brazil.

Araptus bolivianus (Schedl)

Araptus bolivianus (Schedl), 1951:110 (*Neodryocoetes*). Lectotype ♂; Cochabamba, Germain, Bolivia; NHMW, Wien (References in Wood & Bright c1992:953)

Diagnosis: Allied to *eggersi* (Schedl) and *nigrellus* Wood. Distinguished from *nigrellis* by the larger size; by the smooth, shining frons between punctures; by the many impressed, irregular lines on the elytra disc; by the reduced size of punctures on discal striae 1 and 2 near the declivity; and by the more slender interstitial setae on the declivity.

Male: Length 2.2–2.4 mm, 2.8 times as long as wide; color very dark reddish brown. Frons mostly concealed by pronotum above lower third; apparently broadly convex, smooth, shining, closely, rather coarsely punctured; vestiture sparse, short. Pronotum 1.07 times as long as wide; widest at base, sides weakly arcuate, converging slightly to rather broadly rounded anterior margin; anterior margin weakly irregularly armed by about 10 low serrations; summit at middle; anterior slope coarsely, closely asperate; posterior areas shining, irregular, punctures very small, lateral margin of each with a low, conspicuous, shining elevation; vestiture hairlike, uniformly distributed, shorter on posterior areas. Elytra 1.7 times as long as wide; 1.7 times as long as pronotum; disc occupying basal three-fourths of elytra length; striae not impressed, punctures small, in rows; interstriae about four to five times as wide as striae, surface smooth, shining, with many impressed irregular lines and some impressed points. Declivity convex, rather steep; striae 1 rather weakly, 2 very feebly impressed, punctures very small, obscure; interstriae 1–3 of about equal width and height, mostly smooth, shining, with many impressed points, each with a row of about 10 small, rounded granules. Vestiture mostly on declivity, of minute strial hair, and rows of erect interstitial setae on 1 to 3 and 5, 7, and 9, each seta slender, about as long on 1–3 as distance between rows.

Distribution: Bolivia: Cochabamba, Germain, 1907, Donickier.

Notes: This species was based on a syntypic series that was used for the above treatment. Subsequent to the original description, Schedl (1979:43) designated one of his syntypes as the “holotype” of this species, contrary procedure outlined in the International Code on Zoological Nomenclature. For that reason, I here designate the male syntype that was Schedl’s “holotype” as the lectotype of *Neodryocoetes bolivianus* Schedl, as indicated above. The 3 male remaining syntypes in NHMW, Wien, are designated as lectoparatypes of this species.

Araptus parvulus Wood, n.sp.

Araptus parvulus Wood: Holotype ♀; Piedras Blancas 10 km E Medellin, Antioquia, Colombia; USNM, Washington, designated below

Diagnosis: Distinguished from *vinnulus* Wood by the smaller size; by the more strongly convex female frons, with pubescence clearly restricted to a definite circular area; and strial punctures much larger.

Male: Similar to female except frons convex, reticulate.

Female: Length 1.3 mm, 2.6 (male 1.4 mm, 2.7) times as long as wide. Frons moderately convex and coarsely, closely punctured on a circular area occupying 80 percent of distance between eyes, not attaining eyes or epistoma, but attaining vertex; vestiture of a sparse tuft of long, pale hair on punctured area, tips of longest setae on vertex attain two-thirds distance to epistoma. Pronotum 1.06 times as long as wide; widest on basal third, sides arcuately converging to narrowly rounded anterior margin; anterior margin armed by 8 serrations; summit at middle, anterior slope coarsely, closely asperate; posterior areas reticulate, punctures minute, each with a shining, feeble elevation on lateral margin; vestiture sparse on asperate area. Elytra 1.7 times as long as wide, 1.7 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed, punctures in rows, moderately large at base, much smaller toward declivity; interstriae about four times as wide as striae, almost smooth, shining, with a few weakly impressed lines, punctures absent except near declivity. Declivity convex, steep; striae not impressed, punctures small, distinct; interstriae about as on disc except each with a row of small, rounded granules. Vestiture mostly on declivity, of rows of minute strial hair, and rows of erect interstitial setae.

Distribution: Colombia (Antioquia).

Type material: The female holotype and male allotype were taken at Piedras Blancas 10 km E Medellin, Antioquia, Colombia, 15-VII-1970, 1500 m, No. 661, probably *Roupala* sp., by S.L. Wood. The holotype and allotype are in the U.S. National Museum, Washington. An additional male bearing data identical to the type may be another species.

Araptus muticus Wood, n. sp.

Araptus muticus Wood: Holotype ♂; Nova Granada, Colombia; IRSNB, Brussels, designated below

A male specimen was found among the Chapuis material (IRSNB, Brussels) that had been identified by Chapuis as *Amphicranus muticus*, bearing the printed label “Colombie” of Chapuis, on which was glued a circular handwritten label “N. Grenada, Dej.” Eichhoff examined this specimen and gave the identification as “Nov. Genus, nudum description, det. Eichhoff,” and also bearing a printed on once-red paper, “Type.” I find no printed reference to this species or to a valid name that

can be used for reference. It appears that this specimen came from the area now known as Venezuela. The left antenna is complete, the scape of the right antenna is also present. The antennal club is broadly oval, slightly longer than wide, strongly flattened and has septate suture 1 profoundly procurved and attaining the middle of the club length, suture 2 is non-septate and marked by setae, the funicle is 5-segmented. These and other characters place this specimen in the genus *Araptus* and in or near the species group of *A. rufopalliatatus*, the type-species of *Araptus*. The manuscript name used by Chapuis was selected as the name for this remarkable species.

Diagnosis: Distinguished from other members of the *rufopalliatatus* species group by the larger size; by the confused punctures on the elytral disc; and by the unique elytral declivity described below.

Male: Length 3.6 mm, 2.6 times as long as wide; color dark reddish brown. Frons broadly, rather weakly convex (upper half concealed by pronotum on type), surface almost smooth, punctures on lateral thirds very small, close, median third weakly elevated, forming an indefinite crest, a shining callus on median one-fifth of epistoma; vestiture of sparse, fine, rather short setae; antenna described above. Pronotum 1.16 times as long as wide; widest slightly behind middle of pronotum length; sides moderately arcuate on posterior two-thirds, broadly rounded in front; anterior margin armed by more than 14 low serrations; summit at middle of pronotum length; asperities small, numerous, confused; posterior areas minutely reticulate, punctures very small, moderately spaced, numerous, confused; posterior areas minutely reticulate, punctures very small, moderately spaced; vestiture sparse on asperate area, a few setae on lateral margins, a conspicuous tuft of moderately long, yellow setae on anterolateral angles. Elytra 1.5 times as long as wide, 1.4 times as long as pronotum; disc occupying basal 75 percent of elytra length; disc smooth, shining, punctures very small, shallow, confused, close. Declivity very steep, broadly convex; striae punctures not evident; interstriae 1–3 each with a row of closely set, moderately coarse tubercles from declivity base to near apex, lateral areas with several similar tubercles; spaces where striae 1–3 should be closely marked by minute punctures and/or fine granules; apical margin near suture distinctly flared upward (caudad). Vestiture restricted to declivity and near, abundant, short, except somewhat longer near base and lateral areas.

Distribution: “Colombie” (presumably Venezuela).

Type material: The male holotype was labeled “Nova Grenada, Colombie,” and with Chapuis’s label “Type.” My holotype label was added. This holotype is in the Institut Royal des Sciences Naturelles de Belgique, Brussels, in the Chapuis material.

Araptus partilis Wood, n. sp.

Araptus partilis Wood: Holotype ♀; Colonia Tovar, Aragua, Venezuela, 1700 m; USNM, Washington, designated below

Diagnosis: Clearly allied to *furvus* Wood, from Panama, except with setae on female frons conspicuously shorter; posterior areas of pronotum finely reticulate, punctures distinctly larger; striae punctures much smaller.

Male: Similar to female except frons convex, a weak transverse elevation on median third immediately above epistoma; surface dull, rugose-reticulate eye to eye from epistoma to vertex, punctures and vestiture obsolete.

Female: Length 1.7–2.0 mm, 2.5 times as long as wide; color dark reddish brown. Frons moderately convex, less strongly convex and pubescent on a circular area on median three-fourths of distance between eyes, at least part of central area smooth, shining, glabrous, part reticulate, peripheral margin bearing a tuft of long, incurved hair, tips of longest setae capable of attaining half distance toward epistomal margin; antennal club very large, strongly flattened, slightly longer than wide, suture 1 very strongly procurved to middle, 2 not indicated. Pronotum 0.98 times as long as wide; widest on basal third, sides arcuately converging to distinct constriction on anterior half, rather narrowly rounded in front; anterior margin armed by 12 coarse serrations; summit at middle, anterior slope coarsely, closely asperate; posterior areas reticulate, punctures very small, each with a weakly elevated, shining, lateral crest; vestiture of fine, short hair on asperate area. Elytra 1.6 times as long as wide, 1.6 times as long as pronotum; disc occupying basal 58 percent of elytra length; striae not impressed, punctures very small, shallow; interstriae four to five times as wide as striae, almost smooth, shining, a few obscure impressed lines and points present. Declivity convex, steep; striae not impressed, punctures obscure to obsolete; interstriae 1–3 about twice as wide as striae, smooth, shining, with numerous impressed points, each with a row of closely set, small, rounded granules. Vestiture of rows of fine, recumbent striae hair on declivity, most equal in length to interstitial setae, and rows of erect slightly flattened interstitial setae, each seta slightly shorter (and closer within a row) than distance between rows.

Distribution: Venezuela (Aragua).

Type material: The female holotype, male allotype, and 99 paratypes were taken at Colonia Tovar, Aragua, Venezuela, 4-V-1970, 1700 m, No. 490, from a tree limb (*Roupala?*), by S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Araptus expers Wood, n. sp.

Araptus expers Wood: Holotype ♀; Piedras Blancas 10 km E Medellin, Antioquia, Colombia; USNM, Washington, designated below

Diagnosis: Distinguished from *furvescens* Wood, from Guatemala, by the larger average size; by the much more irregular surface of the elytral disc; by the smaller punctures on the pronotum disc; and by the reticulate (not rugose-reticulate) male frons.

Male: Similar to female except frons convex, strongly reticulate, with a conspicuous callus on median fifth of frons width immediately above epistoma.

Female: Length 1.7–2.0 mm, 2.6 times as long as wide; color very dark brown. Frons pubescent on a circular area from slightly above epistoma to vertex (not as close to eye as in *furvescens*), central area of circle more strongly convex than in *furvescens*; peripheral margin of circle ornamented by a fringe of very long yellow hair; less dense and slightly shorter than in *furvescens*, tips of longest setae above capable of attaining lower margin of circle, setae in central area apparently much shorter and less numerous. Pronotum 1.03 times as long as wide; widest on basal third, sides arcuately converging to weak constriction on anterior half, rather narrowly rounded in front; anterior margin armed by 12 serrations; summit at middle of pronotum length, anterior slope coarsely, closely asperate; posterior areas finely reticulate, punctures minute, lateral margin of each shining, weakly elevated (but higher than in *furvescens*). Elytra 1.4 times as long as wide, 1.4 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed, punctures minute, in obscurely visible rows; interstriae six or more times as wide as striae, shining, surface irregular, with numerous irregular lines and impressed points, punctures obscure except near declivity. Declivity convex, steep; striae 1–3 weakly impressed, punctures obscure to obsolete; interstriae 1–3 of about equal width, each about twice as wide as striae, sculpture about as on disc except each armed by a row of a dozen or more small, pointed tubercles.

Distribution: Colombia (Antioquia).

Type material: The female holotype, male allotype, and 9 paratypes were taken at Piedras Blancas 10 km E Medellin, Antioquia, Colombia, 15-VII-1970, 250 m, No. 661, from *Panopsis jolombo*, by S.L. Wood. Two paratypes bear the same data except No. 672, from *Roupala*. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Araptus submarginatus Wood, n. sp.

Araptus submarginatus Wood: Holotype ♀; 3 km NE Creole, Barinas, Venezuela; USNM, Washington, designated below

Diagnosis: Rather closely allied to *rufopalliatu*s Eichhoff, except female epistoma much more shallowly emarginate, lower margin of spongy area on frons almost attaining epistoma; declivital interstriae 2 with a row of setae to apex; a much smaller species.

Male: Similar to female except frons strongly convex, shining, punctures small, rather close from eye to eye from epistoma to vertex, vestiture of sparse, fine, short hair.

Female: Length 1.5–1.9 mm, 2.4 times as long as wide; color yellowish brown. Frons shallowly, obtusely emarginate; a large, dull, flat spongy area almost eye to eye from shining, transverse epistomal callus immediately above epistomal margin to vertex; lateral and dorsal margins of spongy area abrupt, bearing a row of very long, yellow hair; tips of longest setae on vertex, capable of exceeding epistomal margin; spongy area dull, with-

out setae or punctures; antennal club slightly, asymmetrically obovate, surface densely covered by micropile, mesal half of suture 1 finely septate, posterior half and 2 obsolete. Pronotum 1.06 times as long as wide; widest on basal third, sides weakly, arcuately converging to weak constriction on anterior half, narrowly rounded in front; anterior margin armed by 8 basally contiguous serrations; summit at middle of pronotum length, anterior slope coarsely asperate; posterior areas smooth, brightly shining, punctures small, rather numerous; glabrous. Elytra 1.35 times as long as wide, 1.3 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed, punctures rather large, confused, except in rows on anterolateral areas, surface smooth, shining. Declivity rather broadly convex, steep; striae 1–3 with small punctures in rows; interstriae 1–3 of about equal width and height, surface smooth, shining, each with a row of small punctures. Vestiture of rows of erect interstitial setae, each seta slightly flattened and two-thirds as long as distance between rows on all declivital interstriae, extending cephalad to posterior areas of disc.

Distribution: Venezuela (Barinas).

Type material: The female holotype, male allotype, and 34 paratypes were taken 3 km NE Creole, Barinas, Venezuela, 18-XII-1969, 150 m, No. 202, laurel (*Nectandra*), S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Araptus umbraticus (Schedl)

Araptus umbraticus (Schedl), 1966:108 (*Neodryocoetes*). Holotype ♂; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:962)

Diagnosis: Distinguished from *schedlianus* Wood by the female spongy area on the frons extending below the upper level of the eyes, the peripheral fringe less dense and shorter; and by the smaller size.

Male: Similar to female except frons broadly convex from epistoma to vertex, surface smooth, shining between punctures and coarsely, deeply punctured (spongy area absent).

Female: Length 1.7–1.8 mm, 2.9 times as long as wide; color very dark reddish brown. Frons moderately convex, both transversely and longitudinally from epistoma to upper level of eyes, surface smooth, shining, finely, closely punctured; a sharply marked circular spongy area on median half from slightly below upper level of eyes to vertex; vestiture of fine, rather short, recumbent hair of uniform length on convex area below; no indication of a peripheral fringe; antennal club oval, sutures 1 and 2 strongly procurved, 1 partly septate. Pronotum 1.3 times as long as wide; widest on basal third, a weak constriction on anterior half, narrowly rounded in front; anterior margin armed by about 14 basally connected, coarse serrations; summit at middle; anterior slope coarsely, closely asperate; posterior areas smooth, shining, with many impressed points, punctures moderately coarse, close; vestiture of short setae mostly on asperate

area and sides. Elytra 1.6 times as long as wide, 1.3 times as long as pronotum; disc occupying about 70 percent of elytra length; striae not impressed except 1 near declivity; striae punctures mostly in rows except confused on basal fourth; interstriae about four times as wide as striae (where observable), surface smooth, shining, with many impressed points, punctures partly in rows, very slightly smaller than those of striae. Declivity steep, shallowly bisulcate; punctures of striae 1–3 in rows, smaller than those on disc; interstriae 1 moderately elevated, armed by a row of about six small, pointed tubercles, 2 slightly wider than 1, moderately impressed, smooth, shining, with many impressed points and a row of punctures equal in size to those of striae, 3 almost as high as 1, crest rounded, with a row of small punctures and about three small, pointed tubercles. Vestiture mostly confined to declivity, of minute striae hair and sparse rows of erect setae on odd-numbered interstriae.

Distribution: Brazil: Nova Teutonia, 27°11'N, 52°23'W [Santa Catarina], I-1962 (holotype), VI-1966, 300–500 m (allotype, paratypes). Only the holotype was designated in the original description; the allotype and paratypes were designated subsequently (Schedl 1979:259).

Araptus schedlianus Wood, n. sp.

Araptus schedlianus Wood: Holotype ♀; Rio Negro, Parana, Brazil; NHMW, Wien, designated below

Diagnosis: Distinguished from *umbraticus* (Schedl) by the larger size; by the spongy area on the female frons extending well below the upper level of the eyes; and by the presence of a row of long setae on the upper margin of the female frontal spongy area.

Female: Length 2.2 mm, 2.8 times as long as wide; color very dark reddish brown. Frons irregularly flattened eye to eye on lower two-thirds of area below upper level of eyes, punctures minute, rather widely spaced, bearing a sparse brush of long setae; upper area on more than median half from well below upper level of eyes to vertex occupied by a sharply marked yellow, spongy area, dorsal peripheral margin bearing a row of long setae, tips of longest setae capable of attaining epistoma; antennal club oval, sutures 1 and 2 strongly, subangulately procurved, mesal half of 1 septate. Pronotum 1.1 times as long as wide; widest on basal third, rather narrowly rounded in front; anterior margin a continuous costa, weakly subserrate on median area; summit at middle of pronotum length; anterior slope coarsely, closely asperate; posterior areas shining, partly smooth, punctures rather small, most organized into obscure rows separated by weak, shining, subrugose crests; vestiture of sparse setae on asperate area. Elytra 1.7 times as long as wide, 1.6 times as long as pronotum; disc occupying basal 70 percent of elytra length; striae not impressed except posterior half of 1 slightly impressed, small punctures on 1, 2, and part of 3 in rows behind, confused toward base; interstriae about three times as wide as striae, smooth, shining, with many impressed points, punctures smaller than those of striae,

in rows near declivity, confused toward base. Declivity steep, shallowly bisulcate; striae 1 impressed, punctures on 1–3 smaller than on disc, distinct; interstriae 1 slightly elevated, armed by a row of about eight pointed tubercles, 2 modestly impressed, wider than 1, smooth, shining, with many impressed points and a row of small punctures, 3 as high as 1, crest rounded, armed by a row of about seven pointed tubercles. Vestiture confined to declivity, striae setae almost obsolete, interstitial setae sparse, short, a few on most of odd-numbered interstriae.

Type material: The female holotype was taken at Brazil, Parana, Rio Negro, 31-I-1973, J. Schoenherr, as indicated above. The holotype is in the Naturhistorisches Museum Wien, Wien. This specimen was identified by Schedl as *Conophthocranulus novateutonicus*. It was apparently retained by Schedl from a longer series that exists elsewhere.

Araptus rufopalliatius Eichhoff

Plates CLVI, CLVII

Araptus rufopalliatius Eichhoff, 1872:136. Holotype ♀; Nova Granada (now Colombia); IRSNB, Brussels (References in Wood & Bright c1992:961)

Diagnosis: A distinctive species, with the female epistoma deeply emarginate, spongy area on upper third of the frons remote from epistoma; declivital interstriae 2 bearing granules and setae on basal third or less; pronotum weakly reticulate on posterolateral areas.

Male: Similar to female except epistoma weakly, very broadly recurved, not emarginate; frons flattened almost from eye to eye from epistoma to upper level of eyes; surface rather coarsely, closely, uniformly punctured, vestiture of fine, short, sparse hair.

Female: Length 2.3–2.9 mm, 2.26 times as long as wide; color yellowish brown. Frons with epistoma deeply, subacutely emarginate, surface almost flat from eye to eye from epistoma to vertex; upper third forming a broadly oval pale spongy area, this area without setae or punctures, lower area smooth, shining, punctures very small, close, uniformly distributed, most setae very short, recumbent, those near epistoma and sides fine, long, setae also form a peripheral fringe of long setae on upper margin of spongy area, tips of longest setae on vertex capable of attaining half distance to epistoma; antennal club narrowly obovate, 1.5 times as long as wide, minutely pubescent, anterior half of suture 1 finely septate. Pronotum 1.0 times as long as wide; widest on basal third, sides arcuately convergent to weak constriction on anterior half, narrowly rounded in front; anterior margin armed by about 16 basally fused serrations, anterior slope closely, coarsely asperate; basal areas mostly smooth, shining, some areas of weak reticulation occasionally present, punctures moderately coarse, rather close; vestiture of sparse hair on asperate area. Elytra 1.3 times as long as wide, 1.3 times as long as pronotum; disc occupying basal two-thirds of elytra length; surface smooth, shining, punctures rather coarse, deep, confused, a few

impressed points present. Declivity rather broadly convex, steep; striae 1 and 2 indicated by very minute punctures in rows; interstriae 1–3 of equal width, 1 weakly elevated, 2 weakly impressed, 3 almost as high as 1, with 1 and 3 each with a row of small, rounded tubercles, 2 mostly unarmed, two to six tubercles on basal fourth and one or two near apex. Vestiture of rows of erect interstitial setae mostly on declivity on all except middle two-thirds of 2.

Distribution: Colombia to Venezuela.

Colombia: Type locality given as “Nova Grenada,” presumably Colombia.

Venezuela: La Carbonera Experimental Forest 50 km NW Merida, Merida, 16-IX-1969, 2500 m, No. 21-b, *Nectandra* limb, SLW.

Biology: Specimens were removed from transversely biramous parental tunnels in the phloem of a broken large limb; large numbers of larvae, pupae, and transforming young adults were present.

Notes: The above treatment was based on the female holotype from “Nova Grenada” and on 19 specimens from Venezuela, which were compared by me directly to the holotype.

Araptus frontis Wood

Plate CL

Araptus frontis Wood, 1989:177. Holotype ♀; Encruzilhada, Bahia, Brazil; NHMW, Wien, automatic (Synonymy and references in Wood & Bright c1992:956)

Gnathocranus frontalis Schedl, 1978:302. Holotype ♀; Encruzilhada, Bahia, Brazil; NHMW, Wien, preoccupied by Wood 1974:52

Diagnosis: Distinguished from *rufopalliatus* Eichhoff by the smaller size; by the much more slender body; by the very different frons in both sexes (described below); and by other characters described below.

Male: Similar to female except epistoma weakly, broadly emarginate; lower frons weakly convex, indistinctly impressed on lower fourth; frons more strongly convex above a weak median callus just below upper level of eyes; surface of frons smooth, shining, punctures rather large, deep, close.

Female: Length 2.1–2.4 mm, 2.9 times as long as wide; color yellowish to reddish brown. Frons flat to weakly concave from epistoma to vertex, without a dorsal fringe of long hair; epistomal margin profoundly, deeply emarginate on more than median half to an acute median angle about two-thirds distance from lateral margin of epistoma to upper level of eyes; dorsal third of impressed area occupied by a well-marked, pale, spongy area (without punctures or pile), lower area smooth, shining, punctures very small, rather close, lower lateral areas each bearing a dense tuft of moderately long, subplumose setae; eye somewhat enlarged, coarsely faceted; mandible apparently armed on dorsal apical angle by a large denticle (concealed); antennal club slightly longer than scape, broadly obovate, about 1.3 times as long as wide, mesal half of septum of suture 1 indicated internally. Pronotum about 1.2 times as long as wide; widest on

basal half, sides almost straight and parallel, strongly converging on anterior half, narrowly rounded in front; anterior margin armed by 10–12 basally connected serrations; summit at middle of pronotum length, anterior slope rather coarsely asperate; posterior areas smooth, shining, with many impressed points, punctures small, moderately close; sparse, short, recumbent hairlike setae on asperate area. Elytra 1.7 times as long as wide, 1.4 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed except 1 weakly near declivity, small punctures almost in rows on posterior half of disc, moderately confused on basal half, surface almost smooth, shining, a few impressed points present. Declivity steep, rather broadly convex; striae 1 weakly impressed, 2 and 3 obscurely indicated, punctures mostly obsolete on 1, very small on 2 and 3; interstriae 1–3 of about equal width, 1 very weakly elevated, 2 feebly impressed, 3 as high as 1, punctures on 2 and 3 small, slightly confused, 1–3 each with a sparse row of small tubercles, those on 2 much smaller. Vestiture on posterior half, consisting of minute striae setae, and sparse, short striae setae on all declivital interstriae.

Distribution: Brazil: Encruzilhada, Bahia, 980 m, XI-1972, M. Alvarenga.

Notes: The type series of 2 males and 2 females was examined. All 4 specimens are covered by numerous moth scales, an indication that they were taken at light.

Araptus limax (Schedl)

Plate CLII

Araptus limax (Schedl), 1939:566 (*Sphenoceros*). Syntypes ♀; Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:959)

Diagnosis: Female closely allied to *aztecus* Wood, from Mexico, frons very similar to *submarginatus* Wood except anterior margin of pronotum extended into an acute, median point; discal striae 1–3 in rows, interstriae 1–3 each with a row of small punctures; disc of pronotum with longitudinal rugae, punctures much smaller; plus many other characters described below.

Male: Similar to female except frons broadly convex eye to eye from epistoma to vertex, rather coarsely, closely punctured, hairlike vestiture fine, short, inconspicuous; anterior margin of pronotum narrowly rounded and armed by a row of about 6 low, basally fused serrations.

Female: Length 1.8–2.3 mm, 2.6 (male 2.3) times as long as wide; color dark reddish brown. Frons flattened on median four-fifths of a spongy area from epistoma to vertex, this central area dull, without punctures or pubescence, peripheral margin of spongy area ornamented by a row of very long, golden setae, tips of longest setae on vertex capable of attaining epistomal margin; lower margin of spongy area replaced by a smooth, shining, weakly elevated transverse costa; antennal club asymmetrically obovate, 1.4 times as long as wide, surface micropubescent, mesal half of suture 1 septate. Pronotum 1.6 times

as long as wide; widest on basal fourth, sides weakly arcuate from base to weak constriction on anterior half, anterior margin projected into an acute median point, about 6 serrations on basal area near median point; anterior slope coarsely, closely serrate; basal area smooth, shining, punctures minute, discal area behind summit with low, longitudinal rugae on lateral margin of punctures; vestiture restricted to short setae on asperate area. Elytra 1.5 times as long as wide, 1.3 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed, punctures small, in rows except slightly confused at base; interstriae about four times as wide as striae, smooth, shining, 1–3 each with a row of punctures almost as large as those of striae. Declivity convex rather steep; strial and interstitial punctures greatly reduced in size, without any granules; interstriae 2 feebly elevated; rows of erect strial setae on all interstriae on declivity, some extend to middle of disc, setae slightly flattened, each about two-thirds as long as distance between rows.

Distribution: Brazil: Nova Teutonia, Santa Catarina, 27°11'B, 52°23'W, 1-I-1957, 300–500 m, F. Plaumann.

Notes: The above treatment was based on my series that bears the same data as the types and these specimens were compared by me directly to the male and female syntypes of *Sphenoceros limax* Schedl at NHMW, Wien.

GENUS *DACNOPHTHORUS* WOOD

Dacnophthorus Wood, 1975:394. Type-species: *Gnathophthorus clematus* Wood, original designation (References in Wood & Bright c1992:969)

Diagnosis: Distinguished from *Pityophthorus* by the very slender body form; by the very large, coarsely faceted eyes; by the large antennal club, with three sutures marked by setae; by the pronotum summit being

located anterior to the middle of pronotum length and without a transverse impression behind the summit; and by the very different habits. The antennal funicle may be 4-segmented in some species.

Description: Length 1.1–2.0 mm, 3.7–3.8 times as long as wide; color pale yellow to bicolored yellow and dark brown, almost black in one species. Frons dimorphic, male convex above, impressed below, female uniformly, shallowly concave to lower third, then weakly convex, upper area variously sculptured or ornamented by hair. Eye very large, coarsely faceted. Antennal scape elongate; funicle 5-segmented (some specimens apparently 4-segmented); club large, much longer than scape, sutures 1 and 2 partly septate, 3 (a false suture) marked only by setae. Pronotum elongate, summit anterior to middle of pronotum length, without a transverse impression behind summit. Elytra striate; declivity short, steep. Protibiae as in *Pityophthorus*.

Biology: The known species infest cut or broken vines or lianas of *Clematis* and an unidentified Bignoniaceae vine. They are monogynous and construct transverse biramous egg galleries in the cambium area. In Bignoniaceae, the vine was composed of numerous layers of tissues. A pair of beetles in this host bored from the outer surface to a depth of 6 or more layers then constructed a transverse, biramous pair of egg tunnels at each layer. Larval mines were straight and followed the grain of the wood or fiber. Mycelial growth was not observed in larval mines, although the discoloration of parent galleries suggested the presence of symbiotic fungi. The gallery structure suggested a pattern intermediate between the phloeophagous and mycetophagous habit.

Notes: Wood & Bright (c1992:969) list 5 species from Mexico to Brazil, at least 3 of which occur in South America.

Key to the Species of *Dacnophthorus*

- 1. Sulcus on declivital interstriae 2 continued to elytra apex, apical margin acute; female frons variously sculptured, either with or without a flat, spongy area, or spongy area mostly below upper level of eyes 2
- Sulcus on declivital interstriae 2 strongly impressed on basal two-thirds of declivity, obsolete before apical third, apical margin somewhat rounded 4
- 2(1). Declivital sulcus rather deep, interstriae 1 weakly elevated, unarmed, 3 much higher and armed by three to four pointed denticles; female frons narrow, equal to less than width of an eye, spongy area small, two-thirds of it below upper level of eyes, one-third above; Honduras; 1.2 mm *cracens* (Wood)
- Declivital sulcus weak to moderate, interstriae 3 entirely unarmed; female frons without a spongy area 3
- 3(2). Antennal club small, not strongly flattened, sutures 1 and 2 almost obsolete, weakly procurved, not marked by rows of setae; female frons ornamented by a peripheral fringe of very long hair, shorter in central area, without a median elevation; Brazil (Mato Grosso); 0.9–1.2 mm *artus* (Wood)

- Antennal club larger, more strongly flattened, sutures 1 and 2 more strongly procurved, clearly marked by rows of setae; female frons with vestiture sparse to absent, a complex cuticular elevation in central area on median third, area above elevation moderately concave; Venezuela; Bignoniaceae vine; 1.2–1.5 mm *pertusus* (Wood)
- 4(1). Pronotum strongly reticulate, dull; lower limit of female spongy area on frons at upper level of eyes extending high on vertex, its length twice as great as distance from epistoma to upper level of eyes; strial punctures rather coarse on disc, interstriae as wide as striae; Venezuela; *Clematis* sp.; 1.6–2.1 mm *rallus* (Wood)
- Pronotum disc smooth, shining; spongy area on female frons much smaller, upper level of eyes to spongy area about equal in length to distance from epistoma to upper level of eyes; strial punctures smaller, interstriae about twice as wide as striae; Mexico (Jalisco) to Panama; *Clematis* sp.; 1.4–2.0 mm *clematis* (Wood)

Dacnophthorus artus (Wood)

Dacnophthorus artus (Wood), 1974:27 (*Gnathophthorus*). Holotype ♀; ca 260 km N Xavantina, Mato Grosso 12°49'S, 41°46'W; BMNH, London (References in Wood & Bright c1992:969)

Diagnosis: Distinguished from other members of this genus by the very small size; by the shallowly sulcate elytral declivity; and by the very long, dense tuft of hair on the female frons that lacks a spongy area.

Male: Similar to female except frons convex above upper level of eyes, shallowly, transversely impressed below a weak, obtuse crest; surface of frons smooth, shining, finely, sparsely punctured.

Female: Length 0.9–1.2 mm, 4.5 times as long as wide; color brown, basal two-thirds of elytra yellowish brown. Frons planoconvexly flattened eye to eye from epistoma to vertex, ornamented by a dense peripheral fringe of very long hair, tips of longest setae on vertex capable of extending to epistomal margin, setae shorter in central area; antennal club small for this genus, as long as scape, sutures 1 and 2 about straight, not marked by a row of setae. Pronotum 2.0 times as long as wide, sides almost straight and parallel, very broadly rounded in front; anterior margin armed by about 10 serrations; summit indefinite, on anterior fourth, weakly declivous in front, asperities cover anterior third of pronotum length, small, confused, close; posterior areas smooth, shining, punctures minute, rather close; glabrous except a few short, hairlike setae on asperate area. Elytra 2.4 times as long as wide, 1.3 times as long as pronotum; disc occupying 80 percent of elytra length; striae not impressed, punctures small shallow; interstriae as wide as striae, smooth, shining, impunctate. Declivity steep, very shallowly bisulcate; punctures on striae 1 and 2 minute; interstriae 2 weakly impressed, as wide as 1 or 3, with 1 and 3 weakly elevated, unarmed, all surfaces smooth, shining. Vestiture restricted to declivity, a row of minute hair on interstriae 1, long on 3 and lateral areas.

Distribution: Brazil: Mato Grosso, RS/RGS Exp., 12°31'S, 51°46'W, X-1968, F41, R.A. Beaver.

Notes: The above treatment was based on 13 paratypes.

Dacnophthorus pertusus (Wood)

Plate CLVIII

Dacnophthorus pertusus (Wood), 1971:53 (*Gnathophthorus*). Holotype ♀; 20 km SW El Vigia, Merida, Venezuela; USNM, Washington (References in Wood & Bright c1992:969)

Diagnosis: Distinguished from *artus* (Wood) by the slightly larger size; by the very different female frons; and by the very minute strial punctures on the disc.

Male: Similar to the female except frons convex above upper level of eyes, shallowly impressed below, surfaces smooth, shining, punctures small, sparse, vestiture sparse, hairlike; declivital interstriae 3 armed by a row of minute tubercles.

Female: Length 1.2–1.5 mm, 3.8 times as long as wide; color yellowish brown. Frons with an irregular, tubercular elevation on median third in central area, area above tubercle to vertex moderately convex from eye to eye, surface smooth, shining, impunctate; area from epistoma to median tubercle moderately, transversely impressed, minute punctures almost obsolete; almost glabrous except for a few short setae on vertex; antennal club rather large, sutures 1 and 2 moderately procurved, marked by rows of setae. Pronotum 1.3 times as long as wide; sides almost straight and parallel on basal four-fifths, broadly rounded in front; anterior margin armed by 12 serrations; summit one-third pronotum length from anterior margin, asperities coarse, close, confused; posterior area smooth, shining, punctures minute; mostly glabrous, asperate area with a few, short setae. Elytra 1.7 times as long as wide, 1.4 times as long as pronotum; disc occupying basal 70 percent of elytra length; striae not impressed, punctures minute to obsolete; interstriae about four times as wide as striae, impunctate. Declivity steep, moderately bisulcate; striae 1 and 2 obsolete; interstriae 1 very weakly elevated, with a row of minute, obscure punctures, 2 moderately impressed, smooth, shining, 3 much higher than 1, crest armed by a row of four or five small, pointed tubercles. Vestiture confined to declivity, very short on 1, longer on 3 and laterally.

Distribution: Venezuela: 20 km SW El Vigia, Merida, 21-XI-1969, 50 m, No. 523, *Bauhinia* (Bignoniaceae), SLW.

Notes: The above treatment was based on the type series of 38 specimens, plus 26 non-type specimens bearing the same data.

Dacnophthorus rallus (Wood)

Dacnophthorus rallus (Wood), 1971:53 (*Gnathophthorus*). Holotype ♀; Merida, Merida, Venezuela; USNM, Washington (References in Wood & Bright c1992:969)

Diagnosis: Distinguished from *clematis* (Wood), from Mexico and Central America, by the reticulate pronotum; by the much more extensively flattened upper frons; and by the smaller striae punctures on the disc.

Male: Similar to female except frons convex and strongly reticulate above upper level of eyes, lower area moderately, transversely impressed, vestiture short, sparse, inconspicuous; lateral margin of interstriae 3 on basal third of declivity armed by one tubercle.

Female: Length 1.6–2.1 mm, 3.9 times as long as wide; color dark brown. Frons with area below upper level of eyes weakly convex, surface closely, finely tuberculate, area above eyes with a large, subcircular, flat, subspongy area to vertex, dull; vestiture on area below vertex of rather abundant, short, erect hair from epistoma to middle of spongy area, minute in spongy area; upper margin on vertex bearing a dense row of rather long hair, tips of longest setae capable of attaining almost upper level of eyes. Pronotum 1.4 times as long as wide; widest on basal half, sides weakly arcuate, subparallel to weak constriction on anterior half, rather broadly rounded in front; anterior margin armed by 6–8 coarse serrations; summit indefinite, anterior half coarsely, closely asperate; posterior areas reticulate, dull, punctures minute, rather close, each with a weak, shining, longitudinal elevation on its lateral margin; vestiture hairlike, mostly on asperate area. Elytra 2.3 times as long as wide, 1.7 times as long as pronotum; disc occupying basal three-fourths of elytra length; striae not impressed, punctures moderately large, shallow; interstriae twice as wide as striae, almost smooth, with impressed points. Declivity very steep, rather strongly bisulcate; punctures on striae 1–3 small, often obscure; interstriae 1 weakly elevated on basal two-thirds, 2 rather strongly impressed and without punctures on basal two-thirds, convex and with punctures

below impression, partly reticulate, 3 much higher than 1 from base to apex, apparently with a few punctures, no tubercles. Vestiture mostly confined to declivity, consisting of erect interstitial setae in rows on 1, 3, and lower 2.

Distribution: Venezuela: Merida, Merida, 29-XII-1969, 1700 m, No. 210, vine (possibly *Clematis*), SLW.

Notes: The type series was removed from small stems of a vine by me.

GENUS *GNATHOLEPTUS* BLACKMAN

Gnatholeptus Blackman, 1943:34. Type-species: *Gnatholeptus mandibularis* Blackman = *Pityophthorus shannoni* Blackman, original designation (References in Wood & Bright c1992:970)

Diagnosis: This genus is not clearly defined. Except for the greatly enlarged female oral area and unique, elongate mandibles, it could easily be confused with *Araptus*. Its closest affinities appear to be with the *A. eruditus* group of species.

Description: Length 1.3–1.8 mm, 2.8–3.0 times as long as wide; color yellowish brown. Frons sexually dimorphic, male convex, oral area and mandibles normal, female weakly flattened to variously impressed, with or without vestiture, mandibles greatly to enormously elongate. Antenna about is in some groups of *Araptus*. Pronotum with lateral margin not marked by a fine, raised line; summit indefinite. Elytral sculpture conservative, declivity bisulcate, interstriae 3 sometimes armed. Tibiae about as in *Araptus*. Eye enlarged, coarsely faceted. Antennal club similar to primitive *Araptus*, suture 1 very weakly septate.

Biology: Known species are outbreeding polygynous and form radiate parent gallery systems in the phloem of limbs and branches of their hosts (mostly *Protium* spp.). Although hundreds of galleries were examined, the purpose of the enlarged oral area and mandibles of the female was not discovered, due to lack of adequate magnification. Larval mines are in the phloem, as in *Pityophthorus*, and show on the surface of peeled bark.

Notes: Three species are known from Costa Rica to northern South America. Added here to this group, for the first time, is *Araptus tenellus* (Schedl), from Mexico (Wood & Bright c 1992:962).

Key to the Species of *Gnatholeptus*

- 1. Pronotum asperities mostly confused; female frons without a conspicuous epistomal lobe, frontal vestiture rather abundant, longer, extending to upper level of eyes 2
- Pronotum asperities mostly forming concentric rows of basally fused asperities; female frons mostly glabrous or with minute hair, female epistoma with a conspicuous median lobe 3
- 2(1). Female frons narrowly flattened on median half, sparse hair extending to upper level of eyes; margin of female epistoma procurved on median half; visible sternum 5 in both sexes armed at apex on less than median fifth by a transversely carinate process; pronotum disc reticulate; elytral declivity convex, unarmed; Mexico (Nayarit to Veracruz); tree bole; 1.2–1.4 mm (from *Neodryocoetes*) *tenellus* (Schedl), n. comb.

- Female frons planoconvex and closely pubescent from epistoma to upper level of eyes, epistomal margin weakly procurved; declivity moderately bisulcate, lateral margin armed on upper half by 2 pair of small, pointed denticles; Costa Rica to Colombia, Venezuela, Suriname; 1.3–1.6 mm *shannoni* (Blackman)
- 3(1). Female premandibular median process slender, almost pointed, equal in width to about 2 facets of eye, about three facets in length; female mandibles slender, sickle-shaped, ornamented on lateral face near base by a tuft of hair; declivital interstriae 2 twice as wide as 1 in both sexes, 1 with a row of tubercles in male; Costa Rica to Panama; 1.3–1.5 mm *panamensis* Blackman
- Female premandibular process subquadrate, equal in width to about 3 facets of an eye, about 6 facets in length, widest near apex, apical half conspicuously ornamented by long hair; female mandibles very large, elongate, not ornamented by long hair; declivital interstriae 2 as wide as 1 in both sexes, 1 unarmed in male; Costa Rica to Colombia and Suriname; *Protium*, *Cedrella*; 1.4–1.8 mm *semiernis* (Nunberg)

Gnatholeptus shannoni (Blackman)

Gnatholeptus shannoni (Blackman), 1942:224 (*Pityophthorus*). Holotype ♀; Cano Saddle at Gatun Lake, Panama; USNM, Washington (Synonymy and references in Wood & Bright c1992:970)

Gnatholeptus mandibularis Blackman, 1943:34. Holotype ♀; Barro Colorado Island, Canal Zone, Panama; USNM, Washington

Pityophthorus gentilis Schedl, 1961:225. Holotype ♂; Barro Colorado Island, Gatun Lake, Canal Zone, Panama; Cornell University Collection, Ithaca, New York

Diagnosis: Distinguished from *tenellus* (Schedl) [n. comb., from *Araptus*] by the more broadly convex female frons, with longer, more abundant, uniformly distributed vestiture to upper level of eyes; by the bisulcate elytral declivity, with lateral margins armed by 2 pair of pointed denticles; apex of male visible sternum 5 normal, without a median process.

Male: Similar to female except frons convex, surface smooth, shining, closely punctured, sparsely pubescent; apex of visible sternum 5 normal, without a median process.

Female: Length 1.3–1.6 mm, 2.8 times as long as wide; color yellowish brown. Frons planoconvex eye to eye from epistoma to upper level of eyes, punctures dense, minute, uniformly distributed; vestiture rather long, abundant, uniformly distributed on a subcircular area; eye enlarged, coarsely faceted; epistomal margin weakly, broadly procurved; mandibles rather slender, elongate, meeting at apex; antennal club rather small, sutures 1 and 2 rather broadly procurved, 1 finely septate on lateral two-fifths on each side, median fifth entire. Pronotum 1.2 times as long as wide; widest on basal half, sides feebly arcuate, almost parallel, broadly rounded in front; anterior margin armed by about eight serrations; summit at middle, anterior slope rather coarsely asperate, asperities confused; posterior areas reticulate, punctures very small, rather close; vestiture hairlike, mostly confined to asperate area. Elytra 1.7 times as long as wide, 1.5 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed, punctures rather large, usually confused on 1 and 2 on basal third; interstriae less than twice as wide as striae, almost

smooth, shining, a few punctures at base of declivity. Declivity steep, bisulcate; striae 1 to 3 indicated by rows of small punctures; interstriae 1 rather weakly elevated, one or two punctures near apex, 2 moderately impressed, as wide as 1, with 3 higher than 1, armed by 2 pair of pointed tubercles and a few minute granules. Vestiture of interstitial setae on sides and declivity except absent on lower 2.

Distribution: Costa Rica to Colombia.

Colombia: Campo Capote 27 km NE Montoya, Santander, 2-VII-1970, 150 m, No. 593, tree bole, SLW.

Hosts: *Protium* sp.

Biology: Specimens were removed from radiate tunnels in the phloem of a felled tree.

Notes: The above treatment was based on 27 specimens from Colombia and on more than 100 from Costa Rica and Panama. Two of my specimens from Panama were compared to the holotype of *Pityophthorus shannoni* Blackman and *G. mandibularis* Blackman, and males were compared to the holotype of *P. gentilis* Schedl.

Gnatholeptus semiernis (Nunberg)

Gnatholeptus semiernis (Nunberg), 1963:98 (*Pityophthorus*). Holotype ♂; Finca La Lola, Limon, Costa Rica; University of Wisconsin Collection, Madison (References in Wood & Bright c1992:970)

Diagnosis: Distinguished from *panamensis* Blackman by the larger quadrate female epistomal process that is ornamented by hair; by the elongate female mandibles that are not ornamented by hair; and by the narrower declivital interstriae 2. Antennal club resembling *shannoni*, but larger.

Male: Similar to female except frons convex from near upper level of eyes to vertex, lower two-thirds of area below upper level of eyes transversely impressed on median two-thirds to epistoma (longitudinally weakly concave), shining and punctured on impressed area, reticulate and sparsely punctured above; declivital interstriae 3 armed by one to three small, pointed tubercles.

Female: Length 1.4–1.8 mm, 2.8 times as long as wide; color yellowish brown. Frons strongly convex on upper

third of area below upper level of eyes to vertex, surface smooth, shining, transcending to reticulate on vertex, sparsely punctured; lower two-thirds transversely, strongly, broadly impressed to epistoma, impressed area minutely, closely punctured and ornamented by rather abundant, very sparse hair; median third of epistoma produced into a large, subquadrate, flat, premandibular lobe (equal to three eye facets wide, 5 facets long), surface of lobe finely punctured and ornamented by a tuft of long hair; mandibles greatly enlarged and elongated, meeting only at their apex; eye enlarged, coarsely faceted. Pronotum 1.3 times as long as wide; sides almost straight and parallel on basal half, broadly rounded in front; anterior margin armed by a costa of 16 or more basally contiguous serrations; summit conspicuously anterior to middle of pronotum length; basal areas smooth, shining, finely, rather closely impressed; sparse, short setae on asperate area. Elytra 1.7 times as long as wide, 1.5 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed, punctures small, mostly in rows; interstriae smooth, shining. Declivity steep, weakly bisulcate; strial punctures on 1–3 very small, distinct, 1 impressed; interstriae 1–3 of equal width, 1 weakly elevated, 2 impressed on mesal side, 3 slightly higher than 1, rounded, unarmed, with a few punctures. Vestiture very sparse, short, mostly on odd-numbered interstriae on declivity and sides.

Distribution: Costa Rica to Panama, Colombia, Venezuela, and Suriname.

Colombia: Carton de Colombia forest near Buenaventura 8 km S Colonia, Valle de Cauca, 9-VII-1970, 30 m, No. 631, *Protium nervosum*, SLW.

Suriname: Cited by Wood (1982:1146).

Venezuela: El Vigia, Merida, 21-XI-1969, 50 m, No. 147, *Protium*, SLW.

Biology: Removed from radiate parent tunnels in the phloem of limbs and boles.

Notes: The above treatment was based on 16 specimens from Central America, 50 from Colombia, and 28

from Venezuela. One of my Costa Rican males was compared by me directly to the male holotype of *Pityophthorus semiermis* Nunberg.

GENUS *PHELLOTERUS* WOOD

Phelloterus Wood, 1971:46. Type-species: *Phelloterus tersus* Wood, original designation (References in Wood & Bright c1992:971)

Diagnosis: Distinguished from *Pityophthorus* by the coarse discal and declivital sculpture of the elytra; by the presence of a premandibular lobe in most females; by the broad oral region; by the unarmed frons; and by the parent gallery structure that resembles *Styphlosoma*.

Description: Length 1.3–2.2 mm, 2.2–2.4 times as long as wide; color yellowish to reddish brown. Frons convex in both sexes, epistomal area very broad, premandibular lobe usually present in female, less regular in male; mandibles slightly to moderately enlarged in female, normal in male. Eye finely faceted, emarginate. Antennal scape elongate; funicle 5-segmented; club subcircular in outline, sutures 1 and 2 straight and marked only at margins by septae and setae, apparent suture 3 procurved and marked by setae just before apical margin. Pronotum coarsely asperate, summit indefinite, transition from asperate to smooth areas gradual. Elytra striate, discal striae 1–3 with punctures slightly confused; interstitial punctures very sparse; declivity steep, usually, narrowly bisulcate, punctures on striae 1 and 2 large, deep, male interstriae 3 coarsely dentate, female less coarsely sculptured.

Biology: The polygynous species infest trees having very thick phloem. The nuptial chamber resembles that of *Styphlosoma* (tabular, standing on edge), with 1–5 egg galleries that branch from the inner margin of the nuptial chamber well before they attain the cambium area. One to 4 females shared the system with each male.

Notes: Wood & Bright (c1992:971) list 3 species, all from Colombia and Venezuela.

Key to the Species of *Phelloterus*

- 1. Declivital interstriae 2 more abruptly, uniformly impressed and entirely devoid of punctures, interstriae 1 with a few minute tubercles; female epistoma with a small, quadrate, median, premandibular lobe; Venezuela; log; 1.8–2.2 mm **tersus** Wood
- Declivital interstriae 2 less abruptly, less uniformly impressed, with a row of punctures (male) or minute granules (female); declivital interstriae 1 not armed by tubercles; female epistoma weakly procurved, without a conspicuous premandibular lobe 2
- 2(1). Punctures of discal striae 2–8 in definite rows, slightly confused on 1; short declivital setae moderately to strongly flattened, especially on male; Colombia; *Sacoglochia procera*, *Eschweilera*; 1.2–1.5 mm **atrocis** Wood
- Punctures of discal striae 1, 2, and sometimes 3 confused; short declivital setae slender, mostly hairlike; Colombia; *Sacoglochia procera*, *Couma macrocarpa*; 1.7–2.1 mm **anaxeus** Wood

Phelloterus tersus Wood

Plate CLVIII

Phelloterus tersus Wood, 1971:47. Holotype ♂; Colonia Tovar, Aragua, Venezuela; USNM, Washington (References in Wood & Bright c1992:971)

Diagnosis: Distinguished from *atrocis* Wood and *anaxeus* Wood by the more abruptly, uniformly impressed declivital interstriae 2 that lacks a central row of interstitial punctures; by the presence of a few tubercles on declivital interstriae 1; and by the presence of a small, quadrate, premandibular epistomal lobe in the female.

Male: Similar to the female except declivity more strongly impressed, tubercles on interstriae much larger, acutely pointed.

Female: Length 1.8–2.2 mm, 2.5 (male 2.2) times as long as wide; color reddish brown. Frons broadly convex, a weak, transverse impression on lower third; surface smooth, shining, punctures rather coarse, close below upper level of eyes; epistomal margin bearing a median, quadrate, premandibular lobe, its length and width about equal to diameter of 2 facets of eye; antennal scape slender, slightly longer than club, sutures 1 and 2 almost straight, both septate on lateral thirds, aseptate on central third. Pronotum 1.03 times as long as wide; widest at base, sides feebly arcuate, converging toward rather narrowly rounded anterior margin; anterior margin armed by about 10 low serrations; summit at middle, anterior slope coarsely asperate; posterior areas almost smooth, shining, with many impressed points, punctures rather large, moderately close; sparse, hairlike setae near lateral margins. Elytra 1.4 times as long as wide, 1.3 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed except 1 near declivity, punctures rather coarse, deep, mostly in rows except 2 slightly confused near base; interstriae about twice as wide as striae, surface smooth, shining, with many impressed points, no punctures. Declivity steep, broadly convex, shallowly bisulcate; striae 1–3 slightly smaller than on disc; interstriae as wide as 1 or 3, moderately impressed (stronger in male), entirely without punctures or granules, 1 distinctly elevated and bearing a row of small tubercles, 3 higher than 1 and armed by three to six moderately large, pointed tubercles (much larger in male). Vestiture of sparse interstitial hair on declivity, absent on 2 except at base.

Distribution: Venezuela: Colonia Tovar, Aragua, 4-V-1970, 1700 m, No. 507, log, SLW.

Notes: The above treatment was based on the type series of 35 specimens from Venezuela.

Phelloterus atrocis Wood

Phelloterus atrocis Wood, 1971:48. Holotype ♂; Campamento Capote, 27 km NE Montoya, Santander, Colombia; USNM, Washington (References in Wood & Bright c1992:971)

Diagnosis: Distinguished from *tersus* Wood by the presence of punctures or minute tubercles on declivital

interstriae 2; by the slightly confused discal striae 1 and 2; by the flattened short declivital setae; and by the smaller size.

Male: Similar to female except frons less strongly convex, transverse impression above epistoma much weaker; declivital sulcus much deeper on striae 1, lateral convexities higher and armed by two to four pointed denticles; short declivital setae more strongly flattened.

Female: Length 1.2–1.5 mm, 2.7 (male 2.3) times as long as wide; color yellowish brown. Frons strongly convex, a moderately strong, transverse impression on lower third; surface smooth, shining to vertex, punctures small, rather close on convex area below upper level of eyes; epistomal margin slightly elevated, a very slight pre-mandibular lobe below this crest; antennal club small, sutures 1 and 2 straight, 1 finely septate only at margins. Pronotum 1.1 times as long as wide; widest at base, sides feebly arcuate and converging slightly on basal three-fifths, weakly constricted before rather narrowly rounded anterior margin; anterior margin armed by 10 basally contiguous, low serrations; summit at middle of pronotum length; anterior slope coarsely asperate, posterior areas smooth, shining, with many impressed points, punctures small, close; hairlike setae confined to sides and near anterior margin. Elytra 1.5 times as long as wide, 1.3 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed, punctures rather large, deep, in rows except partly confused on 1; interstriae almost twice as wide as striae, smooth, shining, with many impressed points, no punctures. Declivity steep, shallowly bisulcate; striae 1–3 marked by rather large punctures, 1 more strongly impressed; interstriae 1–3 equal in width, 1 rather weakly elevated, unarmed, 2 ascending from striae 1 to 2 and bearing a row of minute granules (punctures in male), 3 higher than 1 and armed by five to eight small tubercles (much larger in male). Vestiture mostly confined to declivity, mostly short, flattened.

Distribution: Colombia: Carton de Colombia forest near Buenaventura 8 km S Colonia, Valle de Cauca, 9-VII-1970, 30 m, No. 609, *Sarcoglothis procera*, SLW; 27 km NE Montoya, Santander, 2-VII-1970, 150 m, No. 589, *Eischweilera* sp., SLW.

Biology: Specimens were removed from thick bark of logs 30 cm in diameter or larger from radiate tunnels, as described above for the genus.

Notes: The above treatment was based on the type series of 74 specimens from Colombia.

Phelloterus anaxeus Wood

Phelloterus anaxeus Wood, 1971:47. Holotype ♂; 8 km S Colonia (near Buenaventura), Valle de Cauca, Santander, Colombia; USNM, Washington (References in Wood & Bright c1992:971)

Diagnosis: Distinguished from *atrocis* Wood by the larger size; by the confused punctures on discal striae 1, 2, and sometimes 3; by the finer, shorter elytral setae; and by the absence of an epistomal impression on the

female, and the almost total absence of a premandibular lobe.

Male: Similar to female except frons less strongly impressed, lateral convexities higher, with longer denticles; declivital setae more strongly flattened.

Female: Length 1.7–2.1 mm, 2.5 (male 2.4) times as long as wide; color yellowish brown. Frons strongly convex from epistoma to vertex, a slight transverse impression on lateral fourths; surface smooth, shining, punctures rather small, widely spaced; epistomal margin not elevated; premandibular lobe almost entirely absent; almost glabrous; antennal club larger, suture 1 weakly septate, 2 weakly procurved, aseptate. Pronotum 1.08 times as long as wide; widest on basal half, weakly constricted on anterior half, narrowly rounded in front; anterior margin armed by 10 basally contiguous serrations; summit at middle, anterior slope coarsely asperate; posterior areas smooth, shining, with many impressed points, punctures rather small, close; hairlike setae confined to area near lateral and anterior margins. Elytra 1.4 times as long as wide, 1.4 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed except 1 near declivity, punctures rather large, deep, confused on 1, 2, and sometimes 3; interstriae slightly wider than striae, smooth, shining, few impressed points, no punctures except near declivity. Declivity steep, shallowly sulcate (much stronger in male); striae 1–3 clearly marked by rows of punctures, 1 distinctly impressed; interstriae 1–3 of about equal width, 1 weakly elevated, 2 with a few punctures at base, 3 slightly higher than 1 (much higher in male) and armed by about three moderate denticles (more than twice as large in male). Vestiture mostly confined to declivity, short, sparse, smallest setae hairlike, not flattened.

Distribution: Carton de Colombia forest near Buenaventura 8 km S Colonia, Valle de Cauca, 9-VII-1970, 30

m, No. 614, *Couma macrocarpa*, SLW, also (same data) No. 609, *Sacoglothis procera*.

Biology: Specimens were removed from radiate parental tunnels in thick bark of logs, as described for the genus.

Notes: The above treatment was based on the type series of 182 specimens from Colombia.

GENUS *SPERMOPHTHORUS*

COSTA LIMA

Spermophthorus Costa Lima, 1929:111. Type-species: *Spermophthorus apuleiae* Costa Lima, monobasic (References in Wood & Bright c1992:971)

Diagnosis: Resembling some seed-infesting *Araptus*, except the antennal club is very small and has sutures 1 and 2 partly septate near the lateral margins as in some neotropical *Pityophthorus*. The tibiae are broader and bear more socketed denticles than in *Pityophthorus*; the pronotum also lacks a definite summit and the transition from asperate to smooth is gradual.

Description: Length 1.4–1.8 mm, 2.4 times as long as wide; color reddish brown to dark brown. Frons sexually dimorphic, male variously excavated, female convex, vestiture inconspicuous. Antennal scape elongate; funicle 5-segmented; club small, mostly glabrous, sutures 1 and 2 almost straight, both partly septate at margins. Pronotum without a definite summit, finely asperate on anterior slope, transition gradual from asperate to smooth areas. Elytra striate, conservatively sculptured. Tibiae rather stout, lateral margin armed by socketed denticles on more than apical half.

Biology: One species breeds in seeds, one, apparently, in a “large gall.”

Notes: Wood & Bright (c1992:971) report 2 species, 1 from South America, 1 from Costa Rica.

Key to the Species of *Spermophthorus*

1. Declivity restricted to posterior third of elytra length; elytral declivity convex to very weakly impressed; striae on disc with punctures in rows; discal interstriae three times as wide as striae, punctures in rows, somewhat vulcanate or replaced by granules; male frons moderately, broadly concave, a pair of rather large, hornlike tubercles on emarginate epistoma; Costa Rica; in pear-shaped gall 3 x 7 cm found on forest floor; 1.3–1.6 mm ***aberrans* Wood**
- Declivity occupying almost posterior half of elytra length; elytral declivity moderately bisulcate; punctures on elytral disc rather large, confused, without interstral tubercles or tubercles on disc of pronotum; elytral vestiture shorter, more slender, less strongly flattened; male frons moderately to profoundly excavated (see description below); Argentina and Brazil to Paraguay; *Apuleia forrea*, *Caesalpinia melanocarpa*; 1.8–2.1 mm ***apuleiae* Costa Lima**

Spermophthorus apuliae
Costa Lima

Spermophthorus apuliae Costa Lima, 1929:111. Lectotype, ♂; Campos, Estado de Rio de Janeiro, Brazil; MZUSP, Sao Paulo (Synonymy and references in Wood & Bright c1992:971)
Conophthocranulus vianai Schedl, 1938:27. Syntypes ♂ ♀; Prov. Salta, Argentina; Viana Collection and NHMW, Wien. *New synonymy*

Spermophthorus caesalpiniae Blackman, 1942:203. Holotype ♀; Paraguay; USNM, Washington (References in Wood & Bright c1992:971)

Diagnosis: Distinguished from *aberrans* Wood by the larger size; by the very different male and female frons; by the more broadly rounded, unarmed anterior margin of the pronotum; by the absence of tubercles on the

pronotum disc and on interstriae of the elytral disc; and by many other characters.

Male: Length 1.8–2.1 mm, 2.5 (female 2.6) times as long as wide; color yellowish to reddish brown. Frons variable, lectotype epistomal margin emarginate, median third of frons very deeply excavated from epistoma to vertex, a transverse carina at floor of excavation about middle of excavation length in 2 specimens, other males less strongly impressed, very shallowly impressed in some (but with no median carina); lectotype with lateral margins of excavated area armed by a strong, pointed tubercle at epistomal margin, a second smaller tubercle at or above upper level of eyes on or near margin, these tubercles reduced in size in other males to almost absent in some; surface area on lateral thirds and vertex rugose-reticulate, a few obscure punctures in lateral areas near excavation; vestiture almost absent and very short, except lateral thirds of epistoma, lectotype (only) with similar setae on epistomal margin within excavation, some males with carinate area within excavation flat and glabrous; inner apical angle of lectotype mandible forming a denticle, reduced in other males; antennal club small, oval, as long as scape, sutures 1 and 2 almost straight, septate at both margins on both sutures, not marked on middle half of club width. Pronotum 1.08 times as long as wide; sides on basal half weakly arcuate, subparallel, moderately rounded in front; anterior margin finely costate (weakly serrate from anterior aspect); summit indefinite, at middle of pronotum length; anterior slope rather small, close, confused to obscure rows in some areas; disc between punctures smooth, shining, punctures moderately large, close, spaces between most punctures less than diameter of a puncture; vestiture of short, rather numerous setae on asperate area and sides, less regular on disc, some setae on and near margins with their apex somewhat flattened. Elytra 1.4 times as long as wide, 1.3 times as long as pronotum; disc occupying basal 64 percent of elytra length; disc smooth, shining, striae not impressed, except near declivity, striae and interstitial punctures moderately large, deep, confused. Declivity steep, moderately bisulcate; striae 1 moderately impressed, punctures very small, obscure, in a row, 2 and others not clearly evident; interstriae 1 weakly elevated, 2 shallowly impressed from base, narrowed then eliminated by constriction on lower half, 3 with crest broadly rounded, punctures confused. Most striae punctures with a minute, hairlike seta, interstitial punctures in discernible rows each bearing a stout seta mostly equal in length to two-thirds distance between rows, some on and near declivity slightly longer; most setae on and near declivity flattened on their apical half (usually absent on most of declivital interstriae 2).

Female: Similar to male except frons convex, a slight transverse impression above weakly emarginate epistoma, a subacute, uniformly elevated median carina from epistoma to vertex; anterior margin of pronotum more clearly serrate; body slightly more slender.

Distribution: Argentina and Brazil to Paraguay.

Argentina: Prov. Salta, Argentina; Intercepted in seeds of *Caesalpinia* sp. at New York, 1-VI-1946, USNM No. 46-11957.

Brazil: Sumentes de pao Ferro Canyon, Campos, Estado Rio de Janeiro, 26-VIII-1927, Joa Vallingo Jr.

Paraguay: Intercepted in seeds of *Caesalpinia melanocarpa* from Paraguay, USNM No. 56011.

Biology: All known specimens were removed from seeds of *Apuleia forrea* (by Costa Lima), *Caesalpinia melanocarpa*, and *C. sp.* (Schedl and Blackman), as cited above.

Notes: The above treatment was based on 27 specimens in the type series of *Spermophthorus apuleiae* Costa Lima, on the syntypes of *Conophthorus vianai* Schedl at the NHMW, Wien, and on the type series of *S. caesalpiniae* Blackman at USNM, Washington. An obstacle to the correct identification of this species occurred when the 5 specimens, on which Costa Lima based his original description, were placed in a 3 x 9.5 cm glass vial (2 specimens with a No. 2 pin thrust through them, and 3 double mounted specimens on paper points) that had been sealed by a wax-like substance and could not be opened. In addition, 22 specimens were placed in a glass tube (about 1 x 5 cm) containing ethyl alcohol, then the stem end was melted to permanently seal the open end. This tube was then placed in a 3 x 9.5 cm vial and sealed by a cork. Because this method of preservation prevented the examination of specimens at more than about 10X, I consulted competent Brazilian entomological authority and was instructed to break the smaller vial and mount the entire series that was preserved in alcohol. This was done in the presence of an entomological witness to ensure that all possible care was taken to avoid loss or damage. All specimens were then immediately mounted and appropriately labeled. The 5 specimens mounted by Costa Lima were not removed from their vial because the cork sealing the vial had fused to the glass of the vial and broke when an attempt was made to remove it. It was presumed that damage to these 5 specimens could not be avoided if the cork were removed, so they were left in the original vial untouched. From the 22 syntypic specimens taken from the vial containing alcohol that I examined, a male lectotype (with extreme frontal excavation), a female lectoallotype, and 20 lectoparatypes are here designated for *Spermophthorus apuleiae* Costa Lima. These specimens are now in MZUSP, Brazil. This species was compared to my specimens of *S. caesalpiniae* Blackman, which were determined by Blackman and compared by me to his type series of *S. caesalpiniae* and to Schedl's syntypes of *Conophthocranulus viani*. All are of the same species and breed in fruit and seeds of their host.

GENUS PSEUDOPITYOPHTHORUS

SWAINE

Pseudopityophthorus Swaine, 1918:33. Type-species: *Crypturgus minutissimus* Zimmermann, original designation (Synonymy and references in Wood & Bright c1992:971)

Xenophthorus Wood & Yin, 1986:462. Type-species: *Pseudopityophthorus peregrinus* Wood & Yin, original designation, a subgenus

Diagnosis: Distinguished from *Pityophthorus* by the strongly reduced or absent elytral striae; by the rather abundant elytral vestiture; by the tuberculate posterior face of the protibia; by the pubescent frons forming a male character; and by distinctive biological characters.

Description: Length 1.2–2.6 mm, 2.6–3.1 times as long as wide; color medium brown to almost black; rather abundant vestiture varying from hairlike to scalelike. Frons usually sexually dimorphic, convex to shallowly concave in either sex, abundant frontal vestiture a male character. Antennal scape elongate; funicle 5-segmented; club moderately large, sutures 1 and 2 partly septate, weakly to strongly procurved, suture 1 shorter than 2. Elytral striae weak to obsolete, surface punctures on disc small, usually confused and abundant (small and in rows in *colombianus* Wood), declivity steep, convex, conservatively sculptured. Posterior face of protibia tuberculate.

Biology: Of the 27 known species, all but 1 breeds in *Quercus* spp. Cut, broken, or unthrifty branches, limbs, or boles are selected for attack. The male begins the short entrance tunnel and a short longitudinal tunnel at the cambium. He is joined by 1 female that then begins 2 transverse egg galleries that extend in opposite directions from the male tunnel. Larval mines are longitudinal, almost straight, and entirely in the phloem tissues, but show on the inner surface of peeled bark. When only 1 species occurs on a tree; it usually breeds in the bole, limbs, and branches. When more than 1 species share a tree, they usually subdivide the available space in characteristic patterns.

Notes: Wood & Bright (c1992:971–976) report 25 species from North and Central America, 1 from Tibet (Xizang, China), and 1 from Colombia (Antioquia). The key in Wood (1982:966–968) includes the Colombian species.

Pseudopityophthorus colombianus Wood

Plate CLIX

Pseudopityophthorus colombianus Wood, 1971:51. Holotype ♂; Piedras Blancas, 10 km E Medellin, Antioquia, Colombia; USNM, Washington (References in Wood & Bright c1992:972)

Diagnosis: Distinguished from other species of this genus by the very slender body form; by the shallowly bisulcate elytral declivity on which the striae punctures are in rows; and by the rather coarse granules on declivital interstriae 3.

Male: Length 1.3–1.5 mm, 3.0 times as long as wide; color brown. Frons flattened eye to eye, from epistoma to vertex; surface smooth, shining, with fine punctures mostly in lateral areas, central area glabrous; lateral and upper margins with a dense row of long, yellow hair, tips of longest setae on vertex capable of attaining epistomal margin; antennal club small, sutures 1 and 2 almost straight. Pronotum 1.2 times as long as wide; widest on

basal third, sides feebly arcuate, rather broadly rounded in front; anterior margin armed by more than 12 small serrations; summit in front of middle of pronotum length, anterior slope with asperities in poorly defined subconcentric rows; posterior areas almost smooth, punctures moderately coarse, rather sparse; vestiture almost bristlelike on asperate area, short, sparse behind. Elytra 1.9 times as long as wide, 1.6 times as long as pronotum; disc occupying almost basal three-fourths of elytra length; striae not impressed, punctures rather coarse, in rows, moderately deep; interstriae as wide as striae, almost smooth, punctures almost as large as those of striae but almost entirely confined to 1 to base and also to posterior fourth of disc. Declivity convex, steep, broadly, shallowly bisulcate; striae punctures small, shallow; interstriae 1 weakly elevated, 2 weakly, rather broadly impressed, 3 gradually, distinctly elevated and bearing a row of three to five moderately coarse granules. Vestiture of moderately abundant, rather long, hairlike setae, some interstitial setae rather coarse.

Female: Similar to male except frons convex, lower third with a distinct transverse impression, surface rather coarsely punctured, vestiture sparse, inconspicuous.

Distribution: Colombia: Piedras Blancas 10 km E Medellin, Antioquia, 15-VII-1970, 2500 m, No. 667, *Quercus humboldtii* branches, SLW.

Biology: Specimens were removed from transverse parent galleries in branches of the host.

Notes: The above treatment was based on the type series 52 specimens from Colombia.

GENUS *PITYOPHTHORUS* EICHHOFF

Pityophthorus Eichhoff, 1864:39. Type-species: *Bostrichus lichtensteini* Ratzeburg, subsequent designation by Hopkins 1914:127 (Synonymy and references in Wood & Bright c1992:976–977)

Trigonogenius Hagedorn 1912:354. Type-species: *Trigonogenius fallax* Hagedorn, monobasic, preoccupied by Solier 1849

Hagedornus Lucas, 1920:683. Type-species: *Trigonogenius fallax* Hagedorn, automatic

Myeloborus Blackman, 1928:16. Type-species: *Pityophthorus ramiperda* Swaine, original designation

Gnathophorus Schedl 1935:342. Type-species: *Gnathophorus sparsepilosus* Schedl, preoccupied by Kirby 1837

Conophthocranulus Schedl, 1935:343. Type-species: *Conophthocranulus blackmani* Schedl, monobasic

Pityophthoroides Blackman, 1942:199. Type-species: *Pityophthoroides pudens* Blackman, original designation

Cladoborus Sawamoto, 1942:165. Type-species: *Cladoborus arakii* Sawamoto, monobasic

Neomips Schedl, 1954:37. Type-species: *Neomips brasiliensis* Schedl = *Pityophthorus dimorphus* Schedl, monobasic

Ctenyophthorus Schedl 1955:26. Type-species: *Ctenyophthorus glabratus* Schedl, monobasic

Gnathophthorus Wood, 1962:76. Type-species: *Gnathophthorus sparsepilosus* Schedl, automatic, replacement name

Hypopytyophthorus Bright, 1981:14. Type-species: *Pityophthorus inops* Wood, original designation

Diagnosis: Distinguished from *Araptus* by the presence of 2 partial or completely septate sutures in the antennal club, these sutures usually less strongly procurved

than in *Araptus*; and by the absence of rugae on the basal third of the lateral margin of the protibia. Most species have a definite, transverse impression behind the pronotum summit, and tend to have the transition from asperate to punctured areas more abrupt.

Description: Length 0.8–4.3 mm, 2.0–3.4 times as long as wide; color yellowish brown to almost black. Frons usually sexually dimorphic, male strongly convex to variously impressed, with or without a carina, female strongly convex to concave and often ornamented by sparse to dense setae. Antennal scape slender, elongate, funicle 5-segmented (3- to 5-segmented in 1 Central American species), usually about equal in length to scape. Club elongate-oval to subcircular, of moderate size, sutures 1 and 2 both partly to completely septate (when septae reduced sutures usually straight and club small). Pronotum usually as long or longer than wide; summit usually near middle, usually with a transverse impression behind summit, transition from anterior asperate to posterior punctured area rather abrupt. Scutellum large, flat. Elytra usually striate, with punctures in rows, confused in some groups; declivity usually confined to posterior third of elytra length, broadly, strongly convex to weakly to strongly bisulcate. Anterior tibia slender, apical margin armed by 2 socketed denticles, and with 1 socketed denticle on lateral margin near apex; supplemental rugae on basal half sometimes extend to middle of tibia length.

Biology: All South American species appear to be phloeophagous, a few may be myelophagous. Small species in small twigs are commonly monogynous; most are harem polygynous. All South American species outbreed. Unthrifty seedlings, injured, cut or broken stems of lianas, shrubs, and trees are selected for attack. A few North American species attack healthy, green trees. This habit is presently unknown in South American species. Monogynous species may form monoramous parent galleries in the host. Polygynous species usually make radiate parent tunnels. All species deposit their eggs individually in niches formed by the female parent in her egg gallery.

Notes: Wood & Bright (c1992:976–1034) list 386 species of *Pityophthorus* worldwide. Wood (1982:991–1141) treated 218 species from North and Central America. On the following pages, 55 species are treated from South America. The genus is obviously of American origin, with the greatest diversity of numbers and anatomical structure occurring in subtropical and tropical areas. More than three-fourths of the American species breed in coniferous hosts. None of the known South American species breed in conifers other than *Araucaria* and plantations of *Pinus* sp. The identification of most species in this genus is unusually difficult and requires examination of both sexes. See Wood (1982) for keys and descriptions of North and Central American species.

Key to the Species of *Pityophthorus*

- 1. Declivity convex, striae 1 distinctly impressed; declivital interstriae 2 feebly or not impressed and bearing a row of small punctures and/or setae between striae 1 and 2 2
- Declivital interstriae 2 either convex or impressed, usually smooth, shining, never with a row of erect setae 6
- 2(1). Declivital interstriae 2 not impressed, punctures at base of setae minute, not granulate, setae long, slender; anterior slope of pronotum with three or more slightly irregular, concentric rows of basally connected asperities; striae punctures on disc in definite rows to base, punctures small; Brazil (Minas Azul); 1.6 mm *olivierai* Schedl
- Declivital interstriae 2 weakly impressed; asperities on anterior slope of pronotum confused; declivital interstriae 2 with setae shorter, mostly shorter than distance between adjacent rows 3
- 3(2). Declivital interstriae 2 with a row of minute punctures (no tubercles); declivital striae 1 and 2 with a minute striae hair arising from each puncture; setae on declivital interstriae 1 and 2 shorter, stouter, 3 with 2 or 3 longer setae; Brazil (Para); 1.3 mm *ascendens* Schedl
- Declivital interstriae 2 with a row of small tubercles; declivital striae 1 and 2 without striae setae; setae on declivital interstriae 2 and 3 more slender, slightly longer 4
- 4(3). Pronotum disc reticulate, dull; frons in both sexes convex, surface reticulate and with punctures, vestiture sparse, inconspicuous in both sexes; Colombia; Compositae shrub; 1.3–1.7 mm *nigriceps* Wood
- Pronotum disc smooth, shining between punctures 5

5(4).	Apex of sutural interstriae 1 on declivity rounded; discal striae 1 and 2 with punctures moderately confused; male frons convex, smooth, shining, punctures small, sparse, female frons almost flat from epistoma to upper level of eyes and ornamented by a conspicuous tuft of long hair; Brazil (Para); 1.7–1.8 mm	<i>excellens</i> Schedl
—	Apex of sutural interstriae acutely submucronate; setae on declivital interstriae 1–3 more slender, longer, each equal in length to distance between rows; female frons almost flat, ornamented by a tuft of long hair; body more slender; Brazil (Para); 1.7 mm	<i>detectus</i> Schedl
6(1).	Asperities on anterior slope of pronotum confused	7
—	Asperities on anterior slope of pronotum organized into 3 or more concentric rows of basally contiguous asperities	49
7(6).	Elytral declivity with lateral convexities more broadly rounded; declivital interstriae 2 either not impressed and equal in height to 1 and 3 or only weakly impressed, 3 either unarmed or tubercles very small	8
—	Elytral declivity usually steeper, often more abrupt, interstriae 2 more distinctly impressed, lateral convexities more abruptly elevated, sutural interstriae often ending in a submucronate apical point (when punctures of discal striae in rows and interstitial punctures sparse), or apical point reduced or absent (when discal punctures confused)	38
8(7).	Discal interstriae 1 and/or 3 unarmed by granules or tubercles	9
—	Discal interstriae 1 sometimes and 3 always armed by two or more granules, tubercles, or small spines	25
9(8).	Strial punctures on disc all in definite rows from base to base of declivity	10
—	Punctures on elytral disc partly to entirely confused	21
10(9).	Declivity evenly convex, suture not elevated, punctures on striae 1 and 2 minute to mostly obsolete on posterior disc and declivity; type probably a male (frons concealed on type); body about 3.1 times as long as wide; Colombia; <i>Psidium guajava</i> branches; 1.3 mm	<i>robai</i> (Blackman)
—	Declivity with coarse punctures on striae 1 and 2 or interstriae 3 impressed	11
11(10).	Elytral declivity narrowly, strongly convex, interstriae 1 weakly elevated; declivital striae 1 and 2 coarsely punctured, each about as wide as interstriae 2 and 3; pronotum disc smooth, shining between punctures	12
—	Elytral declivity rather weakly to strongly bisulcate, punctures on striae 1 and 2 very small; declivital interstriae 2 twice as wide as striae	14
12(11).	Declivital striae 1 narrowly, moderately impressed, forming a continuous, weak groove, declivital interstriae 2 equally or very weakly impressed, forming a continuous, weak groove, 1 and 3 equal in height, crest of 3 more narrowly rounded than 2; male epistoma without a median crest or tubercle; summit of pronotum anterior to middle of pronotum length; Chile; 1.8–2.1 mm	<i>corticalis</i> Eichhoff
—	Declivital striae 1 somewhat impressed, not forming a continuous groove; declivital interstriae 1 feebly higher than 2, with 2 and 3 of equal height; male frons weakly, transversely impressed on lower third, epistoma normal, weakly elevated into a feeble median crest or tubercle; summit of pronotum near middle of pronotum length	13
13(12).	Frons smooth, shining on lower two-thirds of area below upper level of eyes, punctures rather coarse, upper area reticulate; elytral declivity less strongly arched; Venezuela (Merida); 1.4–1.7 mm	<i>simplicis</i> Wood

CORTHYLINI

- Frons smooth, shagreened, from epistoma to above upper level of eyes, punctures very small, sparse; elytral declivity more strongly arched; Venezuela (Merida); 2.0 mm *similaris* Wood
- 14(11). Declivital sulcus narrower, weaker, involving only striae 1, interstriae 2 ascending laterally 15
- Declivital sulcus wider, including all of interstriae 2 18
- 15(14). Declivital striae 1 narrowly impressed on a weak, continuous groove; declivital interstriae 1 and 3 each with a row of six or more slender, moderately long setae to posterior fifth of disc; lower frons weakly, transversely impressed, a short, weak median crest at epistoma; pronotum disc shining; Colombia (Antioquia) to Venezuela (Aragua); *Miconia*; 1.8 mm *languidus* Eichhoff
- Declivital striae 1 narrowly, continuously, rather strongly impressed from base of declivity to apex of elytra; declivital interstriae 1 with setae weak to obsolete, 3 with three to four setae on lower two-thirds of declivity, these setae short, stout 16
- 16(15). Male frons transversely flat, longitudinally, feebly concave, female frons not seen; pronotum smooth, shining, obscurely shagreened, punctures moderately small, uniformly distributed, without any impressed points; Brazil (Mato Grosso); 1.2–1.3 mm *minutus* Schedl
- Pronotum with punctures on disc very small and with numerous impressed points 17
- 17(16). Pronotum 1.2 times as long as wide, punctures on disc very small; bicolored; sutural striae rather weakly impressed, suture as high as lateral convexities; male frons transversely flat, longitudinally moderately concave, female frons ornamented by a tuft of long, yellow hair from epistoma to vertex; Venezuela (Merida); *Basiloxylon brasiliensis*; 1.0–1.2 mm *minimus* Wood
- Pronotum 1.1 times as long as wide, punctures on disc moderately large; color uniformly dark reddish brown; frons concealed on male type; sutural striae on declivity strongly impressed, lateral convexities distinctly higher than suture; Brazil; 1.3 mm *niger* Schedl
- 18(14). Declivital striae 1 strongly impressed, punctures on 1 and 2 small to obsolete; declivital interstriae 1 moderately elevated, about half as wide as 2, with 2 strongly ascending laterally from striae 1 almost to striae 3, surface smooth, brilliantly shining, crest at interstitial punctures on 3, rather broadly rounded, almost glabrous; frons with a low, subacute carina from epistoma almost to upper level of eyes; pronotum disc smooth, shining; Venezuela (Merida); *Nectandra* log; 2.0–2.6 mm *splendens* Wood
- Declivital interstriae 2 almost flat, not ascending laterally 19
- 19(18). Pronotum disc with dense impressed points in areas between punctures, many similar points on elytral disc; Brazil (Caioba); 0.95 mm *pygmaeolus* Schedl
- Pronotum disc reticulate; larger species 20
- 20(19). Strial punctures on disc and declivity rather coarse, deep, these punctures at least half (declivity) to fully as wide as an interstriae on disc; lower frons smooth, shining in both sexes; Venezuela (Merida); *Nectandra*; 1.7 mm *nectandrae* Wood
- Strial punctures much smaller, about one-third as wide as an interstriae on both disc and declivity; lateral convexities on declivity slightly higher; frons reticulate from epistoma to vertex in both sexes; Venezuela (Merida); 2.3–2.5 mm *venezuelensis* Schedl
- 21(9). Body rather stout, 2.3 times as long as wide; strial and interstitial punctures on declivity confused from base to apex, punctures on striae 1 and 2 not in identifiable rows; male frons with a fine, low median carina, female frons deeply, extensively excavated; Brazil (Rio Negro); 1.4–1.7 mm *anticus* Schedl
- Body more slender, 2.6–2.8 times as long as wide; punctures on declivital striae 1 and 2 in discernible rows 22

- 22(21). Body 2.8 times as long as wide; punctures on elytra disc and declivity rather coarse, confused; male frons with a weak, transverse impression from epistoma upper level of eyes, surface smooth, shining, punctures close, rather coarse; female frons almost flat eye to eye from epistoma to vertex, surface smooth, shining, punctures small, numerous, peripheral margin (including sides and epistoma) with a continuous row of very long setae, tips of longest setae on vertex capable of attaining epistomal margin, setae in central area shorter; Brazil; 1.5–1.9 mm *costalimai* **Blackman**
- Body 2.6–2.8 times as long as wide, declivital punctures on interstriae 1 and 2 in definite rows . . . 23
- 23(22). Discal punctures on elytra only slightly confused; elytra almost glabrous, a few short interstitial setae sometimes present on declivity; male frons rather strongly impressed from upper level of eyes to epistoma, epistomal area moderately elevated, female frons flattened eye to eye from epistoma to vertex and bearing a tuft of long hair; Brazil (Santa Catarina); 1.7–1.8 mm *mandibularis* **Schedl**
- Discal punctures on elytra moderately to strongly confused; elytra with much more abundant, longer vestiture; frons convex in both sexes, male epistoma unmodified, female vestiture on frons shorter, less abundant 24
- 24(23). Pronotum disc shining, punctures on pronotum and elytra slightly larger; declivity not as steep, sulcus much deeper; longest setae on declivital interstriae 3, setae coarse, blunt, equal in length to combined width of two interstriae; color reddish brown, pronotum darker; Bolivia; 1.8 mm *longipilis* **Schedl**
- Pronotum disc weakly reticulate, punctures on pronotum and elytra averaging smaller; declivity much steeper, sulcus rather shallow; longest declivital setae very slender, pointed, equal in length to more than combined width of two interstriae; mature color black; Venezuela (Merida); *Podocarpus*; 1.7–1.9 mm *podocarpus* **Wood**
- 25(8). Strial punctures on disc in definite rows 26
- Strial punctures on disc moderately confused (at least from suture to striae 3) to strongly confused 35
- 26(25). Tubercles on declivital interstriae 1 and 3 small, poorly formed, not pointed; pronotum disc scabrous from summit to base; strial punctures very coarse, very deep, interstriae on disc narrower than striae; vestiture on pronotum long, conspicuous, interstitial setae long, coarse, present from base to apex; a median epistomal lobe present but different in male and female; Chile; 2.4–2.5 mm *kuscheli* **Schedl**
- Tubercles on declivital interstriae 3 small, pointed; pronotum disc normal (not scabrous) 27
- 27(26). Body stouter, about 2.6–2.9 times as long as wide; lateral convexities on elytral declivity equal to or only slightly higher than suture, tubercles on sutural interstriae of declivity rather conspicuous, more regularly spaced 28
- Body very slender, at least 3.0 times as long as wide; lateral crests of elytral declivity conspicuously higher than sutural interstriae, suture either unarmed or tubercles very small and widely spaced 33
- 28(27). Elytral declivity very shallowly sulcate, lateral convexities about equal in height to suture, declivital striae 1 and 2 with punctures rather small, distinctly impressed; female frons strongly convex, weakly reticulate above, sparsely punctured, almost glabrous; Colombia; *Icica altissima*; 1.7 mm *icicae* **Wood**
- Elytral declivity moderately sulcate, lateral convexities distinctly higher than suture, punctures on declivital striae 1 and 2 minute to obsolete; frons more broadly convex 29

CORTHYLINI

- 29(28). female frons more strongly convex, with very limited reticulation below upper level of eyes (in lateral areas only); a moderate, transverse elevation on lower frons above epistoma; Venezuela (Miranda); vine (*Clematis?*); 1.7 mm *imbellis* Wood
- Male frons minutely, strongly reticulate from vertex to well below upper level of eyes 30
- 30(29). Male frons reticulate from epistoma to vertex, without a transverse impression above epistoma, punctures larger, closer; distance from suture to crest of declivital interstriae 3 increasing conspicuously from base to apex of sulcus; Argentina 1.2–1.3 mm *pampasae* Schedl
- Male frons with reticulation restricted or obsolete at or below transverse impression above epistoma, punctures minute, not close 31
- 31(30). Punctures on basal half of discal striae 1 in a definite row; pronotum distinctly reticulate in transition area between asperate and punctured areas; male frons with a more definite transverse impression just above epistoma, transition from reticulate to shining area abrupt; Venezuela (Miranda); *Croton*, vine (*Clematis?*); 1.3–1.6 mm *opacifrons* Wood
- Punctures on basal half of discal striae 1 slightly confused; pronotum without any reticulation in area between asperate and punctured surfaces; setae on declivital interstriae 1 often half as long as those on 3 32
- 32(31). Declivital striae 1 and 2 distinctly impressed, 2 with definite punctures; declivital interstriae 2 narrow, weakly convex, impunctate (apparent punctures belong to interstriae 1); male body 2.5 times as long as wide; declivital interstriae 1 with many micropunctures, no tubercles, 3 with three small, pointed denticles; French Guyane; 1.7 mm *sextuberculatus* Eggers
- Declivital striae 1 and 2 impressed and without punctures, interstriae 2 impressed, flat, much wider; male body 2.7 times as long as wide; declivital interstriae 1 almost smooth, with four obscure, subtuberculate irregularities, tubercles on 3 very small; Venezuela (Merida); Compositae shrub; 1.3–1.7 mm *retifrons* Wood
- 33(27). Pronotum disc reticulate, without impressed points; elytral declivity more gradual, occupying one-third of elytra length; tubercles on declivital interstriae 1 small, of similar size on 3, sulcus much deeper; Colombia (Antioquia); 1.3–1.7 mm *eucracens* Wood
- Pronotum disc smooth, with numerous impressed points; elytral declivity rather steep, occupying one-fourth of elytral length; tubercles on declivital interstriae 1 reduced to one, small on 3, sulcus rather shallow 34
- 34(33). Anterior margin of pronotum more strongly procurved; pronotum disc with punctures moderately large and with numerous impressed points between punctures; female frons with vestiture very sparse, short, few setae longer than twice diameter of an adjacent puncture; Brazil (Mato Grosso); 1.2–1.7 mm *turbiculus* Schedl
- Anterior margin of pronotum more broadly procurved; pronotum disc with punctures much smaller, with few if any impressed points; short vestiture on upper female frons conspicuously longer and more abundant, all setae much longer than distance equal to four diameters of a puncture; Brazil (Amazonas); 1.7 mm *elongatulus* Schedl
- 35(25). Basal half of striae 2 and 3 on disc moderately confused, others in rows; declivital sulcus moderately impressed, suture rather weakly elevated and armed by about 4 or more small, pointed tubercles, interstriae 3 armed by less than six tubercles 36
- Discal punctures on elytra more strongly, more extensively confused; sutural interstriae either unarmed by tubercles or armed only near base 37
- 36(35). Pronotum disc smooth, shining between punctures; suture on declivity armed by 6–12 small tubercles; elytral vestiture restricted to declivity, sparse; Argentina; 2.2 mm *tucumanensis* Wood

- Pronotum disc reticulate; sutural interstriae on declivity armed by about 4 small tubercles; elytral vestiture much more abundant; Venezuela (Merida); vine; 1.4–1.7 mm *reticulatus* Wood
- 37(35). Smaller species; declivity moderately bisulcate, with about three small denticles at base of interstriae 1, six or more similar tubercles on crest of 3; punctures on elytral disc comparatively small, close, confused from suture to about striae 4; Brazil (Guanabara, Sao Paulo); 1.8–2.0 mm
 *irregularis* Eggers
- Larger species; declivity moderately bisulcate, suture moderately elevated, armed by about five small tubercles near base, 3 moderately elevated, crest armed by about nine rather large, pointed denticles; punctures on elytral disc rather coarse, deep, strongly confused from suture to striae 3; Venezuela; *Croton*; 3.2–3.9 mm *crotonis* Wood
- 38(7). Punctures of discal striae either confused or in straight rows; apex of elytral suture rounded or joining subapical lateral (costal) margin without forming an acute point 39
- Punctures of discal striae always in definite rows; apex of sutural interstriae ending in an acute, submucronate point 41
- 39(38). Striae 1 and 2 converge at base of declivity and eliminate interstriae 2 on lower three-fourths of declivity; declivity very steep; body rather stout; Brazil (Para); 1.6 mm *inaequidens* Schedl
- Declivital interstriae 2 narrow above, much wider below, with punctures between striae 1 and 2 at least on lower area; body more slender; declivity not as steep 40a
- 40a(39). Body smaller (1.3 mm), more slender (3.3 times as long as wide); male frons rather abruptly impressed on median half from epistoma almost to upper level of eyes, crest above impression with a median tubercle; female frons a smooth impunctate weakly convex bulla on median half from epistoma almost to upper level of eyes, margin of bulla with a confused row of long, yellow setae on dorsal and lateral margins, longest setae above capable of extending three-fourths distance toward epistomal margin; Brazil (Santa Catarina); 1.3 mm *novateutonicus* Schedl
- Body larger (1.4–1.8 mm), stouter (2.7–2.8 times as long as wide); female frons more convex and regularly punctured (*dimorphus*), female not seen (*terebrans*) 40b
- 40b(40a). Pronotum smooth, shining between moderately coarse punctures on pronotum disc; elytral disc smooth, shining, with no impressed points, punctures rather coarse, confused from suture to interstriae 3 from base to base of declivity; declivity steeper; sulcus not as wide, suture armed by three to four small widely distributed granules, lateral crests more broadly rounded, armed by three pointed tubercles of about equal size; Brazil (Amazonas, Para); 1.8 mm *terebrans* Schedl
- Pronotum disc longitudinally etched from summit to base, minute punctures in grooves of etching; elytral disc smooth, shining, with numerous impressed points, punctures small, confused on basal half only from suture to interstriae 3; declivity not as steep, sulcus wider; suture armed by one moderately large tubercle near apex, lateral crests more abrupt, armed on lower half by two rather small, pointed tubercles, on upper half by one moderate pointed tubercle near base and, near middle, by a coarse, pointed spine at least twice as long as its basal width; Brazil (Mato Grosso); 1.4–1.5 mm *dimorphus* Schedl
- 41(38). Declivital interstriae 2 with punctures between striae 1 and 2; female frons with a tuft of long setae 42
- Declivital interstriae 2 without punctures; female frons apparently subglabrous (female not at hand for all species) 44
- 42(41). Declivital interstriae 2 weakly impressed, narrow throughout, with a row of uniseriate punctures, most of those punctures bearing a seta, each seta almost equal in length to those on interstriae 1 and 3; Brazil (Para); 2.8 mm *infimus* Schedl

CORTHYLINI

- Declivital interstriae 2 more strongly impressed, much wider on lower half, punctures strongly confused; pronotal asperities sometimes in obscure subconcentric rows 43
- 43(42). Tuft of hair on female frons more dense, setae longer, extending to upper level of eyes; two pair of tubercles on declivital interstriae 3 larger in both sexes; Brazil (Mato Grosso) to Suriname and Venezuela; *Protium*, *Trichilia*; 1.8–2.1 mm **sinopae** Schedl
- Tuft of hair on female frons rather sparse, extending to distinctly below upper level of eyes; 2 pair of tubercles on declivital interstriae 3 smaller in both sexes; Venezuela and French Guyane to Brazil (Linhares); *Protium*; 1.3–1.7 mm **quadrispinatus** Schedl
- 44(41). Declivital striae 1 and 2 clearly punctured from base to apex, separated by a narrow, impunctate interstriae 2 45
- Declivital interstriae 2 eliminated by convergence of striae 1 and 2, punctures on striae 1 and 2 obsolete; strial punctures on disc small, weak 48
- 45(44). Declivital interstriae 3 equal in height to 1, with 1 usually having a few small tubercles 46
- Declivital interstriae 3 conspicuously higher than 1, with 1 unarmed by tubercles 47
- 46(45). Striae distinctly impressed from base of declivity to near base of disc; discal interstriae as wide as striae, 1–3 distinctly convex; erect setae on declivital interstriae 1–3 slender, rather long, longest equal in length to distance from setae on 1 to setae on 3; Brazil (Para); 1.3–1.4 mm **exsectus** Schedl
- Discal striae not impressed, conspicuously narrower than interstriae; Brazil (Minas Gerais); 1.8 mm **apicipennis** Schedl
- 47(45). Declivital interstriae 3 distinctly higher than 1 on basal half, both spines on upper half of declivity; lower declivity flattened from striae 1–3; a small spine at base of interstriae 1; declivital setae rather sparse, moderately long; Brazil (Para); 1.3 mm **alvarengai** Schedl
- Declivital interstriae 3 conspicuously higher than 1, with 1 without a tubercle at base, crest of 3 continued to near apex (not flattened laterally); lower major tubercle positioned distinctly below middle of declivity; most setae on declivital interstriae 1 and 3 short, rather numerous; Brazil (Para); 1.8 mm **erraticus** Schedl
- 48(44). Declivital sulcus moderately impressed, not as deep; sutural interstriae on declivity with a row of small, setiferous punctures, these setae short, regularly placed; pronotum with obscure reticulation in some areas, punctures very small; female frons strongly convex, with minute granules, vestiture sparse, short, inconspicuous; Brazil (Para); 1.3 mm **barbosai** Wood
- Declivital sulcus narrow, rather deep, interstriae 2 apparently eliminated by loss of striae 1 and 2; sutural interstriae smooth, glabrous, without punctures; pronotum disc smooth, shining, with very small punctures; female frons flat, densely covered by tuft of uniformly distributed hair, male similar but not as flat, long setae sparse; Suriname; 1.3–1.5 mm **surinamensis** Schedl
- 49(6). Declivital striae 1 moderately to strongly impressed, interstriae 2 ascending laterally to crest at 3, striae 2 with punctures slightly reduced to obsolete 50
- Declivital interstriae 2 impressed below level of 1 and 3, flat, impunctate, striae 2 clearly marked by a row of punctures 54
- 50(49). Declivity convex, lateral crests little if any higher than suture, interstriae 3 unarmed by tubercles or spines 51
- Lateral crests of declivity distinctly higher than suture and armed by tubercles or small spines . . . 52

- 51(50). Lateral crests of declivity little if any higher than suture, striae 1 narrowly, rather shallowly impressed, interstriae with punctures small, each bearing a fine, short hair, setae little if any longer than those in lateral areas; frons of type (male?) moderately convex, smooth, shining, punctures moderately coarse, rather close, vestiture sparse, short; color dark reddish brown; Bolivia; 1.4 mm *bolivianus* Eggers
- Lateral crests of declivity very slightly higher than suture, broadly rounded, sulcus at striae 1 more distinct, slightly wider; interstitial setae on odd-numbered interstriae stouter and distinctly longer; male frons strongly convex, shining, rather coarsely punctured; Argentina to Brazil (Santa Catarina); 1.3–1.7 mm *argentinensis* Eggers
- 52(50). Declivital sulcus more strongly, more widely impressed, lateral crest on upper half of interstriae 3 armed by two moderately large, sharply pointed denticles, one on basal fourth of declivity length, and another slightly above middle of declivity length, sutural interstriae with two or three small tubercles widely spaced; Brazil (Bahia); at light; 1.5 mm *bahiae* Wood
- Declivital sulcus rather narrowly impressed, lateral crest armed by minute granules 53
- 53(52). Declivital sulcus rather weak, interstriae 1 and 3 of about equal height, apex of 1 weakly submucronate; male frons with vestiture of fine, short, less abundant hair, female frons with setae much longer, more abundant; Venezuela (Aragua); 1.0–1.2 mm *vescus* Wood
- Declivital sulcus much stronger, lateral convexities conspicuously higher than suture, apex of sutural interstriae rounded; male frons broadly flattened, almost glabrous, mandible with a conspicuous cusp on mesal margin, female frons flattened on lower half, setae sparse; Brazil (Santa Catarina); 1.4 mm *apiculatus* Schedl
- 54(49). Frons strongly convex in both sexes, coarsely punctured, with a median callus at upper level of eyes and subglabrous; elytral vestiture much more slender; Venezuela (Aragua); 1.4–1.6 mm . . .
..... *moritzi* Wood
- Female frons flattened almost eye to eye from epistoma to above upper level of eyes and ornamented by a rather sparse tuft of moderately long hair, male frons more strongly convex, without a median callus, almost glabrous; elytral vestiture stout; Venezuela (Zulia); *Anacardium excelsum*; 1.2–1.4 mm *anacardii* Wood

Pityophthorus olivierai Schedl

Pityophthorus olivierai Schedl, 1972:68. Holotype ♂; Pedra Azul, Minas Gerais, Brazil; NHMW, Wien (References in Wood & Bright c1992:1017)

Diagnosis: Allied to *exellens* Schedl except declivital striae 1 distinctly impressed, 2 not impressed and puncture at base of setae minute, not granulate, setae long and slender; asperities on anterior slope of pronotum partly in obscure subconcentric rows.

Male: Length 1.6 mm, 2.8 times as long as wide; color yellowish brown. Frons concealed by pronotum on type, apparently broadly convex, sparsely pubescent. Pronotum 1.04 times as long as wide; widest at base, sides feebly arcuate, converging slightly toward rather narrowly rounded anterior margin; anterior margin armed by about 10 basally connected low serrations, those near median line slightly larger; summit distinct, near middle of pronotum length; asperities rather coarse, most in two to four obscure, broken, subconcentric rows; posterior areas shining, with numerous impressed points,

punctures moderately coarse, deep, close; vestiture sparse, short, hairlike, mostly on asperate area and sides. Elytra 1.8 times as long as wide, 1.8 times as long as pronotum; disc occupying basal three-fourths of elytra length; striae not impressed, punctures in rows, rather small on basal half, decreasing in size toward declivity; interstriae twice as wide as striae, smooth, shining, impunctate. Declivity basally convex, steep; striae 1 distinctly, shallowly impressed, punctures on 1 and 2 minute to apex; interstriae 1 weakly elevated, rather narrow, 2 wider than 1, ascending slightly laterally, 3 as wide as 2 and as high as 1, all three shining, with many impressed points, punctures on 1–3 minute, many or most with a minute granule, each bearing a long, slender hair. Vestiture of rows of slender, long, erect, hairlike interstitial setae on and near declivity, longest setae up to twice as long as distance between rows.

Distribution: Brazil: Pedra Azul, Minas Gerais, XII-1970, FM. Oliveira.

Notes: The above treatment was based on the male holotype.

Pityophthorus ascendens Schedl

Pityophthorus ascendens Schedl, 1972:64. Holotype ♂; Jacareacanga, Para, Brazil; NHMW, Wien (References in Wood & Bright c1992: 982)

Diagnosis: Distinguished by the presence of a row of short setae on declivital interstriae 2, these setae arise from small punctures, not from tubercles; by the comparatively stout declivital setae; and by the small, comparatively stout body form.

Male: Length 1.3 mm, 2.8 times as long as wide; color yellowish brown. Frons strongly convex eye to eye, from epistoma to vertex; surface smooth, shining, punctures rather coarse above, much smaller near epistoma; vestiture sparse, fine, minute hair on upper half, a few rather long setae on epistoma. Pronotum 1.1 times as long as wide; widest near base, sides feebly arcuate on basal half, converging slightly, broadly rounded in front; anterior margin a weakly serrate continuous costa; summit very slightly anterior to middle of pronotum length; anterior slope rather coarse, close, confused; posterior areas smooth, shining, with several impressed points, punctures small, rather close; vestiture of sparse hair on asperate area and sides. Elytra 1.7 times as long as wide, 1.5 times as long as pronotum; disc occupying basal three-fourths of elytra length; striae not impressed except 1 feebly on posterior half, punctures in rows, rather coarse, deep; interstriae as wide or slightly wider than striae, smooth, shining, 1 sparsely punctured to base, others each with two or three small punctures at base of declivity. Declivity steep, convex, feebly bisulcate; striae 1 and 2 with small, shallow punctures from base to apex; interstriae 1 narrow, weakly elevated, crest armed by a row of minute granules, 2 feebly impressed, as wide as 1, with a row of minute punctures, 3 as high as 1, crest rather narrowly rounded, armed on more than basal half by a row of three or four small, pointed tubercles. Vestiture mostly confined to declivity, of fine, short striae hair and rows of stout interstitial setae on all interstriae, partial rows of larger setae on 3–9.

Female: Similar to male except frons slightly impressed on median half from epistoma almost to upper level of eyes, and punctures slightly smaller; declivital sulcus distinctly deeper, lateral convexities higher than suture and with five or six smaller tubercles; declivital interstriae 2 without punctures.

Distribution: Brazil to Suriname.

Brazil: Jacareacanga, Para, I-1970 (paratype), VI-1970 (type), F.R. Barbosa.

Suriname: Jodensavanne, Kamp 8, 1961, lichtv., Schultz.

Biology: Moth scales on the specimens suggest that both were taken at light.

Notes: The above treatment was based on the male holotype and "a female paratype" from Brazil, and on 1 male from Suriname. The 2 males are definitely of the same species. If the female is not of this species, it is closely related.

Pityophthorus nigriceps Wood, n. sp.

Pityophthorus nigriceps Wood: Holotype ♂; Piedras Blancas, 10 km E Medellin, Antioquia, Colombia; USNM, Washington, designated below.

Diagnosis: Distinguished from *excellens* Schedl and *detectus* Schedl by the dull, reticulate pronotum disc and frons in both sexes; by the finer, shorter pubescence; and by the somewhat subconcentric organization of the pronotal asperities.

Male: Length 1.3–1.7 mm, 2.7 (female 2.9) times as long as wide; color almost black. Frons convex eye to eye from epistoma to vertex; surface reticulate, punctures small, sparse, distinct; a small, transversely elevated crest on median one-eighth immediately above margin of epistoma; vestiture of short, very sparse, fine hair on lateral areas. Pronotum 1.05 times as long as wide; widest on basal half, sides moderately arcuate, converging toward rather broadly rounded anterior margin; anterior margin armed by about 10 basally connected serrations; summit at middle; asperities rather coarse, organized into four obscure subconcentric rows; posterior areas reticulate, punctures, small, sparse, some near summit replaced by rounded granules; vestiture sparse, short, hairlike, mostly on asperate area. Elytra 1.7 times as long as wide, 1.6 times as long as pronotum; disc occupying basal 70 percent of elytra length; striae not impressed, punctures very small, minute near declivity; interstriae two to four times as wide as striae, shining, a few irregular lines present, punctures evident only near base of declivity. Declivity broadly convex, steep; striae 1 moderately impressed, punctures minute above to obsolete below, 2 not impressed, punctures minute to obsolete; interstriae 1 distinctly elevated, rather narrow, 2 shallowly impressed on mesal side, 3 broadly rounded, 1–3 each armed by a row of fine granules. Vestiture mostly confined to declivity of minute striae hair and rows of erect interstitial hair on all interstriae, hair fine, short, each mostly shorter than distance between rows.

Female: Similar to male except epistomal process less definite.

Distribution: Colombia (Antioquia).

Type material: The male holotype, female allotype, and 25 paratypes were taken at Piedras Blancas 10 km E Medellin, Antioquia, Colombia, 15-VII-1970, 2500 m, No. 655, from phloem of a Compositae shrub, by S.L. Wood. Additional paratypes bear the type data except the following: 13 are from field No. 655, 23 from No. 670, 10 from No. 671, and 11 from No. 688. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Pityophthorus excellens Schedl

Pityophthorus excellens Schedl, 1972:66. Holotype ♂; Jacareacanga, Para, Brazil; NHMW, Wien (References in Wood & Bright c1992: 997)

Diagnosis: Allied to *olivierai* Schedl but distinguished by the weakly impressed declivital interstriae 2; by the

much coarser stria punctures on both disc and declivity; by the confused asperities on the anterior slope of the pronotum; and by the much shorter interstitial setae on the declivity.

Male: Length 1.7–1.8 mm, 2.6 times as long as wide; color yellowish brown. Frons strongly convex eye to eye from epistoma to vertex; surface smooth, brilliantly shining, punctures sparse, rather small, mostly below upper level of eyes, glabrous above, sparse, minute hair on lower fourth, slightly longer on epistoma. Pronotum 1.1 times as long as wide; widest at base, sides weakly arcuate and converging on basal half, rather narrowly rounded in front; anterior margin armed by about 8 low, rather coarse serrations; summit at middle of pronotum length; anterior slope coarsely asperate, asperities confused; posterior areas smooth, shining, with many impressed points, punctures rather small, deep, close; vestiture confined to asperate area, of sparse, stout hair. Elytra 1.5 times as long as wide, 1.7 times as long as pronotum; disc occupying basal 70 percent of elytra length; striae not impressed, punctures rather coarse, deep, mostly in rows; interstriae about 1.5 times as wide as striae, smooth, shining, 1 punctured to base, 2 and 3 punctured only near declivity. Declivity broadly convex, very steep; striae 1 moderately impressed, 2 not impressed, punctures on 1 and 2 smaller than on disc, distinctly impressed; interstriae 1 rather narrow, weakly elevated, 2 feebly impressed, 3 broadly rounded, as high as 1, with 1–3 each with a row of about 10–14 small, obtuse tubercles; sutural apex rounded (not submucronate). Vestiture mostly confined to declivity and sides, consisting of rows of minute stria hair and rows of erect interstitial setae on all interstriae, erect setae rather stout, short, each slightly shorter than distance between rows.

Distribution: Brazil: Jacareacanga, Para, I-1970, F.R. Barbosa.

Notes: The above treatment was based on the male holotype and on 1 male paratype bearing the type data.

Pityophthorus detectus Schedl

Pityophthorus detectus Schedl, 1972:66. Holotype ♀; Jacareacanga, Para, Brazil; NHMW, Wien (References in Wood & Bright c1992: 995)

Diagnosis: Distinguished from *exellens* Schedl by the subacute sutural apex of the elytra; by the more slender, slightly longer interstitial setae on the declivity; by the more slender body; and by the anterior margin of the pronotum.

Female: Length 1.7–1.8 mm, 2.6 times as long as wide; color reddish brown. Frons planoconcave eye to eye from epistoma to upper level of eyes; surface smooth, shining, punctures very fine, close, uniformly distributed, upper margin rather abrupt; vestiture of fine, long, yellow hair uniformly distributed, tips of longest setae above capable of attaining half distance to epistoma. Pronotum 1.2 times as long as wide; widest on basal

half, sides almost straight and subparallel, very broadly rounded in front; anterior margin armed by 16 low, basally connected serrations; summit indefinite, anterior to middle; anterior slope coarsely asperate, asperities confused; posterior areas obscurely shagreened, somewhat irregular, a few impressed points, punctures small, close, not sharply formed; vestiture short, hairlike, mostly confined to asperate area. Elytra 1.6 times as long as wide, 1.3 times as long as pronotum; disc occupying basal 70 percent of elytra length; striae not impressed except 1 weakly, punctures small, in rows; interstriae slightly wider than striae, smooth, shining, 1 and 2 each with sparse punctures on posterior half, 3–5 with punctures near base of declivity. Declivity broadly convex, steep, obscurely shagreened; striae 1 weakly impressed, punctures on 1 and 2 rather small, distinct; interstriae 1 very feebly elevated, rather narrow, 2 equal in height and width to 1, with 3 as high as 1 and broadly rounded, 1–3 smooth, each armed by a row of about ten minute tubercles, those on 3 very slightly larger; sutural apex somewhat acute, submucronate. Vestiture mostly confined to declivity, consisting of sparse, minute stria hair, and rows of erect interstitial setae on all interstriae, each erect seta slender, its length slightly greater than distance between rows, slightly longer on 3.

Distribution: Brazil: Jacareacanga, Para, VI-1970, F.R. Barbosa.

Notes: The above treatment was based on the female holotype. Schedl's male "allotype" is an unrelated species, possibly *terebrans* Schedl.

Pityophthorus robai (Blackman)

Pityophthorus robai (Blackman), 1942:200 (*Pityophthoroides*). Holotype ♀; Dep. Santander, Colombia, 700–1300 m; USNM, Washington (References in Wood & Bright c1992:1026)

Diagnosis: Apparently allied to *corticalis* Eichhoff, but the relationship is not close. The declivity is evenly convex, the suture is not elevated, punctures on striae 1 and 2 are not clearly visible, setae are present on interstriae 1 and 3, not on 2. Discal punctures of the striae are in rows.

Male (?): Length 1.3 mm, about 3.1 times as long as wide; color dark reddish brown. Frons concealed on type by pronotum, apparently convex, setae sparse, short (when present). Pronotum crushed on type, estimated as 1.2 times as long as wide; sides almost straight and parallel on basal half, broadly rounded in front and armed by 10 low serrations; asperities rather coarse, close, confused; posterior areas shining, broad median line impunctate and almost smooth, lateral areas with obscure minute punctures and a few indefinite impressed lines. Elytra 1.7 times as long as wide, about 1.5 times as long as pronotum; disc occupying basal 72 percent of elytra length; disc shining, almost smooth, striae 1 and 2 with minute punctures in rows, obsolete on declivity. Declivity steep, evenly convex, suture not elevated, interstriae 2 not impressed, punctures on striae 1 and 2 minute, mostly

obsolete; punctures on interstriae 1 and 3 in rows, similar setae confused on lateral areas, each seta stout, rather short.

Distribution: Colombia: Dep. Santander, 29-VII-1935, 700–1300 m, R.P. Roba., #DE, in dry branches of *Psidium guajava*.

Notes: The above treatment was based on the male (?) holotype of *Pityophthoroides robai* (Blackman). The anterior third of the pronotum on the holotype is crushed.

Pityophthorus corticalis Eichhoff

Pityophthorus corticalis Eichhoff, 1872:135. Lectotype ♂; Chili; IRSNB, Brussels, present designation (References in Wood & Bright c1992: 992)

Diagnosis: Distinguished by the coarse discal punctures of the striae, impunctate interstriae almost equal in width to striae; by the strongly convex declivity, with striae 1 shallowly impressed and forming a weak, continuous groove, interstriae 1–3 of equal height, unarmed by tubercles.

Male: Length 1.8–2.1 mm, 2.7 times as long as wide; color dark reddish brown. Frons broadly convex, shallowly, transversely impressed on lower third; surface obscurely reticulate above eyes, shining below, punctures deep, rather coarse and close above, smaller below; vestiture hairlike, very short, sparse on upper half, twice as long near epistoma; antennal club rather small, oval, with two weakly procurved, separate sutures. Pronotum 1.1 times as long as wide; widest on basal half, sides weakly arcuate, converging toward narrowly rounded anterior margin; anterior margin armed by about 10 basally connected serrations; summit indefinite, anterior to middle of pronotum length; posterior areas smooth, shining between punctures, punctures rather coarse, deep, close, median line impunctate; vestiture rather sparse, short, hairlike on sides and asperate area. Elytra 1.6 times as long as wide, 1.5 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed, punctures coarse, deep, in rows; interstriae as wide as striae, smooth, shining, impunctate. Declivity broadly convex, steep; striae 1 weakly, narrowly impressed on upper two-thirds, punctures on 1 and 2 of moderate size, slightly smaller than on disc, distinctly impressed; interstriae 1 rather narrow, not elevated, 2 and 3 as wide as 1 and equal in height, 1–3 each with about four small punctures on upper third (no tubercles) and two or three near apex. Vestiture confined to declivity or near, consisting of sparse, moderately long hair near apex on interstriae 1–3 and lateral areas from 5–9.

Distribution: “Chili, Deyr., *Pityophthorus corticalis* Chev., det. Eichhoff, Chapuis Coll., type,” 2 males.

Notes: The above treatment was based on the 2 male syntypes in the Chapuis Collection (IRSNB, Brussels). The first syntype is in much better condition and is here designated as the lectotype of *Pityophthorus corticalis* Eichhoff. Several subsequent workers have incorrectly identified specimens of other species as this species.

Pityophthorus simplicis Wood, n. sp.

Pityophthorus simplicis Wood: Holotype ♂; Pico Bolivar Teleferico, Merida, Merida, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *corticalis* Eichhoff by the smaller size; by the presence of a minute median tubercle on the male epistoma; by the smoother, more regular elytral disc; by the more strongly (narrowly) convex elytral declivity; and by the feebly elevated declivital suture.

Male: Length 1.4–1.7 mm, 2.9 times as long as wide; color dark reddish brown. Frons strongly convex except for a feeble, transverse impression above epistoma and a weak, median tubercle at margin of epistoma; strongly reticulate above upper level of eyes at median line, below that level in lateral areas, punctures sparse, rather coarse; vestiture of sparse, short hair mostly on lower half. Pronotum 1.05 times as long as wide; widest at base, sides weakly arcuate and converging toward distinct constriction on anterior half, rather narrowly rounded in front; anterior margin armed by about 6 wide, low serrations; summit slightly anterior to middle of pronotum length; anterior slope reticulate between coarse asperities; posterior areas smooth, shining, with several impressed points, punctures sparse, rather coarse; vestiture short, sparse, mostly on asperate area. Elytra 1.8 times as long as wide, 1.7 times as long as pronotum; disc occupying basal 70 percent of elytra length; striae not impressed, punctures rather large, deep, in rows; interstriae slightly narrower than striae, smooth, shining, no impressed points, 1 with a row of fine punctures to base, 3 with a few punctures near base of declivity. Declivity narrowly convex, steep; striae 1 feebly impressed, 2 and 3 not impressed, slightly smaller than on disc; interstriae 1 weakly elevated, 2 ascending to 3, with 1 and 3 of equal height, 2 slightly narrower than 1 or 3, with 1 and 3 each with a sparse row of small punctures (no granules). Vestiture confined to declivity or near, consisting of sparse interstitial rows of moderately long, erect, hairlike setae on odd-numbered interstriae.

Female: Similar to male except epistomal tubercle smaller.

Distribution: Venezuela (Merida).

Type material: The male holotype, female allotype, and 12 paratypes were taken at the Pico Bolivar Teleferico (between stops 2 and 3), Merida, Merida, Venezuela, 27-II-1970, 2500 m, No. 329, from twigs of an unidentified tree, by S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Pityophthorus similaris Wood, n. sp.

Pityophthorus similaris Wood: Holotype ♂; Pico Bolivar Teleferico, Merida, Merida, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *simplicis* Wood by the larger size; by the smoother frons, with very sparse, minute punctures; by the male frons having a short,

median crest extending dorsad from the epistomal tubercle; and by the more broadly convex elytral declivity.

Male(?): Length 2.0 mm, about 2.7 times as long as wide; color reddish brown. Frons broadly convex, smooth (obscurely shagreened), punctures very sparse, very small; vestiture very sparse, short, close above, somewhat longer at epistoma. Pronotum 1.04 times as long as wide; widest near base, sides moderately arcuate and converging to distinct constriction on anterior half, rather narrowly rounded in front; anterior margin armed by a continuous, weakly serrate costa; summit indefinite, slightly in front of middle of pronotum length; anterior slope weakly reticulate, coarsely asperate; posterior area partly shining, punctures moderately large, deep, close; vestiture short, sparse, mostly on asperate area. Elytra 1.8 times as long as wide, 1.7 times as long as pronotum; disc occupying basal 70 percent of elytra length; striae not impressed except 1 slightly on posterior half, punctures rather coarse, deep, in rows; interstriae slightly narrower than striae, smooth, shining, impunctate except 3 and 5 near declivity. Declivity rather narrowly convex, steep; striae 1 weakly impressed, 2 not impressed; interstriae 1 weakly elevated, almost impunctate, 2 weakly impressed on mesal side, 3 as high as 1 and with sparse punctures. Vestiture confined to declivity, consisting of sparse, minute strial hair in lateral areas, and erect, hairlike setae, about two to four short setae on each odd-numbered interstriae.

Distribution: Venezuela (Merida).

Type material: The male holotype was taken at the Pico Bolivar Teleferico (between stops 2 and 3), Merida, Merida, Venezuela, 3-I-1970, 2500 m, No. 216, from a twig of an unidentified tree, by S.L. Wood. The holotype is in the U.S. National Museum, Washington.

Pityophthorus languidus Eichhoff

Pityophthorus languidus Eichhoff, 1878:186. Holotype, sex?: America meridionalis (Venezuela); Hamburg Museum, lost (References in Wood & Bright c1992:1006)

Diagnosis: Distinguished from *corticalis* Eichhoff by the slightly smaller size; by having declivital interstriae 1 feebly higher than 2; by having strial punctures on the disc and declivity much smaller, with the interstriae at least twice as wide as the striae; and by the slightly deeper transverse impression on the lower frons.

Male: Length 1.7–1.8 mm, 2.8 times as long as wide; color dark reddish brown. Frons transversely impressed on lower two-thirds of area below upper level of eyes (distinctly deeper than male *corticalis*), strongly convex above; reticulate on vertex, smooth, shining from well above upper level of eyes to epistoma, punctures moderately small, not close; a short, weak, median crest in impression immediately above epistoma; vestiture of sparse, rather short hair, longer and more numerous on epistoma. Pronotum 1.04 times as long as wide; widest near base, sides on basal half rather weakly arcuate and converging to weak constriction on anterior half, nar-

rowly rounded in front; anterior margin armed by 12 rather coarse serrations; summit at middle; anterior slope coarsely asperate, asperities confused; posterior areas smooth, shining, with many impressed points, punctures deep, rather coarse, close; vestiture of short hair on asperate area and sides. Elytra 1.8 times as long as wide, 1.7 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed except 1 near base of declivity, punctures rather small, mostly in rows; interstriae twice as wide as striae, smooth, shining, mostly impunctate, punctures present on 1 and near declivity on odd-numbered interstriae. Declivity convex, steep; striae narrowly, weakly impressed on upper two-thirds, 2 not impressed, punctures on 1 and 2 distinct, smaller than on disc; interstriae 1 very weakly elevated, minute punctures feebly granulate, 2 as wide as 1, feebly ascending laterally, impunctate, shining, 3 as high as 1, shining, with a row of small, feebly granulate punctures. Vestiture of sparse, erect setae on odd-numbered interstriae on declivity, extending cephalad on 1 to near base, on 3 and 5, etc., to posterior third of disc; setae rather long, hairlike.

Female: Similar to male except frontal impression very weak, crest less distinct; serrations on anterior margin of pronotum much smaller, basally contiguous, most poorly formed.

Distribution: Colombia to Venezuela.

Colombia: 11 km W Medellin, Antioquia, 17-VII-1970, 2300 m, No. 686, *Miconia*, SLW.

Venezuela: "Dr. Moritz, Venezuela, 1858, Nanus Colomb. Mor., *Pityophthorus* ? *languidus* Eichhoff?" (Presumably from near the Moritz home at Colonia Tovar, Aragua.)

Notes: The above treatment was based on 1 male and 1 female from Colombia, and on 1 female at NHMW, Wien, taken by Dr. Moritz in Venezuela; this specimen is not a type but could be from the original collection of this species. The type was lost with the Hamburg Museum.

Pityophthorus minutus Schedl

Pityophthorus minutus Schedl, 1963:221. Holotype ♂; Rio Caraguata, Mato Grosso, Brazil; NHMW, Wien (References in Wood & Bright c1992:1012)

Diagnosis: Distinguished by the small size; by the unique male lateral areas of the epistoma; by the convex declivity, with striae 1 narrowly, rather strongly impressed; and by other characters described below.

Male: Length 1.2–1.3 mm, 3.1 times as long as wide; color very dark reddish brown. Frons rather broadly, weakly convex; lateral thirds of epistoma abruptly, somewhat deeply impressed immediately above epistoma; epistomal margin distinctly elevated below impression; surface smooth, brightly shining, punctures very small, close, uniformly distributed; vestiture of sparse, fine, short hair, longer and more numerous on epistoma. Pronotum 1.2 times as long as wide; widest on basal

third, sides feebly arcuate, converging toward narrowly rounded anterior margin; anterior margin a continuous costa, with 6 weak serrations; summit slightly anterior to middle of pronotum length; anterior slope coarsely asperate, asperities confused; posterior areas smooth, shining, weakly shagreened, with many impressed points, punctures small, rather close; vestiture minute, confined to asperate area. Elytra 1.8 times as long as wide, 1.3 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed except 1 at base of declivity, punctures small, in rows; interstriae twice as wide as striae, smooth, shining, impunctate. Declivity broadly convex, steep; upper two-thirds of striae 1 narrowly, rather strongly impressed, 2 not impressed, punctures of 1–3 very small, distinct; interstriae 1 distinctly, weakly elevated, narrower than 2 or 3, with a sparse row of minute punctures, 2 ascending laterally, impunctate, 3 as high as 1, with a sparse row of minute punctures. Vestiture confined to declivity, about two to three setae each on 3, 5, 7, and 9, setae rather short, stout.

Distribution: Brazil: Rio Caraguata, Mato Grosso, 21°48'B, 52°27'L, 400 m, III-1953, F. Plaumann.

Notes: The above treatment was based on the male holotype and 1 male paratype bearing the type data.

Pityophthorus minimus Wood, n. sp.

Pityophthorus minimus Wood: Holotype ♂; El Vigía, Merida, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished by the small size; by the unique male and female frons; by the unique dark brown and pale brown color pattern; and by other characters described below

Male: Length 1.0–1.2 mm, 3.0 times as long as wide; bicolored, pronotum, declivity, and mesal third of elytral disc dark reddish brown, sides pale from striae 3 to costal margin and base to near base of declivity. Frons strongly, transversely impressed from epistoma to well above upper level of eyes, transversely flat almost eye to eye, longitudinally strongly concave from epistoma to upper margin at vertex; surface smooth, brightly shining, punctures minute, sparse, uniformly distributed; glabrous, except sparse on epistoma. Pronotum 1.2 times as long as wide; widest on posterior half, sides feebly arcuate on posterior half, broadly rounded in front; anterior margin armed by 6 weak serrations; summit anterior to middle; anterior slope with asperities coarse, close, confused; posterior areas smooth, shining, with numerous impressed points, punctures very small, rather close; vestiture of very short, sparse hair on asperate area. Elytra 1.7 times as long as wide, 1.3 times as long as pronotum; disc occupying basal 62 percent of elytra length; striae not impressed except 1 moderately on posterior half of disc; punctures in rows, very small; interstriae three times as wide as striae, almost smooth, shining, with numerous impressed points, punctures not evident. Declivity shallowly sulcate, rather steep; striae 1 strongly, narrowly im-

pressed, 2 not impressed, punctures on 1 and 2 very small, distinct; interstriae 1 narrower than 2 and weakly elevated, shining, with a row of minute punctures, 2 ascending laterally, smooth, impunctate, 3 higher than 1, broadly rounded, with a row of small punctures. Vestiture confined to declivity, of sparse, short, stout interstitial setae on 3, 5, 7, and 9; a few minute striae setae on lateral areas.

Female: Similar to male except frons broadly flattened eye to eye from epistoma to vertex, ornamented by a dense brush of setae, longer on peripheral row, tips of longest setae on vertex capable of attaining a fourth of distance toward epistoma, shorter in central area; declivital impression not as deep, lateral convexities as high as suture.

Distribution: Venezuela (Merida).

Type material: The male holotype, female allotype, and 101 paratypes were taken at El Vigía, Merida, Venezuela, 22-X-1969, 100 m, No. 85, *Basioxylon brasiliensis* bole phloem, by S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Pityophthorus niger Schedl

Pityophthorus niger Schedl, 1938:187. Holotype ♀; 1938:187; Porto Alegre [Brazil]; USNM, Washington (References in Wood & Bright c1992:1015)

Diagnosis: Allied to *minimus* Wood, but not closely related, distinguished by the larger size and uniformly dark color; by the much more deeply impressed declivital striae 1; and by the larger punctures on the pronotum and elytra.

Female: Length 1.3 mm, 2.8 times as long as wide; color very dark reddish brown. Frons entirely concealed by pronotum on type, both antennae missing. Pronotum 1.12 times as long as wide; widest on basal half, sides weakly arcuate and converging slightly toward rather broadly rounded anterior margin; anterior margin armed by 10 small serrations; summit indefinite, anterior to middle of pronotum length; asperities rather small, close, confused; posterior areas smooth, shining, with numerous impressed micropunctures, punctures rather small, spaced by two to three diameters of a puncture; sparse short setae on asperate area. Elytra 1.6 times as long as wide, 1.5 times as long as pronotum; disc occupying basal 74 percent of elytra length; disc smooth, shining, striae not impressed, punctures rather coarse, deep, in definite striae rows; interstriae twice as wide as striae, with many very minute impressed micropunctures. Declivity steep, convex, shallowly bisulcate, lateral crests broadly rounded; striae 1 strongly impressed from before base of declivity to near apex, small punctures present, interstriae 2 ascending toward striae 2, crest at 3 rounded; with small punctures, no tubercles, suture weakly elevated, not as high as lateral convexities. Setae confined to declivity, interstriae 1 with one seta, 3 with four to six setae, several on lateral areas.

Distribution: Porto Alegre, Brazil, 27-III-1910, J. Evers, Coll. Hagedorn (from Eggers Collection).

Notes: The above treatment was based on the female holotype.

Pityophthorus splendens Wood, n. sp.

Plate CLXI

Pityophthorus splendens Wood: Holotype ♂; La Carbonera Experimental Forest 50 km airline W Merida, Merida, Venezuela; USNM, Washington, designated below

Diagnosis: Remotely allied to *venezuelensis* Schedl, frons convex, a weak median carina on middle third; interstriae narrower than striae, impunctate; declivity unarmed by tubercles, lateral convexities much higher than suture.

Male: Length 2.0–2.6 mm, 3.0 times as long as wide; color reddish brown. Frons broadly convex from vertex to middle of area below upper level of eyes, lower third shallowly, transversely impressed and with a low, subacute carina to epistoma; convex area feebly reticulate, shining below, punctures rather small, moderately close, uniformly distributed; vestiture of sparse, fine, short hair on impressed area, longer on epistoma. Pronotum 1.1 times as long as wide; widest on basal third, sides moderately arcuate, converging to weak constriction on anterior half, broadly rounded in front; anterior margin a feebly serrate continuous costa; summit indefinite, at middle of pronotum length; anterior slope coarsely asperate, asperities confused; posterior areas smooth, shining, with many impressed points, punctures rather coarse, close; vestiture of minute hair on lateral areas. Elytra 1.7 times as long as wide, 1.6 times as long as pronotum; disc occupying 70 percent of elytra length; striae not impressed except 1 at base of declivity, punctures coarse, deep, in rows; interstriae slightly narrower than striae, smooth, shining, impunctate. Declivity steep, rather strongly sulcate; striae 1 strongly impressed, punctures on 1 and 2 minute to obsolete, obsolete on 3; interstriae 1 narrower than 2, moderately elevated, 2 ascending laterally, 3 much higher than 1, somewhat narrowly rounded; all surfaces smooth, brilliantly shining, no impressed points; interstriae 3 with a few small punctures on basal half. Almost glabrous, a few short setae on interstriae 5, 7, and 9.

Female: Similar to male except frontal carina not as high, declivital sulcus not as deep.

Distribution: Venezuela (Merida).

Type material: The male holotype, female allotype, and 28 paratypes were taken at La Carbonera Experimental Forest 50 km W Merida, Merida, Venezuela, 9-XII-1969, 2500 m, No. 176, phloem of an unidentified log, by S.L. Wood. Other paratypes include 38 from the same locality, taken 14-X-1969, No. 62, *Nectandra* limbs, S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Pityophthorus pygmaeolus Schedl

Pityophthorus pygmaeolus Schedl, 1970:93. Holotype ♂; Caioba, Parana, Brazil, 25°50', 48°40', 10 m; NHMW, Wien (References in Wood & Bright c1992:1025)

Diagnosis: Distinguished from *minimus* Wood by the steeper lower declivity; by the more shallowly, more broadly impressed declivital interstriae 2; by the very numerous impressed points on the pronotum and elytra; and by the very different frons as described below.

Male: Length 0.9 mm, 2.8 times as long as wide; color yellowish brown (mature?). Frons convex on lower third, a shallow, transverse impression above epistoma. Pronotum 1.1 times as long as wide; widest at base, sides arcuately converging to narrowly rounded anterior margin; anterior margin armed by about 8 basally separate serrations; summit slightly anterior to middle; asperities coarse, part organized into obscure subconcentric rows; posterior areas shining, with dense impressed points, punctures small, sparse, obscure; vestiture of sparse, short hair on asperate area. Elytra 1.6 times as long as wide, 1.6 times as long as pronotum; disc confined to basal three-fourths of elytra length; striae not impressed, punctures in rows, rather small, shallow; interstriae wider than striae, smooth, shining, with numerous impressed points, a row of minute punctures on most of 1, and near declivity on 3 and 5. Declivity feebly sulcate, very steep; striae 1 and 2 with coarse punctures as on disc; interstriae 1 feebly elevated, narrower than 2, with a row of minute punctures, 2 flat, wider than 1, weakly impressed, impunctate, 3 very slightly higher than 1, crest rather narrowly rounded, with a row of minute punctures. Vestiture mostly confined to declivity on odd-numbered interstriae, setae moderately long, sparse, about four to eight setae on each.

Distribution: Brazil: Caioba, Parana, 25°50', 48°40', IV-1965, F. Plaumann.

Notes: The above treatment was based on the male holotype.

Pityophthorus nectandrae Wood, n. sp.

Pityophthorus nectandrae Wood: Holotype ♂; Merida, Merida, Venezuela; USNM, Washington, designated below

Diagnosis: Closely allied to *venezuelensis* Schedl but distinguished by the smaller size; by the larger striae punctures; and by the smooth frons below, reticulate above.

Male: Length 1.7–2.0 mm, 2.8 times as long as wide; color dark reddish brown, almost black. Frons as in *venezuelensis*, except median epistomal tubercle slightly larger, crest dorsad from tubercle longer, slightly higher; lower half of frons mostly smooth, shining, without reticulation. Elytra as in *venezuelensis*, except punctures on discal striae larger, interstriae as wide as striae (twice as wide in *venezuelensis*); declivital sulcus not as deep, lateral convexities very slightly higher than suture (conspicuously higher than suture in *venezuelensis*).

Female: Similar to male except median tubercle and crest on frons smaller to obsolete; and declivital interstriae 3 with upper punctures at least weakly granulate.

Distribution: Venezuela (Merida, Barinas).

Type material: The male holotype, female allotype, and 1 paratype were taken between stops 2 and 3 of the Pico Bolivar Teleferico, Merida, Merida, Venezuela, 27-II-1970, 2500 m, No. 332, *Nectandra* branches, by S.L. Wood. The female allotype bears the same data except Field No. 331. Paratypes include 6 from 40 km E Canton, Barinas, Venezuela, 8-III-1970, 70 m, No. 332, *Nectandra* limbs, S.L. Wood. Four paratypes are from La Carbonera Experimental Forest 50 km NW Merida, Merida, Venezuela, 14-X-1969 (#534), 12-I-1970 (arbol de algodon, no.#), 28-IV-1970 (#452, unidentified liana), S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Pityophthorus venezuelensis Schedl

Plate CLXII

Pityophthorus venezuelensis Schedl, 1935:91. Holotype ♂; Venezuela; NHMW, Wien (References in Wood & Bright c1992:1033)

Diagnosis: Distinguished from *nectandrae* Wood by the larger size; by the weaker, median tubercle on the epistoma; by the reticulation of the frons extending to the epistoma; and by the deeper sulcus on the elytral declivity.

Male: Length 2.3–2.5 mm, 2.8 times as long as wide; color dark reddish brown to almost black. Frons convex and reticulate from epistoma to vertex; punctures coarse, close, uniformly distributed, median tubercle on epistoma small, crest much shorter than in *nectandrae*; vestiture short, sparse, inconspicuous. Pronotum 1.1 times as long as wide; widest on basal half, sides moderately arcuate, converging to weak constriction on anterior half, narrowly rounded in front; anterior margin armed by about 12 basally connected coarse serrations; summit slightly anterior to middle; asperities on anterior slope coarse, confused; posterior areas strongly reticulate, punctures rather coarse, deep, moderately close; sparse, short vestiture on sides and asperate area. Elytra 1.7 times as long as wide, 1.6 times as long as pronotum; disc occupying basal three-fourths of elytra length; striae not impressed except 1 weakly almost to base, punctures rather coarse, deep; interstriae about twice as wide as striae, surface smooth, shining, with many irregular impressed lines, a few impressed points, impunctate except 1, 3, 4, and 5 near declivity. Declivity moderately sulcate, steep; interstriae 1 rather narrow, mostly impunctate; striae 1 and 2 moderately impressed, punctures minute, obscure; interstriae 1 weakly elevated, impunctate, 2 flat, moderately impressed, with some impressed points, 3 much higher than 1, rather abruptly rounded, crest with a row of punctures. Vestiture mostly abraded (some minute strial hair), erect interstitial setae mostly confined to declivity on 3, 5, 7, and 9.

Female: Similar to male except frontal tubercle often obsolete.

Distribution: Venezuela: 40 km E Canton, Barinas, 8-III-1970, 70 m, SLW; Pico Bolivar Teleferico between

stops 2 and 3, Merida, Merida, 27-II-1970, 2500 m, No. 331, tree bole, SLW.

Notes: The above treatment was based on the holotype (labeled “Venezuela”) and on 10 other specimens from Venezuela that I compared to the holotype. The holotype is probably a male.

Pityophthorus anticus Schedl

Plate CLIX

Pityophthorus anticus Schedl, 1976:66. Holotype ♂; Rio Negro, Para, Brazil; NHMW, Wien (References in Wood & Bright c1992:981)

Diagnosis: Distinguished by the stout body form; by the confused punctures on the elytral disc; and by the median carina of the male and the deeply, profoundly excavated frons of the female (reminiscent of *Spermo-phthorus* except sexual differences reversed).

Male: Similar to female except frons convex, with a low, acute median carina on lower half.

Female: Length 1.4–1.7 mm, 2.8 times as long as wide; color reddish brown. Frons deeply excavated on median half from epistoma to vertex, lateral margins abruptly precipitous, margin nearest mandible armed by an obtuse, short spine; cutting edge of mandible very broadly flattened to partially fit into epistomal emargination; antennal club small, 2 sutures, both septate on both margins, aseptate in central area. Pronotum 1.0 times as long as wide; widest on basal third, sides weakly arcuate and converging to feeble constriction on anterior half, rather narrowly rounded in front; anterior margin unarmed by serrations; summit indefinite, anterior to middle; asperities on anterior slope rather small, confused, continued beyond middle of pronotum; posterior areas smooth, shining, with many impressed points, punctures rather large, close, deep. Elytra 1.4 times as long as wide, 1.4 times as long as pronotum; disc occupying basal three-fourths of elytra length; striae not impressed, punctures similar to and confused with those of interstriae; surface smooth, shining. Declivity convex, steep, feebly impressed; striae 1 narrowly impressed, punctures minute to obsolete, not impressed and punctures small on 2; interstriae 1 narrow, very weakly elevated, 2 smooth, shining, impunctate, 3 wider than 2, broadly convex, with a row of small punctures. Vestiture almost obsolete (apparently with minute strial setae on lower declivity) or abraded.

Distribution: Brazil: Rio Negro, Para, 20-X-1972, B-76, ex *Araucaria angustifolia*, J. Schoenherr. Schedl (1976:66) cites a series from Acungui, Para, 13-X-1972, ex *Pinus elliotti*, J. Schoenherr (not seen).

Notes: The above treatment was based on the male holotype, female allotype, and 3 paratypes.

Pityophthorus costalimai Blackman

Pityophthorus costalimai Blackman, 1942:223. Holotype ♀; intercepted in undetermined wood from Brazil; USNM, Washington (References in Wood & Bright c1992:992)

Diagnosis: Declivital punctures coarse, confused in both sexes; female frons distinctive.

Male: Similar to female except frons more strongly concave, a weak, transverse impression from epistoma to upper level of eyes, surface smooth, shining, coarsely, closely punctured, setae sparse, shorter; declivital impression on interstriae 2 stronger and wider, lateral crest rounded and armed by three to four moderately large, pointed tubercles, a few smaller tubercles on crest laterad from those on interstriae 3; elytral setae stouter.

Female: 1.5–1.9 mm, 2.8 times as long as wide; color yellowish brown. Frons planoconvex eye to eye from epistoma to vertex, surface smooth, shining, shining, punctures rather coarse, close, a peripheral row of very long setae from epistoma to vertex, tips of longest setae on vertex capable of attaining epistomal margin. Pronotum 1.17 times as long as wide; widest near base, sides weakly arcuate on basal two-thirds, broadly rounded in front; anterior margin armed by 8 low serrations; summit indefinite, at middle of pronotum length; asperities rather coarse, close, confused; posterior areas smooth, shining, punctures rather large, deep, close; long setae on and near lateral margins. Elytra 1.7 times as long as wide, 1.4 times as long as pronotum; disc occupying basal 70 percent of elytra length; disc smooth, shining, punctures rather coarse, close, deep, confused. Declivity very steep, broadly, shallowly bisulcate; sutural interstriae weakly elevated, lateral crests higher than suture, broadly rounded, sulcus moderately impressed, punctures rather coarse, deep, confused; sutural interstriae unarmed except for one small tubercle on lower half, lateral crests each armed by three to four very small, pointed denticles. Vestiture on elytra mostly confined to sides on basal half to area near declivity on disc and sides, and to base and lateral convexities of declivity.

Distribution: Brazil: "Brazil," in intercepted, undetermined wood, 22-IV-1936, Lot No. 3611438, USNM.

Notes: The above treatment was based on the female holotype, male allotype, and 2 female paratypes.

Pityophthorus mandibularis Schedl

Plate CLXI

Pityophthorus mandibularis Schedl, 1951:113. Lectotype ♂; Nova Teutonia, Santa Catarina, Brazil, present designation; NHMW, Wien, present designation (References in Wood & Bright c1992:1009)

Diagnosis: Distinguished by the slender body form; by having the striae punctures on the disc in rows and declivital striae 1 and 3 unarmed by tubercles; and by the strongly, transversely impressed male frons, female frons flattened and bearing a tuft of long hair.

Male: Length 1.7–1.8 mm, 2.6 times as long as wide; color very dark reddish brown. Frons strongly, transversely impressed immediately above epistomal process, impression decreasing to upper level of eyes, convex above; lateral thirds of epistomal process shining, moderately elevated; surface of impressed area smooth, with a few minute punctures; almost glabrous, a few setae imme-

diately above epistomal margin. Pronotum 1.1 times as long as wide; widest on basal half, sides almost straight and parallel, feebly constricted on anterior half, rather narrowly rounded in front; anterior margin armed by about 8 basally connected serrations; indefinite summit slightly anterior to middle; asperities on anterior slope rather coarse, confused; posterior areas smooth, somewhat shagreened, punctures coarse, close, deep; vestiture sparse, short, restricted to asperate area. Elytra 1.5 times as long as wide, 1.4 times as long as pronotum; disc occupying basal 62 percent of elytra length; striae not impressed except 1 on posterior third of disc; punctures small, in rows on posterior half of disc, moderately confused toward base, interstriae (where observable), about three times as wide as striae, surface smooth, shining, sparse, very small punctures near declivity on 1, 3, and 5. Declivity broadly convex to feebly impressed, rather steep; striae 1 narrowly, moderately impressed, punctures minute, 2 not impressed, small punctures distinct; interstriae 1 weakly elevated, as wide as 2, with 2 ascending laterally, 3 wider than 2, very slightly higher than 1, with a sparse row of small punctures, crest at striae 3. Vestiture absent (abraded?), three or four minute setae on some specimens.

Female: Similar to male except frons almost flat eye to eye from epistoma to vertex, surface finely, closely punctured, bearing very long setae on peripheral row, shorter in central area, tips of longest setae on vertex capable of extending beyond epistomal margin; declivital striae 1 less strongly impressed, lateral convexities as high as suture.

Distribution: Brazil: Nova Teutonia, Santa Catarina, 1946, F. Plaumann.

Notes: The above treatment was based on a syntypic series. Subsequent citations of a holotype are invalid under the International Code. From the 6 syntypes presently before me, I here designate Schedl's (1979:147) male "holotype" and his female "allotype" as the lectotype and lectoallotype, respectively, of *Pityophthorus mandibularis* Schedl. The remaining 4 specimens are lectoparatypes.

Pityophthorus longipilis Schedl

Pityophthorus longipilis Schedl, 1951:112. Holotype ♀; Cochabamba, Bolivia; NHMW, Wien (References in Wood & Bright c1992:1009)

Diagnosis: Distinguished from female *mandibularis* Schedl by the absence of long setae on the frons; by the more strongly impressed declivital sulcus; by the very long interstitial setae, especially on the declivity; and by the striae punctures being in more definite rows on the basal half of the disc.

Female: Length 1.8 mm, 2.6 times as long as wide; color reddish brown, pronotum darker. Frons concealed by pronotum on type, apparently weakly convex, vestiture sparse, rather short. Pronotum 1.04 times as long as wide; widest on basal third, sides moderately arcuate, converging toward weak constriction on anterior half,

then narrowly rounded in front; anterior margin armed by about 8 serrations; summit at middle of pronotum length; anterior slope armed by coarse, confused asperities; posterior areas smooth, shining, with numerous impressed points, punctures rather coarse, close, deep; vestiture of moderately abundant hair, longer on sides and asperate area. Elytra 1.6 times as long as wide, 1.5 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed except 1 on posterior third of disc, punctures rather small, in rows to base; interstriae about three times as wide as striae, smooth, shining, with many impressed points, irregular punctures similar to those of striae. Declivity moderately bisulcate, steep; striae 1 and 2 impressed, punctures as on disc; interstriae 1 narrower than 2, moderately elevated, armed by a row of minute tubercles, 2 almost flat, smooth, shining, impunctate (one or two punctures at extreme base and at apex), 3 abruptly, rather narrowly elevated, as high as 1, crest armed by several minute tubercles. Vestiture of very small, recumbent strial hair, and erect, long, coarse, interstitial setae, sparse and shorter on disc, long and more abundant on and near declivity, longest setae almost equal in length to width of two interstriae, their tips blunt.

Distribution: Bolivia: Cochabamba, Germain.

Notes: The above treatment was based on the female holotype.

Pityophthorus podocarpi Wood, n. sp.

Pityophthorus podocarpi Wood: Holotype ♂; 30 km N Merida, Merida, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *longipilis* Schedl by the shorter declivital setae; by the greater confusion of punctures on the elytral disc; by the much weaker declivital impression; and by partial reticulation on the pronotum disc.

Male: Length 1.7–1.9 mm, 2.6 times as long as wide; color almost black. Frons weakly convex from epistoma to upper level of eyes, surface minutely rugose, with rather abundant, moderately long hair uniformly distributed; area above eyes convex, glabrous, minutely, transversely etched; median area transversely impressed at upper level of eyes to form a weakly elevated glabrous prominence on median fourth. Pronotum 1.04 times as long as wide; widest on basal third, sides arcuately converging to rather narrowly rounded anterior margin; anterior margin armed by 8 basally connected serrations; summit at middle; anterior slope armed by coarse, confused asperities; posterior areas at least partly, weakly reticulate; punctures rather small, poorly formed, moderately close; vestiture of fine, short, moderately abundant setae on all areas. Elytra 1.6 times as long as wide, 1.7 times as long as pronotum; disc occupying basal three-fourths of elytra length; striae not impressed except feebly on 1; strial and interstitial punctures moderately confused. Declivity feebly bisulcate, very steep; striae 1 and 2 moderately impressed, punctures smaller than on disc,

deep; interstriae 1 weakly elevated, wider than 2, with many impressed points and a few minute tubercles, 2 shallowly impressed, impunctate, 3 as high and as wide as 1, with a sparse row of minute granules. Vestiture of short, recumbent strial hair and rows of erect interstitial hair, shorter to base on disc, longer on declivity, setae slender, long, pointed at tips, length of longest setae equal to width of two interstriae.

Female: Similar to male except impression on frons not as strong, median prominence weaker; setae on elytra shorter (about two-thirds as long).

Distribution: Venezuela (Merida).

Type material: The male holotype, female allotype, and 76 paratypes were taken at 30 km N Merida, Merida, Venezuela, 8-I-1970, 2200 m, No. 288, *Podocarpus* phloem of limbs, by S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Pityophthorus kuscheli Schedl

Plate CLX

Pityophthorus kuscheli Schedl, 1951:19. Syntypes ♂ ♀; MNNH, Santiago, Chile (References in Wood & Bright c1992:1005)

Diagnosis: Allied to *podocarpi* Wood but distinguished by the larger size; by the coarse sculpture; by the unique epistomal area in both sexes; and by the coarse elytral setae.

Male: Length 2.4–2.5 mm, 2.8 times as long as wide; color black. Frons concealed by pronotum on available specimens, except epistoma, broadly convex, median fifth of margin procurved, forming a subtriangular premandibular lobe twice as wide as long, glabrous, surface of lobe marked by at least 4 transverse grooves. Pronotum 1.2 times as long as wide; sides almost straight and parallel on basal half, broadly rounded in front; anterior margin armed by 12 low, basally connected serrations; summit indefinite, anterior to middle; anterior slope coarsely, closely asperate; posterior areas coarsely, subrugosely punctured; vestiture of abundant, rather long hair. Elytra 1.6 times as long as wide, 1.4 times as long as pronotum; disc occupying basal 70 percent of elytra length; striae not impressed except 1 weakly on posterior two-thirds of disc; striae slightly wider than interstriae; interstriae very weakly convex, smooth, shining, 1 with a row of punctures to base, 3–9 with punctures at least near declivity. Declivity steep, moderately bisulcate; striae 1 and 2 impressed, punctures smaller than on disc; interstriae 1 moderately elevated, wider than 2, surface irregular, with a row of about 10 small tubercles, 2 moderately impressed, shining, almost smooth, impunctate except at apex, 3 abruptly, narrowly elevated, slightly higher than 1, most punctures weakly granulate. Vestiture of shorter strial hair, and erect setae much longer, coarse interstitial hair from base to apex on all interstriae except 2, longest setae equal in length to distance on disc from suture to striae 3.

Female: Similar to male except epistoma straight, premandibular lobe smaller, less strongly elevated, quadrate;

declivital interstriae 1 and 3 less strongly elevated, setae slightly shorter.

Distribution: Chile: "Chili, coll. Paulsen."

Notes: The above treatment was based on 3 male and 1 female paratypes.

Pityophthorus icicae Wood, n. sp.

Pityophthorus icicae Wood: Holotype ♀; 8 km S Colonia, Valle de Cauca, Colombia; USNM, Washington, designated below

Diagnosis: Distinguished by having the discal striae with punctures in definite rows and with small, pointed tubercles on declivital interstriae 1 and 3; by the lateral convexities on declivital interstriae 3 equal in height to suture; by the body being less than 3.0 times as long as wide; and by other characters described below.

Female: Length 1.7 mm, 2.9 times as long as wide; color pale reddish brown. Frons strongly convex, weakly reticulate from just below upper level of eyes to vertex, smooth, shining, finely, sparsely punctured below; almost glabrous; facets of eye somewhat enlarged. Pronotum 1.2 times as long as wide; sides almost straight and parallel on basal half, weakly constricted on anterior half, narrowly rounded in front; anterior margin armed by 10 basally connected serrations, largest at median line; summit slightly anterior to middle; anterior slope with asperities coarse, close, confused; posterior areas almost smooth, shining, with many impressed points, punctures rather small, close; vestiture short, sparse, mostly on asperate area. Elytra 1.67 times as long as wide, 1.67 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed, punctures rather small, deep, in rows; interstriae twice as wide as striae, smooth, shining, with many impressed points, impunctate. Declivity shallowly bisulcate, rather steep; striae 1 moderately impressed, punctures very small above and below, mostly obsolete on middle half, 2 not impressed, punctures smaller than on disc, distinctly impressed; interstriae 1 moderately elevated, as wide as 2 and armed by a sparse row of three small, pointed tubercles, 2 flat, smooth, shining, a few impressed points, armed by a sparse row of three small, pointed tubercles, 2 flat, smooth, shining, a few impressed points, two or three punctures near apex, 3 as wide as 2, almost as high as 1, armed by three or four small, pointed tubercles evenly spaced. Vestiture confined to declivity, consisting of one to four slender, erect setae on interstriae 1, 3, 5, 7, and 9, a few minute striae setae on ventrolateral areas.

Distribution: Colombia (Valle de Cauca).

Type material: The holotype, presumed to be a female, was taken at the Carton de Colombia forest near Buenaventura, about 8 km S Colonia, Valle de Cauca, Colombia, 9-VII-1970, No. 628, from *Icica altissima*, by S.L. Wood. The holotype is in the U.S. National Museum, Washington.

Pityophthorus imbellis Wood, n. sp.

Pityophthorus imbellis Wood: Holotype ♀; El Laurel Experimental Farm, 12 km SW Caracas, Miranda, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *icicae* Wood by the less evenly convex female frons, with a distinct, transverse impression immediately above epistoma, reticulation mostly above the upper level of the eyes; declivital sulcus distinctly deeper; lateral convexities slightly higher than sutures, punctures on striae 1 and 2 mostly obsolete.

Female: Length 1.7 mm, about 2.7 times as long as wide (elytra spread on type); color dark reddish brown. Frons strongly convex above shallow, distinct transverse impression immediately above epistoma; median fifth with an indistinct bulla-like callus at and above eyes; surface weakly reticulate above upper level of eyes, sparse punctures on lateral areas; vestiture of sparse, fine, rather short hair mostly on lower half. Pronotum 1.2 times as long as wide; about as in *icicae*, except disc more brightly shining. Elytra (spread on type) about 1.7 times as long as wide; disc occupying basal 72 percent of elytra length, steeper than *icicae*; striae not impressed except 1 a narrow groove at base of declivity, shallowly impressed on posterior half of disc; interstriae twice as wide as striae, smooth, shining, impunctate, impressed points almost obsolete. Declivity steep, moderately bisulcate; striae 1 rather strongly, narrowly impressed to near apex, punctures entirely obsolete, 2 not impressed, punctures minute on basal third, very shallow, obsolete below, interstriae 1 narrower than 2, moderately elevated, armed by a row of six small, pointed tubercles, 2 almost twice as wide as 1, smooth, shining, ascending slightly, laterally on basal half, 3 slightly higher than 1 on basal half, crest broadly rounded, armed on basal half by three to five small, pointed denticles. Vestiture confined to declivity, consisting of sparse, minute striae setae in ventrolateral areas, and rows of erect setae on odd-numbered interstriae, about four to ten setae in a row.

Distribution: Venezuela (Caracas).

Type material: The female holotype was taken at El Laurel Experimental Farm 12 km SW Caracas, Miranda, Venezuela, 1-V-1970, 1300 m, from a vine (*Clematis?*), by S.L. Wood. The holotype is in the U.S. National Museum, Washington.

Pityophthorus pampasae Schedl

Pityophthorus pampasae Schedl, 1970:92. Holotype ♂; Pampas, Argentina; NHMW, Wien (References in Wood & Bright c1992: 1018)

Diagnosis: Distinguished from *imbellis* Wood by the near absence of a transverse impression on the lower male frons, and with the entire frons reticulate; by the more conspicuously diverging crest of declivital interstriae 3 from the suture at the base to the apex; and by the smaller size.

Male: Length 1.2–1.3 mm, 2.5 times as long as wide; color very dark reddish brown, almost black. Frons broadly convex, reticulate from epistoma to vertex, punctures small, rather close, impunctate at median line; vestiture sparse, very short (including epistoma). Pronotum 1.05 times as long as wide; widest on basal third, sides weakly arcuate, converging to weak constriction on anterior half, narrowly rounded in front; anterior margin armed by 10 moderate serrations; summit at middle; anterior slope with asperities coarse, close, confused; posterior areas minutely rugose-subreticulate, punctures minute, mostly obscure; vestiture mostly confined to asperate area, short, sparse, fine. Elytra 1.5 times as long as wide, 1.4 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed except 1 moderately near base of declivity, punctures small, in definite rows; interstriae two to three times as wide as striae, smooth, shining, impunctate. Declivity broadly, moderately bisulcate, steep; striae 1 and 2 rather strongly impressed, punctures entirely obsolete; interstriae 1 narrow, moderately elevated, armed by about six small, pointed tubercles, 2 flat, smooth, shining, very narrow at base, more than twice as wide as 1 near apex, 3 distinctly higher than 1, crest on upper two-thirds abruptly rounded, armed by about four small, pointed tubercles. Vestiture confined to declivity, very short, apparently limited to two to six setae on odd-numbered interstriae.

Distribution: Argentina: "Pampas."

Notes: The above treatment was based on the male holotype and 1 male paratype bearing the type data.

Pityophthorus opacifrons Wood, n. sp.

Pityophthorus opacifrons Wood: Holotype ♂; El Laurel Experimental Farm 12 km SW Caracas, Miranda, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *pampasae* Schedl by the male frons being minutely reticulate on dorsal two-thirds of area from frons to vertex, smooth, shining near median half of epistoma, and with a median, subcarinate crest on small impressed area from epistoma dorsad on lower fourth; pronotum disc smooth, shining, punctures rather coarse, deep; female frons punctured and with a median callus at upper level of eyes, reticulation greatly reduced.

Male: Length 1.3–1.6 mm, 2.7 times as long as wide; color dark reddish brown. Frons moderately convex eye to eye from near epistoma to vertex; minutely, uniformly reticulate, punctures very minute to obsolete; lower fifth of area below upper level of eyes transversely impressed on median half and shining, with a short median crest from epistomal margin dorsad; vestiture of short, sparse, fine hair, longer on epistoma. Pronotum 1.0 times as long as wide; widest on basal half, sides feebly arcuate, rather broadly rounded in front; anterior margin armed by 10 low serrations; summit at middle; asperities on anterior slope coarse, close, confused; posterior areas mostly smooth, shining (some prereticulation near sum-

mit), punctures moderately larger, deep, close; vestiture of fine, short hair on asperate area and sides. Elytra 1.6 times as long as wide, 1.5 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed except 1 slightly near declivity, punctures small, in rows; interstriae twice as wide as striae, smooth, shining, with some impressed points, impunctate except on 3 and 5 near declivity. Declivity moderately bisulcate, steep; striae 1 moderately, narrowly impressed, punctures obsolete, 2 not impressed, punctures minute from base to apex; interstriae 1 rather narrow, moderately elevated, armed by a row of about five small, pointed tubercles, 2 moderately impressed on mesal side, ascending laterally, twice as wide as 1 on lower half, 3 higher than 1, crest rather narrowly rounded and armed by about five pointed tubercles. Vestiture confined to declivity, sparse on odd-numbered interstriae, a few minute strial setae on ventrolateral areas.

Female: Similar to male except frons mostly shining, reticulate above eyes and laterally, weak, transverse impression extending half distance to upper level of eyes, lateral areas rather coarsely punctured, central area partly impunctate.

Distribution: Venezuela (Miranda).

Type material: The male holotype, female allotype, and 25 paratypes were taken at El Laurel Experimental Farm 12 km SW Caracas, Miranda, Venezuela, 1-V-1970, 1300 m, No. 471, *Croton*, phloem, S.L. Wood. Other paratypes include 5 from the same locality and date, No. 472, *Clematis?* phloem, S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Pityophthorus sextuberculatus Eggers

Pityophthorus sextuberculatus Eggers, 1933:6. Holotype ♂, Nouveau Chantier, Bas Maroni, French Guyane (References in Wood & Bright c1992:1028)

Diagnosis: Distinguished from *retifrons* Wood by the reddish brown body color; by the impressed declivital striae 1 and 2, with interstriae 2 narrow and convex; by the stouter body form; and by other details described below.

Male: Length 1.7 mm, 2.5 times as long as wide; color reddish brown. Frons mostly concealed by pronotum on type, epistomal area convex, without a transverse impression. Pronotum 1.1 times as long as wide; sides almost straight and parallel on basal half, rather broadly rounded in front; anterior margin armed by 10 rather coarse serrations; summit at middle of pronotum length; anterior slope rather steep, asperities moderately coarse, confused, somewhat irregularly distributed; posterior areas smooth, shining, moderately close; sparse, short setae on asperate area and on lateral margins. Elytra 1.5 times as long as wide, 1.4 times as long as pronotum; disc occupying basal 70 percent of elytra length; disc smooth, shining; strial punctures rather small, in rows, those on basal half larger, those near declivity about half

as large; interstriae smooth and impunctate, as wide as striae near base, twice as wide as striae near declivity. Declivity steep, shallowly sulcate on less than median half; striae 1 and 2 weakly impressed, punctures on 1 almost obsolete, those on 2 obscure but present; interstriae 2 narrow, convex, impunctate; interstriae 3 slightly higher than suture, armed by three small, pointed tubercles. Vestiture short, sparse, mostly on sides near declivity; declivital interstriae 1 and 2 with a few microsetae; tubercles on interstriae 3 and areas near declivity short, rather stout setae.

Distribution: French Guyane: Nouveau Chantier, Bas Maroni, VI-1909, E. Le Moul.

Notes: The above treatment was based on the male holotype.

Pityophthorus retifrons Wood, n. sp.

Pityophthorus retifrons Wood: Holotype ♂; Merida, Merida, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *opacifrons* Wood by the larger size; by the larger but weaker transverse impression on the lower male frons, the median epistomal crest almost obsolete; and by the narrower declivital interstriae 2.

Male: Length 1.9–2.1 mm, 2.7 times as long as wide; color very dark brown. Frons similar to male *opacifrons*, except impression on lower third not as deep, more broadly shining, median tubercle on epistoma smaller, crest almost obsolete. Pronotum similar to *opacifrons*, except anterior margin armed by 14–16 serrations; summit slightly behind middle, disc smaller; punctures smaller. Elytra 1.7 times as long as wide, 1.6 times as long as pronotum; disc occupying posterior 70 percent of elytra length; striae not impressed except 1 narrowly near declivity, punctures in rows, rather small; interstriae twice as wide as striae, smooth, shining, with some impressed points, impunctate except 1, 3, and 5 near declivity. Declivity rather narrowly, moderately bisulcate, steep; striae 1 moderately impressed, punctures obsolete, 2 not impressed, punctures obscure, almost obsolete; interstriae 1 rather narrow, moderately elevated, armed by about six pointed tubercles, 2 less than twice as wide as 1, slightly ascending laterally, smooth, shining, 3 distinctly higher than 1, crest narrowly rounded, armed by a row of six to eight small tubercles. Vestiture confined to declivity, of erect interstitial setae, those on 1 and 3 very short, those on 5, 7, and 9 three or more times longer than those on 1 and 3.

Female: Similar to male except frons mostly shining below upper level of eyes, sparse moderate punctures on lateral thirds; setae on declivital interstriae 1 and 2 equal in size to those on lateral interstriae.

Distribution: Venezuela (Merida).

Type material: The male holotype, female allotype, and 10 paratypes were taken at Merida, Merida, Venezuela, 8-XI-1969, 1700 m, No. 120, from phloem of a Compositae shrub, by S.L. Wood. The holotype, allo-

type, and paratypes are in the U.S. National Museum, Washington.

Pityophthorus eucracens Wood, n. sp.

Pityophthorus eucracens Wood: Holotype ♂; Piedras Blancas 10 km E Medellin, Antioquia, Colombia; USNM, Washington, designated below

Diagnosis: Distinguished from *turbiculus* Schedl by the reticulate pronotum, with no impressed points; by the more gradual elytral declivity, with punctures on striae 1 and 2 obsolete, the sulcus much deeper; and by the smaller tubercles on declivital interstriae 1 and 3.

Male: Length 1.9–2.2 mm, 3.1 times as long as wide; color almost black. Frons broadly convex, a feeble, transverse impression above epistoma; surface reticulate, coarsely, closely punctured; vestiture minute above, a few longer setae on epistoma. Pronotum 1.15 times as long as wide; widest on basal third, sides weakly arcuate, converging to narrowly rounded anterior margin. Anterior margin armed by 6 small serrations; summit at middle of pronotum length; anterior slope with asperities partly organized into about 5 irregular concentric rows; posterior areas strongly reticulate, punctures rather small, deep, close; vestiture of fine hair, mostly on asperate area and sides. Elytra 1.9 times as long as wide, 1.5 times as long as pronotum; disc occupying basal three-fourths of elytra length; striae not impressed except 1 near declivity, punctures small, shallow, in rows; interstriae twice as wide as striae, smooth, shining, with a few irregular lines, impunctate except 1 and 3 near declivity. Declivity moderately bisulcate, steep; striae 1 moderately impressed on basal two-thirds, punctures entirely obsolete on both 1 and 2; interstriae 1 rather narrow, moderately elevated, armed by about five minute tubercles, 2 rather strongly impressed on median side, ascending laterally, wider than 1, smooth, shining, 3 conspicuously higher than 1, crest rather narrowly rounded and armed by a row of about six small, pointed tubercles. Vestiture mostly confined to declivity, of minute striae hair in lateral areas, and erect setae on odd-numbered interstitial rows, each row with about two to four setae, more on costal margin.

Female: Similar to male except median epistomal tubercle absent.

Distribution: Colombia (Antioquia).

Type material: The male holotype, female allotype, and 14 paratypes were taken at Piedras Blancas 10 km E Medellin, Antioquia, Colombia, 15-VII-1970, 2500 m, No. 664, from an unidentified vine, by S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Pityophthorus turbiculus Schedl

Pityophthorus turbiculus Schedl, 1938:58. Holotype ♀; Mato Grosso, Brazil; NHMW, Wien (References in Wood & Bright c1992:1032)

Diagnosis: Distinguished from *elongatulus* Schedl by the more slender body form; by the more strongly

procurved anterior margin of the pronotum; and by the very different elytral declivity as described below.

Male: Length 1.2–1.7 mm, 3.0 times as long as wide; color dark reddish brown. Frons convex above, lower third transversely impressed, a weak median carina at and near epistoma; surface shining, rather coarsely punctured; vestiture sparse, minute above, longer on epistoma. Pronotum 1.2 times as long as wide; sides almost straight and parallel on basal half, rather narrowly rounded in front; anterior margin armed by 8 basally fused, coarse serrations; summit at middle; anterior slope armed by coarse, close, confused asperities; posterior areas smooth, shining, with numerous impressed points, punctures rather coarse, close, short, sparse vestiture restricted to asperate area. Elytra 1.7 times as long as wide, 1.5 times as long as pronotum; disc occupying basal 70 percent of elytra length; striae not impressed except 1 near declivity, punctures rather coarse, deep, in rows; interstriae as wide as striae, smooth, shining, with some impressed points, odd-numbered interstriae with one or more punctures near declivity. Declivity rather shallowly bisulcate, steep; striae 1 moderately impressed, narrowly on basal half, punctures on 1 and 2 deep, almost as large as on disc from base to apex; interstriae 1 narrow, rather weakly elevated, armed on basal half by about three minute tubercles, 2 as wide as 1, flat, smooth, shining, impunctate, 3 wider than 2, distinctly higher than suture, crest rather broadly rounded, armed by about five slightly larger pointed tubercles. Vestiture confined to or near declivity, of rather stout, erect setae on odd-numbered interstriae, about two to four setae in each row.

Female: Similar to male except carina absent; declivital sulcus not as deep, tubercles smaller, obsolete on 1.

Distribution: Brazil: "Mato Grosso" (type); Rio Caraguata, Mato Grosso, III-1953, F. Plaumann.

Notes: The above treatment was based on the female holotype and on 2 males and 2 females also from Mato Grosso.

Pityophthorus elongatulus Schedl

Pityophthorus elongatulus Schedl, 1976:67. Holotype ♀; Tapuruquara, Rio Negro [Brazil]; NHMW, Wien (References in Wood & Bright c1992:997)

Diagnosis: Distinguished from *turbiculus* Schedl by the more broadly rounded anterior margin of the pronotum; by the smaller punctures on the pronotum disc and elytral disc; by the less strongly convex female frons; and by the narrower declivital sulcus.

Female: Length 1.7 mm, 3.0 times as long as wide; color reddish brown. Frons almost flat eye to eye from epistoma to upper level of eyes (covered by glue on type), apparently, finely, closely punctured, with moderately numerous, short hair uniformly distributed; eyes apparently longer than normal. Pronotum 1.2 times as long as wide; sides on basal half almost straight and parallel, broadly rounded in front; anterior margin armed by 12

basally connected, rather coarse serrations; summit at middle of pronotum length; anterior slope armed by coarse, close, confused asperities; posterior areas very brightly shining, few impressed points, punctures moderately small, close; vestiture confined to asperate area, sparse, short, slender. Elytra 1.8 times as long as wide, 1.5 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed except 1 near declivity, punctures small, mostly in rows (staggered at basal half on 2 on type); interstriae almost twice as wide as striae, smooth, shining, very few impressed points, a few irregular lines. Declivity shallowly, narrowly bisulcate, steep; striae 1 narrowly, moderately impressed on basal half, lower half of 1 and all of 2 not impressed, punctures on 1 and 2 distinct, smaller than on disc; interstriae 1 rather narrow, weakly elevated, armed by one or two small tubercles, 2 half as wide as 1, smooth, shining, 3 slightly higher than 1, crest on upper half rather narrowly rounded and armed by three to four tubercles (most on upper half). Vestiture confined to declivity, of minute strial hair on ventrolateral areas, and erect setae on odd-numbered interstriae, about two to four setae on each row, except about ten on 9.

Distribution: Brazil: Tapuruquara, Rio Negro, Amazonas, 25-27-XI-1962, J. Bechyne.

Notes: The above treatment was based on the female holotype.

Pityophthorus tucumanensis Wood, n. sp.

Pityophthorus tucumanensis Wood: Holotype ♂; Prov. Tucuman, Argentina; USNM, Washington, designated below

Diagnosis: Allied to *irregularis* Eggers but more closely related to *reticulatus* Wood, distinguished by the smooth, shining pronotum disc; by the very different frons; and by many more tubercles on declivital interstriae 1.

Male: Length 2.2 mm, 2.9 times as long as wide; color dark reddish brown. Frons moderately convex eye to eye on upper two-thirds, a very weak transverse impression on lower third; surface below upper level of eyes smooth, shining between punctures; punctures coarse, very close except median line on upper half impunctate, forming a weak callus; epistoma armed by a small, median tubercle or short, weak, impunctate crest extending dorsad from tubercle, impunctate line joining median callus above; vestiture sparse, mostly on and near epistoma. Pronotum 1.1 times as long as wide; widest on basal third, converging toward narrowly rounded anterior margin; anterior margin armed by 8 basally connected serrations, largest at median line; summit at middle; anterior slope coarsely asperate, lowest asperities forming 1 subconcentric row, others confused; basal areas smooth, shining, punctures close, coarse, deep; vestiture of sparse, fine, short hair on asperate area and sides. Elytra 1.8 times as long as wide, 1.7 times as long as pronotum; disc occupying basal three-fourths of elytra length; striae not impressed except 1 on posterior

half of disc, punctures rather small, some partial rows evident, others partly confused; surface smooth, shining, few impressed points. Declivity moderately bisulcate, steep; striae 1 rather strongly impressed, 2 weakly impressed, punctures entirely obsolete on 1, almost obsolete on 2; interstriae 1 moderately elevated, narrow, armed by 10 or more tubercles, 2 wider than 1, smooth, shining, impunctate, 3 distinctly higher than 1, crest rather narrowly rounded, about three minute tubercles on middle third of 3. Vestiture mostly confined to declivity, of fine, long interstitial setae, a few on all interstriae except 2.

Distribution: Argentina: Tucuman.

Type material: The male holotype is from Prov. Tucuman, Argentina, 450 m, I-1905, leg. Steinbach. The holotype is in the U.S. National Museum, Washington.

Pityophthorus reticulatus Wood, n. sp.

Pityophthorus reticulatus Wood: Holotype ♀; 13 km SW El Vigia, Merida, Venezuela; USNM, designated below

Diagnosis: Distinguished from *tucumanensis* Wood by the reticulate pronotum; by the more abundant elytral vestiture; and by the very different frons in both sexes, described below.

Male: Similar to female except frons very weakly convex, median profile almost straight from epistoma to well above upper level of eyes; surface sculpture of frons slightly coarser, with very short, sparse hair (female with long hair).

Female: Length 1.4–1.7 mm, 2.7 times as long as wide; color very dark reddish brown. Frons rather strongly, transversely impressed from epistoma to above upper level of eyes, longitudinally, strongly concave, transversely, shallowly concave; surface shining, closely, finely, uniformly punctured eye to eye and from epistoma to vertex, base of each puncture forming a minute tubercle; vestiture in central area of fine, short hair, peripheral fringe much longer, tips of longest setae on vertex capable of almost attaining epistomal margin. Pronotum 1.0 times as long as wide; widest on basal third, sides arcuately converging to rather broadly rounded anterior margin; anterior margin armed by 8 serrations; summit slightly in front of middle; asperities coarse, close, confused; posterior areas strongly reticulate, punctures minute, close, many with a shining spot on lateral margin; vestiture of short hair on asperate area and sides. Elytra 1.6 times as long as wide, 1.5 times as long as pronotum; disc occupying 72 percent of elytra length; striae not impressed except 1 near declivity, punctures very small, mostly in rows; interstriae about three times as wide as striae, with many impressed lines and some points, two or three punctures on some interstriae. Declivity shallowly bisulcate, steep; striae 1 moderately, narrowly impressed, punctures obsolete, 2 not impressed, minute punctures visible on upper half, obsolete below; interstriae 1 narrow, reticulate, armed by about three small tubercles, 2 almost twice as wide as 1, reticulate,

impunctate, 3 as high as 1, crest broadly rounded, armed by about three small tubercles, 2 almost twice as wide as 1, reticulate, impunctate, 3 as high as 1, crest broadly rounded, armed by four small, pointed tubercles. Vestiture of fine, very short striae setae from base to apex, and sparse, erect interstitial setae mostly on declivity, on odd-numbered interstriae, six to ten setae in each row.

Distribution: Venezuela (Merida).

Type material: The female holotype, male allotype, and 14 paratypes were taken 13 km SW El Vigia, Merida, Venezuela, 22-X-1969, 100 m, No. 95, from an unidentified liana, by S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Pityophthorus irregularis Eggers

Pityophthorus irregularis Eggers, 1931:31. Holotype ♂; Sao Paulo, Brazil; NHMW, Wien (References in Wood & Bright c1992)

Diagnosis: Distinguished from *crotonis* Wood by the much smaller size; by the more narrowly, more deeply impressed declivital sulcus, with fewer tubercles arming the lateral convexities; by the smaller punctures on the elytral disc, punctures strongly confused from suture to striae 4.

Male: Length 1.8–2.0 mm, 2.5 times as long as wide; color dark reddish brown. Frons weakly convex; surface smooth, shining, rather finely, sparsely punctured; a weak median carina from epistoma half distance to upper level of eyes; vestiture of fine, sparse, short hair. Pronotum 1.1 times as long as wide; widest on basal third, sides weakly arcuate, converging to narrowly rounded anterior margin; anterior margin armed by about 8 serrations; summit at middle; asperities on anterior slope coarse, close, confused; posterior areas subreticulate, punctures small, close; vestiture of short, stout, sparse hair on asperate area and sides. Elytra 1.5 times as long as wide, 1.3 times as long as pronotum; disc occupying 62 percent of elytra length; punctures on elytral disc rather small, confused from suture to striae 4, surface smooth, shining, with numerous impressed points. Declivity steep, rather strongly sulcate; striae 1 strongly impressed, punctures very small, obscure, 2 not impressed, punctures very small, obscure; interstriae 1 moderately elevated, rather narrow, with numerous impressed points, three small tubercles on upper half, 2 wider than 1, ascending strongly laterad, smooth, shining, with numerous impressed points, 3 much higher than 1, crest narrowly rounded, armed by a row of six pointed tubercles. Vestiture of erect interstitial setae of moderate length from base to apex except absent on 1 and 2 on declivity.

Female: Similar to male except frons more distinctly convex, declivital sulcus not as deep, lateral convexities not as high, elytral setae more slender.

Distribution: Brazil: Corcovado, Guanabara, X-XI-1970, Alvarenga & Seabra; Sao Paulo [type, before 1929].

Notes: The above treatment was based on the male holotype and 3 females from Brazil.

Pityophthorus crotonis Wood

Plate CLX

Pityophthorus crotonis Wood, 1977:517. Holotype ♂; 30 km E Merida, Merida, Venezuela, 2500 m; USNM, Washington (References in Wood & Bright c1992:993)

Diagnosis: This is the largest species in this genus. It is distinguished from *irregularis* Eggers by the less strongly bisulcate elytral declivity, interstriae 1 armed by about five tubercles, 3 by about nine tubercles; and by the punctures on the elytral disc being confused from the suture to striae 3.

Male: Length 3.2–3.9 mm, 2.6 times as long as wide; color dark reddish brown. Frons strongly convex, shining, closely, rather coarsely, uniformly punctured; median line forming a narrow callus from vertex almost to epistoma; vestiture fine, sparse, short, inconspicuous, longer on epistomal margin. Pronotum 1.1 times as long as wide; widest on basal third, weakly constricted on anterior half, narrowly rounded in front; anterior margin armed by about 12 weak serrations; summit at middle, indefinite; asperities small, numerous, confused; posterior areas smooth, shining, punctures very small, close; vestiture on sides from base to anterior margin long, fine. Elytra 1.5 times as long as wide, 1.4 times as long as pronotum; disc occupying basal 70 percent of elytra length; striae not impressed, punctures rather small, in rows from 3–9, strongly confused from suture to 3; surface smooth, shining, impressed points obscure. Declivity moderately sulcate, steep; striae 1 strongly impressed, punctures very small to obsolete, 2 moderately impressed, punctures small, distinct; interstriae 1 weakly elevated, surface subrugose, armed on basal fourth by about five small tubercles, 2 wider than 1, smooth, shining, impunctate, 3 rather abrupt, narrowly elevated much higher than 1, crest armed by about nine small, pointed denticles. Vestiture of long, erect interstitial setae, sparse on disc, mostly on sides and lateral declivity, minute on declivital interstriae 1, absent on 2.

Female: Similar to male except declivital interstriae 1 and 3 not as high, 1 with about three tubercles at base, 3 with about six from base of declivity to its apex.

Distribution: Venezuela: 30 km E Merida, Merida, 8-I-1970, 2500 m, No. 220, *Croton*, SLW; La Mucuy, 20 km W Merida, Merida, Venezuela, 10-X-1969, 2500 m, No. 45, *Croton*, SLW.

Biology: Taken from phloem tunnels in felled limbs and boles of host stems 8–15 cm in diameter. The tunnels were of an obscure radiate pattern.

Notes: The above treatment was based on the type series of 96 specimens plus 2 other specimens from Venezuela.

Pityophthorus inaequidens Schedl

Pityophthorus inaequidens Schedl, 1976:68. Holotype ♂; Jacareacanga, Para, Brazil; NHMW, Wien (References in Wood & Bright c1992:1003)

Diagnosis: Unique in having striae 1 and 2 converge at the base of the declivity to virtually eliminate most of interstriae 2 on declivity; the stout body and presence of tubercles on declivital interstriae 4–8 is also distinctive.

Male: Length 1.6 mm, 2.4 times as long as wide; color reddish brown. Frons mostly concealed on type by pronotum, apparently weakly convex and with very sparse, short pubescence from epistoma to upper level of eyes. Pronotum 1.04 times as long as wide; sides almost straight and parallel on basal half, rather narrowly rounded in front; anterior margin armed by about 6 poorly formed serrations; summit at middle; asperities on anterior slope coarse, close, confused; posterior areas smooth, subshining, with many impressed points, punctures rather coarse, close; vestiture sparse, rather short on asperate area and sides. Elytra 1.3 times as long as wide, 1.2 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed, punctures rather coarse, deep, in definite rows except 1 with slight confusion on basal half, interstriae 1 strongly confused on more than basal half. Declivity moderately sulcate, steep; striae 1 and 2 converge at base of declivity and continue as one staggered or partly double row to apex with no interstriae 2; interstriae 1 rather narrow, not elevated at base, moderately elevated on middle half, crest armed by six small tubercles on basal half, one near apex, 3 moderately elevated, much higher than 1, with 3 armed by three widely separated, pointed denticles; interstriae 4–8 eight bearing a row of several rounded tubercles. Vestiture mostly confined to declivity, consisting of rows of erect setae on all interstriae except 2, shorter on 1, twice as long laterally.

Distribution: Brazil: Jacareacanga, Para, I-1970, F.R. Barbosa.

Notes: The above treatment was based on the male holotype.

Pityophthorus novateutonicus Schedl

Pityophthorus novateutonicus Schedl, 1964:205. Holotype ♂; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:1017)

Diagnosis: Distinguished from *terebrans* Schedl and *dimorphus* Schedl by the smaller body size and more slender body form; by the very different frons in both sexes; and by the deeper, much narrower declivital sulcus.

Male: Similar to female except frons rather abruptly, transversely impressed on median half from epistoma to upper level of eyes, a median tubercle on crest above impression.

Female: Length 1.3 mm, 3.3 times as long as wide; color yellowish brown. Frons with a smooth, impunctate, weakly convex bulla on median half from epistoma almost to upper level of eyes, margin of bulla with a confused row of long, yellow setae on dorsal and lateral margins, longest setae capable of extending three-fourths distance toward epistomal margin; antennal club

oval in outline, both sutures almost obsolete. Pronotum 1.2 times as long as wide; widest at base, sides feebly arcuate and converging slightly toward rather broadly rounded anterior margin; anterior margin armed by 8 rather coarse serrations; summit anterior to middle of pronotum length; asperities on anterior slope rather coarse, close, confused; posterior areas smooth, brightly shining, punctures minute, rather abundant, vestiture of sparse, short setae on asperate area and on lateral margins. Elytra 2.1 times as long as wide, 2.8 times as long as pronotum; disc occupying basal 76 percent of elytra length; striae not impressed, punctures very small, in rows; interstriae twice as wide as striae, smooth, shining, with many minute impressed points. Declivity very steep, narrowly bisulcate; strial punctures on 1 obsolete, on 2 obsolete except near base; sutural interstriae narrowly, slightly elevated from near base to near apex, with a row of closely set minute punctures on crest; interstriae very narrow at base, not discernible below; interstriae 3 moderately elevated on middle third of declivity length, crest of this summit armed by one small tubercle. Vestiture mostly confined to or near declivity, consisting of minute ground setae on all interstriae except glabrous on 2, and sparse, long, erect interstitial setae on 3, 5, 7, and 9, those setae short on 1.

Distribution: Brazil: Nova Teutonia, Santa Catarina, 300–500 m, 27°11'B, 52°23'L, VI-1963 (holotype, allotype), F. Plaumann.

Notes: The above treatment was based on the male holotype and female allotype.

Pityophthorus terebrans Schedl

Pityophthorus terebrans Schedl, 1970:223. Holotype ♂; Amazonas, Brazil; NHMW, Wien (Synonymy and references in Wood & Bright c1992:1031)

Pityophthorus granulipennis Schedl, 1966:111. Holotype ♂; Amazonas, Brazil; NHMW, Wien, preoccupied by Schedl 1965:69

Pityophthorus apicinotatus Schedl, 1976:66. Holotype ♂; Cachimbo, Bahia, Brazil; NHMW, Wien. *New synonymy*

Pityophthorus granulicauda Schedl, 1979:112. Holotype, sex?; Amazonas, Brazil; NHMW, Wien, automatic

Diagnosis: Remotely allied to *inaequidens* Schedl distinguished by the near basal confluence of declivital striae 1 and 2, with interstriae 2 expanded in width below, the strial punctures confused.

Male: Length 1.8 mm, 2.8 times as long as wide; reddish brown. Frons concealed by pronotum on type, apparently, broadly convex, sparsely punctured, with no visible striae. Pronotum 1.1 times as long as wide; widest on basal half, sides arcuately converging then broadly rounded in front; anterior margin armed by 12 serrations; summit slightly in front of middle of pronotum length; asperities on anterior slope coarse, close, confused; posterior areas smooth, shining, a few impressed points, punctures rather coarse, close, shallow; vestiture of rather sparse, long hair on asperate area and sides. Elytra 1.5 times as long as wide, 1.3 times as long as pronotum; disc occupying basal 72 percent of elytra

length; striae not impressed except 1 near declivity; strial punctures confused, not in discernible rows, punctures rather coarse, close, spaces between punctures smooth, shining. Declivity broadly, moderately bisulcate, steep; striae 1 and 2 converge at base of declivity (space normally occupied by interstriae 2, in effect, eliminated), wider below, their punctures confused on lower three-fourths; interstriae 1 rather narrow, moderately elevated, with many impressed points, two small pointed tubercles near middle of declivity, area normally occupied by 2 very narrow at base, much wider than 1 on lower half, surface smooth, shining, with rather coarse, deep, confused punctures of strial origin, 3 much higher than 1, ascending rather abruptly, crest broadly rounded and armed by three widely spaced, moderate, pointed tubercles on upper two-thirds. Vestiture mostly restricted to declivity, of stout erect interstitial setae, short and sparse on 1, more numerous and not in rows on lateral areas.

Distribution: Brazil: Cachimbo, Bahia; Amazonas.

Notes: The above treatment was based on the male holotype of *granulipennis* Schedl, a junior homonym, which was compared to the holotype of *terebrans* Schedl, and on the holotype of *apicinotatus* Schedl. All represent 1 species.

Pityophthorus dimorphus Schedl

Pityophthorus dimorphus Schedl, 1959:551. Holotype ♀; Rio Caraguata, Mato Grosso, Brazil; NHMW, Wien (Synonymy and references in Wood & Bright c1992:996)

Neomips brasiliensis Schedl, 1954:38. Syntypes ♀; Rio Caraguata, Mato Grosso, Brazil; NHMW, Wien, and Plaumann collection, preoccupied by Schedl 1938:177

Diagnosis: Remotely allied to *terebrans* Schedl, male distinguished by a minute, median tubercle at upper level of eyes; by the longitudinally etched pronotum disc; and by the very different elytral declivity. Both male and female have numerous micropunctures on the elytra.

Male: Length 1.4 mm, 2.7 times as long as wide; color reddish brown. Frons basically convex, shallowly impressed on median half from epistoma to minute, median tubercle at upper level of eyes; surface smooth, shining, rather coarsely, closely punctured; vestiture of very sparse, short, fine hair in lateral areas above, epistomal margin with a sparse, short brush. Pronotum 1.1 times as long as wide; sides almost straight and parallel on basal half, rather broadly rounded in front; anterior margin armed by 12 weak, basally connected asperities; summit slightly in front of middle; anterior slope with asperities coarse, close, confused; posterior areas with a weak, subcarinate median line, disc longitudinally strigose, shining, with minute punctures in small grooves between ridges; lateral areas smooth, shining; short, sparse hair on asperate area. Elytra 1.6 times as long as wide, 1.5 times as long as pronotum; disc occupying basal 70 percent of elytra length; striae not impressed, small punctures mostly in rows except confused on basal third on interstriae 2 and 3, many impressed points.

Declivity steep, broadly, shallowly concave; striae 1 and 2 indicated by rows of very small, obscure punctures; interstriae 1 weakly elevated on lower two-thirds, unarmed except a moderate pointed denticle near apex, apex forming an obscure, subacute point; lateral margins rather strongly elevated on basal half, armed on basal fourth by a moderately large, acutely pointed denticle, and at middle of declivity by a larger pointed denticle (twice as long as its basal width). Vestiture of minute strial hair on concave area of declivity, and about eight slender interstitial setae on lateral areas near basal margin of declivity.

Female: Length 2.6 mm, 2.9 times as long as wide; color yellowish brown. Frons convex, a feeble, transverse impression above epitoma, punctures rather small, close, deep; epistomal margin shallowly, rather broadly emarginate; vestiture of rather sparse, fine, short (and some rather long) setae; eye somewhat enlarged, coarsely faceted. Pronotum 1.1 times as long as wide; sides on basal three-fifths almost straight and parallel, rather broadly rounded in front; summit slightly anterior to middle of pronotum length; asperities on anterior slope small, confused, close; posterior areas smooth, shining, punctures very small, with many impressed points; several short setae on asperate area. Elytra 1.6 times as long as wide, 1.4 times as long as pronotum; disc occupying basal 77 percent of elytra length; striae not impressed, punctures very small, in rows; interstriae three to four times as wide as striae, with numerous impressed micropunctures. Declivity steep, feebly bisulcate; striae 1 with a row of small punctures, punctures of interstriae 2 confused with those of striae 2; sutural interstriae feebly elevated, with about four minute tubercles irregularly spaced; upper half of interstriae 3 armed by three very small tubercles, third tubercle slightly larger and positioned slightly above middle of declivity length; sutural apex subemarginate. Vestiture mostly restricted to near and on declivity, consisting of sparse interstitial rows on 1 and 3–9.

Distribution: Brazil: Rio Caraguata, Mato Grosso, III-1953, F. Plaumann, R.I. Sci. NB, I.g. 20,637 (holotype), same data except taken 16-IV-1953 (allotype).

Notes: The above treatment was based on a male that was compared to the female holotype of *Neomips brasiliensis* Schedl, a junior synonym of *Pityophthorus dimorphus* Schedl (Wood & Bright c1992:977). The presence of moth scales on all 3 specimens suggests they were taken at light.

Pityophthorus infimus Schedl

Pityophthorus infimus Schedl, 1972:68. Holotype ♀?; Jacareacanga, Para Brazil; NHMW, Wien (References in Wood & Bright c1992:1003)

Diagnosis: Distinguished by having a definite submucronate apex of the elytral suture; and by a row of punctures on declivital interstriae 2 that bear setae similar to those on 1 and 3.

Female: Length 2.8 mm, 2.8 times as long as wide; color reddish brown. Frons concealed on type by pronotum, apparently weakly convex, with sparse pubescence. Pronotum 1.25 times as long as wide; sides almost straight and parallel on basal half, rather broadly rounded in front; anterior margin armed by 12 or more serrations; summit anterior to middle of pronotum length; asperities coarse, close, confused; small subasperate rugosities continued behind summit half distance to basal margin; basal areas smooth, shining, with many impressed points, punctures very small; vestiture of sparse, short hair mostly on asperate area and sides. Elytra 2.0 times as long as wide, 1.4 times as long as pronotum; disc occupying basal 70 percent of elytra length; striae not impressed except all weakly near base of declivity, punctures small, deep; interstriae slightly less than twice as wide as striae, smooth, shining, with many impressed points, one or two punctures sometimes present at or near margin of declivity on each interstriae. Declivity rather abrupt, very steep, broadly convex; striae 1 and 2 not impressed, punctures on basal half similar to those on disc, becoming smaller on apical fourth; interstriae 1–3 of equal height, 1 as wide as 2, smooth, shining, armed mostly on upper half by a row of about five very small tubercles (and some punctures apparent), apex ending in a subacute mucro, 2 smooth, shining, with a row of small punctures, 3 similar to 1, armed by three widely spaced, similar punctures. Vestiture mostly confined to declivity, interstriae 1–9 each bearing a row of closely set, rather long setae from base to apex, those on 2 equal in length to distance between rows, those on all others longer, some twice as long.

Distribution: Brazil: Jacareacanga, Para, VII-1970, F.R. Barbosa.

Notes: The above treatment was based on the holotype from Brazil. It is presumed to be a female.

Pityophthorus sinopae Schedl

Pityophthorus sinopae Schedl, 1976:69. Holotype ♂; Sinop, Mato Grosso, Brazil; NHMW, Wien (References in Wood & Bright c1992:1028)

Diagnosis: Closely allied to *quadrispinatus* Schedl, distinguished by the larger size; by the more abundant setae on the female frons extending to upper level of eyes; and by the larger spines on declivital interstriae 3 in both sexes.

Male: Similar to female except frons more strongly convex and more coarsely punctured; pronotum disc smooth, shining; major spines on declivital interstriae 3 distinctly larger.

Female: Length 1.8–2.1 mm, 3.1 times as long as wide; color yellowish brown. Frons flat from epistoma to upper level of eyes, rather densely, uniformly punctured on flat area and bearing a rather dense tuft of long hair of uniform length, tips of longest setae above capable of attaining half distance to epistoma. Pronotum 1.2 times as long as wide; sides almost straight and subparallel on

basal half, broadly rounded in front; anterior margin armed by 14 serrations; summit at middle; anterior slope coarsely asperate; posterior areas obscurely reticulate, punctures small, rather close; vestiture of long hair on or near anterior and lateral margins. Elytra 1.8 times as long as wide, 1.4 times as long as pronotum; disc occupying 82 percent of elytra length; striae not impressed, punctures rather coarse, in rows; interstriae as wide as striae, smooth, shining, one or two punctures usually present on posterior fourth of 1 and near margin on 2–9. Declivity shallowly bisulcate, steep; striae 1 and 2 with rather small, distinct punctures confused throughout space normally occupied by interstriae 2 (these punctures of striae origin); interstriae 1 weakly elevated at base, moderately on lower half, 2 very narrow at base, twice as wide as 1 on lower half, 3 moderately elevated, slightly higher than 1 and armed on upper half by two widely spaced, pointed tubercles of moderate size, a minute tubercle sometimes present at base and also near apex. Vestiture sparse on disc, mostly on declivity, of long hair in sparse, obscure rows on all interstriae except 2.

Distribution: Brazil (Mato Grosso) to Suriname and Venezuela.

Brazil: Sinop, Mato Grosso, X-1974, M. Alvarenga (type).

Suriname: Jodensavanne, Kamp 8, 1961, lichtv., Schulz.

Venezuela: Campamento Rio Grande 30 km E Palmar, Bolivar, 12-VI-1970, 200 m, No. 565, *Protium sagotianum*, SLW.

Notes: The above treatment was based on the male holotype from Brazil, on 1 female from Suriname, and on 19 specimens from Venezuela.

Pityophthorus quadrispinatus Schedl

Pityophthorus quadrispinatus Schedl, 1966:110. Holotype ♂; Moengo, Suriname; Fry Collection, at Basil, Switzerland (References in Wood & Bright c1992:1025)

Pityophthorus gruneri Schedl, 1970:583. Holotype ♀; Camopi-Oyapock dans nid d'Atta [French] Guyane; NHMW, Wien (References in Wood & Bright, 1992:100). *New synonymy*

Pityophthorus roppae Schedl, 1976:69. Holotype ♂; Linhares, E. Santo, Brazil; NHMW, Wien (References in Wood & Bright c1992:1026). *New synonymy*

Diagnosis: Distinguished from *sinopae* Schedl by the smaller size; by the less dense tuft of hair on the female frons that extends from near the epistoma to a point distinctly below the upper level of the eyes; and by the smaller tubercles on declivital interstriae 3.

Male: Similar to female except frons more strongly convex, more coarsely punctured, vestiture sparse, short; declivital sulcus deeper, wider, denticles on interstriae 3 larger.

Female: Length 1.3–1.7 mm, 3.1 times as long as wide; color yellowish brown. Frons moderately convex above, a weak, transverse impression on lower third; surface smooth, shining, rather finely punctured and sparsely pubescent from epistoma to distinctly below upper level

of eyes, tips of longest setae above capable of extending about half distance to epistoma. Pronotum 1.2 times as long as wide; widest on basal half, sides almost parallel, broadly rounded in front; anterior margin armed by 12 serrations; summit slightly anterior to middle; anterior slope coarsely asperate; posterior areas weakly reticulate, punctures small, rather close; vestiture of sparse, short hair on or near anterior and lateral margins. Elytra 1.9 times as long as wide, 1.6 times as long as pronotum; disc occupying basal three-fourths of elytra length; striae not impressed, punctures rather coarse, shallow; interstriae as wide as striae, surface almost smooth, shining, impunctate. Declivity rather shallowly bisulcate, steep; striae 1 and 2 obscure, punctures confused below; interstriae 1 rather narrow, feebly elevated on more than basal half, more strongly toward apex, apex produced into an acute, submucronate point, 2 moderately sulcate, smooth, shining, obscure, confused punctures of striae origin, 3 moderately elevated on upper half, slightly higher than 1, crest armed on upper half by two widely spaced pointed tubercles, most specimens with a small tubercle on lower half. Vestiture mostly on or near declivity and sides, of minute striae and rows of erect setae on most interstitial rows except absent on 2, setae on 1 very short, longer on 3–9, lateral setae extend to base of elytra.

Distribution: Brazil to French Guyane and Venezuela.

Brazil: Linhares, Espirito Santo, XI-1972, Roppa & Alvarenga.

French Guyane: Campi-Oyapock, 20-XI-1969, dans nid de *Atta*, Balachowsky & Gruner.

Suriname: Jodensavanne, Kamp 8, 1961, at light, Schultz.

Venezuela: 9 km S Barancas, Barinas, I-X-1969, 150 m, No. 24, *Protium tenuifolium*, SLW; Campamento Rio Grande 30 km E Palmar, Bolivar, 12-VI-1970, 200 m, No. 565, *Protium sagotianum*, SLW; 10 km S Miri, Barinas, 8-II-1970, 150 m, No. 291, *Protium tenuifolium*, SLW.

Biology: Radiate tunnels were formed in the phloem of limbs and boles of felled and damaged trees.

Notes: The male holotype of *roppae* Schedl was compared directly to my series from Suriname and Venezuela. Specimens of my Venezuela series were also compared to the male holotype of *quadrispinatus*. The female holotype of *gruneri* Schedl was examined and compared to the holotype of *quadrispinatus*. The above treatment was based on the holotype of *quadrispinatus* Schedl, from Brazil, on 3 specimens from Suriname, and on 25 from Venezuela.

Pityophthorus exsectus Schedl

Pityophthorus exsectus Schedl, 1972:67. Holotype ♂; Jacareacanga, Para, Brazil; NHMW, Wien (References in Wood & Bright c1992:999)

Pityophthorus abbreviatus Schedl, 1972:63. Holotype ♀; Jacareacanga, Para, Brazil; NHMW, Wien (References in Wood & Bright c1992:978). *New synonymy*

Diagnosis: Distinguished from *apicipennis* Schedl by the smaller size; by the distinctly, weakly impressed discal

striae; by having discal striae and interstriae of about equal width; and by the longer elytral setae.

Male: Length 1.3–1.4 mm, 2.5 (female 2.6) times as long as wide; color reddish brown. Frons on types mostly concealed by pronotum, apparently moderately convex, pubescence very sparse, short. Pronotum 1.0 times as long as wide; widest near base, sides on basal half weakly arcuate and converging slightly to rather narrowly rounded anterior margin; anterior margin very weakly serrate, number of serrations uncertain; summit at middle; asperities coarse, close, confused; posterior areas somewhat rugose (weak rugae in some areas), punctures very small, some obscure; sparse hair on and near anterior and lateral margins. Elytra 1.4 times as long as wide, 1.4 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae 1–4 weakly, distinctly impressed from base to margin of declivity; interstriae on posterior half of disc as wide as striae, smooth, brightly shining, impunctate except 1 to base and 3–5 near declivity. Declivity weakly, narrowly bisulcate, steep; striae 1 and 2 moderately impressed on basal half, punctures rather coarse, deep; interstriae 1 rather weakly elevated (stronger and moderately mucronate at apex), narrow, armed by three small tubercles on lower half, 2 very narrow above, as wide as 1 on lower third, smooth, shining, impunctate, 3 weakly elevated on upper half, as high as 1, armed on upper two-thirds by two widely spaced, pointed tubercles of moderate size, margin of declivity with a small tubercle on 5, 7, and 9. Vestiture mostly on declivity, a few setae on all interstriae except 2.

Female: Similar to male except tubercles on declivity smaller.

Distribution: Brazil: Jacareacanga, Para, IX-1970 (*exsectus* type and *abbreviatus* paratype), I-1970 (*abbreviatus* holotype), FR. Barbosa.

Notes: The above treatment was based on the male holotype of *exsectus* Schedl and the female holotype and 1 female paratype of *abbreviatus*. Except for sexual differences, the 2 holotypes are identical. The type of *exsectus* is in better condition. Since they were both validated on different pages of the same article, I here exercise the right of the first revisor and select *exsectus* as the valid name for this species.

Pityophthorus apicipennis Schedl

Pityophthorus apicipennis Schedl, 1976:67. Holotype ♂; Serra do Caraca, Minas Gerais, Brazil; NHMW, Wien (References in Wood & Bright c1992:981)

Diagnosis: Distinguished from *exsectus* Schedl by the larger size; by the discal striae not being impressed and conspicuously narrower than the interstriae.

Male: Length 1.8 mm, 2.8 times as long as wide; color reddish brown. Frons strongly convex; surface smooth, shining, punctures coarse, shallow; vestiture of short, sparse hair, epistomal brush sparse. Pronotum 1.1 times as long as wide; widest on basal third, sides weakly arcuate, converging to broadly rounded anterior margin;

anterior margin armed by 12 basally connected serrations; summit at middle; asperities coarse, close, confused; posterior areas not smooth, obscurely reticulate, minute punctures on disc mostly replaced by minute granules; short hair sparse on and near anterior and lateral margins. Elytra 1.7 times as long as wide, 1.5 times as long as pronotum; disc occupying basal three-fourths of elytra length; striae not impressed on basal half, weakly impressed on posterior third; interstriae twice as wide as striae, smooth, shining, impunctate except one or two punctures at base of declivity on most interstriae. Declivity weakly bisulcate, steep; striae 1 and 2 moderately impressed on basal half, obsolete on apical fourth, punctures small, distinctly impressed at base, obsolete below; interstriae 1 narrow, rather weakly elevated, apex weakly mucronate, armed by a row of about five small tubercles, 2 as wide as 1, smooth, shining, impunctate, 3 weakly, distinctly elevated, as high as 1, armed by four pointed tubercles, upper two slightly larger; lateral areas with about eight smaller tubercles of varying size, some pointed. Vestiture mostly confined to declivity, of sparse, minute striae hair, and erect, short, rather stout interstitial setae, sparse on all interstriae; 2 with two setae at base only.

Distribution: Brazil: Serra do Caraca, Minas Gerais, III-1963, F. Werner, U. Martins, L. Silva.

Notes: The above treatment was based on the male holotype.

Pityophthorus alvarengai Schedl

Pityophthorus alvarengai Schedl, 1972:63. Holotype ♂; Jacareacanga, Para, Brazil; NHMW, Wien (References in Wood & Bright c1992:980)

Diagnosis: Distinguished from *apicipennis* Schedl (male holotype only) by the smaller size; by the more broadly sulcate elytral declivity; by the shining, more coarsely punctured pronotum disc; and by the characters described below. The male holotype is quite different from Schedl's allotype and paratypes, treated separately below as *barbosai* Wood.

Male: Length 1.3 mm, 2.8 times as long as wide; color reddish brown. Frons narrow, moderately convex; surface smooth, shining, coarsely, closely punctured (no tubercles); vestiture of sparse, fine, short hair, epistomal brush sparse. Pronotum 1.1 times as long as wide; sides on basal half subparallel, feebly arcuate, rather broadly rounded in front, anterior margin armed by 14 basally connected, low serrations; summit at middle of pronotum length; asperities on anterior slope coarse, close, confused; posterior areas smooth, brightly shining, with many impressed points, punctures coarse, deep, close; vestiture of short, sparse hair on asperate area. Elytra 1.6 times as long as wide, 1.4 times as long as pronotum; disc occupying basal 72 percent of elytra length; striae not impressed, punctures in rows, rather coarse, deep; interstriae very slightly wider than striae, smooth, shining, impressed points very obscure, a few punctures on

odd-numbered interstriae at base of declivity. Declivity broadly, moderately bisulcate, very steep; striae 1 and 2 with small punctures distinctly impressed; interstriae 1 rather narrow, weakly elevated on upper two-thirds, more strongly below, one minute tubercle at base, one or two near submucronate apex, 2 very narrow above, wider below, smooth, impunctate, 3 much wider than 1, much higher than 1 on basal half, armed by two or three pointed tubercles of moderate size on basal half. Vestiture sparse, mostly on or near declivity, of sparse, minute strial hair, and erect slender setae on interstriae, three setae on 1, none on 2, with 3–9 each with several setae.

Distribution: Brazil: Jacareacanga, Para, IX-1970, F.R. Barbosa.

Notes: The above treatment was based on the male holotype from Brazil.

Pityophthorus erraticus Schedl

Pityophthorus erraticus Schedl, 1976:68. Holotype ♂; Jacareacanga, Para, Brazil; NHMW, Wien (References in Wood & Bright c1992:997)

Diagnosis: Distinguished from *apicipennis* Schedl by the deeper declivital sulcus, with all setae on interstriae 1 minute, also minute on 3 but with one or two longer setae; pronotum disc smooth, shining, punctures moderately deep.

Male: Length 1.8 mm, 2.7 times as long as wide; color reddish brown. Frons rather narrow, strongly convex; surface smooth, shining, rather coarsely, deeply punctured; vestiture of sparse, fine, moderately long hair. Pronotum 1.1 times as long as wide; sides on basal half almost straight and parallel, rather broadly rounded in front; anterior margin forming a weakly serrate, continuous costa; summit at middle; asperities on anterior slope coarse, close, confused; posterior areas smooth, shining between punctures, punctures moderately small, deep, close, impressed points obscure; vestiture of sparse hair on asperate area. Elytra 1.5 times as long as wide, 1.3 times as long as pronotum; disc occupying basal 70 percent of elytra length; striae not impressed, punctures rather small, deep, in rows; interstriae twice as wide as striae, smooth, shining, impunctate except a few punctures near base of declivity on all interstriae. Declivity rather steep, moderately bisulcate; striae 1 moderately impressed from base to apex, 2 weakly impressed, punctures on 1 and 2 small, distinct; interstriae 1 impressed from base to apex, 2 weakly impressed, punctures on 1 and 2 small, distinct; interstriae 1 weakly elevated from base to apex, apex obscurely submucronate, unarmed, 2 very narrow, smooth, shining, impunctate, 3 much higher than 1 on basal two-thirds, armed on middle half by two rather coarse, pointed tubercles, one additional smaller tubercle on lower fourth and one or more smaller, rounded tubercles on basal fourth; lateral interstriae with one or two small tubercles near their apex. Vestiture mostly on or near declivity, of sparse, minute strial hair, and erect interstitial setae; setae on 1 and 3 minute (15–

20 on each), one or two longer setae at base and apex of 1–3; lateral interstriae each with about two to six setae.

Distribution: Brazil: Jacareacanga, Para, VI-1970, F.R. Barbosa, apparently at light.

Notes: The above treatment was based on the male holotype.

Pityophthorus barbosai Wood, n. sp.

Pityophthorus barbosai Wood: Holotype ♂; Jacareacanga, Para, Brazil; NHMW, Wien, designated below

Diagnosis: Distinguished from the 4 preceding species by the smaller size; by the strongly convex male frons, which has many small tubercles from the epistoma to the upper level of the eyes; and by the more closely spaced, small denticles on declivital interstriae 3.

Male: Length 1.3 mm, 3.1 times as long as wide; color pale reddish brown. Frons strongly, evenly convex from epistoma to vertex; surface reticulate, obscure punctures mostly with their dorsal margin elevated to form a minute tubercle; vestiture of sparse, short hair uniformly distributed. Pronotum 1.2 times as long as wide; sides on basal half almost straight and parallel, rather broadly rounded in front; anterior margin minutely subserrate; summit slightly anterior to middle of pronotum length; asperities moderately coarse, close, confused; posterior areas mostly reticulate, punctures minute, shallow, obscure; vestiture sparse on asperate area. Elytra 1.8 times as long as wide, 1.5 times as long as pronotum; disc occupying basal three-fourths of elytra length; striae not impressed, punctures small, distinct, in rows; interstriae twice as wide as striae, smooth, shining, impunctate, 1, 3, and 5 each with a few punctures at base of declivity. Declivity shallowly bisulcate, very steep; striae 1 rather weakly impressed, punctures on 1 and 2 very small; interstriae 1 weakly elevated, except strongly, acutely mucronate at apex, with an obscure row of small punctures, 2 very narrow, smooth, shining, 3 moderately elevated on middle third of length, distinctly higher than 1, armed by two closely spaced, small pointed tubercles on crest of short elevated area; lateral area with a few, small, obscure tubercles. Vestiture mostly confined to declivity, of minute strial hair and longer, sparse interstitial setae, short on 1, 4, and 5, absent on 2, longer on lateral areas.

Distribution: Brazil (Para).

Type material: The male holotype and 1 male paratype were taken at Jacareacanga, Para, Brazil, IX-1970, F.R. Barbosa. The holotype was previously designated as the allotype and the paratype as a paratype of *P. alvarengai* Schedl, above, a species to which they do not belong. The holotype and paratype are in the Naturhistorisches Museum Wien, Wien.

Pityophthorus surinamensis Schedl

Pityophthorus surinamensis Schedl, 1961:226. Holotype ♀; Suriname, Moengo, Boven, Cottica R.; Cornell University, Ithaca, New York (References in Wood & Bright c1992:1030)

Diagnosis: Distinguished by the apparent loss of striae 1 and 2 on the declivity and apparent loss of interstriae 2; male frons shallowly impressed, female frons bearing a tuft of long hair.

Male: Length 1.3–1.5 mm, 3.1 (female 4.1) times as long as wide; color yellowish brown to pale reddish brown. Frons narrow, somewhat flattened, transversely, weakly convex, longitudinally, feebly concave from epistoma to abrupt subcarinate transverse crest slightly above upper level of eyes; surface smooth, shining, closely, minutely punctured; vestiture sparse, of moderately long fine hair. Pronotum 1.2 times as long as wide; sides on basal half almost straight and parallel, broadly rounded in front; anterior margin armed by about eight weak, basally connected serrations; summit slightly in front of middle; asperities on anterior slope coarse, close, confused; posterior areas almost smooth, shining, with numerous impressed points and/or very minute, close punctures; vestiture of sparse short hair mostly on asperate area. Elytra 1.7 times as long as wide, 1.3 times as long as pronotum; disc occupying basal three-fourths of elytra length; striae not impressed, punctures minute, many obsolete; interstriae four or more times as wide as striae, smooth, shining, with numerous impressed points (some almost as large as striae punctures). Declivity moderately, narrowly sulcate, steep; striae 1 narrowly impressed, 2 visible only at extreme base, apparently lost or converging with 1 at base; interstriae 1 narrow, weakly elevated, 2 not clearly evident, 3 moderately elevated, much higher than 1, crest armed by 0–5 small tubercles (variable between specimens and between right and left sides of a specimen). Vestiture mostly restricted to declivity, consisting of minute striae hair and erect setae on interstriae 3–9.

Female: Similar to male except frons flattened eye to eye from epistoma to vertex and ornamented by a brush of dense, moderately long hair; body more slender.

Distribution: Suriname: Jodensavanne, Kamp 8, 1961, licht, Schulz; Moengo, Boven Cottica River, 17-V-1927, Cornell Univ. Lot 760, Sub. 62 (female), same except 20-V-1927 Lot 760 Sub. 68 (male).

Notes: The above treatment was based on 1 male and 1 female paratypes, and 2 other males that were compared by me to the male paratype. These paratypes bear the same data as the female holotype. The holotype was not examined.

Pityophthorus bolivianus Eggers

Pityophthorus bolivianus Eggers, 1943:359. Holotype ♂; Cochabamba, Bolivia; deposited in MNHN, Paris, presently in NHMW, Wien (References in Wood & Bright c1992:984)

Diagnosis: Distinguished by having the pronotal asperities organized into definite concentric rows; declivital interstriae 1 and 3 are of equal height, their summit unarmed by tubercles.

Male: Length 1.4 mm, 2.7 times as long as wide; color very dark reddish brown. Frons moderately convex

from epistoma to upper level of eyes (concealed above by pronotum on type); surface smooth, shining, coarsely, rather closely, deeply punctured; vestiture of sparse, short hair. Pronotum 1.05 times as long as wide; widest near base; sides arcuately converging toward rather narrowly rounded anterior margin; anterior margin armed by 10 basally connected serrations; summit at middle of pronotum length; asperities on anterior slope organized into three concentric rows of basally connected, coarse asperities; basal areas smooth, shining, with many impressed points, punctures coarse, deep, rather close; vestiture of sparse hair on or near lateral margin and in rows at posterior base of asperities. Elytra 1.8 times as long as wide, 1.8 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed, except 1 near declivity, punctures very small, in rows; interstriae two to three times as wide as striae, shining, with many impressed irregular lines and impressed points, a few minute punctures at base of declivity. Declivity convex, steep; striae 1 narrowly, shallowly impressed, small punctures not clearly evident, 2 not impressed, minute punctures continue almost to apex; interstriae 1 narrow, rather weakly elevated, crest minutely irregular, punctures or granules not clearly evident, 2 as wide as 1, shining, with many impressed points, impunctate, 3 almost as high as 1, shining, with many impressed points and a row of minute punctures. Vestiture sparse, short, of fine hair, mostly on declivity and sides; of sparse, very small striae hair, and erect setae in rows on all interstriae except absent on 2 and on lower 1 on declivity.

Distribution: Bolivia: Cochabamba (Germain), 1907, H. Donckier.

Notes: The above treatment was based on the male holotype. Eggers (1943:359) states that the holotype was deposited at MNHN, Paris; it was found in NHMW, Wien (see Wood in Wood & Bright c1992:3).

Pityophthorus argentinensis Eggers

Pityophthorus argentinensis Eggers, 1951:150. Lectotype ♀; Salta, Argentina; USNM, Washington, designated by Anderson & Anderson 1971:4 (References in Wood & Bright c1992:982)

Diagnosis: Distinguished from *bolivianus* Eggers by the more strongly impressed declivital striae 1, with punctures on striae 1 and 2 distinctly larger and lateral convexities on interstriae 3 distinctly higher than suture; by the larger punctures on the discal striae; and by the much smoother, brightly shining discal interstriae with almost no impressed lines or impressed points.

Male: Length 1.3–1.7 mm, 2.8 times as long as wide; color reddish brown. Frons shallowly, transversely impressed from epistoma to upper level of eyes; impressed area smooth, shining, closely, moderately punctured; a median callus at upper margin of impressed area and extending dorsad; vertex rugose-reticulate; vestiture of sparse, short hair on impressed area. Pronotum 1.1 times as long as wide; sides almost straight and parallel on

basal half, broadly rounded in front; anterior margin armed by about 12 coarse serrations; summit slightly anterior to middle; anterior slope armed by three concentric rows of basally fused asperities; posterior areas smooth, shining, with numerous impressed points, punctures close, deep, coarse; vestiture of sparse hair mostly on asperate area. Elytra 1.7 times as long as wide, 1.5 times as long as pronotum; disc occupying basal 70 percent of elytra length; striae not impressed except 1 near base of declivity, punctures small, deep, in rows; interstriae slightly wider than striae, smooth, shining, with very few impressed lines, no impressed points, odd-numbered interstriae with a few small punctures near base of declivity. Declivity moderately, narrowly sulcate, steep; striae 1 narrowly, moderately impressed, punctures minute to obsolete, 2 not impressed, punctures small, distinct; interstriae 1 weakly elevated, almost smooth, shining, with an indistinct row of minute punctures, 2 as wide as 1, strongly inclined laterally, impunctate, lateral crests broadly rounded, unarmed, distinctly higher than 1. Vestiture mostly on or near declivity, of sparse setae on odd-numbered interstriae, setae moderately long, rather stout.

Female: Similar to male except transverse impression on frons very weak, callus mostly obsolete; declivital interstriae 2 ascending only slightly, lateral convexities very slightly higher than suture; declivital setae more slender.

Distribution: Argentina to Brazil (Santa Catarina).

Argentina: Salta (type); Tigre, Buenos Aires, I-1951, M.J. Viana.

Brazil: Nova Teutonia, Santa Catarina, 97°11'W, 52°23'L, 300–500 m, F. Plaumann.

Notes: The above treatment was based on the female holotype, 1 male and 1 female bearing type data, and on 2 other specimens from Argentina, and 2 from Brazil. From 4 specimens labeled "type" on one pin in the USNM, Anderson & Anderson (1971:4) selected and designated a female lectotype. The "type" in the NHMW, Wien, must, therefore, be regarded as a lectoparatype. Two additional specimens (1 ♂, 1 ♀) in NHMW, Wien, bear type data and could be lectoparatypes. For a more complete review of this problem see Wood in Wood & Bright c1992:3.

Pityophthorus bahiae Wood, n. sp.

Pityophthorus bahiae Wood: Holotype ♂; Cepec, Ilheus, Bahia, Brazil; USNM, Washington, designated below

Diagnosis: Allied to *argentinensis* Eggers but distinguished by the more slender body form; by the much more strongly sulcate elytral declivity, with lateral convexities higher and armed by larger denticles; asperities on anterior slope of pronotum almost in concentric rows; 16 serrations on anterior margin of pronotum.

Male: Length 1.5 mm, 2.9 times as long as wide; color pale reddish brown. Frons strongly convex on upper fourth to vertex, lower area transversely impressed,

almost flat on median half, ascending from epistoma to rather abrupt summit three-fourths distance toward upper level of eyes; flattened area smooth, shining, rather coarsely, closely, deeply punctured; moderately abundant hair short, uniformly distributed on flattened area. Pronotum 1.1 times as long as wide; sides almost straight and parallel on basal half, broadly rounded in front; anterior margin armed by 16 basally connected serrations; summit slightly anterior to middle of pronotum length; asperities on anterior slope with rows 1 and 2 almost concentric, rows 3 and 4 partly to mostly confused; posterior areas smooth, shining, with some impressed points, punctures rather small near summit, smaller at base; 1 or 2 weak lines on each side of subacute, median line; short hair on asperate area and sides. Elytra 1.6 times as long as wide, 1.4 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed except 1 near declivity, punctures rather small, deep, in rows; interstriae slightly wider than striae, almost smooth, a few irregular lines and impressed points, impunctate except two or three punctures on 1 and 3 at base of declivity. Declivity rather strongly bisulcate; striae 1 moderately impressed, punctures on 1 and 2 obsolete except near base; interstriae 1 narrowly, rather modestly elevated from base to apex, apex rounded, 2 moderately impressed, impunctate on more than basal half, with small, confused punctures on lower third, 3 much higher than 1 on basal half, equal on lower fourth, armed by two widely spaced, pointed tubercles of moderate size, a much smaller tubercle on lower fourth, lateral area with three or four much smaller, obscure tubercles. Vestiture hairlike, mostly on declivity and sides, of minute striae hair, and sparse, erect, slender setae on interstriae 3, 5, 7, and 9.

Distribution: Brazil (Bahia).

Type material: The male holotype was taken at Cepec, Ilheus, Bahia, Brazil, 1966–1968, at light, presumably by Kaston. The holotype is in the U.S. National Museum, Washington.

Pityophthorus vescus Wood, n. sp.

Pityophthorus vescus Wood: Holotype ♂; Rancho Grande (Pittier N.P.), Aragua, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *bahiae* Wood by the smaller size; by having 4 definite concentric rows of asperities on the anterior slope of the pronotum; by the less strongly impressed declivital sulcus and smaller lateral tubercles; and by the much smaller striae punctures on the disc.

Male: Length 1.0–1.2 mm, 2.7 times as long as wide; color yellowish brown. Frons strongly convex, a slight, transverse impression on median half from epistoma to upper level of eyes, a weak, median callus above; surface smooth, shining, punctures rather coarse, shallow, close; vestiture of moderately abundant, uniformly distributed, rather short hair from epistoma to upper level of eyes. Pronotum 1.1 times as long as wide; sides on

basal half almost straight and parallel, rather broadly rounded in front; anterior margin armed by 8 serrations; summit slightly anterior to middle; asperities on anterior slope organized into four concentric, basally connected rows; posterior areas smooth, shining, with numerous impressed points, punctures very small, moderately close; vestiture of short hair mostly on asperate area and sides. Elytra 1.7 times as long as wide, 1.6 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed except 1 near declivity, punctures very small, in rows; interstriae about two to three times as wide as striae, smooth, shining, with many impressed points, impunctate except one or two punctures at base of declivity on all except 2. Declivity shallowly bisulcate, steep; striae 1 rather narrow, moderately impressed on basal two-thirds, punctures obscure to obsolete, those on 2 mostly obsolete; interstriae 1 rather narrow, distinctly elevated, with a row of small punctures from base to apex, apex subacute, weakly mucronate, 2 as wide as 1, ascending laterally, apparently impunctate, 3 slightly higher than 1 on upper half, with a row of small punctures, no tubercles; vestiture of erect interstitial setae, mostly on declivity, consisting of complete to partial rows on all except 2.

Distribution: Venezuela (Aragua).

Type material: The male holotype, female allotype, and 30 paratypes were taken at Rancho Grande (Pittier N.P.), Aragua, Venezuela, 9-IV-1970, 1100 m, No. 435, phloem of tree branch, S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Pityophthorus apiculatus Schedl

Pityophthorus apiculatus Schedl, 1937:167. Holotype ♀; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:981)

Diagnosis: Distinguished from *vescus* by the larger size; by the more strongly impressed declivital sulcus, with the suture apex rounded; cusp on mesal margin of mandible rather strongly elevated and armed in female.

Male: Similar to female except frons transversely impressed from epistoma almost to upper level of eyes, convex above; surface of impressed area smooth, shining, moderately close punctures rather small, deep; mandible normal, elytral declivity much more strongly sulcate, lateral convexities higher, attaining apical fourth, crest on interstriae 3 armed by a row of eight rather closely set, pointed tubercles of moderate size, several smaller tubercles in lateral areas.

Female: Length 1.4 mm, 2.8 times as long as wide; color dark reddish brown. Frons almost flat eye to eye from epistoma to vertex; surface almost smooth, brightly shining, impunctate, glabrous; mesal surface of mandible elevated into an almost spinelike cusp. Pronotum 1.05 times as long as wide; widest near base, sides weakly arcuate and converging to rather narrowly rounded anterior margin; anterior margin a slightly serrate, con-

tinuous costa; summit at middle of pronotum length; asperities on anterior slope basally joined, forming three concentric rows; posterior areas shining, mostly smooth, with numerous impressed points, punctures small, close. Elytra 1.7 times as long as wide, 1.6 times as long as pronotum; disc occupying basal two-thirds of elytra length; striae not impressed except 1 near declivity, punctures in rows, rather small, deep; interstriae slightly wider than striae, almost smooth, shining, with numerous impressed points, a few irregularly placed punctures on posterior half of odd-numbered interstriae. Declivity moderately bisulcate, steep; striae 1 narrowly, rather strongly impressed from base almost to apex, punctures minute, obscure to obsolete, 2 with minute, obscure punctures almost to apex; interstriae 1 rather narrowly, moderately elevated, punctures not evident, 2 slightly wider than 1, almost smooth, impunctate, 3 rather broadly rounded, crest armed by a row of about five minute tubercles. Vestiture of minute strial hair, mostly on sides to base, and erect setae on odd-numbered interstitial rows on posterior half of elytra length.

Distribution: Brazil: Nova Teutonia [Santa Catarina], 20-V-1935, F. Plaumann.

Notes: The above treatment was based on the female holotype and 4 other specimens from Brazil. The sexes are reversed in the original description.

Pityophthorus moritzi Wood, n. sp.

Pityophthorus moritzi Wood: Holotype ♂; Colonia Tovar, Aragua, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *anacardii* Wood in both sexes by the strongly convex frons, with punctures rather coarse, a median callus at upper level of eyes, and subglabrous; by the more slender elytral vestiture; and by other characters indicated below.

Male: Length 1.4–1.6 mm, 3.1 (female 3.2) times as long as wide; color dark reddish brown. Frons strongly convex, rather coarsely punctured, a median callus from just below upper level of eyes and dorsad; vestiture of sparse, fine hair of moderate length. Pronotum 1.2 times as long as wide; sides almost straight and parallel on basal half, rather narrowly rounded in front; anterior margin armed by about 12 basally connected serrations; summit slightly anterior to middle of pronotum length; anterior slope armed by three to four concentric rows of basally fused asperities (on type row three broken on median line, most paratypes with all rows continuous); posterior areas smooth, shining, with many impressed points, punctures rather small; vestiture of slender hair, confined to rows on asperate area and confused on sides. Elytra 1.9 times as long as wide, 1.7 times as long as pronotum; disc occupying basal three-fourths of elytra length; striae not impressed except 1 at base of declivity, punctures coarse, deep, in rows; interstriae slightly wider than striae, smooth, shining, impressed points mostly obsolete. Declivity moderately bisulcate, steep; striae 1 and 2 deeply punctured from base to

apex, punctures almost as large as on disc; interstriae 1 moderately elevated, shining, armed by a row of about six small, rounded tubercles, 2 almost flat, much wider than 1, smooth, shining, impunctate, 3 moderately elevated on basal half, distinctly higher than 1, crest rather narrowly rounded above and armed by a row of three to four rounded tubercles, more broadly rounded below and tubercles replaced by small punctures. Vestiture mostly confined to declivity or near, of minute strial hair (mostly on sides), and erect, slender, rather long setae in interstitial rows at base of declivity on 1, 3, and 4, and longer rows on 5, 7, and 9.

Female: Similar to male except callus on upper frons not as high, punctures slightly smaller.

Distribution: Venezuela (Aragua).

Type material: The male holotype and 9 paratypes were taken at Colonia Tovar, Aragua, Venezuela (less than 1 km from the Moritz home), 4-V-1970, 1700 m, No. 491, *Inga*, S.L. Wood. The female allotype and 16 paratypes are from the same locality and date, No. 495b. Other paratypes bearing identical locality and date information from miscellaneous tree branches include the following: 11 from No. 439, 8 from No. 491, 5 from No. 498, 15 from No. 500, and 30 from No. 508. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington. The species is named for Dr. Moritz who sent many Venezuelan specimens of Scolytidae from near his home to Chapuis and Eichhoff during the late nineteenth century.

Pityophthorus anacardii Wood, n. sp.

Pityophthorus anacardii Wood: Holotype ♀; 30 km N Canyon Zancudo, Zulia, Venezuela; USNM, Washington, designated below

Diagnosis: Remotely allied to *apiculatus* Schedl, female distinguished by the more abundant tuft of hair on the frons and the normal mandible; by the less deeply impressed declivital sulcus, with striae 1 and 2 much more coarsely, deeply punctured, and the crest of interstriae 3 armed by small tubercles; and, in the male, by the convex frons and the declivity is about as in the female.

Male: Similar to female except frons convex, pubescence sparse, short, inconspicuous; elytral declivity with sulcus slightly deeper; lateral convexities slightly higher.

Female: Length 1.2–1.4 mm, 3.0 times as long as wide; color yellowish brown. Frons planoconvex almost eye to eye from epistoma to well above upper level of eyes; surface smooth, brightly shining; punctures small, moderately close; sparse vestiture of moderate length in central area, longer and more numerous on peripheral fringe, especially above, tips of longest setae on vertex capable of attaining half distance toward epistoma. Pronotum 1.1 times as long as wide; sides almost straight and parallel on basal half, rather narrowly rounded in front; anterior margin armed by about 16 small, basally connected serrations; summit slightly anterior to middle; anterior slope armed by three and a partial fourth

concentric rows of basally fused asperities; posterior areas smooth, shining, with numerous impressed points, punctures moderately coarse, close; vestiture sparse, stout, mostly in rows on asperate area. Elytra 1.5 times as long as wide, 1.3 times as long as pronotum; disc occupying basal three-fourths of elytra length; striae not impressed except 1 slightly near declivity, punctures rather coarse, deep, in rows; interstriae as wide as striae, smooth, shining, with numerous impressed points, 1, 3, 5, 7, and 9 each with several punctures near declivity. Declivity moderately bisulcate, very steep; striae 1 and 2 with small, distinct punctures from base to apex; interstriae 1 rather weakly elevated, narrow, with two or three small punctures on lower half, 2 wider than 1, flat, impunctate, 3 distinctly higher than 1, crest rounded, armed by a row of four to six small, pointed tubercles. Vestiture mostly on and near declivity, of minute strial hair on sides, and sparse rows of erect, rather long setae on interstriae 1, 3, 4, 5, 7, and 9.

Distribution: Venezuela (Zulia).

Type material: The female holotype, male allotype, and 22 paratypes were taken at 30 km N Canyon Zancudo, Zulia, Venezuela, 4-VI-1970, 10 m, No. 518, *Anacardium excelsum*, S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

SUBTRIBE CORTHYLINA

GENUS *GNATHOTRUPES* SCHEDL

Gnathotrupes Schedl, 1951:125. Type-species: *Gnathotrupes bolivianus* Schedl, monobasic (Synonymy and references in Wood & Bright c1992:1039–1042)

Gnathotrypanus Wood, 1968:9. Type-species: *Gnathotrypanus terebratus* Wood, original designation

Gnathocortus Schedl, 1975:11. Type-species: *Gnathocortus caliculus*, original designation

Gnathomimus Schedl, 1975:12. Type-species: *Gnathomimus nothofagi* Schedl, original designation

Gnathoglochinus Schedl, 1975:16. Type-species: *Gnathoglochinus impressus* Schedl, original designation

Diagnosis: Distinguished from *Gnathotrichus*, of North and Central America, by the more strongly procurved sutures of the antennal club, segment 1 usually smaller; by the more strongly impressed elytral declivity, the apex often divaricate; by the greatly reduced strial punctures; in most species the punctures are strongly confused.

Description: Length 1.3–3.9 mm, 2.6–3.6 times as long as wide; color yellowish brown to almost black. Frons of male convex to moderately impressed, glabrous to modestly pubescent; female frons convex and glabrous to strongly, broadly concave, and glabrous to elaborately decorated by tufts of hairlike setae. Antennal funicle 5-segmented. Pronotum usually much longer than wide; sides mostly parallel on basal half, anterior margin moderately to very broadly procurved, weakly emarginate in 1 species; asperities small, numerous, confused; sculpture on posterior and lateral areas very fine; vestiture mostly short and sparse, when present. Elytra elongate,

declivity simple and convex to strongly excavated, often with tubercles or spines; striae never impressed on disc or declivity, punctures small, punctures very small, in rows on several small, primitive species, strongly confused on most larger, more advanced species. Vestiture hairlike, short; often elaborately specialized on female frons.

Biology: All species are xylomycetophagous and monogynous. All observed species breed in dicotyledonous angiosperm hosts. Most were taken from stems 3–10 cm in diameter; although a few were removed from rather large logs. The gallery systems resembled

those of *Gnathotrichus*, a closely related genus from North and Central America.

Notes: Wood & Bright (c1992:1039–1042) list 30 species in this genus, 5 from Mexico and Central America, and 25 from South America. They are especially well represented in the host genus *Nothofagus* in southwestern South America. All species are rare, most are known only from the type series. For this reason, it is expected that many more species in this genus remain to be discovered.

Key to the Species of *Gnathotrupes*

- 1. Punctures on discal striae very small to almost obsolete, in rows; frons convex in both sexes, setae sparse, inconspicuous except female of 2 species with a tuft of short hair on lower half; declivity convex, feebly impressed in 1 species, usually unarmed by denticles, two species with one small, pointed tubercle at base of declivital striae 3; body slender, 2.7–3.4 times as long as wide; mostly smaller species 2
- Punctures on elytral disc minute to moderately small, confused; frons convex to deeply concave in at least female, glabrous to pubescent, setae when present of moderate length and abundance in male or glabrous to elaborate length and abundance in female; mostly larger, stouter species 9
- 2(1). Basal margin of declivity moderately to rather abruptly rounded in male, more gradually rounded in female; male declivity with suture deeply, rather broadly emarginate, female emargination narrow, shallow; male frons convex, reticulate, coarsely punctured, lower female bearing a tuft of moderately long hair 3
- Basal margin of declivity rounded in both sexes, sutural apex with emargination weak to absent; vestiture on frons sparse to absent, inconspicuous in both sexes 4
- 3(2). Declivital striae 1 and 2 obsolete; interstriae 3 armed by one small, pointed tubercle slightly above middle of declivity length, emargination at apex of suture smaller in both sexes, costa extending from emargination ending laterally below level of tubercle on interstriae 3; Mexico (Veracruz) to Guatemala; *Inga*; 2.2–2.6 mm *bituberculatus* (Blandford)
- Declivital striae 1 and 2 rather deeply punctured; interstriae 3 armed by one smaller tubercle at middle of declivity length; female emargination at apex of suture larger, deeper, ventrolateral costa in female ending slightly below level of tubercle on interstriae 3, ending well above tubercle in male; male emargination at apex of suture conspicuously deeper and wider than in female; basal margin of declivity in male abruptly rounded from suture to striae 5, costate from striae 5 to apex; Brazil (Para); 1.7–1.8 mm *emarginatus* Wood
- 4(2). Elytral declivity in both sexes more broadly convex, sometimes weakly flattened on middle half well above costal margin, costal margin in lateral area without a short branching crest extending dorsad to form a ventrolateral crest directed toward interstriae 8 or 9; smaller, slightly stouter species 5
- Elytral declivity in both sexes more broadly flattened on lower half, and with a crest branching from costal margin and extending toward interstriae 8 or 9; costal margin of elytra ascending from base of declivity to suture, apex of suture not emarginate; mostly larger, more slender species 7
- 5(4). Elytra brightly shining, almost glabrous, including declivity (a few minute setae at base); declivital striae 1–3 in recognizable, slightly confused rows, interstriae 2 near base with a callus, no tubercles on declivity; body 2.7 times as long as wide; Costa Rica; 2.2 mm *moraviae* Wood
- Elytral declivity more distinctly convex, with abundant minute setae; body 1.7–3.4 times as long as wide 6

- 6(5). Costal margin of elytra descending from base of declivity to suture, apex of suture narrowly, shallowly emarginate; central half of declivity shallowly impressed, profile of suture straight, interstriae 3 with a row of three or more minute denticles at base; declivity with minute ground cover hairlike, longer setae on basal margin flat, almost scalelike; anterior margin of pronotum broadly, weakly procurved; body 2.5 times as long as wide; Costa Rica; *Pentaclethra macroloba*; 1.3–1.5 mm **terebratus** Wood
- Costal margin of elytral declivity ascending conspicuously from base of elytra to suture, suture entire, not emarginate; face of declivity rather strongly convex, profile of suture strongly convex; all setae on declivity slender, hairlike; body 3.2 times as long as wide; Costa Rica; *Miconia caudata*; 1.6–1.7 mm **dilutus** Wood
- 7(4). Declivital interstriae 3 armed by two (or more) small tubercles (one on upper fourth, one slightly below middle), a few smaller tubercles sometimes on lateral areas; Costa Rica; tree limb; 1.9–2.0 mm **crecentus** Wood
- Declivital interstriae 3 with not more than one tubercle on basal fourth 8
- 8(7). Basal half of elytral declivity with several very small, confused granules, a minute denticle sometimes at base of 3; lower two-thirds of elytral declivity less strongly, less extensively flattened, not as smooth, vestiture averaging shorter, less abundant; Venezuela (Merida); xylem of log; 2.1–2.3 mm **colaphus** Wood
- Declivital interstriae 3 with a small, pointed denticle at base; lower two-thirds of declivity more strongly, extensively flattened, smoother, with fewer minute granules, vestiture averaging longer, more abundant; Venezuela (Merida); xylem of *Nectandra* log; 2.8–3.2 mm . . . **nectandrae** Wood
- 9(1). Elytral declivity rather steep, shallowly to moderately sulcate, lateral margin (interstriae 3) rather weakly elevated and armed by one enlarged or several small tubercles or spines; frons convex to deeply concave and glabrous to elaborately ornamented by hair 10
- Elytral declivity gradual, strongly excavated, lateral margin acutely elevated and often armed by 1 or more large spines; male and female frons strongly to profoundly excavated 25
- 10(9). Elytral declivity convex to shallowly bisulcate, armed on basal fourth of interstriae 2[?]/3[?] by one large (or two close moderately large in one species) tubercles; male frons flat to convex, female frons (only one species examined) deeply, broadly excavated and ornamented by long hair 11
- Elytral declivity moderately, rather narrowly impressed, interstriae 3 armed by two to many rather small, conical, pointed tubercles 13
- 11(10). Elytral declivity steep, rather feebly to shallowly bisulcate; male declivital interstriae 3 (?) armed on upper fourth by a rather small to moderately large, acutely pointed cone-shaped tubercle, a second similar but distinctly larger tubercle immediately below and distinctly above middle of declivity length; pronotum disc, parts of elytral disc, and all of declivity reticulate; male frons flat to weakly convex on lower half, coarsely punctured, reticulate; Argentina (Tierra del Fuego, Viamonte); 2.5 mm **longiusculus** (Schedl)
- Elytral declivity convex to moderately bisulcate, basal half of interstriae 3 (?) armed by one large, blunt spine 12
- 12(11). Elytral declivity convex, a rather weak, indefinite spine on lower half of interstriae 3 (?) and armed by another slightly larger tubercle on lateral margin at same level on lower fourth; sides and most of declivity with short, sparse hair; female frons strongly concave eye to eye from epistoma to vertex, upper margin ornamented on lateral thirds by a dense row of very long hair; declivital elevations present but poorly developed; Argentina; *Nothofagus dombeyi*; 2.9–3.3 mm **pustulatus** Schedl
- Elytral declivity convex to moderately, broadly bisulcate, suture weakly elevated, no lateral elevations; declivital face smooth, shining, with numerous, confused, minute punctures, sparse hair

CORTHYLINI

- slightly longer; male frons moderately convex, smooth, shining, rather coarsely, closely punctured, a weak median carina from epistomal margin to upper level of eyes; S Chile; 3.0–3.4 mm
 *herbertfranzi* (Schedl)
- 13(10). Declivital interstriae 3 armed by three to six small, pointed tubercles of about equal size, or by two tubercles when both on basal half; face of declivity usually densely punctured, surface of impressed area smooth, reticulate, or rugose-reticulate 14
- Declivital interstriae 3 armed by two slightly larger, pointed tubercles, one on basal fourth, one slightly below middle of declivity length (one or two very minute tubercles sometimes also present); concave or impressed area on declivity smooth, shining (place male *fimbriatus* here, half of males have three denticles on interstriae 3) 22
- 14(13). Declivital interstriae 3 armed by a row of five or more tubercles of about equal size 15
- Declivital interstriae 3 armed by three pointed tubercles or two tubercles when both on basal half
 17
- 15(14). Female frons moderately protuberant, reticulate, rather coarsely punctured, vestiture sparse, very short, inconspicuous; punctures on elytral disc almost in rows; body rather stout, 2.6 times as long as wide; Costa Rica; *Cordia alliodora*; 2.0–2.3 mm *electus* Wood
- Female frons broadly convex, finely punctured; body much more slender; larger species 16
- 16(15). Male frons with a subacute median carina from epistoma to upper level of eyes; elytral apex with subapical margin rounded, not transversely carinate; width of declivital sulcus equal to distinctly less than half width of elytra; anterior margin of pronotum rather broadly rounded; female frons with a strong, shining elevation on median third from epistoma to upper level of eyes, lateral and dorsal areas shallowly concave to vertex and ornamented by a dense fringe of long, incurved, golden setae; Chile; 3.2–3.4 mm *longipennis* (Blanchard)
- Male frons with a callus on median fourth of epistoma; apex of elytra with a weakly, acutely elevated, transversely carinate subapical margin; width of declivital sulcus equal to half width of elytra; anterior margin of pronotum broadly rounded in male, distinctly emarginate in female; Argentina; *Nothofagus dombeyi*; 3.7–4.0 mm *velatus* Schedl
- 17(14). Elytral apex rounded, without an acutely subcarinate, subapical margin; lateral margin of declivity usually with 3 tubercles, one or more at or below middle; anterior margin of pronotum broadly rounded in both sexes 18
- Elytral apex with a low, transversely subcarinate, subapical margin (except *cirratus*), lower half of male declivity very broadly flattened, lateral margins on upper half of male declivity strongly elevated (sometimes armed by only 2 tubercles) 20
- 18(17). Female frons moderately convex eye to eye, middle half smooth, brightly shining, lateral fourths with abundant, fine, rather long, erect hair of about uniform length; body less slender, 2.8 times as long as wide; elytral punctures on disc near suture confused; setae on elytral declivity fine, long, rather abundant; Argentina to Chile; *Nothofagus dombeyi*; 3.3–3.7 mm ... *barbifer* Schedl
- Female frons moderately concave eye to eye from epistoma to vertex; body very slender, 3.3–3.4 times as long as wide; punctures on elytral disc near suture mostly in rows; setae on elytral declivity rather sparse 19
- 19(18). Female frons rather strongly concave eye to eye from epistoma to vertex, lower third densely, very finely punctured and bearing moderately abundant, rather long setae, lateral thirds each bearing a conspicuous tuft of very long hair (capable of attaining middle of pronotum in some specimens), upper margin on vertex bearing a fringe of long hair; female declivity on basal third distinctly elevated and armed by two or three small tubercles; male frons convex, coarsely punctured, with a weak median carina from epistoma, sometimes attaining upper level of eyes; S Chile; *Nothofagus nervosa*, *Castanea*; 2.7–3.3 mm *fimbriatus* (Schedl)

- Female frons moderately concave eye to eye from epistoma to vertex, lower area eye to eye from epistoma almost to upper level of eyes dull, spongy, setae on spongy area minute to obsolete, upper area apparently smooth, sparsely pubescent, lateral and dorsal margins from epistoma to vertex bearing a dense row of very long, yellow hair; male not seen; Bolivia; 3.5 mm *bolivianus* (Schedl)
- 20(17). Antennal club distinctly longer than scape, in male twice as long as wide, in female almost three times as long as wide; female frons shallowly concave on a circular area eye to eye from distinctly above epistoma to vertex, closely, finely punctured; male lateral elevation on upper declivity bearing three to six small pointed denticles; Argentina to Chile; *Nothofagus dombeyi*; 3.1–3.9 mm *impressus* (Schedl)
- Antennal club in both sexes only slightly longer than scape and slightly longer than wide; female frons shallowly to deeply concave eye to eye from epistoma to vertex, lateral and dorsal margins bearing a dense fringe of very long setae from epistoma to vertex 21
- 21(20). Female frons moderately concave eye to eye from epistoma to vertex, concealed by a peripheral row of very dense, coarse, exceedingly long setae, longest setae on vertex capable of extending far beyond epistoma (1.5 times); pronotum disc smooth, shining; declivity smooth, shining; subapical margin acute, distinctly elevated; declivital setae sparse, rather long; Costa Rica; 2.3 mm *kirkendalli* Wood
- Female frons strongly concave eye to eye from epistoma to vertex; pronotum disc very finely reticulate; declivity reticulate, subapical margin not indicated; declivital setae sparse, minute; Argentina; *Nothofagus dombeyi*; 3.3–3.5 mm *cirratus* Schedl
- 22(13). Body very slender; 3.6 times as long as wide; subapical margin of elytral declivity acutely elevated on median third of elytra width; declivital sulcus rather narrow, shallow, shining, with very few minute punctures; Colombia; 3.0 mm *longicollis* (Schedl)
- Body less slender; subapical margin of elytral declivity rounded; declivital sulcus slightly deeper; wider; with numerous confused micropunctures 23
- 23(22). Male frons strongly, broadly convex eye to eye from epistoma to vertex, female vestiture on lateral thirds below upper level of eyes, short, rather sparse; punctures on elytral disc coarse, deep; Argentina; *Nothofagus dombeyi*; 2.6–2.8 mm *vafar* (Schedl)
- Male frons broadly convex, epistomal transverse impression more distinct, punctures much larger; female frons with central third smooth, shining, lateral thirds ornamented by rather abundant, moderately long setae 24
- 24(23). Frons, pronotum, and elytra reticulate; declivital sulcus not as deep, lateral tubercles smaller (one often absent); glabrous median area on female frons narrower, occupying median sixth of area between eyes, transverse impression weaker, setae more abundant; Chile to Argentina; *Nothofagus dombeyi*; 2.0–2.3 mm *nanus* (Eichhoff)
- Frons, pronotum, and elytra more nearly shining (reticulation weak or absent); declivital sulcus slightly deeper; lateral tubercles larger; glabrous median area on female frons wider, occupying median third of area between eyes, transverse impression deeper; subconcave on median half, setae longer, more uniformly distributed; Chile; 2.9–3.5 mm *consobrinus* (Eichhoff)
- 25(9). Elytral declivity armed but not explanate, lateral apex not extending beyond level of suture apex; lateral margin of declivity armed by one or more rather large spines on lateral margin 26
- Elytral declivity strongly explanate, lateral areas extending well beyond level of suture apex; dorsal costa of explanate process occupying at least half of declivity length 27
- 26(25). Body less slender; 3.0 times as long as wide; antennal scape distinctly longer than club; anterior margin of pronotum broadly procurved and irregularly serrate; basal margin of elytral declivity

- with a small spine on interstriae 1, a slightly larger spine on 3 displaced mesad from lateral crest, crest strongly elevated to form a large, quadrate, spinelike process (its basal width equal to its length); Brazil (Amazonas, Santa Catarina); 2.8 mm *neoadjunctus* (Schedl)
- Body very slender, 3.6 times as long as wide; antennal scape and club about equal in length; anterior margin of pronotum not serrate, shallowly emarginate in median area; spine on interstriae 1 of elytral declivity smaller; spine on 3 on crest (not displaced), produced into a spinelike process twice as long as its basal width; Venezuela (Amazonas); 1.8 mm *assiduus* (Schedl)
- 27(25). Male frons convex from epistoma to near vertex, a moderate, transverse impression above on almost full width, upper margin of impression ornamented by a row of short setae; anterior margin of pronotum very narrowly rounded, armed on median point by a subacute, rather large serration, its apex directed orad; declivital suture at apex armed by a pair of denticles, explanate process rather strongly produced, short, curved mesad; upper end of lateral costa on declivity armed by a rather small, acute denticle; Argentina; *Nothofagus dombeyi*; 4.1–4.5 mm *caliculus* (Schedl)
- Male frons convex on upper third, strongly concave below, female frons less strongly concave below and flattened to vertex, upper margin of female ornamented by a dense row of long setae; anterior margin of pronotum deeply, rather broadly emarginate in both sexes, female with a large denticle directed orad at each end of emargination; costa on lateral margin of declivity extending slightly below or above middle of declivity length 28
- 28(27). Apex of suture armed by a pair of tubercles; lateral costa on declivity ending distinctly above middle of declivity in a cylindrical, projecting spine (almost twice as long as wide); female frons glabrous (including vertex); Argentina; *Nothofagus dombeyi*; 3.8–4.8 mm *naumanni* (Schedl)
- Apex of suture not armed by tubercles, lateral costa arising abruptly at base of lateral apical process, subacute apex of this process somewhat laterally compressed (not cylindrical); female frons concave below, flattened above to vertex; upper margin ornamented by a dense brush of long, yellow setae; Argentina; *Nothofagus dombeyi*; 3.5–4.3 mm *nothofagi* (Schedl)

Gnathotrupes emarginatus Wood, n. sp.

Gnathotrupes emarginatus Wood: Holotype ♂; EPEAN, Belem, Para, Brazil; USNM, Washington, designated below

Diagnosis: Distinguished from *bituberculatus* (Blandford), from S Mexico to Guatemala, by the more deeply punctured declivital striae 1 and 2; by the male declivital interstriae 3 being armed at middle of declivity length by one smaller tubercle; female emargination at apex of elytral suture larger, deeper, the ventrolateral costa ending on lateral margin very slightly below level of tubercle on interstriae 3 in both sexes.

Male: Length 1.7–1.8 mm, 2.8 (female 3.2) times as long as wide; color pale brown, with anterior third of pronotum and elytral declivity darker brown. Frons broadly convex, a very short, subcarinate crest on lower fourth; surface weakly reticulate, punctures rather coarse, deep; vestiture of very sparse, short hair, mostly on epistoma; antennal club as long as scape, widest through segment 3, sutures 1 and 2 weakly procurved, weakly septate except obsolete on central fifth, with setae only at margins, 3 near apex, marked by a row of small setae. Pronotum 1.2 times as long as wide; sides almost straight and parallel on basal half, broadly rounded in front; anterior margin armed by 14 rather coarse serrations;

summit anterior to middle; asperities rather small, close, confused; posterior areas reticulate, punctures minute to obsolete; mostly glabrous, a few short setae at anterior margin. Elytra 1.7 times as long as wide, 1.3 times as long as pronotum; disc occupying 76 percent of elytra length; striae not impressed, punctures very small, distinctly impressed, in rows; interstriae four times as wide as striae, smooth, shining, impunctate. Declivity subtruncate, very steep, divaricate; emargination at suture equal in length to a fourth length of declivity, slightly wider than long; punctures indicated in rows on at least basal half of all striae; interstriae 3 armed by a small, pointed tubercle at middle of declivity length; margin of emargination costate, costa forming a partial circumdeclivital crest from emargination to about interstriae 4 or 5. Vestiture restricted to declivity, forming interstitial rows of short, almost scalelike setae on more than basal half, setae more slender near apex.

Female: Similar to male except frons on median two-thirds densely punctured from epistoma to upper level of eyes, this area bearing a dense tuft of moderately long hair; body more slender; anterior margin of pronotum very weakly serrate; base of declivity rounded, ventrolateral costa ending at level of tubercle on interstriae 3; setae on declivity slightly longer, very slender, hairlike.

Distribution: Brazil (Para).

Type material: The male holotype, female allotype, and 2 paratypes were taken at IPEAN, Belem, Para, Brazil, 1-IV-1970, J.M. & B.A. Campbell. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Gnathotrupes moraviae Wood, n. sp.

Gnathotrupes moraviae Wood: Holotype ♂; Zurqui de Moravia, San Jose Prov., Costa Rica; USNM, Washington, designated below

Diagnosis: Distinguished from *bituberculatus* (Blandford) by the larger size; by the larger antennal club, with sutures 1 and 2 very strongly procurved; by the smaller, less strongly impressed striae punctures on disc and declivity; and by the very different, unarmed elytral declivity.

Male: Length 2.2 mm, 2.8 times as long as wide; color rather dark reddish brown. Frons almost flat on median three-fourths from epistoma to upper level of eyes; surface smooth, shining below, weak reticulation at upper level of eyes, punctures coarse, close; vestiture sparse, of very fine, moderately long hair; antennal club large, longer than scape, sutures 1 and 2 strongly procurved, finely septate, 3 not indicated. Pronotum 1.1 times as long as wide; widest near base, sides moderately arcuate on basal third, distinctly constricted on anterior half, very broadly rounded in front; anterior margin armed by 16 moderate to low serrations; summit posterior to middle of pronotum length; asperities on anterior slope very low, close, confused, almost obsolete at summit; posterior areas weakly, finely reticulate, punctures minute to obsolete; glabrous except moderately long hair at anterior margin. Elytra 1.7 times as long as wide, 1.5 times as long as pronotum; disc occupying 78 percent of elytra length; striae not impressed, punctures small to minute, in rows; interstriae six or more times as wide as striae, surface smooth, brilliantly shining, impunctate except two or three minute punctures at base of declivity on each interstriae. Declivity steep, very broadly convex, margins rounded; striae 1–3 marked by rows of small punctures on upper half, punctures partly confused on lower half, without any tubercles, interstriae with a rounded bulla at basal margin. Mostly glabrous, a few short setae on sides near declivity.

Female: Similar to male except frons more distinctly convex; pronotum with a pair of suberect tufts of hair on the anterolateral angles; declivity less broadly convex, impressions much less distinct.

Distribution: Costa Rica.

Type material: The male holotype was taken at Zurqui de Moravia, San Jose Prov., Costa Rica, VII-1990, P. Hanson. The female allotype is labeled 16 km SSE La Virgen, Heredia, Costa Rica, 1100m, 21-III-2001, Inbio-ALAS, 1 male paratype and 1 female paratype bear the same data as the allotype, and another female paratype is the same but dated 21-IV-2001, Transect 11/TN/09/014.

The holotype and paratypes are in the U.S. National Museum, Washington.

Gnathotrupes colaphus Wood

Plate CLXIII

Gnathotrupes colaphus Wood, 1989:181. Holotype ♀; La Carbonera Experimental Forest, 50 km NW Merida, Merida, Venezuela; USNM, Washington (References in Wood & Bright c1992:1040)

Diagnosis: Distinguished from *crecentus* Wood by the absence of pointed denticles on the declivity in both sexes; by the presence of many confused granules on the declivity in both sexes; and by the slightly larger size.

Male: Length 2.1–2.3 mm, 3.6 times as long as wide; color yellowish brown, elytra darker. Frons moderately convex eye to eye from epistoma to vertex, surface reticulate on lateral thirds and on vertex, smooth, shining on central area below, punctures small, sparse; vestiture of sparse, long hair on lateral thirds and on epistoma; antennal club almost twice as long as scape, widest through segment 3, sutures 1 and 2 finely septate, rather strongly arcuate, 3 indicated by a row of minute setae. Pronotum 1.2 times as long as wide; widest on basal half, rather narrowly rounded in front; anterior margin armed by 6–8 small serrations; summit anterior to middle of pronotum length, asperities low, close, confused; posterior areas weakly reticulate, punctures minute to obsolete; glabrous except a few setae at anterior margin. Elytra 2.2 times as long as wide, 1.8 times as long as pronotum; disc occupying 84 percent of elytra length; striae not impressed, punctures minute to obsolete, mostly in obscure rows; interstriae obscure, eight or more times wider than striae, impunctate, with many weakly impressed irregular lines. Declivity broadly convex, steep, striae not evident, many very small, confused granules rather widely distributed; costal margin acutely, weakly elevated from lower suture to its apex and continuing to lateral margin of declivity, a very short costa branching from costal margin toward lateral margin of declivity. Vestiture of fine hair restricted to declivity, longer and more numerous on lower half.

Female: Similar to male except distinguished by differences on abdominal terga 8 and 9.

Distribution: Venezuela: La Carbonera Experimental Forest 50 km NW Merida, Merida, 20-X-1969, 2500 m, No. 74, xylem of an unidentified log (probably *Nectandra*), SLW.

Notes: The above treatment was based on the type series of 40 specimens.

Gnathotrupes nectandrae Wood

Plate CLXVII

Gnathotrupes nectandrae Wood, 1989:181. Holotype ♂; La Carbonera Experimental Forest 50 km NW Merida, Merida, Venezuela; USNM, Washington (References in Wood & Bright c1992:1041)

Diagnosis: Distinguished from *colaphus* Wood by the larger size; by the small, pointed tubercle at the

base of declivital interstriae 3; by the more broadly flattened, smoother, lower two-thirds of the declivity; and median third of frons distinctly protuberant.

Male: Length 2.8–3.2 mm, 3.2 times as long as wide; color dark reddish brown. Frons convex, median third from epistoma to upper level of eyes distinctly protuberant; surface minutely reticulate laterally below and above eyes, very sparsely, finely punctured on lateral areas below; protuberant area smooth, shining, impunctate; vestiture of sparse hair of moderate length; antenna as in *colaphus*. Pronotum 1.2 times as long as wide; about as in *colaphus*, except anterior margin on median third forming a feebly serrate costa. Elytra as in *colaphus*, except stria punctures more distinctly impressed, clearly in rows. Declivity more broadly, more strongly impressed, basal margin at striae 3 armed by a small, pointed tubercle; lower area smoother, with fewer granules; costa at lateral margin of declivity longer, more distinct.

Female: Similar to male except protuberant area on frons higher, much wider, extending well above upper level of eyes; costa on anterior margin of pronotum higher, less serrate; elytral disc with numerous impressed points; lower declivity less impressed; ventrolateral crest obscure to absent.

Distribution: Venezuela: La Carbonera Experimental Forest 50 km NW Merida, Merida, 28-IV-1970, 2500 m, No. 449, *Nectandra*, SLW, also same data except taken 9-XII-1969, No. 176, from an unidentified log (presumed to be *Nectandra* sp.), SLW.

Notes: The above treatment was based on the type series of 27 specimens.

Gnathotrupes longiusculus (Schedl)

Gnathotrupes longiusculus (Schedl), 1951:121 (*Gnathotrichus*). Holotype ♂; Tierra del Fuego, Viamonte, Argentina; NHMW, Wien (Synonymy and references in Wood & Bright c1992:1041)

Gnathotrupes ciliatus Schedl, 1975:4. Holotype ♀; Nahuel Huapi National Park, Argentina; NHMW, Wien

Diagnosis: Remotely allied to *pustulatus* Schedl, distinguished by the smaller size; by the more slender body form; and by the very different elytral declivity, as described below.

Male: Length 2.6 mm, 3.2 (female 3.6) times as long as wide; color reddish brown. Frons convex above, moderately transversely impressed on lower half, a feeble median carina at and slightly above epistoma; surface reticulate, punctures rather sparse, moderately large; vestiture of fine, sparse, rather short, inconspicuous hair; both antennal clubs missing from type. Pronotum 1.1 times as long as wide; sides almost straight and parallel on basal half, rather broadly rounded in front; anterior margin armed by about 12 low serrations; summit at middle; asperities rather small, close, confused; posterior areas reticulate, punctures rather small, moderately close; minute sparse hair on disc, several longer setae on or near anterior and lateral margins. Elytra 2.3 times as long as wide, 1.9 times as long as pronotum; disc

occupying basal 73 percent of elytra length; disc partly smooth, with impressed irregular lines intermixed with small areas of reticulation, punctures small, in obscure stria rows near suture, confused on lateral areas. Declivity steep, broadly convex, weakly sulcate on basal half on median third; reticulate, basal third of interstriae 2 (?) armed by three closely spaced tubercles, 1 minute, 2 conical, pointed, height equal to basal width, three to four times larger than 1, with 3 larger than 2, pointed, conical, lower third with a row of three or more minute tubercles, lateral areas with a few minute, confused granules.

Female: Similar to male except antennal club slightly longer than scape, suture 1 near base weakly procurved, 2 septate, much more strongly, subangulately procurved, almost attaining middle of club length; frons moderately concave eye to eye from epistoma to vertex, marginal fringe of setae dense, very long mandible to mandible, longest setae on vertex capable of extending to epistoma, floor of concavity shining, densely, moderately punctured, setae fine, rather short; pronotum with serrations on anterior margin almost obsolete; declivity with minor tubercles at base absent.

Distribution: Argentina: Tierra del Fuego, Viamonte.

Notes: The above treatment was based on the male holotype of *Gnathotrichus longiusculus* Schedl and the female holotype of *Gnathotrupes ciliatus* Schedl.

Gnathotrupes pustulatus Schedl

Plate CLXVIII

Gnathotrupes pustulatus Schedl, 1975:9. Holotype ♀; Nahuel Huapi National Park, Argentina; NHMW, Wien (References in Wood & Bright c1992:1042)

Diagnosis: Distinguished by the normal, more coarsely punctured elytral disc; by the deeper transverse impression on the lower male frons; and by the different elytral sculpture, as described below.

Male: Length 3.3 mm, 3.1 times as long as wide; color of pronotum reddish brown, elytra brown. Frons convex above, moderately transversely impressed from epistoma almost to upper level of eyes; surface strongly reticulate, convex area rather finely, closely punctured, impressed area much more finely punctured; vestiture of short, fine hair, longer on epistoma; antenna as in *herbertfranzi* (Schedl), except suture 3 not indicated. Pronotum 1.2 times as long as wide; widest on basal half, sides on basal half almost straight and parallel, rather broadly rounded in front; armed by 14 rather coarse serrations; summit slightly behind middle of pronotum length; asperities small, close, confused; posterior areas reticulate, punctures small, rather close; glabrous except sparse setae on sides and anterior margin. Elytra 1.9 times as long as wide, 1.6 times as long as pronotum; disc occupying 74 percent of elytra length; striae not indicated; surface marked by many weakly impressed irregular lines, punctures confused, small, close, shallow. Declivity steep, broadly convex,

weakly sulcate on median third of basal half; a pair of basally constricted, blunt, subglobular spines on lateral margin distinctly above middle of declivity; a small, weakly elevated spine on interstriae 2 below major spine; an elevated crest on interstriae 8 laterad from interstriae 3; surface obscured by frass, apparently of confused punctures and very small granules. Vestiture of minute hair on disc and sides slightly longer on declivity, including surface of major spine.

Female: Similar to male except frons strongly concave eye to eye from epistoma to vertex, concave area smooth, shining, with sparse, fine hair; dorsal margin above eyes ornamented by a dense brush of very long hair on lateral thirds, shorter and less dense on median third; major upper spine on declivity present, poorly formed.

Distribution: Argentina to Chile.

Argentina: Nahuel Huapi National Park, 22-IX-1971, *Nothofagus dombeyi*, K. Naumann (holotype, 2 paratypes), same data except 30-IX-1971 (allotype, 2 paratypes); Rio Negro.

Chile: Pto. Varas, 24-II-1945, E.A. Chapin.

Notes: The above treatment was based on the female holotype, male allotype, 2 male and 2 female paratypes and 1 other specimen from Argentina, and 1 male from Chile.

Gnathotrupes herbertfranzi (Schedl)

Plate CLXV

Gnathotrupes herbertfranzi (Schedl), 1973:147 (*Gnathotrichus*). Holotype ♂; Malalcahuello, S Chile; NHMW, Wien (References in Wood & Bright c1992:1040)

Diagnosis: Strial punctures confused on disc; declivity moderately sulcate, lateral margin of male armed near middle by one large, blunt, subglobular spine; male frons convex, vestiture inconspicuous.

Male: Length 3.0–3.4 mm, 3.0 times as long as wide; color of pronotum and most of elytra very dark brown, basal half of disc from about striae 6 to suture pale yellowish brown. Frons broadly convex, transversely, weakly impressed on lower third, epistoma weakly elevated; surface weakly reticulate, punctures rather sparse, moderately coarse; vestiture of fine, sparse, long hair on and near epistoma; antennal club slightly longer than scape, widest through segment 3; sutures 1 and 2 moderately arcuate, finely septate, 3 obscure, not clearly marked by setae. Pronotum 1.14 times as long as wide; widest on basal half, sides weakly arcuate on basal half, very broadly rounded in front; anterior margin armed by 16 rather coarse serrations; summit at middle; asperities on anterior slope coarse, close, confused; posterior areas reticulate, punctures very small, rather close; vestiture limited to sides and anterior margin. Elytra 1.8 times as long as wide, 1.7 times as long as pronotum; disc occupying basal 73 percent of elytra length; striae not indicated, small punctures and impressed points rather numerous, confused, surface minutely reticulate; suture on more

than posterior half distinctly elevated, area of interstriae 2 shallowly sulcate. Declivity steep, moderately bisulcate on median half of declivity width; sculpture of sulcus similar to posterior disc; lateral margin near middle of declivity length armed by a large, blunt, basally constricted, subglobular spine; ventrolateral area rounded (no crest). Vestiture of sparse, short hair on lateral areas on and near declivity.

Distribution: Chile: Malancahuello, S Chile (type); Montealto, Magellanes, 3-XI-1977, *Nothofagus pumilio*, L. Johnson; Antillanca, 18-II-1962, *N. pumilio*.

Notes: The above treatment was based on the male holotype and 4 other males from Chile.

Gnathotrupes electus (Wood)

Gnathotrupes electus (Wood), 1968:10 (*Gnathotrypanus*). Holotype ♀; Rincon de Osa, Puntarenas, Costa Rica; USNM, Washington (References in Wood & Bright c1992:1040)

Diagnosis: Remotely allied to *nanus* (Eichhoff) distinguished by the obscure, strongly procurved antennal suture 1, suture 2 equally procurved and almost obsolete; by the reticulate, coarsely punctured frons that is also protuberant in the female; by the brightly shining elytral disc; and by the very different elytral declivity.

Male: Length 2.0–2.3 mm, 2.6 times as long as wide; color reddish brown, elytra darker. Frons moderately, broadly convex, eye to eye from epistoma to vertex, a short median crest on epistoma; surface reticulate, punctures coarse, deep, close; vestiture short, sparse, hairlike, very fine; antennal club very slightly longer than scape, subcircular in outline, densely covered by minute pubescence, suture 1 strongly procurved, feebly septate, 2 obscure, strongly procurved. Pronotum 1.13 times as long as wide; sides almost straight and parallel on basal half, rather broadly rounded in front; anterior margin a feebly serrate continuous costa; summit slightly anterior to middle of pronotum length; asperities rather small, close, confused; posterior areas reticulate, punctures minute, rather close; almost glabrous except anterolateral areas reticulate, punctures minute, rather close; almost glabrous except anterolateral angles bearing near margin a small tuft of moderately long hair. Elytra 1.4 times as long as wide, 1.2 times as long as pronotum; disc occupying 82 percent of elytra length; disc smooth, shining, with numerous, small, close, confused punctures, some areas with punctures in obscure rows. Declivity very steep, moderately sulcate on median half; sulcus feebly reticulate, apparently with many obscure, impressed points, lateral convexities moderately high, broadly rounded, mesal margin of crest armed on upper two-thirds by four small, pointed denticles of about equal size. Vestiture confined to declivity and near, consisting of rather numerous minute setae, and erect, stout setae each about two to three times longer than microsetae.

Female: Similar to male except frons rather strongly protuberant; tuft of hair absent on anterolateral angles

of pronotum; declivital sulcus deeper and wider than in male.

Distribution: Costa Rica: Rincon de Osa, 11-VIII-1966, 30 m, unidentified shrub, SLW (type); Heredia, Est. Biol. La Selva Arboretum, 14-IX-1994, branch of *Cordia alliodora*, K.H. Tunes.

Biology: Boring in the xylem of a fallen branch.

Notes: The above treatment was based on the male holotype and on 1 male and 1 female, all from Costa Rica.

Gnathotrupes longipennis (Blanchard)

Plate CLXVI

Gnathotrupes longipennis (Blanchard), 1851:429 (*Tomicus*). Holotype, sex?; Cercanias de Santiago, Chile; not found (Synonymy and references in Wood & Bright c1992:1040–1041)

Gnathotrichus corthyliformis Schedl, 1964:321. Lectotype ♀; Chile, Valdivia; NHMW, Wien, designated by Schedl 1979:66

Gnathotrichus castaneus Schedl, 1972:145. Holotype ♂; Chile; NHMW, Wien (References in Wood & Bright c1992:1040). *New synonymy*

Gnathotrichus constrictus Schedl, 1975:6. Holotype ♂; Argentina, Nahuel Huapi National Park; NHMW, Wien

Diagnosis: Likely to be confused with *consobrinus* (Eichhoff) to which it is entirely unrelated, but distinguished by the less strongly impressed elytral declivity, with lateral margin armed by five or more small denticles; by the male epistoma with a small, median carina; and by the female frons being elaborately sculptured and ornamented by setae (described below).

Male: Length 3.2–3.4 mm, 3.1 times as long as wide; color reddish brown. Frons moderately, transversely impressed from epistoma to upper level of eyes on median three-fourths, surface reticulate on impressed area, convex and shining above, punctures small on impressed area, slightly larger above; a shining, subacutely elevated median carina from epistomal margin half distance to upper level of eyes; vestiture of sparse, minute hair; longer on epistoma; antennal club 1.3 times as long as wide, longer than scape, sutures 1 and 2 weakly procurved, septate. Pronotum 1.2 times as long as wide; widest near base, sides on basal half weakly arcuate, converging slightly toward rather narrowly rounded anterior margin; anterior margin armed by 8 serrations, median pair slightly larger; summit at middle; asperities small, close, confused; posterior areas reticulate or subreticulate, punctures small, shallow, not sharply defined; glabrous, a few setae on or near lateral and anterior margins. Elytra 1.8 times as long as wide, 1.3 times as long as pronotum; disc occupying basal 80 percent of elytra length; surface smooth, shining, punctures small, close, strongly confused. Declivity steep, reticulate, moderately sulcate on slightly less than median half, lateral margin of impressed area armed by about five (rarely three to six) small, pointed tubercles of about equal size (on interstriae 2? or 3?), interstriae 1 with one to three near apex, lateral areas beyond 3 with about six small, confused granules. Vestiture on disc and sides minute to obsolete, lateral areas of declivity and adjacent sides with a few setae.

Female: Similar to male except: frons flat to weakly concave from vertex to upper level of eyes, then continuing on sides to epistoma, triangular area on median half to upper level of eyes strongly convex, its surface smooth, shining, impunctate; golden vestiture on flattened area of sides and above of fine, moderately abundant hair, peripheral margin above eyes dense, very long, tips of longest setae capable of attaining epistoma. Pronotum longer, 1.4 times as long as wide, anterior margin more broadly rounded.

Distribution: Argentina to Chile.

Argentina: Nahuel Huapi National Park.

Chile: “Chili,” Chapuis specimen, det. Eichhoff; Cosque Juinteno, V22 pso, 29-V-1938, J. Solervicens; 10 km E Zapallar, 23-IX-1962, P. Aconcaqua; Laguna Espejo P.N. (near Valdivia); Rio Blanco Curacautin, 27-31-I-1959, Pena.

Notes: *Tomicus longipennis* Blanchard (*in* C. Gay 1852:429) was named from a single male that was figured (*Historia fisica y politica de Chile, Museo de historia natura, vol. 5, lam. 26, fig. 4*). It was described as “Long. 1 lin. 2/3,” and “con algunos diminutos tuberculillos y la parte sutural entrada de manera que forma un hoyuelo mediano profundo en la extremidad de los elytros.” In his review of this species, Eichhoff (1878: 408–409) described the species fully and identified a specimen (sex?) now in the Chapuis material (IRSNB, Brussels) as *Gnathotrichus longipennis* (Blanchard)? This species has been incorrectly associated with another species named by Eichhoff (1878:409–410) as *Gnathotrichus consobrinus* Eichhoff, a distantly allied species. The lateral crest of the declivity on *longipennis* is armed by three to six tubercles. Apparently, because the Chapuis specimen has only four tubercles on each side, Eichhoff was uncertain of the identity. Because this specimen is the most nearly authentic existing specimen available, I have used it as the basis for this species. A presumed female in the Schedl material (NHMW, Wien), labeled “*Gnathotrichus longipennis* Eichhoff coll. Blandford,” is missing the head and prothorax and has six pair of tubercles on the lateral margins of the declivity. It appears to be a female and quite obviously is conspecific with the Chapuis specimen. The above treatment was based on the male identified by Eichhoff, on the male holotype of *Gnathotrichus castaneus* Schedl, on the male holotype and my homotype of *constrictus* Schedl, on the female holotype and my homotype of *corthyliformis* Schedl, and on 2 other males and 1 other female from Chile. The holotype of *constrictus* is from Argentina, the others from Chile.

Gnathotrupes velatus Schedl

Gnathotrupes velatus Schedl, 1975:10. Holotype ♀; Nahuel Huapi National Park, Argentina; NHMW, Wien, name selected by first reviser choice (References in Wood & Bright c1992:1042)

Gnathotrupes solidus Schedl, 1975:8. Holotype ♂; Nahuel Huapi National Park, Argentina; NHMW, Wien (References in Wood & Bright c1992:1042). *New synonymy*

Diagnosis: Distinguished from *longipennis* (Blanchard) by the larger size; by the callus on the median third of the male epistoma (no carina); by the strongly impressed female frons; and by the deeply emarginate anterior margin of the female pronotum.

Male: Similar to female except frons slightly convex, surface coarsely punctured, median third of epistoma forming a definite callus; frons almost glabrous; anterior margin of pronotum procurved, serrate.

Female: Length 3.7–4.0 mm, 3.0 times as long as wide; color very dark reddish brown. Frons strongly concave eye to eye from epistoma to vertex, an obtuse, median crest on lower half; surface rather coarsely punctured, shining, vestiture of fine, short, sparse hair on floor of concave area, a short portion of peripheral crest slightly above eye bearing a dense penicillate tuft of very long setae, remainder of crest unadorned; antennal club small, slightly shorter than scape. Pronotum 1.2 times as long as wide; outline quadrate, with median third of anterior margin conspicuously emarginate; sides almost straight, not converging cephalad; anterior area not declivous, anterior third finely, closely asperate, posterior two-thirds smooth, reticulate, punctures minute, numerous; several setae on lateral part of asperate area. Elytra 1.7 times as long as wide, 1.5 times as long as pronotum; disc occupying 78 percent of elytra length; disc mostly smooth, some small reticulate areas, punctures small, confused, indistinct. Declivity very steep, shallow sulcus less than half as wide as elytra; lateral crests broadly rounded, moderately elevated, crest armed by five to eight small, pointed tubercles on upper two-thirds of declivity, most of sulcus reticulate, numerous minute, confused punctures. Vestiture sparse on sides near declivity; minute setae sometimes present on disc and all of sides.

Distribution: Argentina: Nahuel Hupai National Park, 22-IX-1971, *Nothofagus dombeyi*, K. Naumann (holotype, allotype, paratypes of *velatus*), same data except 26-IX-1971 (holotype of *solidus*); Reserve Nacional Cerro Castillo, Cogniaque, Chile, *Nothofagus dombeyi*, J. Augayo.

Notes: The above treatment was based on the female holotype, male allotype, and 2 male and 2 female paratypes of *velatus*, and on the male holotype of *solidus*.

Gnathotrupes barbifer Schedl

Gnathotrupes barbifer (Schedl), 1967:13 (*Gnathotrichus*). Holotype ♂; Chiloe, Chile; NHMW, Wien (References in Wood & Bright c1992:1039)

Gnathotrupes similis Schedl, 1975:10. Holotype ♀; Nahuel Huapi National Park, Argentina; NHMW, Wien (References in Wood & Bright c1992:1042). *New synonymy*

Diagnosis: Distinguished from *velatus* Schedl by having only four tubercles on the lateral margin of the declivity; by the weakly convex female frons, with different vestiture; and by the procurved anterior margin of the female pronotum, described below.

Male: Similar to female except frons broadly convex from epistoma to a weak, transverse impression on lower

half of area below upper level of eyes; surface minutely reticulate, punctures small, shallow, obscure; vestiture of short, sparse, inconspicuous hair; anterolateral angles of pronotum bearing a tuft of hair.

Female: Length 3.3–3.7 mm, 2.8 times as long as wide; color reddish brown. Frons moderately convex; median half brightly shining, impunctate, lateral thirds slightly impressed and bearing rather abundant, moderately long setae of about equal length from epistoma apparently to vertex, peripheral fringe above apparently longer; antennal club rather large, obovate, longer than scape, sutures 1 and 2 moderately procurved. Pronotum 1.08 times as long as wide; widest near base, sides on basal half weakly arcuate, converging slightly toward broadly rounded anterior margin; anterior margin armed by about 20 small serrations; summit indefinite, near middle of pronotum length; asperities small, numerous, confused; posterior areas reticulate, punctures very small, distinct, close; vestiture confined to sides and asperate area, of fine, moderately long hair. Elytra 1.7 times as long as wide, 1.6 times as long as pronotum; disc occupying 80 percent of elytra length; disc smooth, shining, some reticulation near suture at base of declivity, punctures small, numerous, confused. Declivity very steep, broadly, moderately sulcate, width of sulcus more than half width of elytra; sutural interstriae weakly elevated, armed by a dense row of minute, rounded tubercles, face of declivity with small, abundant, close punctures, lateral margins moderately high, crest narrowly rounded, armed by four to six moderately coarse pointed denticles. Vestiture on disc and sides minute to obsolete, on declivity and margins of fine, long, rather abundant hair.

Distribution: Argentina to Chile.

Argentina: Nahuel Huapi National Park, 30-IX-1971, *Nothofagus dombeyi*, K. Naumann.

Chile: Chiloe.

Notes: The above treatment was based on the male holotype of *Gnathotrichus barbifer* Schedl and on the female holotype, male allotype, 1 male paratype and 1 female paratype, and 1 other male of *Gnathotrupes similis* Schedl, all bearing type data.

Gnathotrupes fimbriatus (Schedl)

Plate CLXIV

Gnathotrupes fimbriatus (Schedl), 1955:259 (*Gnathotrichus*). Lectotype ♀; Chile, P. Arenas, Sud-Chile, Termas de Puyehue; NHMW, Wien, designated by Schedl 1979:152 (References in Wood & Bright c1992:1040)

Gnathotrichus frontalis Schedl, 1972:146. Holotype ♂; Sudchile, Puerto Puyuhuapi; NHMW, Wien (References in Wood & Bright c1992:1040). *New synonymy*

Diagnosis: Distinguished from *longipennis* (Blanchard) by the reticulate surface of the elytral disc; male frons weakly convex, coarsely, deeply punctured, subglabrous, female frons strongly concave eye to eye from epistoma to vertex, concave area with moderately abundant, rather long hair, lateral thirds of epistoma bearing a penicillate tuft of very long setae.

Male: Length 2.7–3.3 mm, 3.2 times as long as wide; color reddish brown. Frons rather weakly convex; surface reticulate, coarsely, deeply, closely punctured; a short, weak, median crest extending dorsad from epistoma; vestiture minute, mostly on lower half and epistoma; antenna about as in *longipennis*. Pronotum 1.2 times as long as wide; sides on basal half almost straight and parallel, broadly rounded in front; anterior margin armed by 16 coarse serrations; asperities rather small, close, confused; summit anterior to middle of pronotum length; posterior areas reticulate, rather finely punctured, punctures moderately close; glabrous except sparse hair on sides and anterior margin. Elytra 1.9 times as long as wide, 1.6 times as long as pronotum; disc occupying basal 78 percent of elytra length; surface reticulate, punctures small, confused, close. Declivity steep, moderately sulcate on median half; surface somewhat shagreened, a few impressed points; interstriae 3 armed by two pointed tubercles, 1 on basal fourth, 2 slightly below middle of declivity length, space between pair 2 very slightly greater than pair 1; surface shining, few impressed points; some specimens with one or two small denticles anterior to tubercle 1; a few small, rounded tubercles on broadly rounded lateral areas. Almost glabrous, a few setae in lateral areas near base of declivity.

Female: Similar to male except frons strongly concave eye to eye from epistoma to vertex, concave area with moderately abundant, fine, long setae, longest setae above capable of attaining two-thirds distance toward epistoma; lateral thirds of epistoma bearing a penicillate tuft of very long setae extending beyond vertex; declivital sulcus narrower, deeper, reticulate, lateral crest on upper half of interstriae 3 distinctly elevated and armed by four small, pointed tubercles.

Distribution: Chile: Cherquenco, I-1954, L.E. Pena; Puerto Puyuhuapi, leg. H. Schwabe; Valdevia, 10-IV-1988, *Nothofagus nervosa*, A. Aguilar.

Notes: The above treatment was based on 11 males and 9 females from Chile, including the female holotype of *Gnathotrichus fimbriatus* Schedl and the male holotype of *Gnathotrichus frontalis* Schedl.

Gnathotrupes bolivianus Schedl

Gnathotrupes bolivianus Schedl, 1951:126. Holotype: ♀; Bolivia; NHMW, Wien (References in Wood & Bright c1992:1040)

Diagnosis: Distinguished from female *fimbriatus* (Schedl) by the less strongly concave frons, the lower area dull, spongy, with setae on spongy area minute to obsolete; by the dorsal, peripheral margin being densely pubescent, and very long; and by the setae on lateral epistoma part of peripheral fringe not forming a penicellate tuft.

Female: Length 3.5 mm, 3.3 times as long as wide; color reddish brown. Frons moderately concave eye to eye from epistoma to vertex, area from epistoma to upper level of eyes yellowish, spongy, setae minute to obsolete, upper area apparently smooth, shining, reddish

brown, setae sparse, moderately long; peripheral fringe of long hair from lateral end of epistoma to vertex yellow, very long, tips of longest setae above capable of extending beyond epistoma; antennal club moderately large, sutures weakly procurved. Pronotum 1.2 times as long as wide; sides almost parallel, feebly arcuate on posterior half, distinctly constricted on anterior half, very broadly rounded in front; anterior margin armed by about 20 low serrations; summit indefinite, anterior to middle of pronotum length; asperities rather small, close, confused; posterior areas reticulate, punctures rather fine, close; vestiture confined to lateral and anterior margins or near, very sparse. Elytra 2.1 times as long as wide, 1.8 times as long as pronotum; disc occupying basal 86 percent of elytra length; disc smooth, shining, punctures small, rather deep, those near suture in obscure rows. Declivity very steep, sulcus moderately deep, lower area slightly wider than half width of elytra; sulcus almost smooth, shining, punctures minute, confused; subapical margin acutely elevated almost to lateral extent of sulcus; lateral margins moderately elevated on basal half, crest on basal half armed by a row of three to four small, bluntly pointed tubercles, impressed area on lower half much wider, lateral crests very broadly rounded. Vestiture of sparse hair on sides near declivity.

Distribution: Bolivia: "Bolivien."

Notes: The above treatment was based on the female holotype.

Gnathotrupes impressus (Schedl)

Plate CLXV

Gnathotrupes impressus (Schedl), 1975:17 (*Gnathoglochinus*). Holotype ♀; Nahuel Huapi National Park, Argentina; NHMW, Wien, selection by first reviser choice (References in Wood & Bright c1992:1040)

Gnathotrupes pauciconcavus Schedl, 1975:7. Holotype ♀; Nahuel Huapi National Park, Argentina; NHMW, Wien (Wood & Bright c1992:1042). *New synonymy*

Diagnosis: Distinguished from *kirkendalli* Wood by the larger, less slender body form; by the reticulate areas of the elytral disc; by the female frons; and by the very slender female antennal club.

Male: Similar to female except frons weakly convex, smooth, shining, punctures rather small, moderately close; surface glabrous, a few setae on lateral thirds of epistoma; declivital sulcus much more strongly impressed on basal third, more strongly, more broadly impressed on lower half; lateral convexities on basal third much higher, armed by about six small denticles of about equal size.

Female: Length 3.1–3.9 mm, 3.0 times as long as wide; color dark brown. Frons with a bituberculate, acutely elevated transverse crest immediately above epistoma, a broad, circular, shallowly concave area eye to eye from crest to vertex, concave area finely, densely, uniformly punctured and uniformly ornamented by abundant, fine, moderately long hair; setae more abundant and very slightly longer on dorsal margin; antennal

club much longer than scape, 2.5 times as long as wide; sutures 1 and 2 weakly septate on marginal thirds, strongly procurved, 2 not attaining middle of club length, 3 not indicated; lateral apical outline of club subacute. Pronotum 1.12 times as long as wide, subquadrate in outline; anterior margin armed by 18 feeble serrations; summit anterior to middle of pronotum length; asperities small, numerous, confused; posterior areas reticulate, punctures small, close, distinct. Elytra 1.9 times as long as wide, 1.7 times as long as pronotum; disc occupying 72 percent of elytra length; surface mostly smooth, shining, reticulate near suture; punctures small, distinct, confused. Declivity rather steep, strongly, very broadly impressed, lateral crest moderately elevated from interstriae 3 to middle of declivity length, then declining to apical margin; lateral crest armed on basal half by a row of about six small, pointed tubercles (lower three positioned mesad of lateral crest); impressed area from base to apex strongly reticulate, several minute granules on lower fourth; without a carina branching dorsad from costal margin. Several hairlike setae on lower fourth of face of declivity, and many setae on sides to base of elytra.

Distribution: Argentina to Chile.

Argentina: Nahuel Huapi National Park.

Chile: Pto. Varas, 24-II-1945, E.A. Chapin.

Notes: The above treatment was based on 1 female from Chile that was compared by me directly to the female holotype.

Gnathotrupes kirkendalli Wood, n. sp.

Plate CLXVI

Gnathotrupes kirkendalli Wood: Holotype ♀; Zurqui de Moravia, San Jose Prov., Costa Rica; USNM, Washington

Diagnosis: Distinguished from *cirratus* Schedl by the smaller, more slender body form; by the smooth, shining pronotum and elytral disc; and by the very different female frons.

Female: Length 2.3 mm, 3.3 times as long as wide; color dark brown. Frons flat to shallowly concave eye to eye from epistoma to vertex; surface almost smooth, apparently with close, shallow, rather coarse punctures (concealed by vestiture); peripheral fringe on upper margin to eye ornamented by a dense row of coarse, very long setae, setae on vertex capable of attaining epistomal margin, those on lateral areas much longer; antennal club much longer than scape, slightly longer than wide, sutures 1 and 2 weakly septate, strongly procurved, 3 marked by a row of setae at apex. Pronotum 1.3 times as long as wide; widest near base, sides almost straight, converging slightly toward broadly rounded anterior margin; anterior margin armed by a weak costa on more than median half; summit anterior to middle of pronotum length; asperities rather low, confused, restricted to anterior third; posterior areas feebly reticulate, punctures minute; vestiture of sparse, short hair on sides and anterior margin. Elytra 1.9 times as long as wide, 1.4 times

as long as pronotum; disc occupying 80 percent of elytra length; disc smooth, shining, punctures very small, confused. Declivity steep, moderately sulcate, sulcus on basal fourth occupying median half, median two-thirds on lower fourth; lateral margin moderately elevated on upper half, crest armed by two small, pointed tubercles, tubercle 2 at middle of declivity length, 1 closer to 2 than to suture; a short costa from costal margin extending dorsad on crest of declivity margin; lower half of declivity impression very wide, smooth, brightly shining, minute punctures mostly obsolete. About six hairlike setae on sides near lower declivity.

Distribution: Costa Rica.

Type material: The female holotype was taken at Zurqui de Moravia, San Jose Prov., Costa Rica, VI-1995, 1600 m, P. Hanson. The holotype is in the U.S. National Museum, Washington.

Gnathotrupes cirratus Schedl

Gnathotrupes cirratus Schedl, 1975:5. Holotype ♀; Nahuel Huapi National Park, Argentina; NHMW, Wien (References in Wood & Bright c1992:1040)

Diagnosis: Distinguished from *kirkendalli* Wood by the larger size; by the more strongly concave female frons; by the reticulate pronotum and elytral declivity; and by the shorter setae on the female frons.

Male: Similar to female except frons rather weakly convex on median three-fourths, a weak, transverse impression on lower half of area below upper level of eyes, surface reticulate, punctures small below, moderately large above, a weak, obtuse median carina from epistoma one-third distance to upper level of eyes; glabrous except sparse, long hair on and near epistoma; declivity rather narrowly, strongly sulcate on basal fourth, becoming very broadly impressed on apical half, surface reticulate, punctures minute, obscure, lateral margins with one large, blunt spine on crest, a second, blunt, cylindrical spine on face below spine 1.

Female: Length 3.3–3.5 mm, 3.5 times as long as wide; color dark reddish brown. Frons deeply, broadly concave eye to eye from epistoma to vertex, floor of concave area concealed by sparse setae of moderate length on floor of concave area and a peripheral row of long in-curved setae, tips of longest setae on vertex capable of almost attaining epistoma; antennal club rather small, slightly longer than scape, outline ovate, sutures 1 and 2 rather strongly procurved. Pronotum 1.09 times as long as wide; widest near base, sides weakly arcuate, converging slightly on anterior half, broadly rounded in front; anterior margin feebly serrate, about 16 weak serrations; summit indefinite, anterior to middle; asperities small, close, confused; posterior areas reticulate, punctures very small, rather close; vestiture sparse on sides and near anterior margin on anterior half. Elytra 2.0 times as long as wide, 1.7 times as long as pronotum; disc occupying basal 80 percent of elytra length; disc very weakly reticulate in most areas, punctures small, obscure, confused. Declivity

shallowly sulcate on median third of basal fourth, very broadly convex on apical half; face reticulate, tubercle 1 on interstriae 2/3 on crest at base, tubercle 2 below 1 about one-third of declivity length from base, these tubercles of equal size, moderately large, pointed, their length about equal to their basal width; two minor tubercles near apex on interstriae 2. Vestiture very sparse on sides near declivity.

Distribution: Argentina: Nahuel Huapi National Park, 30-IX-1971, *Nothofagus dombeyi*, K. Naumann (holotype, allotype, paratype), same data except 10-IX-1971 (3 paratypes).

Notes: The above treatment was based on the female holotype, male allotype, and 2 male and 2 female paratypes.

Gnathotrupes longicollis (Schedl)

Gnathotrupes longicollis (Schedl), 1951:120 (*Gnathotrichus*). Holotype ♀; Colombia; NHMW, Wien (References in Wood & Bright c1992:1040)

Diagnosis: Distinguished from *kirkendalli* Wood by the more strongly procurved, serrate anterior margin of the pronotum; by the strongly reticulate pronotum; and by the different declivity as described below.

Female: Length 3.0 mm, 3.4 times as long as wide; color reddish brown. Frons concealed by pronotum (without setae exceeding epistoma); antennal club rather small, sutures 1 and 2 rather weakly procurved. Pronotum 1.4 times as long as wide; sides on basal half straight and parallel, anterior margin procurved, rather broadly rounded, armed by 12 low serrations; summit anterior to middle; asperities moderately coarse, close, confused; posterior areas strongly reticulate, punctures minute, moderately close; sparse setae on asperate area. Elytra 2.3 times as long as wide, 1.7 times as long as pronotum; disc occupying 76 percent of elytra length; disc smooth, brightly shining, small punctures mostly in rows. Declivity steep, sulcus on basal fourth rather weak, narrow, much more broadly impressed on lower half, occupying more than mesal half; impressed area smooth, shining, minute punctures in apparent rows marking striae 1 and 2, interstriae 3 on middle third feebly elevated, a small, pointed tubercle at each end of elevation, lateral area with a row of three minute tubercles on upper half; apical sixth of suture acutely, distinctly elevated, crest continuing on as an acutely elevated subapical margin then ending as it curves dorsad about level of interstriae 3. Long setae arise from all five tubercles, two from near apical margin and about 10 from lateral margin.

Distribution: Colombia: "Nisser; Schh.; Columbia. *Gnathotrichus* sp. Z s 1 No. 483, 3535."

Notes: The above treatment was based on the female holotype.

Gnathotrupes vafer (Schedl)

Gnathotrupes vafer (Schedl), 1975:3 (*Gnathotrichus*). Holotype ♀; Nahuel Huapi National Park, Argentina; NHMW, Wien (References in Wood & Bright c1992:1042)

Diagnosis: Distinguished from *nanus* (Eichhoff) by the larger size; by the more strongly convex frons; by the shorter setae on the female frons; and by the larger punctures on the elytral declivity.

Male: Similar to female except frons less strongly convex, with lateral punctures and with a median callus on epistoma; a small tuft of hair on anterolateral angle of pronotum.

Female: Length 2.6–2.8 mm, 3.0 times as long as wide; color dark reddish brown. Frons strongly, broadly, evenly convex eye to eye from epistoma to vertex; surface minutely reticulate, central half impunctate, lateral and dorsal areas with a few sparse, small punctures; sparse, fine moderately long setae on punctured areas; antennal club as long as scape, subcircular in outline, sutures 1 and 2 septate, weakly procurved. Pronotum 1.1 times as long as wide; sides straight and parallel on basal half, rather strongly procurved in front; anterior margin armed by about 20 low serrations; asperities rather coarse, close, confused; posterior areas strongly reticulate, punctures small, shallow, rather close; disc occupying basal 74 percent of elytra length; disc smooth, shining, punctures rather coarse, deep, confused. Declivity very steep, sulcus very shallow on basal fourth, much broader below; face of declivity moderately impressed, surface smooth, shining, punctures small, distinct, confused, and with numerous, confused impressed points; lateral convexities broadly rounded, armed by two rather coarse, pointed tubercles, one at base on interstriae 3?, two at middle on declivity and below 1 (each slightly longer than its basal width). Vestiture sparse, on sides and posterior disc near declivity.

Distribution: Argentina: Nahuel Huapi National Park, 22-IX-1971, *Nothofagus dombeyi*, K. Naumann.

Notes: The above treatment was based on the female holotype, male allotype, and 1 male and 3 female paratypes.

Gnathotrupes nanus (Eichhoff)

Gnathotrupes nanus (Eichhoff), 1878:15 (*Gnathotrichus*). Holotype ♀; America meridionalis, Chile; Hamburg Museum, lost (References in Wood & Bright c1992:1041)

Gnathotrichus nanulus Schedl, 1972:149. Holotype ♂; Argentina: F.B.E. 808, Nahuel Huapi National Park; NHMW, Wien (References in Wood & Bright c1992:1041). *New synonymy*

Diagnosis: Distinguished from *consobrinus* (Eichhoff) by the smaller size; by the reticulate frons, pronotum, and elytra; and by the narrower glabrous median area on the female frons.

Male: Similar to female except frons broadly convex, small, median callus on epistoma, vestiture small to absent above, moderately long toward epistoma; declivital tubercles slightly larger.

Female: Length 2.0–2.3 mm, 3.0 times as long as wide; color reddish brown. Frons weakly convex from epistoma to well above eyes; median third impunctate, brightly shining from epistoma to above eyes, lateral thirds subshining, closely, densely punctured, ornamented by

a brush of abundant hair from epistoma to vertex, setae moderately long, of about equal length; epistoma without a median callus; antennal club slightly longer than scape, subcircular in outline. Pronotum 1.14 times as long as wide; sides feeble arcuate on basal half, broadly rounded in front; anterior margin weakly serrate, about 20 small serrations; summit indefinite, anterior to middle; asperities small, close, confused; posterior areas reticulate, punctures very small, rather close. Elytra 1.6 times as long as wide, 1.7 times as long as pronotum; disc occupying 80 percent of elytra length; disc smooth, shining, punctures small, confused, weakly reticulate near declivity in some areas, several weakly impressed, irregular lines (my Argentina specimen has numerous impressed lines). Declivity steep, shallowly sulcate, narrowly above, much wider below; surface obscurely reticulate to somewhat granulate in some areas, with numerous, obscure micropunctures, impression moderate, crest usually armed by two small to moderate tubercles, 1 a fourth of declivity length from base, 2 at middle (one or two of the four tubercles sometimes greatly reduced or absent). Vestiture of very sparse, fine, short setae on sides and lower declivity.

Distribution: Argentina to Chile.

Argentina: F.B.E. 808, 26-IX-1971, tronco coihue (type, allotype No. 1 and 1 female paratype); Nahuel Huapi National Park, 26-IX-1971, *Nothofagus dombeyi*, K. Naumann (allotype No. 2, 1 male paratype); Rio Negro, El Bolson, Topal.

Chile: "Chile, leg. Kuschel"; Concepcion, 1903, P. Herbst.

Notes: The above treatment was based on the male holotype, female allotypes, and 1 male and 1 female bearing data identical to holotype and allotypes. Some specimens may lack one or two tubercles on the declivity. In view of this, I see no means of separating *nanus* (Eichhoff) from *nanulus* (Schedl). My Rio Negro specimen is slightly larger (2.3 mm) and has many more impressed, irregular lines on the elytral disc, but it is considered conspecific.

Gnathotrupes consobrinus (Eichhoff)

Plates CLXIII, CLXIV

Gnathotrupes consobrinus (Eichhoff), 1878:409 (*Gnathotrichus*). Holotype ♂; America meridionalis, Chile; Hamburg Museum, lost (References in Wood & Bright c1992:1040)

Gnathotrichus obnixus Schedl, 1939:47. Syntypes 2 ♀; Puerto Puyuhuapi, SudChile; 1 in DEI, Munchenberg; 1 in NHMW, Wien (Wood & Bright c1992:1041). *New synonymy*

Gnathotrichus corthyloides Schedl, 1951:20. Lectotype ♀; Chile, Valdivia; NHMW, Wien, designated by Schedl 1979:66, preoccupied by Eichhoff 1869. *New synonymy*

Gnathotrichus sextuberculatus Schedl, 1951:118. Holotype, sex?; Chile; NHMW, Wien. *New synonymy*

Gnathotrichus quadrituberculatus Schedl, 1951:122. Holotype, sex?; Chile; NHMW, Wien. *New synonymy*

Gnathotrichus corthyliformis Schedl, 1964:321. Lectotype ♀; Valdivia, Chile; NHMW, Wien, designated by Schedl 1979:66. (see p. 665). *A synonym of longipennis*

Diagnosis: Distinguished from *fimbriatus* Schedl by the smooth, shining surface of the elytral disc; male frons

convex and ornamented on lateral thirds by a brush of abundant, moderately long hair; female frons on lower half with a conspicuous, median protuberance, upper half flattened to shallowly concave, peripheral fringe of setae dense, very long.

Male: Length 2.9–3.5 mm, 2.9 times as long as wide; color reddish brown. Frons convex above, transversely impressed on lower half of area below upper level of eyes; median third smooth, shining, impunctate, glabrous from epistoma to vertex, lateral thirds finely punctured and densely pubescent from epistoma to well above eyes; antennal club slightly longer than scape, subcircular in outline, sutures 1 and 2 rather strongly procurved, finely septate, 3 marked by a row of fine, very short setae. Pronotum 1.1 times as long as wide; widest on basal half; sides weakly arcuate, rather broadly rounded in front; anterior margin armed by about 20 serrations; summit anterior to middle of pronotum length; asperities coarse, close, confused; posterior areas reticulate, punctures small, rather close; glabrous except sparse on anterior and lateral margins. Elytra 1.7 times as long as wide, 1.4 times as long as pronotum; disc occupying basal 85 percent of elytra length; surface smooth, shining, punctures small, distinct, mostly confused. Declivity very steep, rather strongly sulcate on median half; surface smooth, shining, a few small punctures present, lateral crests moderately high, somewhat narrowly rounded, crest armed by two pair of moderately large, pointed tubercles (a minute tubercle anterior to 1 and posterior to 2 on most specimens), denticle 1 on basal fourth of declivity length, 2 slightly below middle. Vestiture of sparse, fine, long hair on margins of declivity and on sides to base.

Female: Similar to male except median half of frons below upper level of eyes strongly protuberant, impunctate; vestiture on upper periphery above eyes bearing a dense fringe of very long setae, central area and lateral areas below with rather sparse, shorter hair; declivity reticulate, about as in female *fimbriatus*.

Distribution: Chile: Cherquenco, I-1954, L.E. Pena; Los Muermos, 19-I-1951, forest, Ross & Michelbacher; Bosque Iuinteno, Valpariso, 29-V-1928, J. Solervicens; Fray Jorge Parq, N.P., Coquimbo, 3-X-1967.

Notes: The above treatment was based on 12 males and 6 females. The males were compared to the holotypes of *obnixus* Schedl, *quadrituberculatus* Schedl, and *constrictus* Schedl, the females to the holotype of *corthyliformis* Schedl. The specimen of *longipennis*? (det. Eichhoff 1878) in the Chapuis collection (IRSNB, Brussels) is not of this species, see above. The species described by Eichhoff as *consobrinus* fits this species (type not seen) in all respects and is considered conspecific with it.

Gnathotrupes neoadjunctus (Schedl), n. comb.

Plate CLXVII

Gnathotrupes neoadjunctus (Schedl), 1967:13 (*Xyleborus*). Holotype ♂; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:663)

Diagnosis: Distinguished from *assiduus* (Schedl) by the larger size; by the less slender body form; and by details of the pronotum and elytral declivity as described below.

Male: Length 2.8 mm, 3.0 times as long as wide; color dark reddish brown. Frons on holotype mostly concealed by prothorax, broadly convex, reticulate, finely granulate on part of epistoma, a weak, median elevation on epistomal margin; antennal club distinctly longer than scape, slightly longer than wide; sutures 1 and 2 strongly procurved, 1 extending to middle of club. Pronotum 1.35 times as long as wide; sides straight and parallel on basal two-thirds, very broadly rounded in front; anterior margin irregularly serrate, anterior slope rather coarsely, closely asperate; summit obscure, located about one-third pronotum length from anterior margin; mostly smooth, shining, reticulate near summit, punctures moderately coarse, close; vestiture of sparse hair on asperate area and on lateral margins. Elytra 1.8 times as long as wide, 1.3 times as long as pronotum; disc occupying basal 60 percent; surface shining, modestly wrinkled, striae and interstitial punctures small, confused. Declivity broadly, deeply, concavely excavated; basal margin rounded, a small tubercle on margin in position of interstriae 2, a larger moderate spine on 3 displaced mesad from lateral margin, crest of middle third of lateral margin strongly elevated into a large, subquadrate, spinelike process (as wide at base as long), apical area (less than a third of declivity length), weakly elevated, its crest abrupt, very weakly subserrate; surface of concave area shining, punctures confused, rather small laterally, larger near suture. Vestiture of disc of rather abundant, fine, short hair, on declivity and sides of very abundant, very long, coarse hair.

Distribution: Brazil: Nova Teutonia, Santa Catarina, VIII-1966, 300–500 m, F. Plaumann; Instituto Nacional de Pesquisas na Amazonia, 27-I-1987, ethanol flight trap, R.L.S. Abreu.

Notes: The above treatment was based on the male holotype and 2 male paratypes and 1 other male from Brazil. The holotype is not a female, as stated in the original description. The transfer from *Xyleborus* to this genus is noted above.

Gnathotrupes assiduus (Schedl), n. comb.

Plate CLXII

Gnathotrupes assiduus (Schedl), 1961:228 (*Xyleborus*). Holotype ♀; Venezuela: Cerro Duida [Amazonas]; CAS, San Francisco (References in Wood & Bright c1992:662)

Diagnosis: Distinguished from *neoadjunctus* (Schedl) by the much smaller body size; by the much more slender body form; and by details of the pronotum and elytral declivity as described below.

Male: Length 1.8 mm, 3.6 times as long as wide; color yellowish brown. Frons not visible on type. Antennal scape as long as club; club similar to *neoadjunctus*. Pronotum 1.75 times as long as wide; sides straight and

parallel on more than basal two-thirds, anterior margin serrate, shallowly submarginate in median area; summit obscure, on anterior third, anterior slope rather coarsely asperate; posterior area smooth, shining, punctures small to minute, not close. Elytra 2.1 times as long as wide, 1.1 times as long as pronotum; disc occupying 60 percent of elytra length; disc smooth, shining, punctures small, confused. Declivity similar to *neoadjunctus*, except tubercle at base of interstriae 1 much smaller, small spine on interstriae 3 on lateral crest, not displaced mesad, distinctly larger; large quadrate spine more slender, twice as long as basal width; face of excavated area smooth, shining, punctures small, most poorly defined. Vestiture about as in *neoadjunctus*, except long setae in and near declivity less abundant.

Distribution: Venezuela: Mt. Duida [Amazonas], 4-XI-1928, Ac. 29,500, Tate No. 99.

Notes: The above treatment was based on a male paratype from Venezuela. Schedl states in the original description that the “holotype” was mailed to but never reached the California Academy of Science. Previous experience with his “lost” holotypes has led me to believe that the male “paratype” used for the above treatment is actually the missing holotype (Wood in Wood & Bright c1992:662). The transfer of this species from *Xyleborus* to this genus is noted above.

Gnathotrupes caliculus (Schedl)

Gnathotrupes caliculus (Schedl), 1975:12 (*Gnathocortus*). Holotype ♂; Nahuel Huapi National Park, Argentina; NHMW, Wien (References in Wood & Bright c1992:1040)

Diagnosis: Distinguished from *naumanni* (Schedl) by the convex upper frons, a transverse impression above convex area on almost full width of vertex; by the narrowly rounded anterior margin of the pronotum, with median point directed orad; declivital suture armed by a pair of tubercles at apex; dorsal end of lateral costa on declivity armed by an acute denticle.

Male: Length 4.1–4.5 mm, 3.7 times as long as wide; color dark reddish brown. Frons convex from epistoma to well above upper level of eyes, a subcarinate, transverse callus at upper level of eyes on more than median half, impressed area of vertex immediately below peripheral fringe of short hair; club longer than scape, sutures moderately procurved, septate. Pronotum 1.4 times as long as wide; sides almost straight and parallel on basal half, narrowly rounded in front; anterior margin armed by a weakly serrate, continuous costa; summit indefinite, one-third pronotum length from anterior margin; anterior slope rather gradual, asperities small, close, confused; posterior areas reticulate, punctures very small, rather close; vestiture very sparse, on anterior half of lateral margin or near. Elytra 2.3 times as long as wide, 1.8 times as long as pronotum; disc occupying basal 66 percent of elytra length; disc mostly smooth, shining, weak reticulation near suture, punctures small, shallow, confused. Declivity rather gradual, broadly, deeply

concave, explanate and divaricate behind; basal fourth of declivity shallowly, broadly sulcate, lateral crest abruptly, acutely, strongly elevated one-fourth declivity length from base, basal end elevated into a subacute point, crest evenly, narrowly continued to apex of explanate process; face of declivity deeply, broadly concave, smooth, shining and minutely punctured on median half, becoming finely granulate laterally toward apex; deeply divaricate at apex of suture, mesal margin of emargination bearing a pair of moderately large tubercles, apical process curved mesad at their apices. Almost glabrous.

Distribution: Argentina: Nahuel Huapi National Park, IX-1971, *Nothofagus dombeyi*, K. Naumann, No. 56/71 (holotype, 2 male paratypes), same except 11-XII-1971, 1 male paratype, 30-IX-1971, 2 male paratypes.

Notes: The above treatment was based on the male holotype and 5 male paratypes.

Gnathotrupes naumanni (Schedl)

Gnathotrupes naumanni (Schedl), 1975:15 (*Gnathomimus*). Holotype ♀; Nahuel Huapi National Park, Argentina; NHMW, Wien (References in Wood & Bright c1992:1041)

Diagnosis: Distinguished from *caliculus* (Schedl) by the concave frons; by the presence of a pair of tubercles at the apex of the declivital suture, the explanate elytral processes are parallel and directed caudad; the anterior margin of the pronotum is deeply emarginate in the female.

Female: Length 3.8–4.8 mm, 3.5 times as long as wide; color black. Frons strongly concave eye to eye from epistoma to vertex; concave area reticulate, punctures fine, close below, sparse, obscure above; glabrous; antennal club rather small, oval, slightly longer than scape, sutures 1 and 2 weakly procurved. Pronotum 1.3 times as long as wide; sides almost straight and parallel on basal 60 percent of pronotum length, shallowly, conspicuously constricted on anterior 40 percent, anterior margin truncate, feebly recurved; summit indefinite, almost at anterior margin, asperities few in number and limited in distribution; posterior areas reticulate, finely punctured; anterolateral angles forming conspicuous pointed processes; minute setae cover sides and much of dorsal surface. Elytra 2.3 times as long as wide, 1.8 times as long as pronotum; disc occupying 61 percent of elytra length; disc almost smooth, shining, punctures very small, numerous, some punctures near suture in obscure rows. Declivity rather gradual, feebly, broadly sulcate on basal fourth, lateral crest rising abruptly one-fourth length from base, forming a cylindrical, projecting spine, projecting two to three times longer than its basal width, lateral crest continuing caudad from middle (height) of spine to apex of aplanate process, basal half of crest formed by about eight contiguous nodules, posterior half of crest of almost uniform height; explanate process directed caudad, about twice as long as wide beyond level of suture apex, a pair of tubercles at apex of suture;

concave area deep, broad, shining, with numerous confused small and minute punctures. Vestiture of fine, short, rather abundant setae on disc, sides, and parts of declivity.

Distribution: Argentina: Nahuel Huapi National Park, 30-IX-1971, *Nothofagus dombeyi*, K. Naumann.

Notes: The above treatment was based on 3 female paratypes.

Gnathotrupes nothofagi (Schedl)

Gnathotrupes nothofagi (Schedl), 1975:13 (*Gnathomimus*). Holotype ♀; Nahuel Huapi National Park, Argentina; NHMW, Wien (References in Wood & Bright c1992:1042)

Diagnosis: Distinguished from *naumanni* (Schedl) by the slightly smaller size; by the absence of a pair of tubercles at the apex of the declivital suture; by a row of long setae on the dorsal peripheral margin of the female frons; and by the very different declivity, as described below.

Male: Length 3.5–4.3 mm, 3.9 times as long as wide; color very dark reddish brown. Frons deeply, transversely impressed from epistoma to slightly above upper level of eyes, convex above; surface reticulate, minutely, obscurely punctured, almost glabrous; antennal club oval, slightly longer than scape, sutures 1 and 2 weakly procurved. Pronotum 1.5 times as long as wide; sides on almost basal two-thirds straight to feebly constricted, also constricted on anterior third; anterior margin truncate (straight) on median half of pronotum width, margin weakly subserrate, lateral ends of truncate area not armed by a ventral tubercle; anterior slope restricted to anterior sixth of pronotum length, asperities small, close, confused, posterior areas reticulate, punctures numerous, minute; vestiture of sparse, minute, short hair on most surfaces. Elytra 2.6 times as long as wide, 1.7 times as long as pronotum; disc occupying basal 62 percent of elytra length; disc smooth, shining, minute striae punctures almost in rows, numerous micropunctures. Declivity gradual, apex of suture not armed by a pair of tubercles; lateral crests rise abruptly, slightly above middle of declivity, smooth, strongly elevated crest on basal third of aplanate process, processes project about three times basal width from apex of suture. Minute setae abundant on disc, sides, and basal and lateral parts of declivity.

Female: Similar to male except frons flattened eye to eye from epistoma to vertex, slightly concave on lower third, floor of concave area reticulate, rather finely punctured, upper margin on vertex bearing a fringe of long, yellow hair; tips of longest setae almost attaining epistoma. Pronotum with anterior emargination slightly wider; deeper; angles armed on ventral side by a pair of large tubercles. Declivity similar to male except anterior end of lateral crest projected into a blunt spine, crest not as high, explanate process slightly smaller.

Distribution: Argentina: Nahuel Huapi National Park, 10-IX-1971, *Nothofagus dombeyi*, K. Naumann.

Notes: The above treatment was based on the female holotype, male allotype, and 2 male and 2 female paratypes, all bearing the type data.

GENUS *TRICOLUS* BLANDFORD

Tricolus Blandford, 1905:286. Type-species: *Tricolus ovicollis* Blandford, subsequent designation by Hopkins 1914:131 (Synonymy and references in Wood & Bright c1992:1042–1045)
Pterocyclonoides Schedl, 1970:101. Type-species: *Pterocyclonoides octogentatus* Schedl, monobasic

Diagnosis: Distinguished from *Amphicranus* by the more broadly rounded posterior margin of the elytra, which is feebly or not at all explanate, and feebly or not divaricate; by the presence of three pair of spines on the elytral declivity; and by the somewhat distinctive precoxal piece on the prothorax.

Description: Length 1.5–3.9 mm, 2.4–3.4 times as long as wide; sexual dimorphism mostly restricted to vestiture on antennal club (female with a tuft of long hair on posterior face); color uniformly brown or black to bicolored. Frons convex, subglabrous, central area usually with a rugose-reticulate or weakly granular area, rarely convergently aciculate; eye oval, emarginate, antennal articulation in this emargination; antennal scape elongate, funicle 2- or 3-segmented, club elongate-oval to broadly subtriangular; sutures 1 and 2 septate, weakly to strongly procurved. Pronotum longer than wide; lateral margins marked by a fine, raised line; sculpture conservative; anterior margin variable. Elytral disc with punc-

tures small, confused; declivital area strongly impressed, lateral margin armed by three pair of denticles (almost obsolete in a few species); posterior margin weakly if at all explanate, usually not divaricate, except moderately explanate and divaricate in 4 species. Prothoracic precoxal piece a thin, transversely straight partition, anterior (ventral) to margin usually bent from vertical to a subhorizontal plane, and pubescent. Tibiae not sexually dimorphic, usually with a marginal row and one submarginal row on posterior face. Vestiture on most body surfaces reduced or absent. This genus appears to intergrade with *Amphicranus* as exhibited in the last three species treated here (*A. balteatus* group), except that the precoxal prosternum is reduced to a thin, transverse partition.

Biology: All observed species are monogynous and xylomycetophagous. They breed in small, recently injured, broken or cut stems. The parent tunnel usually consisting of a short, radial entrance tunnel and a transverse tunnel that follows a growth ring of the branch, often forming a complete circle. Few young are produced in the parent tunnel. A few species may have a mutualistic symbiotic or obligatory domicile parasite relationship with a *Corthylus* species.

Notes: Wood & Bright c1992:1042–1045 list 40 species from central Mexico and the Caribbean Islands to Bolivia and southern Brazil. Because of the extreme difficulty in the identification of species, and due to the poorly known geographical and host distributions of all species, the following key includes all known continental species.

Key to the Continental Species of *Tricolus*

- 1. Subapical margin of elytral declivity distinct but feebly to weakly explanate, not divaricate; antennal funicle 2- or 3-segmented; declivity variable 2
- Subapical margin of declivity rather strongly explanate and moderately divaricate; antennal funicle 2-segmented (3 segmented in one species); declivity strongly, broadly concave, distance from declivital spine 1 to 2 less than distance from 2 to 3 (three times as great in most species) 40
- 2(1). Spines on elytral declivity almost absent, poorly developed, represented by feeble swellings or a broad fold; finely elevated line on declivital suture continued on costal margin (see also *cecropii*) 3
- Declivital spines 1 and 2 clearly developed, pointed, 3 much larger (except *cecropii*, *intrusus*), variously shaped 5
- 3(2). Impressed area on elytral declivity subcircular in outline, spine 1 at base of declivity small, sharply pointed; frons coarsely aciculate except for small, central, weakly elevated granulate area; Guatemala to Costa Rica; *Ficus*; 1.8 mm ***simplicis* Wood**
- Impressed area on elytral declivity conspicuously longer than wide, spine 1 represented by a small, rounded granule or almost absent 4
- 4(3). Smaller; body 3.1 times as long as wide; frons convex, granulate area weakly elevated, lateral areas not impressed; median face of lateral convexities vertical from base to its posterior apex; Costa Rica; *Siparuna*; 1.8 mm ***inornatus* Wood**

SCOLYTIDAE OF SOUTH AMERICA

- Larger; body 2.8 times as long as wide; granular area on frons rather strongly elevated, lateral areas on lower half of frons impressed; mandibles enlarged; slope on median face of lateral convexities on declivity more gradual on basal half; Costa Rica; 2.6 mm *inaffectus* Wood
- 5(2). Body rather stout, 2.6–2.7 times as long as wide; color dark brown; declivital spine 2 not larger than 1, spine 3 represented by a simple nonprojecting fold; granular area on frons larger, wider than long, subreniform in outline; in fallen *Cecropia* leaf petioles 6
- Body slender; 3.0 or more times as long as wide, partly yellowish brown; declivital spine 2 cylindrical, much larger than 1 7
- 6(5). Anterior margin of pronotum less acutely produced; punctures on pronotum disc smaller; punctures on excavated area of elytral declivity more numerous and distinctly larger; Costa Rica; *Cecropia*, fallen leaf petioles; 2.2–2.5 mm *cecropii* Wood
- Anterior margin of pronotum more acutely produced; punctures on pronotum disc larger; punctures on excavated area of elytral declivity finer, less numerous; Venezuela (Caracas); *Cecropia*, fallen leaf petioles; 2.1–2.2 mm *intrusus* Wood
- 7(5). Concave area of declivity reticulate; margin of suture continuing on costal margin of elytra without a separate subapical crest, a feeble subapical crest deviating from costal margin in lateral area below base of spine 3; spine 3 rather stout to slender; 1 and 2 smaller, slender, sharply pointed; anterior margin on pronotum rounded or subacutely projecting, armed by 8 coarse serrations . . . 8
- Apical margin of declivity at least weakly, acutely or subacutely, transversely elevated separate from costal margin at least on median area 10
- 8(7). Declivital spine 3 very slender; more than twice as long as wide; frons with a small, median, subcircular reticulate area; pronotum narrowly, subacutely pointed in front; declivital spine 3 much more slender; more than twice as long as wide; punctures on face of declivity much larger; Costa Rica to Panama; tree seedlings, etc.; 2.1–2.5 mm *ardus* Wood
- Declivital spine 3 stouter; basal width equal to or greater than length; frons entirely devoid of a central reticulate area; anterior margin of pronotum more broadly rounded; smaller, more slender species 9
- 9(8). Declivital spine 3 more slender; longer than its basal width; punctures on pronotum slightly smaller; antennal club 1.3 times as long as wide; Costa Rica to Venezuela (Bolivar); “Suipo”; 1.5–1.7 mm *angustatus* Wood
- Declivital spine 3 stouter; basal width exceeding its length; punctures on pronotum slightly larger; antennal club 1.7 times as long as wide; Panama and Venezuela to Brazil; *Nectandra*; 1.9–2.2 mm *plaumanni* Schedl
- 10(7). Lower declivity more narrowly flattened, transverse, subapical crest short, usually rounded after curving dorsad, spine 3 usually with a broad base (broadly triangular), basal width of spine 3 greater than its height 11
- Declivital spine 3 quadrate or narrowly triangular; its basal width equal to or less than height of spine 17
- 11(10). Declivital spines 1 and 2 small, not cylindrical, tapered from their base, 3 only moderately elevated, apex either not projecting or weakly projecting, apex blunt or rounded 12
- Declivital spine 2 larger than 1, subcylindrical, 3 more strongly elevated, its apex acute, projecting moderately 14
- 12(11). Pronotum disc with some or most punctures on basal fourth distinctly larger, without a shining crest; serrations on anterior margin of pronotum very coarse; declivital spine 3 distinctly larger; Costa Rica; liana; 2.3 mm *parsus* Wood

CORTHYLINI

- Pronotum disc with some or most punctures on basal fourth bearing a transverse, shining crest; serrations on anterior margin of pronotum smaller; declivital spine 3 much smaller 13
- 13(12). Declivital spine 3 less strongly elevated, not projecting, apex obtusely rounded, forming an angle of about 100–110 degrees; surface of elytral disc more brightly shining, few weakly impressed, irregular lines, punctures on disc slightly larger; Brazil (Bahia); 1.4 mm *pernanulus* Schedl
- Declivital spine 3 slightly higher, projecting weakly at apex, apex of spine 3 somewhat rounded, forming an angle of 80–90 degrees; Brazil (Santa Catarina); 1.7–2.0 mm *subincisuralis* Schedl
- 14(11). Anterior margin of pronotum narrowly rounded, armed by 6 rather coarse serrations; face of elytral declivity reticulate; spine 3 close to suture and to apical margin, separated by about thickness of spine 3 from each, apex of spine 3 broadly rounded; Brazil (Linhares); 1.5 mm *minutissimus* Schedl
- Anterior margin of pronotum without serrations; inner face of declivity shining or opalescent; spine 3 larger, apex rounded; larger species 15
- 15(14). Face of declivity dull, punctures very small, obscure; apex of spine 3 rounded, projecting only slightly; anterior half of pronotum and posterior half of elytra dark brown, posterior half of pronotum and anterior half of elytra reddish brown; Venezuela (Aragua); *Tabebuia*; 2.7–2.8 mm *subopacus* Wood
- Face of declivity shining, punctures distinct; apex of declivital spine 3 more narrowly rounded to almost pointed, projecting slightly 16
- 16(15). Anterior margin of pronotum rather weakly serrate, serrations basally connected; declivital spine 3 projecting only slightly, apex separated from apical margin by thickness of spine; punctures on face of declivity very small; frons reticulate, rugose-reticulate area small, occupying one-third of width between eyes; Costa Rica; liana; 3.2 mm *rufithorax* Wood
- Anterior margin of pronotum narrowly rounded, coarsely serrate; declivital spine 3 pointed, more strongly projecting, more widely separated from apical margin; punctures on face of declivity larger, more numerous; rugose-reticulate area on frons much larger, occupying more than half of space between eyes; Venezuela (Merida); liana; 2.5–2.8 mm [see also *ruficollis* (Fabricius)] *subrufus* Wood
- 17(10). Declivital spine 2 rather small, pointed, tapered from its base to its apex, about equal in size to spine 1 18
- Declivital spine 2 larger, cylindrical, usually blunt 26
- 18(17). Frons similar in male and female, lateral areas never abruptly impressed 19
- Frons in male normal, convex, female frons with part or all of lateral thirds moderately to strongly excavated 24
- 19(18). Distance from apex of declivital spine 1 to apex of spine 2 equal to distance from 2 to 3; discal punctures on striae 2–4 more strongly confused 20
- Distance from apex of declivital spine 1 to 2 distinctly greater than distance from 2 to 3; discal striae 2–4 with punctures in recognizable rows 23
- 20(10). Female epistoma with rather abundant setae 21
- Female epistoma almost glabrous 22
- 21(20). Anterior margin of pronotum narrowly rounded, armed by 6 coarse serrations; body rather slender, 3.0 times as long as wide; Colombia (Caicedonia); 2.8 mm *mystacinus* Wood

SCOLYTIDAE OF SOUTH AMERICA

- Anterior margin of pronotum armed by 10 low serrations; body stouter, 2.5 times as long as wide; Brazil (Santa Catarina); 2.7–2.9 mm *spheniscus* Schedl
- 22(20). Anterior margin of pronotum narrowly rounded, armed by 8 coarse serrations; basal margin of declivity acutely costate from spine 1 to spine 2; Panama; tree sapling; 2.0–2.1 mm *capitalis* Wood
- Anterior margin of pronotum armed by 8 serrations; basal margin of declivity narrowly rounded, not costate; Bolivia (Cochabamba); 1.7 mm *pumilio* Eggers
- 23(19). Rugose-reticulate area on male frons rather small, occupying one-third of distance between eyes; apical margin of declivity weakly arcuate from apex of suture to below spine 3, lower declivity more broadly flattened; Costa Rica to Venezuela; *Phoebe mexicana*; 1.8–2.3 mm *scitulus* Wood
- Rugose-reticulate area on male frons larger, occupying more than half distance between eyes; apical margin of declivity strongly arcuate from apex of suture to below spine 3, lower declivity more narrowly flattened; Costa Rica to Venezuela; liana; 2.0 mm *fenoris* Wood
- 24(18). Median fifth of area between eyes rugose-reticulate from epistoma to upper level of eyes; lateral thirds strongly impressed on crescent-shaped area occupying half distance from eye to reticulate area and from slightly above epistoma to slightly above eye, vestiture short on and near epistoma; Mexico (Nayarit) to Guatemala; broken branches; 1.5–2.1 mm *difodinus* Bright
- Median two-fifths of area between eyes rugose-reticulate, lateral impressions larger 25
- 25(24). Median rugose-reticulate area on female frons oval, extending from epistoma to upper level of eyes, lateral impression comparatively shallow from epistoma to upper limits of rugose area and two-thirds distance toward margin of eye; antennal club 1.4 times wider than long; Venezuela (Bolivar); “Suipo”; 1.7–1.9 mm *bicavus* Wood
- Median rugose-reticulate area extending from well above upper level of eyes to epistoma, lateral impressions deep in dorsomedian area, gradually decreasing to epistoma, occupying three-fourths distance from reticulate area to margin of eye; Costa Rica to Brazil (Santa Catarina); 2.0–2.4 mm *senex* Schedl
- 26(17). Spine 3 on lateral margin of elytral declivity triangular in shape (widest at base and somewhat tapered toward apex and positioned remote (one or two times basal width) from apical margin 27
- Spine 3 on lateral margin of declivity either (a) on ventrolateral area of lateral margin, or (b) quadrate in shape (if doubtful, anterior apical angle armed by a small tubercle) 31
- 27(26). Declivital spine 3 not as close to apical margin, more nearly erect, basal half more nearly cylindrical; Mexico (Puebla) to Costa Rica; 2.6–2.9 mm *ovicollis* Blandford
- Declivital spine 3 stouter, rather near ventrolateral margin, inclined toward apical margin and/or apex of suture 28
- 28(27). Longitudinal basal width of declivital spine 3 twice its height, profile of spine triangular from lateral aspect; (Mexico?) Guatemala to Costa Rica; 2.7–3.0 mm *nodifer* Blandford
- Smaller species; basal width of declivital spine 3 not greater than its height 29
- 29(28). Margin of suture on left elytron of declivity not raised or marked by a clearly defined line, right margin of suture convex on middle half of declivity length; spine 3 on type apparently chewed off by siblings on both elytra; anterior margin of pronotum rather narrowly rounded, armed by 8 moderate serrations; head about as in *saundersi*; Brazil (Purnambuco); 2.0 mm *abruptus* Schedl
- Declivital suture marked by a fine, raised submarginal line in both sexes 30

CORTHYLINI

- 30(29). Small species; spine 3 on declivity more slender; rugose-reticulate area on frons distinctly elevated, about half as large, subcircular in outline; Costa Rica; tree branch; 1.7–1.9 mm *partilis* Wood
- Larger species; spine 3 on declivity stout, blunt; rugose-reticulate area on frons more than twice as wide, not distinctly elevated; Costa Rica; *Theobroma cacao*; 2.3–2.6 mm *saundersi* Wood
- 31(26). Declivital spine 3 positioned distinctly above ventrolateral margin of declivity, spine 3 usually more slender and armed on its dorsal apical angle by a small, pointed tubercle 32
- Declivital spine 3 positioned with its ventrolateral margin on declivital margin, apex of spine either with or without a pointed tubercle on dorsal apical angle 36
- 32(31). Declivital spine 3 somewhat quadrate in outline, its crest extending from lateral margin at least half distance to suture, width greater than height; Brazil (Sao Paulo); 2.9 mm *affinis* Eggers
- Declivital spine 3 essentially triangular, height greater than its basal width 33
- 33(32). Distance from declivital spine 1 to 2 greater than from 2 to 3; emargination at apex of suture moderately deep, twice as wide as deep, lowest part of margin of base of spine 3 slightly above level of suture apex; rugose-reticulate area on frons narrowly reniform, transverse width more than twice longitudinal length; Costa Rica; *Phoebe mexicana*; 2.9–3.3 mm *naevus* Wood
- Distance from declivital spine 1 to 2 equal to or less than from 2 to 3; rugose-reticulate area on frons oval, slightly wider than long; emargination at apex of suture very shallow, much wider than deep; lowest point on base of spine 3 at or below level of apex of suture 34
- 34(33). Declivital spine 3 bent strongly mesad from constricted base, apical half of spine subglobular; Venezuela (Aragua); *Tabebuia* limb; 2.8–3.3 mm *parvus* Wood
- Declivital spine 3 inclined mesad, not constricted at base, apex more narrowly rounded, not subglobular 35
- 35(34). Pronotum disc with feeble transverse rugae on median third of basal third; body more slender, 2.9 times as long as wide; elytral disc almost smooth, shining, punctures very small, not as close; pronotum reddish brown, elytra black; Venezuela; *Nectandra*; 1.8–2.4 mm *rufodorsalis* Wood
- Pronotum with rather coarse, close, transverse rugae on median half of basal half; body stouter, 2.6 times as long as wide; elytra smooth, shining, with numerous impressed lines, punctures small, more numerous; color reddish brown; Costa Rica to Panama; 2.3–3.3 mm *badius* Wood
- 36(31). Lower margin of base of spine 3 distinctly above (dorsal) level of apex of suture 37
- Spine 3 distinctly below level of apex of suture 39
- 37(36). Frons not visible on types, concealed by pronotum; anterior margin of pronotum armed by 10 basally connected serrations, median one distinctly larger; base of pronotum disc without rugae, moderately reticulate; Colombia (Antioquia, Valle de Cauca); *Vismia*, etc.; 2.2–2.7 mm *abacis* Wood
- Most of frons convergently aciculate, rugose-reticulate area greatly reduced, but present; anterior margin of pronotum broadly rounded, serrations low, rather numerous 38
- 38(37). Frons almost entirely convergently aciculate, a tiny area of rugose-reticulate sculpture usually present; pronotum disc near base with a few weak, transverse rugosities; spine 3 elongate-quadrate, situated at level slightly above level of apex of suture; Mexico (Puebla); *Miconia* sp., etc.; 2.3–2.5 mm *frontalis* Wood

SCOLYTIDAE OF SOUTH AMERICA

- Median fourth of space between eyes rugose-reticulate on a subcircular area at upper level of eyes; lower declivity broadly excavated, spine 3 at extreme ventrolateral angles very slightly above level of apex of suture, punctures on excavated area replaced by small, rounded tubercles; Brazil (Santa Catarina); 3.6 mm *bifidus* Schedl
- 39(36). Declivital spine 3 with lower margin at (touching) subapical crest of declivity; spine 3 subquadrate, longer than basal width; bicolored; frons below reticulate area convergently aciculate; Costa Rica to Panama; 3.3–3.5 mm *bicolor* Wood
- Declivital spine 3 with its lower margin separated from subapical crest by less than half basal width of spine 3; color uniformly dark; lower frons not aciculate; Costa Rica to Panama; 3.0–3.4 mm *peltatus* Wood
- 40(1). Distance from declivital spine 1 to spine 2 only slightly less than from spine 2 to spine 3, spine 2 slender slender, cylindrical 41
- Distance from declivital spine 1 to 2 about one-third as great as from spine 2 to 3, spine 2 conical, tapered from base to apex 43
- 41(40). Declivital spine 3 constricted at base, usually cylindrical and resembling spine 2; Venezuela (Merida); *Nectandra* and a bromeliad; 3.7–4.0 mm *coloreus* Wood
- Declivital spine 3 wider at base, either triangular or quadrangular in shape 42
- 42(41). Smaller species, 2.9 times as long as wide; median serration on anterior margin of pronotum dominant; apex of declivity rather weakly explanate; declivital spine 3 usually quadrangular; color uniformly dark brown to black; Brazil (Sao Paulo to Rio Grande do Sul); 2.5–2.7 mm *brasilianus* Wood
- Larger species; 2.9 times as long as wide; anterior margin of pronotum with 6 equal serrations; declivital spine 3 usually wider at base, triangular; apex of declivity rather strongly explanate and divaricate; bicolored; Colombia (Antioquia); *Myrtus*; 3.3–3.5 mm *myrti* Wood
- 43(40). Frons with or without a median raised rugose-reticulate area; spine 3 on declivity distinctly displaced mesad from lateral margin by transverse thickness of spine 3 44
- Frons with median raised rugose-reticulate present; spine 3 on declivity attaining lateral margin 45
- 44(43). Declivital spines 2 and 3 spaced by distance less than twice distance separating 1 and 2; body 2.9 times as long as wide; declivital spine 1 minute, 2 conical, almost as large as blunt 3; basal half of pronotum pale, dark brown elsewhere; Mexico (Nayarit); 2.8–3.2 mm (see Notes under this species) *nayaritensis* Wood
- Declivital spines 2 and 3 spaced by more than twice distance separating 1 and 2; spine 1 clearly visible 45
- 45(44). Smaller, more slender species, 3.1 times as long as wide; excavated area on declivity with a conspicuous elevation extending transversely from base of spine 3 three-fourths distance toward suture; apex of elytra weakly explanate; lateral areas of frons convergently aciculate, rugose-reticulate small, subcircular; color uniformly black; Brazil (Parana to Espirito Santo); 3.2–3.4 mm *undulatus* Wood
- Larger, stouter species, 2.6–2.7 times as long as wide; excavated area of declivity without a conspicuous elevation at base of spine 3 extending toward suture 46
- 46(45). Pronotum yellowish brown, elytra black; declivital spine 3 as wide as long; concave area between spines 1 and 2 with punctures replaced by tubercles; raised rugose-reticulate area on frons occupying more than median half, situated entirely above upper level of eyes; Costa Rica to Panama; 3.5–4.0 mm *collaris* (Blandford)

- Color uniformly black; declivital spine 3 twice as wide as long; concave area between declivital spines 2 and 3 with small punctures on median area; raised rugose-reticulate area on frons occupying median third, lower median acute point extending below upper level of eyes, lateral areas aciculate; Mexico (Puebla); 3.5–4.0 mm *amplus* Wood

Tricolus intrusus Wood

Plate CLXXI

Tricolus intrusus Wood, 1974:58. Holotype ♀; El Laurel Experimental Farm 12 km SW Caracas, Venezuela, 1300 m; USNM, Washington (References in Wood & Bright c1992:1043)

Diagnosis: Distinguished from *cecropii* Wood by the more acutely produced anterior margin of the pronotum; by the larger punctures on the pronotum disc; and by the smaller, less numerous punctures on the elytral declivity.

Female: Length 2.1–2.2 mm, 2.7 times as long as wide; color very dark reddish brown. Frons similar to *cecropii*, except more broadly, weakly convex, reticulate area larger, its dorsal margin recurved; posterior face of antennal club without long setae. Pronotum 1.3 times as long as wide; anterior margin much more acutely produced; summit indefinite, asperities lower, punctures on disc larger than in *cecropii*. Elytra 1.5 times as long as wide, 1.1 times as long as pronotum; disc occupying 65 percent of elytra length, surface smooth, shining, punctures small, mostly confused. Declivity rather steep, moderately sulcate; concave area smooth, shining, punctures very small, shallow, somewhat confused; lateral crest moderately high, obtusely rounded, a small, acutely pointed spine at base on interstriae 1, spine 2 distinctly above middle of declivity length, slightly larger than 1, acutely pointed, 3 an obtuse, blunt crest. Glabrous or about three minute setae on lateral areas of declivity.

Distribution: Venezuela: El Laurel Experimental Farm 12 km SW Caracas, 1-V-1970, 1300 m, No. 475, fallen *Cecropia* leaf petioles, SLW.

Biology: Specimens were removed from tunnels in large, recently fallen leaf petioles.

Notes: The above treatment was based on the female holotype and 2 female paratypes from Venezuela.

Tricolus angustatus Wood, n. sp.

Plate CLXIX

Tricolus angustatus Wood: Holotype ♀; Campamento Rio Grande 30 km E Palmar, Bolivar, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *plaumanni* Schedl by the smaller size; by the more slender spine 3 on the declivity; and by the stouter antennal club.

Male: Similar to female in all respects, except distinguished by abdominal terga 7 and 8.

Female: Length 1.5–1.7 mm, 3.6 times as long as wide; color yellowish brown on declivity and anterior half of pronotum, darker elsewhere. Frons convex, a weak, transverse impression immediately above epistoma; surface

convergently aciculate from epistoma to slightly above eyes, vertex reticulate, a narrow, median band of reticulation extending orad to well below upper level of eyes; minute hair on less than median sixth from epistoma half distance to upper level of eyes; antennal club ovate, 1.3 times as long as wide. Pronotum 1.6 times as long as wide; sides almost straight and parallel on basal three-fifths, rather narrowly rounded in front; anterior margin armed by 8 low serrations; summit indefinite, on anterior third, asperities moderately coarse, close, confused; posterior areas reticulate, punctures very small, shallow; glabrous. Elytra 2.1 times as long as wide, 1.3 times as long as pronotum; disc occupying basal 78 percent of elytra length; disc smooth, shining, very small punctures partly in obscure rows, mostly confused. Declivity rather steep, broadly, moderately concave; concave area strongly reticulate, punctures small, numerous, confused; lateral crest moderately elevated, narrowly rounded, spine 1 at base on interstriae 1 small, pointed, 2 on crest slightly above middle of declivity length, twice as large as 1, pointed, 3 at lower end of crest, subquadrate, projecting slightly more than its basal width; glabrous except very sparse setae on sides near declivity.

Distribution: Costa Rica (Limon Prov.) to Venezuela (Bolivar) and Brazil (Sao Paulo).

Type material: The female holotype, male allotype, and 11 paratypes were taken at Campamento Rio Grande 30 km E Palmar, Bolivar, Venezuela, 12-VI-1970, 200 m, No. 566, "Suipo" (Balbino Rodriguez identification), SLW. Two paratypes are from Beverley, Limon Prov., Costa Rica, 26-VIII-1963, 7 m, liana, No. 154, SLW. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Brazil (non-type): Jarinu, Sao Paulo; 25-II-1992, ethanol trap in *Eucalyptus saligna* stand, A. Dwulotka (3 specimens).

Tricolus plaumanni Schedl

Plate CLXXII

Tricolus plaumanni Schedl, 1954:40. Lectotype ♀; Rondon, Parana, Brazil; NHMW, Wien, designated by Schedl 1979:196 (References in Wood & Bright c1992:1044)

Pterocyclonoides octodentatus Schedl, 1970:102. Holotype ♀; Rondon, Parana, Brazil; NHMW, Wien (References in Wood & Bright c1992:1044). *New synonymy*

Diagnosis: Distinguished from *angustatus* Wood by the larger size; by the weak, median impression on the frons; by the more slender antennal club; and by the stouter spine 3 on the declivity.

Male: Similar to female except for differences on abdominal terga 7 and 8.

Female: Length 1.9–2.2 mm, 3.7 times as long as wide; color yellowish brown, pronotum and elytral declivity brown. Frons as in *angustatus*, except less strongly convex below, shallowly impressed below on median line from degeneration of 2–4 aciculations, reticulation from vertex extending to and filling median impression; almost glabrous; antennal club more slender than in *angustatus*, 1.7 times as long as wide. Pronotum as in *angustatus*. Elytra about as in *angustatus*, except punctures on disc mostly in rows; spine 3 on declivity not as high, its basal width much greater than length.

Distribution: Costa Rica and Panama to Venezuela and Brazil.

Brazil: Rondon, Parana, 24°38'B, 54°07', 195_, F. Plaumann (type of *plaumanni*), same, 20-X-1952 (type of *octodentatus*)

Venezuela: 30 km E Palmar, Bolivar, 12-VI-1970, 200 m, No. 566, "Suipo," a liana, SLW; Rancho Grande, Aragua, 9-IV-1970, 1700 m, No. 431, *Nectandra* sp. branch, SLW.

Notes: The above treatment was based on the female lectotype of *plaumanni*, the female holotype of *octodentatus*, 4 female and 1 male topotypes, and 8 specimens from Venezuela, 2 from Costa Rica, and 1 from Panama.

Tricolus permanulus Schedl

Tricolus permanulus Schedl, 1939:581. Holotype ♂; Saude, Bahia, Brazil; NHMW, Wien (References in Wood & Bright c1992:1044)

Diagnosis: Distinguished from *parsus* Wood by having most punctures on the basal fourth of the pronotum disc bearing a transverse, shining crest; by the smaller serrations on the anterior margin of the pronotum; and by the much smaller spine 3 on the elytral declivity.

Male (?): Length 1.3–1.4 mm, 3.0 times as long as wide; color dark reddish brown. Frons somewhat flattened on central three-fourths, lateral areas obscurely punctured, subreticulate, rugose-reticulate, area on central fifth distinctly elevated to slightly above upper level of eyes, not attaining epistomal margin; vestiture of fine, short, sparse hair; antennal club subcircular, 1.3 times as long as wide, sutures weakly procurved. Pronotum 1.27 times as long as wide; sides widest and subparallel on basal half, narrowly rounded in front; anterior margin armed by 8 basally connected, rather coarse serrations; summit one-third pronotum length from anterior margin; asperities rather coarse, close, confused; posterior areas strongly reticulate, punctures very small, those on basal fourth of disc with a shining posterior margin or weak rugosity; glabrous. Elytra 1.6 times as long as wide, 1.3 times as long as pronotum; disc occupying basal 70 percent of elytra length; disc smooth, brightly shining, punctures very small, those on striae 2–4 mostly in rows, a few irregular impressed lines present. Declivity rather steep, moderately sulcate; spine 1 at base of interstriae 1 small, sharply pointed, 2 on crest of basal third, sharply pointed, slightly larger than 1, 3 on crest of lower third, rather weak, not projecting;

face of concave area smooth, brightly shining, punctures small, confused; suture weakly elevated from spine 1 to weak, short, acute apical margin. Glabrous except for sparse setae on sides near declivity.

Female: Similar to male except posterior face of antennal club with 2 or more long setae.

Distribution: Brazil: Saude, Bahia, 6-IX-1914 (type); Itapetinga, Bahia, XI-1969, F.M. Oliveira.

Notes: The above treatment was based on the male holotype and on 1 female.

Tricolus subincisuralis Schedl

Tricolus subincisuralis Schedl, 1939:726. Holotype ♂; Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:1045)

Diagnosis: Distinguished from *pernanulus* Schedl, with difficulty, by the more distinctly rounded declivital spine 3, its apex forming an angle of 80–90 degrees (100–110 degrees in *pernanulus*); and by the narrowly ovate rugose-reticulate area on the female frons.

Male: Length 1.7–2.0 mm, 2.8 times as long as wide. Frons and pronotum as in *pernanulus*. Elytra as in *pernanulus*, except spine 3 on declivity projecting slightly in male, distinctly in female.

Distribution: Brazil: N "Lalnatharnia" (illegible on type); Nova Teutonia, Santa Catarina, 27°11'B, 52°23'L, VI-1964, 300–500 m, F. Plaumann.

Notes: The locality on the female specimen labeled by Schedl as the holotype of *subincisuralis* is illegible. It clearly does not cite Nova Teutonia, Santa Catarina, as was published by Schedl in the original description. However, it appears to represent the same species as 2 males and 2 females in the Schedl material at NHMW, Wien, taken in 1964 at Nova Teutonia.

Tricolus minutissimus Schedl

Tricolus minutissimus Schedl, 1976:84. Holotype ♂?; Linhares, E Santos, Brazil; NHMW, Wien (References in Wood & Bright c1992:1044)

Diagnosis: Distinguished from *subincisuralis* Schedl by the smaller size and more slender body form; by the minute punctures on the elytral disc; and by the more strongly elevated spine 3 on the declivity.

Male (?): Length 1.5 mm, 3.2 times as long as wide; color reddish brown. Frons concealed by pronotum on type; antennal club 1.3 times as long as wide, sutures weakly procurved. Pronotum 1.3 times as long as wide; sides on basal half almost straight and parallel, narrowly rounded in front; anterior margin armed by 7 rather coarse serrations, median one largest; summit one-third pronotum length from anterior margin; asperities rather coarse, close, confused; posterior areas reticulate, punctures very small, sparse; glabrous. Elytra 1.9 times as long as wide, 1.4 times as long as pronotum; disc occupying 72 percent of elytra length; disc smooth, shining, a few very weakly impressed irregular lines, punctures very small, mostly in striae rows. Declivity rather steep, rather

strongly sulcate; spine 1 at base on interstriae 1 very small, pointed, lateral crest moderately high, 2 on lateral crest, three or more times larger than 1, pointed, positioned one-third declivity length from base, spine 3 on lower third near apex, its crest moderately high, blunt, outline from lateral aspect almost subquadrate, height half of basal width, distance from lower margin of spine to apical margin one-fourth basal width of spine; declivital face shining, weakly reticulate, punctures minute. Glabrous.

Distribution: Brazil: Linhares, E Santo, IX-1972, Roppa & Alvarenga.

Notes: The above treatment was based on the holotype, presumed to be a male.

Tricolus subopacus Wood, n. sp.

Plate CLXXIII

Tricolus subopacus Wood: Holotype ♂; Rancho Grande, Aragua, Venezuela; USNM, Washington, designated below

Distinguished from *rufithorax* Wood by the dull face of the declivity, with the punctures very small; by the more narrowly rounded apex of spine 3, and projecting more distinctly; and by the smaller size.

Male: Length 2.7–2.8 mm, 2.8 times as long as wide; bicolored, posterior half of pronotum and anterior half of elytra reddish brown, anterior half of pronotum and posterior half of elytra almost black. Frons broadly convex, strongly reticulate, punctures small, very obscure, central reticulate area on median third weakly, distinctly elevated, a few setae on its lower margin and epistoma; antennal club obovate, 1.3 times as long as wide, sutures weakly procurved, obscurely septate. Pronotum 1.2 times as long as wide; sides on basal half almost straight and parallel, narrowly rounded in front; anterior margin obscurely serrate, almost a continuous costa; summit obscure, anterior to middle; asperities coarse, close, confused; posterior areas reticulate, punctures rather small, moderately close; glabrous. Elytra 1.7 times as long as wide, 1.3 times as long as pronotum; disc occupying 60 percent of elytra length; disc smooth, shining, a few impressed irregular lines, punctures very small, close, confused. Declivity rather steep, broadly, strongly concave; face of concave area dull, punctures very small, obscure, confused; lateral crest rather strongly elevated, spine 1 at base on interstriae 1 small, blunt, 2 slightly above middle of declivity length, small, blunt, 3 with basal margin ascending gradually to rounded apex, rather high, wide, projecting only slightly, its apex separated from apical margin by more than basal width of spine. Glabrous except a few long setae on sides near declivity.

Distribution: Venezuela (Aragua).

Type material: The male holotype and 1 male paratype were taken at Rancho Grande, Aragua, Venezuela, 9-IV-1970, 1100 m, No. 420, from a dying *Tabebuia* seedling, by S.L. Wood. The holotype and paratype are in the U.S. National Museum, Washington.

Tricolus subrufus Wood, n. sp.

Tricolus subrufus Wood: Holotype ♀; La Carbonera Experimental Forest 50 km NW Merida, Merida, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *ruficollis* (Fabricius) female holotype by the much smaller subcircular central raised reticulate area on the female frons; and by the less strongly impressed lateral areas of the epistoma.

Male: Similar to female except raised reticulate area on frons wider; its dorsal margin recurved in 1 of 3 males, thus giving that male reticulate area a subreniform outline; posterior face of antennal club without long hair.

Female: Length 2.7 (male 2.7–2.8) mm, 2.8 times as long as wide; reddish brown with declivity and anterior half of pronotum darker in 2 specimens, uniformly reddish brown in 2 other specimens. Frons strongly convex, somewhat flattened between longitudinal crests on median five-sixths, central, raised reticulate area broadly oval, occupying median two-thirds of area between eyes, lateral and upper surface minutely granulate; minute punctures obscure, sparse, minute pubescence on epistoma; antennal club 1.2 times wider than long, sutures weakly procurved, weakly septate. Pronotum 1.2 times as long as wide; sides almost straight and parallel on basal half, rather narrowly rounded in front; anterior margin armed by 12–14 coarse serrations; summit indefinite, anterior to middle, asperities coarse, close, confused; posterior areas reticulate, punctures rather small, moderately close, weak median transverse rugae restricted to basal one-sixth of pronotum length; glabrous. Elytra 1.6 times as long as wide, 1.5 times as long as pronotum; disc occupying 64 percent of elytra length; disc smooth, shining, with many impressed, irregular lines, punctures small, confused. Declivity rather steep, broadly, rather strongly concave; face of concave area smooth, shining, except dull below spine 3, punctures rather large, strongly impressed, many impressed points between punctures; lateral crests strongly elevated, narrowly rounded, spine 1 at base on interstriae 1 small, pointed, 2 on crest slightly above middle, slightly larger than 1, with 3 ascending gradually at base to its apex, projecting about half its basal width. Glabrous except a few minute setae on and near apex.

Distribution: Venezuela (Merida).

Type material: The female holotype and male allotype were taken at La Carbonera Experimental Forest 50 km NW Merida, Merida, Venezuela, 27-X-1969, 2500 m, No. 90, from a liana, by S.L. Wood. Two male paratypes are from El Vigia, Merida, Venezuela 22-X-1969, 100 m, No. 95, from a liana, by S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Tricolus ruficollis (Fabricius)

Tricolus ruficollis (Fabricius), 1801:358 (*Bostrichus*). Holotype ♀; published as *America meridionali*, type labeled [Rio] Essequibo

[Guiana]; UZMC, Copenhagen (References in Wood & Bright c1992:1045)

Holotype ♀: Length 2.6 mm, 2.5 times as long as wide; color dark reddish brown. This specimen is very similar to the female holotype of *T. subrufus* Wood except the central, raised, reticulate area on the frons is smaller (as in the male holotype of *T. subopacus* Wood) and lateral epistomal area less strongly impressed (as in *subopacus*). The transverse rugae on the basal half of the pronotum disc are as in *subopacus*.

Notes: In view of the paucity of specimens available for study and the minuteness of characters that separate species, *Bostrichus ruficollis* Fabricius is treated here as a distinct species until a more thorough study of this genus is possible. The female holotype was examined and compared to the 2 species mentioned above more than 20 years ago. It was not included in the above key.

Tricolus mystacinus Wood, n. sp.

Tricolus mystacinus Wood: Holotype ♀; near Sevilla, Caicedonia, Colombia; USNM, Washington, designated below

Diagnosis: Distinguished from *scitulus* Wood by the presence of a conspicuous brush of long hair on the epistoma and lower frons of the female; by the slightly narrower antennal club; by the less deeply concave declivity; and by the smaller size.

Female: Length 1.75 mm, 2.9 times as long as wide; color reddish brown. Frons weakly convex on median three-fourths, sides and above minutely reticulate, minute punctures obscure; central reticulate area subcircular in outline, more distinctly elevated than normal; epistomal area (and sides above) ornamented by a rather dense brush of moderately long hair; antennal club as long as wide, apical margin strongly arcuate, sutures weakly procurved, obscure, partly, weakly septate. Pronotum 1.2 times as long as wide, sides almost straight and parallel on basal half, very narrowly rounded in front; anterior margin armed by 8 coarse serrations; summit indefinite, anterior to middle of pronotum length; asperities rather coarse, close, confused; posterior areas finely rugose-reticulate, rugae on median base almost entirely obsolete; almost glabrous. Elytra 1.7 times as long as wide, 1.2 times as long as pronotum; disc occupying 60 percent of elytral length; surface smooth, shining, punctures partly confused, partly in obscure rows. Declivity steep, broadly concave; face of concave area smooth, shining, punctures rather large, strongly impressed, impressed points obscure to absent; lateral crest rather strongly elevated, narrowly rounded, spine 1 at base on interstriae 1 slightly larger than normal, pointed, 2 twice as large as 1, slightly above middle of declivity length, 3 at apex of crest, slender, blunt, projecting slightly more than its basal width. Almost glabrous.

Distribution: Colombia (Caicedonia).

Type material: The female holotype was taken near Sevilla, Caicedonia, Colombia, VIII-1959, Duque (prob-

ably from cafe or guamo). The holotype is in the U.S. National Museum, Washington.

Tricolus spheniscus Schedl

Tricolus spheniscus Schedl, 1939:581. Lectotype ♂; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien, designated by Schedl 1979:234 (References in Wood & Bright c1992:1045)

Diagnosis: Distinguished from *mystacinus* Wood by the reduced epistomal hair; by the larger body size; and by the small, low serrations on the anterior margin of the pronotum.

Male: Length 2.7–2.9 mm, 2.8 times as long as wide; color dark reddish brown. Frons moderately convex on median three-fourths, strongly reticulate, sparse punctures obscure; subcircular area on median fifth rugose-reticulate; setae on median fifth of epistoma longer and more abundant; antennal club subcircular, very slightly longer than wide. Pronotum 1.2 times as long as wide; sides moderately arcuate on basal half, narrowly rounded in front; anterior margin armed by 11 moderately coarse serrations, median one largest; summit one-third pronotum length from anterior margin; asperities rather coarse, close, confused; posterior areas reticulate, punctures small, basal fourth of disc on median third with many weak, transverse rugae; glabrous. Elytra 1.6 times as long as wide, 1.2 times as long as pronotum; disc occupying basal 55 percent of elytra length, surface smooth, shining, punctures rather small, confused. Declivity rather steep, broadly, moderately concave; spine 1 at base on interstriae 1, small, pointed, lateral crest subacutely elevated to spine 2 near middle of declivity, on crest, twice as large as 1, with 3 near apex, rather strongly projecting at subacute apex, from lateral aspect height slightly less than width, separated from apical margin by slightly more than basal width of spine, spine 3 projecting rather strongly, somewhat slender; face of declivity smooth, shining, punctures rather coarse, close, confused. Vestiture consisting of sparse, fine hair on disc, and on sides from base to lateral areas near declivity.

Female: Similar to male except epistomal setae more numerous and longer; posterior face of antennal club with several long setae.

Distribution: Brazil: Nova Teutonia, Santa Catarina, 15-VII-1937 (type, 1 paratype), 2 paratypes same except II-1937, female lectoallotype and 2 paratypes same except III-1937, all by F. Plaumann.

Notes: The above treatment was based on the male lectotype, female lectoallotype, 2 male and 2 female paratypes.

Tricolus pumilio Eggers

Tricolus pumilio Eggers, 1937:87. Holotype ♀; Cochabamba, Bolivia; NHMW, Wien (References in Wood & Bright c1992:1044)

Diagnosis: Distinguished from *capitalis* Wood by the smaller size; by the narrowly rounded (not acute) basal margin of the elytral declivity between spines 1 and 2;

and by the larger mesal serration on the anterior margin of the pronotum.

Female: Length 1.7 mm, 3.0 times as long as wide; color dark reddish brown. Frons partly concealed on type, apparently similar to female *spheniscus* Wood; antennal club slightly longer than wide, sutures weakly procurved, several long setae on posterior face. Pronotum 1.4 times as long as wide; sides almost straight and subparallel on basal half, moderately constricted on anterior third, narrowly rounded in front; anterior margin armed by 7 coarse serrations, median one central and larger; summit one-third pronotum length from anterior margin; asperities coarse, close, confused; posterior areas reticulate, punctures small, not close, punctures transverse, not clearly rugose near base in median area; glabrous. Elytra 1.6 times as long as wide, 1.2 times as long as pronotum; disc occupying basal 70 percent of elytra length; disc smooth, shining, small punctures mostly in stria rows, very few impressed irregular lines present. Declivity rather steep, broadly, moderately concave; spine 1 at base on interstriae 1, small, pointed, spine 2 twice as large as 1, sharply pointed, crest between spines 1 and 2 rounded, spine 3 much larger than 2, projecting, from lateral profile longer than wide, separated from apical margin by more than basal width of spine 3; face of declivity smooth, shining, punctures rather small, confused. Vestiture of sparse, short hair on sides near declivity.

Distribution: Bolivia: Cochabamba, before 1932.

Notes: The above treatment was based on the female holotype, det. Eggers 1932 (Wood & Bright c1992:2-3).

Tricolus scitulus Wood

Plate CLXXXIII

Tricolus scitulus Wood, 1974:62. Holotype ♀; Tapanti, Cartago, Costa Rica; USNM, Washington (References in Wood & Bright c1992: 1045)

Diagnosis: Distinguished from *saundersi* Wood by the smaller size; by the distance between the left and right members of declivital spine 2 being equal to that between left and right 3; and by the color being either uniformly black or bicolored.

Male: Similar to female except antennal club narrower, without a tuft of long hair on posterior face.

Female: Length 1.9-2.3 mm, 2.8 times as long as wide; color almost black, a few specimens with basal half of elytra reddish brown. Frons convex, less strongly convex on slightly impressed median 80 percent, raised reticulate area occupying most of impressed area, about twice as wide as longitudinal length; antennal club as long as wide, subcircular, sutures weakly procurved, obscurely septate, posterior face with several long setae. Pronotum 1.2 times as long as wide; widest near base, sides almost straight, converging slightly on basal half, a distinct constriction on anterior half of most specimens, rather narrowly rounded in front; anterior margin armed by about 12 basally connected serrations; summit indef-

inite, anterior to middle; asperities coarse, close, confused; posterior areas minutely reticulate, punctures very small, rather close; weak, transverse rugae on posterior one-fifth of pronotum length on median area; glabrous. Elytra 1.6 times as long as wide, 1.27 times as long as pronotum; disc occupying basal 60 percent of elytra length; disc smooth, shining, punctures small, confused, several weakly impressed irregular lines present. Declivity steep; strongly, broadly concave; face of concave area smooth, shining, punctures small, confused; lateral margin rather strongly elevated, crest narrowly rounded, spine 1 at base on interstriae 1 small, pointed, 2 on crest slightly above middle of declivity length, twice as large as 1, with 3 subtriangular, projecting slightly more than basal width. Almost glabrous, a few setae on sides near declivity.

Distribution: Costa Rica to Venezuela.

Venezuela: Merida, Merida, 18-X-1969, 1700 m, No. 71, liana, SLW; La Carbonera Experimental Forest 50 km NW Merida, Merida, 28-IV-1970, No. 453, liana, also same data except 10-XI-1969, No. 174, *Nectandra* sp., and 9-XII-1969, No. 168.

Notes: The above treatment was based on the type series of 11 specimens and on 18 other specimens from Venezuela.

Tricolus bicavus Wood, n. sp.

Plate CLXIX

Tricolus bicavus Wood: Holotype ♀; 30 km E Palamar, Bolivar, Venezuela; USNM, Washington, designated below

Diagnosis: Allied to *senex* Schedl except distinguished by the lateral impression on the female frons extending from median reticulate area to lateral margin, impression more general, not as abrupt; by the more narrowly rounded anterior margin of the pronotum; by the narrower elytral declivity; and by the smaller size.

Male: Similar to female except frons convex, lateral areas punctured, not impressed, median reticulate area resembling a circular, weakly reticulate bulla.

Female: Length 1.7-2.0 mm, 2.8 times as long as wide; color reddish brown. Frons with median third occupied by a strongly reticulate area (slightly wider than longitudinal length), lateral thirds strongly impressed from epistoma to upper level of reticulate area and from reticulate area two-thirds distance to eye; a few setae on median third of epistoma; antennal club 1.5 times wider than long, sutures weakly procurved, apparently weakly septate, posterior face ornamented by many long hairlike setae. Pronotum 1.4 times as long as wide; sides on basal half straight, converging slightly, very narrowly rounded in front; anterior margin armed by 8 serrations; summit slightly behind anterior third; asperities rather coarse, close, confused; posterior areas strongly reticulate, punctures very small, shallow; subglabrous. Elytra 1.6 times as long as wide, 1.1 times as long as pronotum; disc occupying basal 70 percent of elytra length; disc smooth, shining, punctures small, partly in

rows, partly confused. Declivity rather steep, strongly, concavely impressed, concave area smooth, shining, punctures rather large, most punctures containing a small tubercle; lateral crests moderately elevated, rather broadly rounded; spine 1 at base of interstriae 1, small, acutely pointed, 2 on crest, slightly above middle of declivity length, twice as large as 1, profile of 3 broadly triangular, projecting about one-third its basal width. Glabrous except for very sparse hair in lateral areas near declivity.

Distribution: Costa Rica to Colombia and Venezuela.

Type material: The female holotype, male allotype, and 16 paratypes were taken at Campamento Rio Grande 30 km E Barbosa, Antioquia, Colombia, 12-VII-1970, 200 m, No. 566, "Suipo," S.L. Wood, 1 paratype is from 2.4 km E Barbosa, Antioquia, Colombia, 1200 m, No. 694, *Xelopia*, S.L. Wood, and 2 paratypes are from 10 km SE Miri, Barinas, Venezuela, 8-II-1970, 150 m, No. 305, *Serjania*, S.L. Wood.

Notes: The above treatment was based on 19 specimens from Colombia, 2 from Costa Rica, and 18 from Venezuela. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Tricolus senex Schedl

Tricolus senex Schedl, 1939:580. Lectotype ♂; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:1045)

Diagnosis: Distinguished from *difodinus* Bright by the larger size; by the male reticulate area on the frons being wider than long, the female reticulate area on the frons is wider and the lateral impressions are larger and in a more dorsal position.

Male: Similar to female except frons convex, lateral areas punctured, not impressed, central reticulate area almost circular in outline; antennal club without long hair on posterior face.

Female: Length 1.6–2.4 mm, 3.0 times as long as wide; color reddish brown. Frons with reticulate median area wider, occupying slightly more than median third; lateral thirds moderately impressed below, upper half more strongly impressed into a cup-shaped fovea; vestiture restricted to minute setae on median third of epistoma; antennal club 1.2 times as long as wide, sutures 1 and 2 weakly procurved, partly, weakly septate, posterior face on lateral margins of segment 2 bearing a pair of small tufts of long hair. Pronotum 1.3 times as long as wide; sides on posterior half almost straight and subparallel, narrowly rounded in front; anterior margin armed by 10–12 coarse serrations, larger in median area; summit indefinite, anterior to middle; asperities moderately coarse, close, confused; posterior areas strongly reticulate, punctures minute, obscure; vestiture restricted to minute hair at lateral margins. Elytra 1.6 times as long as wide, 1.2 times as long as pronotum; disc occupying basal 65 percent of elytra length; disc smooth, shining, punctures small, confused, surface marked by

several very weak, irregular lines. Declivity rather steep, broadly, rather strongly concave; surface of concave area smooth, shining, punctures close, moderately coarse, a few on lateral half replaced by a small granule; lateral crest rather high, narrowly rounded, spine 1 at base on interstriae 1, small, pointed, 2 on crest at middle of declivity length, pointed, twice as large as 1, with 3 displaced slightly mesad, subtriangular in outline, projecting more than half basal width. Glabrous except for a few minute setae on sides near declivity.

Distribution: Costa Rica to Brazil.

Brazil: Nova Teutonia, Santa Catarina, 27°11'B, 52°23'W, XI-1956, 300–500 m, F. Plaumann, also III-1937 (paratypes).

Notes: The above treatment was based on 29 specimens from Costa Rica, and 9 from Brazil, including the male lectotype, female lectoallotype (in poor condition), and 2 male and 2 female paratypes (1 male and 1 female in good condition).

Tricolus abruptus Schedl

Tricolus abruptus Schedl, 1976:83. Holotype ♂; Caruaru, Pernambuco, Brazil; NHMW, Wien (References in Wood & Bright c1992:1042)

Diagnosis: Apparently allied to *saundersi* Wood (both spine 3s chewed off to base by siblings), distinguished by the more distinct subcarinate feeble rugae at median base of pronotum disc; by the slightly larger punctures on a smoother elytral disc; and by the more broadly flattened elytral declivity, with spine 3 positioned very slightly more dorsad and with a narrower base.

Male: Length 2.0 mm, about 2.8 times as long as wide (elytra spread on type); color light reddish brown. Frons concealed by pronotum on type; antennal club 1.2 times as long as wide, broadly obovate, sutures weakly procurved. Pronotum 1.3 times as long as wide; sides on basal half almost straight and subparallel, rather narrowly rounded in front; anterior margin armed by 7 rather coarse serrations, median one slightly larger and projecting more nearly cephalad; summit one-third pronotum length from anterior margin; asperities rather coarse, close, confused; posterior areas reticulate, punctures small, basal third of disc on median third of pronotum with many weak, subcarinate rugae, rugae wide but not high; glabrous. Elytra about 1.3 times as long as wide, 1.2 times as long as pronotum; disc occupying 70 percent of elytra length, disc very smooth, brightly shining, no impressed lines, punctures very small, mostly in stria rows from 2 to 5. Declivity steep, broadly, moderately concave, spine 1 small, sharply pointed, positioned at base on interstriae 1, 2 three times larger than 1, cylindrical, blunt, crest subacutely elevated from 1 to 2, with 2 positioned about one-third declivity length from base, 3 entirely chewed off by siblings, its basal area (cross-section) subcircular in outline, smaller than expected, positioned slightly more than basal width of spine from subacute apical margin; face of declivity smooth, shining,

confused punctures rather small, elevated margin of suture distinct, weak, very narrow. Almost glabrous, a few short setae on sides near declivity.

Distribution: Brazil: Caruaru, Pernambuco, IV-1972, M. Alvarenga.

Notes: The above treatment was based on the male holotype.

Tricolus affinis Eggers

Tricolus affinis Eggers, 1931:38. Holotype, sex?; Sao Paulo, Brazil, lost with Hamburg Museum; neotype ♀; Sao Paulo, Brazil; NHMW, Wien, designated below

Diagnosis: Distinguished from *naevus* Wood by the less coarsely serrate anterior margin of the pronotum; by the more numerous, more coarsely, transversely crenulate basal third of the pronotum disc; and by the quadrate declivital spine 3 that is positioned almost on the apical margin.

Female: Length 2.8 mm, about 2.8 times as long as wide (left elytron of type missing); very dark reddish brown. Frons concealed on type by pronotum; antennal club broadly obovate, very slightly longer than wide. Pronotum 1.4 times as long as wide; sides feebly arcuate, almost parallel on basal half, rather narrowly rounded in front, anterior margin armed by 10 weak serrations; summit about one-third of pronotum length from anterior margin; asperities rather coarse, close, confused; posterior areas strongly reticulate, punctures very small, posterior half of disc on median third of pronotum armed by numerous transverse, finely crenulate rugae; glabrous. Elytra about 1.5 times as long as wide, about 1.2 times as long as pronotum; disc occupying about 70 percent of elytra length; disc smooth, shining, with many impressed irregular lines, punctures small, confused from suture to striae 3–5 almost in strial rows. Declivity (right elytron only) steep, spine 1 small, pointed, at base on interstriae 1, with 2 slightly above middle of declivity length, three times larger than 1, subcylindrical, blunt, crest from 1 to 2 rather broadly rounded, 3 broadly quadrate (mesal aspect), subtriangular (lateral aspect), about twice as wide at base as high, blunt, positioned less than half basal width from apical margin; face of declivity smooth, shining, with impressed points, margin of suture narrowly, weakly elevated as in *abruptus*. Glabrous except for a few setae on sides near declivity.

Distribution: Brazil: "Sao Paulo, Bras. Mraz. Lct., Mus. Pragense."

Notes: The above treatment was based on a female that was labeled as a cotype by Eggers in 1927 (Wood in Wood & Bright c1992:2–3). The holotype was lost with the Hamburg Museum in 1944. I here designate as the neotype of *Tricolus affinis* the Eggers cotype cited above. It presently is in NHMW, Wien.

Tricolus parvus Wood, n. sp.

Plate CLXXII

Tricolus parvus Wood: Holotype ♀; Rancho Grande, Aragua, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *rufodorsalis* Wood by the very stout declivital spine 3, the lower part of which is on the apical margin of the declivity; spine 3 projecting much more conspicuously, appearing quadrate.

Male: Similar to female, with fewer long setae on posterior face of antennal club; male abdominal tergum 8 clearly visible.

Female: Length 2.8–3.3 mm, 3.2 times as long as wide; color of pronotum and part of elytral disc reddish brown to uniformly dark brown. Frons rather strongly convex from vertex to weak, transverse impression above epistomal margin; surface strongly reticulate with sparse, minute punctures, central reticulate area slightly elevated to upper level of eyes, subcircular, impunctate; epistomal area with moderately numerous, fine, long hair; antennal club broadly obovate, slightly wider than long, sutures weakly procurved, finely septate, several long setae on posterior face. Pronotum 1.26 times as long as wide; sides almost straight and parallel on basal half, rather narrowly rounded in front; anterior margin armed by 6 low serrations; summit indefinite, anterior to middle of pronotum length, asperities coarse, close, confused; rugae continuing to middle, basal third on median half with higher, closer rugae; basal half reticulate, punctures on lateral areas only; glabrous. Elytra 1.4 times as long as wide, 1.3 times as long as pronotum; disc occupying 64 percent of elytra length; disc smooth, shining, with many weakly impressed irregular lines, punctures small, shallow, close. Declivity rather steep, broadly concave; concave area shining, punctures small, shallow, close; lateral crest moderately high, narrowly rounded, spine 1 at base on interstriae 1 of moderate size, 2 on crest at middle of declivity length, at least twice as large as 1, subcylindrical, blunt, 3 at subapical margin, stout, subquadrate, slightly wider than long. Sparse setae on sides near declivity.

Distribution: Venezuela (Aragua).

Type material: The female holotype was taken at Rancho Grande, Aragua, 9-IV-1970, 1100 m, No. 431, *Nectandra*, by S.L. Wood. The male allotype and 5 paratypes are from the same locality and date, No. 420, *Tabebuia* branch; 6 additional paratypes bear the type data except collection No. 424 (1), No. 432 (1), and No. 440 (4). The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Tricolus rufodorsalis Wood, n. sp.

Tricolus rufodorsalis Wood: Holotype ♀; Rancho Grande, Aragua, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *rufithorax* Wood by the smaller size; by the deeper concavity of the elytral declivity; and by the more nearly subquadrate, projecting declivital spine 3.

Male: Similar to female except posterior face of antennal club without long hair.

Female: Length 1.8–2.4 mm, 3.0 times as long as wide; color almost black, pronotum reddish brown. Frons

strongly convex; central reticulate area twice as wide as long; vestiture very short, on epistoma; antennal club obovate, slightly longer than wide, posterior face ornamented by several long setae. Pronotum 1.2 times as long as wide; sides on basal half almost straight, converging slightly, anteriorly, narrowly rounded in front; anterior margin armed by 12 coarse serrations; summit slightly anterior to middle; asperities rather coarse, close, confused; posterior areas reticulate, punctures very small, basal fourth on median half with weak, transverse rugae; glabrous. Elytra 1.6 times as long as wide, 1.3 times as long as pronotum; disc occupying 62 percent of elytra length; disc smooth, shining, with a few weakly impressed irregular lines, punctures rather small, confused. Declivity rather steep, broadly concave; concave area shining, punctures moderately large, clearly impressed; lateral crest moderately high, rather narrowly rounded; spine 1 at base on interstriae 1 rather small, pointed, 2 on crest at middle of declivity length, subcylindrical, two or more times larger than 1, with 3 subquadrate, projecting about half its basal width. Almost glabrous.

Distribution: Venezuela (Aragua).

Type material: The female holotype, male allotype, and 5 female paratypes were taken at Rancho Grande, Aragua, Venezuela, 9-IV-1970, 1100 m, No. 431, *Nectandra* branches, by S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Tricolus abacis Wood, n. sp.

Plate CLXVIII

Tricolus abacis Wood: Holotype ♂; Piedras Blancas 11 km W Medellin, Antioquia, Colombia; USNM, Washington, designated below

Diagnosis: Allied to *peltatus* Wood except smaller; spine 3 separated from subapical margin of declivity by width of spine 3; spine 3 smaller, subquadrate.

Male: Length 2.2–2.7 mm, 3.2 times as long as wide; color reddish brown, anterior half of pronotum and declivity darker. Frons broadly convex, central reticulate area occupying 30 percent of area between eyes; lateral areas strongly reticulate, punctures small, obscure, close; vestiture of fine, moderately long hair on epistoma and slightly above, moderately abundant on median fifth; antennal club 1.5 times longer than wide, asymmetrically obovate. Pronotum 1.3 times as long as wide; sides on basal half almost straight and parallel, narrowly rounded in front; anterior margin armed by about 8 coarse serrations; summit distinctly anterior to middle of pronotum length; asperities on anterior slope coarse, close, confused; posterior areas strongly reticulate, punctures minute, not close, basal fourth on median third with a few weak, transverse rugae; glabrous. Elytra 1.7 times as long as wide, 1.3 times as long as pronotum; disc occupying 62 percent of elytra length; disc smooth, shining, punctures small, confused. Declivity rather steep, strongly, broadly concave; face of concave area smooth, shining, punctures minute to absent on lower third, dis-

tinctly impressed and rather coarse, confused above; lateral margins rather high, crest narrowly rounded; spine 1 at base on interstriae 1, small, acutely pointed, 2 on crest distinctly above middle of declivity length, twice as large as 1, with 3 quadrate projecting slightly more than basal width. Vestiture of sparse, fine hair on lower sides near declivity.

Female: Similar to male except posterior face of antennal club ornamented by several long setae.

Distribution: Colombia to Venezuela (Aragua).

Type material: The male holotype, female allotype, and 18 paratypes were taken at Piedras Blancas 11 km W Medellin, Antioquia, Colombia, 17-VII-1970, 2300 m, No. 689, *Vismia*, S.L. Wood. Two paratypes bear identical data to the type except No. 680 and 691. Three paratypes are labeled Manodanillos, Flandes, Seville, Valle de Cauca, Colombia, 4-V-1970, guamo verde, M. Gomez. Specimens not designated as type material are from Venezuela: Colonia Tovar, Aragua, 4-V-1970, 1700 m, No. 492, tree twig, SLW; La Carbonera Experimental Forest 50 km NW Merida, Merida, 10-XI-1969, 2500 m, No. 128, tree seedling, and No. 174 *Nectandra* branch, SLW. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Tricolus bifidus Schedl

Tricolus bifidus Schedl, 1939:579. Holotype ♀; Brazil [Santa Catarina]; NHMW, Wien (References in Wood & Bright c1992:1043)

Diagnosis: Distinguished from *frontalis* Wood by the larger size; by the definite rugose-reticulate central area on the frons; and by the slightly higher position of spine 3 on the declivity.

Female: Length 3.6 mm (male 3.3 mm, possibly this species); dark reddish brown, basal half of elytra pale reddish brown. Frons with a conspicuous, raised, rugose-reticulate area on median third from upper level of eyes to distinctly above epistoma, lateral areas rather coarsely, convergently aciculate; brightly shining, glabrous; antennal club subtriangular, widest apically, about as long as wide, sutures weakly arcuate, many long setae on posterior face. Pronotum 1.3 times as long as wide; sides feebly arcuate and subparallel on basal half, rather narrowly rounded in front; anterior margin armed by about 14 very low basally connected serrations; summit one-third pronotum length from anterior margin; asperities rather coarse, close, confused; posterior areas reticulate, punctures very small; basal fourth of disc on median third of pronotum width feebly, transversely crenulate, most not carinate. Elytra 1.8 times as long as wide, 1.3 times as long as pronotum; disc occupying basal 62 percent of elytra length; disc smooth, shining, with a few impressed, irregular lines, punctures small, confused. Declivity steep, broadly, rather deeply concave; spine 1 at base on interstriae 1, small, pointed, 2 near middle on crest, blunt, cylindrical, three times larger than 1, crest between 1 and 2 rounded, 3 on crest at apical margin, quadrate, as high as wide, its anterior apical angle formed

by a pointed tubercle; face of declivity obscurely reticulate, all punctures replaced by small, rounded tubercles, confused, close. Glabrous except for a few setae on sides near declivity.

Distribution: Brazil: Santa Catarina; Monte Alegre, Maranhao, 18-VII-1995 to 9-VIII-1996, ethanol trap in *Pinus taeda* stand, C.A.H. Flechtmann.

Notes: The above treatment was based on the female holotype. A male in the collection at NHMW, Wien, under this name apparently is a different species.

Tricolus brasilianus Wood, n. sp.

Tricolus brasilianus Wood: Holotype ♀; Sao Francisco de Paula, Rio Grande do Sul, Brazil; MZUSP, Sao Paulo, designated below

Diagnosis: Distinguished from *myrti* Wood by the smaller body size; by the dominance of 1 median serration on the anterior margin of the pronotum; by the quadrate spine 3 on the declivity; by the uniformly dark color; and by the less strongly explanate apex of the declivity.

Male: Similar to female except antennal club smaller and more slender; allotype right declivital spine 2 and both left and right spine 3 chewed by siblings in the brood chamber.

Female: Length 2.5–2.7 mm, 2.9 times as long as wide; mature color very dark brown, allotype not fully colored. Frons moderately convex eye to eye from epistoma to vertex, surface somewhat rugose-reticulate, several small, obscure punctures in peripheral areas, elevated median area more finely, densely rugose-reticulate, this area transversely oval, occupying slightly more than median third of frons width and from epistoma almost to upper level of eyes; sparse, short setae restricted to epistoma; lateral thirds immediately above narrowly, moderately impressed; antennal club subtriangular, widest near weakly arcuate apical margin, sutures 1 and 2 slightly procurved, both marked only by weak septum on lateral thirds, sparse, long setae on posterior face. Pronotum 1.25 times as long as wide; widest on basal half, sides almost straight and parallel, narrowly rounded in front; anterior margin armed by a weakly serrate costa, 1 median serration dominant; summit indefinite, near middle of pronotum length; anterior slope rather steep, asperities small, close, numerous, confused; posterior areas rugose-reticulate, punctures very small, sparse; basal fifth on median third bearing many transverse rugae; glabrous. Elytra 1.8 times as long as wide, 1.5 times as long as pronotum; disc occupying basal 60 percent of elytra length; disc smooth, shining, a few impressed lines present; punctures minute, confused from suture to interstriae 3, those in lateral areas mostly in stria rows. Declivity moderately steep, concavely excavated on median two-thirds; spine 1 very small, pointed, on crest at base on interstriae 1, 2 on crest, cylindrical, blunt, slightly closer to spine 1 than to 2, spine 3 on lateral margin, subquadrate, slightly longer than wide; surface of excavated area smooth, shining, with numerous con-

fused small punctures, lateral margins of impressed area rising abruptly to crest. Almost glabrous, two or three short setae on sides near declivity.

Distribution: Brazil (Rio Grande do Sul, Sao Paulo).

Type material: The female holotype (VI-1984) and male allotype (15-I-1991) were taken at Sao Francisco de Paula, Rio Grande do Sul, Brazil, VI-1992, ESALQ-84, from an ethanol flight trap in *Pinus taeda* stand (holotype), the allotype from a similar trap in a *Eucalyptus saligna* stand, both by A. Dwulotka. The holotype and allotype are in the Zoological Museum, Universidade do Sao Paulo, Sao Paulo.

Tricolus myrti Wood, n. sp.

Plate CLXXI

Tricolus myrti Wood: Holotype ♂; Piedras Blancas 11 km W Medellin, Antioquia, Colombia; USNM, Washington

Diagnosis: Anterior margin of pronotum more narrowly rounded than *coloreus* Wood; declivity strongly concave, lateral crests more broadly rounded and much less strongly explanate than in *coloreus*, spine 3 subtriangular from lateral aspect.

Male: Length 3.3–3.5 mm, 2.6 times as long as wide; color of pronotum and posterior half of elytra dark brown, basal half of elytra yellowish brown. Frons convex on upper two-thirds, transversely impressed on lower third, central half from upper level of eyes to near epistoma obscurely elevated, rather coarsely granular; vestiture very short, obscure, near epistoma; antennal club very slightly longer than wide; obscurely obovate, sutures weakly procurved, obscurely septate, funicle 2-segmented. Pronotum 1.3 times as long as wide; widest near base, sides feebly converging on basal half, rather narrowly rounded in front; anterior margin armed by about 8 serrations; summit one-third pronotum length from anterior margin; asperities rather coarse, close, confused; posterior areas strongly reticulate, punctures small, obscure, close; rugae not evident; glabrous. Elytra 1.6 times as long as wide, 1.3 times as long as pronotum; disc occupying 60 percent of elytra length; surface almost smooth, punctures small, shallow, confused, rather close. Declivity rather steep, broadly, deeply concave; face of concave area smooth, shining, punctures as large, deeper than on disc, sparse, fine, short hair from near base to near apex; lateral crests rather strongly elevated, rather broadly rounded above spine 3; subapical margin strongly, acutely explanate, modestly divaricate; spine 1 at base on interstriae 1 small, pointed, 2 twice as large as 1, subcylindrical, spaced equal distances between 1 and 3, with 3 two or three times larger than 2, subtriangular; base rising gradually above, twice as wide as high. Vestiture of sparse, fine hair on sides and near declivity.

Female: Similar to male except distinguished by abdominal terga 7 and 8; rugose-reticulate area on frons definite, well defined, antennal club with several long setae on posterior face.

Distribution: Colombia (Antioquia).

Type material: The male holotype, female allotype, and 7 paratypes were taken at Piedras Blancas 11 km W Medellin, Antioquia, Colombia, 17-VII-1970, 2000 m, No. 690, *Myrtus*, S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Tricolus nayaritensis Wood, n. sp.

Tricolus nayaritensis Wood: Holotype ♂; 4 mi (7 km) W Tepic, Nayarit, Mexico; USNM, Washington, designated below

Diagnosis: This species is distinguished by the absence of a median rugose-reticulate area on the frons; declivital spines 2 and 3 are spaced by a distance distinctly less than twice the distance separating spines 1 and 2; the anterior half of the pronotum and the elytra are dark brown in color, the basal half of the pronotum is pale.

Male: Length 2.9–3.5 mm, 3.0 (female 2.8) times as long as wide; posterior half of pronotum yellowish brown, anterior pronotum and elytra very dark brown. Frons moderately convex eye to eye from epistoma to vertex, surface on lower third reticulate, becoming almost smooth toward vertex, punctures rather small, close, confused; central rugose-reticulate area absent; sparse, short setae restricted to epistomal margin; antennal club 1.5 times as long as wide, sutures 1 and 2 almost straight, feebly septate. Pronotum 1.3 times as long as wide; sides feebly arcuate and subparallel on more than basal half, rather narrowly rounded in front; anterior margin armed by 12 sharply pointed, basally separate serrations; summit at middle of pronotum length; anterior slope steep, asperities rather small, close, confused; posterior areas finely reticulate, punctures small, those near base with posterior margin feebly raised; sparse, short, hairlike setae on anterior and lateral margins. Elytra 1.6 times as long as wide, 1.2 times as long as pronotum; disc occupying basal 60 percent of elytra length; disc smooth, shining, with many impressed lines, punctures very small, close, confused from suture to interstriae 4, mostly in rows on lateral areas. Declivity steep, broadly concave on median two-thirds; spine 1 on rounded crest at base of sutural interstriae (represented by only a seta on some specimens); spine 2 on crest closer to spine 1 than 3, cone-shaped, pointed, smaller than 3; spine 3 quadrate, as high as wide, spaced from 2 to 3 by distance two times distance from 1 to 2, with 3 displaced from lateral margin by its transverse thickness, crest more narrowly rounded from spine 2 to 3 and slightly below; rather deeply, broadly emarginate at suture, moderately explanate, crest from suture to slightly below spine 3 acutely costate; face of declivity smooth, shining, punctures on median half very small, close, confused, separated by diameter of a puncture. Vestiture sparse, short, hairlike on sides near declivity.

Female: Similar to male except antennal club with a tuft of long setae on posterior face; serrations on anterior margin of pronotum almost obsolete; declivity shallowly concave on median half, lateral crests broadly rounded; spine 1 on declivity obsolete, 2 and 3 very

small, pointed, each displaced half distance from lateral margin toward suture, spine 2 on upper third of declivity length, 3 at middle of declivity length.

Distribution: Mexico (Nayarit).

Type material: The male holotype, female allotype, and 3 paratypes were taken 4 mi (7 km) W Tepic, Nayarit, Mexico, 13-VII-1965, 300 ft., No. 240, S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Notes: Several characters suggest that this species should be placed in *Monarthrum*; however, the transverse prosternal piece between the head and the procoxae is clearly that of *Tricolus*. A study of the DNA of this species may be needed to correctly place it in a genus.

Tricolus coloreus Wood, n. sp.

Plate CLXX

Tricolus coloreus Wood: Holotype ♂; La Carbonera Experimental Forest 50 km NW Merida, Merida, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *myrti* Wood by the larger size; by the more deeply concave elytral declivity, with its apex more strongly explanate and divaricate, spine 3 on declivity more slender, resembling spine 2.

Male: Length 3.7–4.0 mm, 3.0 times as long as wide; color of pronotum and posterior half of elytra dark brown, basal half of elytra yellowish brown. Frons convex, strongly reticulate, central raised reticulate area subreniform, three times as wide as longitudinal length; moderately, transversely impressed on lower third, impressed area obscurely, finely punctured; several minute setae on and near epistoma; antennal funicle 2-segmented, club broadly obovate, slightly longer than wide, sutures weakly procurved, obscurely septate, posterior face with several long setae as in female. Pronotum as in *myrti*, except anterior margin slightly more broadly rounded on anterior margin. Elytra 1.8 times as long as wide, 1.4 times as long as pronotum; disc occupying 55 percent of elytra length, surface smooth, shining, punctures small, confused. Declivity rather steep, deeply, broadly concave; face of concave area smooth, shining, punctures as on disc but deeper, punctures mostly obsolete on lower third, setae longer than in *myrti*; lateral margins slightly higher, more narrowly rounded, more strongly explanate and divaricate below; spine 1 at base on interstriae 1 pointed, 2 at least twice as large as 1, blunt, cylindrical, 3 much larger than 2 and of similar shape (base narrow, almost twice as high as basal width). Vestiture sparse on sides near declivity.

Female: Similar to male except for abdominal terga 8 and 9; antennal club larger; tuft of setae on posterior face larger.

Distribution: Venezuela (Merida).

Type material: The male holotype was taken at La Carbonera Experimental Forest 50 km NW Merida, Merida, Venezuela, 9-XII-1969, 2500 m, No. 174,

Nectandra, by S.L. Wood; the female allotype is from the type locality 14-X-1969, No. 53, *Nectandra*. Eight paratypes are from La Mucuy, 20 km N or NE of Merida, Merida, Venezuela, 20-X-1969, No. 72, bromeliad fruiting stalk (3), Nos. 225, 226 (2), 22-X-1969, No. 207, tree seedlings (3), and 8-I-1970. All were taken by S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Tricolus undulatus Wood, n. sp.

Tricolus undulatus Wood: Holotype ♂; Telemaco Borba, Panama, Brazil; Museum de Zoologia, Universidade de Sao Paulo, Sao Paulo, designated below

Diagnosis: Distinguished from *collaris* (Blandford) and *amplus* Wood by the smaller, more slender body form; by the presence of a conspicuous elevation on the declivity extending from the small spine 3 three-fourths of the distance toward the suture, a distinct undulation of the declivital suture occurring near its elevation; lateral areas of frons distinctly aciculate, median rugose-reticulate area small, circular in outline.

Male: Length 3.3 mm, 3.0 times as long as wide; color black. Frons strongly convex, slightly more than lateral thirds convergently aciculate, slightly less than median third a subcircular, slightly raised rugose-reticulate area from slightly above epistomal margin to slightly above upper level of eyes; sparse setae on aciculate area and on epistoma; antennal club obscurely triangular, 1.0 times as long as wide, suture 1 marked on lateral third by a weak septum, 2 marked by a somewhat sinuate groove, its central half weakly septate. Pronotum 1.16 times as long as wide; sides on basal half straight and parallel, narrowly rounded in front; anterior margin armed by a weakly serrate costa; summit indefinite, near middle of pronotum length; anterior slope steep, asperities small, close, confused; posterior areas minutely reticulate, area at summit with moderately close, very small punctures, basal fourth on median third with many weak, transverse rugae; glabrous, except asperate area with many minute setae. Elytra 1.8 times as long as wide, 1.5 times as long as pronotum; disc occupying basal 58 percent of elytra length; disc smooth, shining, with many feebly impressed lines, punctures rather small, confused. Declivity rather steep, deeply, broadly concave; basal margin rather broadly rounded, spine 1 on crest at sutural interstriae, spine 2 on crest at interstriae 2; spine 2 moderately large, conical; distance from spine 2 to 3 twice as great as from spine 1 to 2; spine 3 on crest, subquadrate, apex ending in two tubercles, one each at anterior and posterior apical angles, apex of spine directed mesad, lower of spine 3 only slightly above apex of suture; profile of suture on declivity slightly concave on upper two-thirds, slightly convex on lower third; a convex elevation extending from base of spine 3 mesad to position of striae 1; face of declivity smooth, shining, rather broadly, triangularly impressed above level of spine 3, much more narrowly impressed below;

punctures small, confused, obscurely impressed. Glabrous, except about four setae on each side near declivity.

Distribution: Brazil (Parana).

Type material: The male holotype was taken at Telemaco Borba, Panama, Brazil, 3-XI-1995, Klabin Papel e Cellulose, ethanol intercept trap in *Eucalyptus grandis* stand, C.A.H. Flechtmann. One male paratype is from Aracruz, Espirito Santo, Brazil, 11-XII-1991, No. 3564. The holotype is in the Museum de Zoologia, Universidade de Sao Paulo, Sao Paulo. The paratype is in the U.S. National Museum, Washington.

Tricolus collaris (Blandford), n. comb.

Plate CLXX

Tricolus collaris (Blandford), 1905:351 (*Amphicranus*). Holotype ♀; Volcan Chiriqui, Panama; BMNH, London (References in Wood & Bright c1992:1046). *New combination*

This species is known from Costa Rica and Panama (Wood 1982:1200). The discovery of other allied species, and of more precise characters that separate *Tricolus* from *Amphicranus*, made it necessary to transfer *collaris* Blandford from *Amphicranus* to *Tricolus*.

GENUS AMPHICRANUS ERICHSON

Amphicranus Erichson, 1836:63. Type-species: *Amphicranus thoracicus* Erichson, monobasic (Synonymy and references in Wood & Bright c1992:1045)

Piezorhopalus Guerin-Meneville, 1838:107. Type-species: *Piezorhopalus nitidulus* Guerin-Meneville = *Amphicranus thoracicus* Erichson, monobasic

Steganocranus Eichhoff, 1878:460. Type-species: *Steganocranus dohrni* Eichhoff, monobasic

Diagnosis: Distinguished from *Tricolus* by the moderately to profoundly explanate elytra, which usually are also profoundly divaricate; by the much more diverse and remarkable declivital armature; by the oval to rather elongate antennal club; by the larger prosternum with the anteroventral margin fitting snugly against the head (not a thin, transverse partition bent caudad); and by the usually more slender pronotum.

Description: Length 1.7–7.3 mm, about 3.0–6.0 or more times as long as wide; color yellowish brown to almost black (frequently bicolored); sexual dimorphism may occur on frons, on antennal club (some females with a small tuft of long hair on posterior face), or on elytral declivity. Frons mostly convex, with sparse vestiture or glabrous; antennal scape club-shaped, mostly glabrous, funicle 2-segmented, rarely with 3 segments or with line of fusion between segments 2 and 3 visible, 1-segmented in at least one species; club slightly longer than wide in male, very elongate in female and ornamented on posterior face by a tuft of long hair, sutures moderately procurved. Pronotum longer than wide, anterior slope often radically modified; disc normal in most species, transversely strigose in most large species; lateral margin marked by a fine, raised line; precoxal piece of prosternum varying longitudinally from length equal

to width of a procoxa to less than half width of a procoxa. Elytral punctures usually confused, obscure rows of stria punctures visible in some more primitive species; declivity usually armed on margins of impressed or concave area. Vestiture greatly reduced on all areas, most partly to entirely glabrous. Protibiae only slightly, if at all, sexually dimorphic. This genus intergrades in several species with *Tricolus*; the rugose-reticulate area on the frons of most *Tricolus* (3 strongly aciculate exceptions) occurs in at least 2 groups of *Amphicranus*.

Biology: All observed species are monogynous and xylomycetophagous. They breed in branches, limbs, and boles of recently cut, broken, injured, or unthrifty stems of a wide variety of woody plants. The radial entrance

tunnel of an attacking adult penetrates the bark and about 1 or 2 cm of xylem tissue, then turns to follow a growth ring in the host tissue. Broods are small and apparently live in and extend the parent tunnels. Two or three species were removed from new platypodid galleries. Whether this was to seek temporary refuge or was an indication of domicile parasitism could not be determined. All species are rare.

Notes: Wood & Bright (c1992:1045–1050) list 65 species from the Antilles Islands and southern Mexico to South America; 24 were from South America. Most of these species are known from only 1 or 2 sites. It is anticipated that many more species await discovery. Of the species treated here, 28 are from South America.

Key to the Species of *Amphicranus*

- 1. Precoxal area of prothorax transversely very broadly convex, longitudinally well developed (at least as long as longitudinal width of procoxa); procoxa with an acute tubercle on its anterior apical margin; prothorax sometimes greatly elongated, its anterior slope poorly developed or almost obsolete; small, very slender species, 1.6–3.4 mm, all bear a spine at base of declivity on interstriae 3 2
- Procoxal area of prothorax transversely more strongly convex, longitudinally equal in length to less than half length of procoxa; procoxa without an acute tubercle on anterior apical margin 17
- 2(1). Apex of declivital suture armed by a pair of tubercles, a small emargination between these tubercles; explanate lateral arms of declivity projecting beyond level of suture apex a distance greater than width of an arm beyond suture, dorsal apex of arm bearing a sharply pointed, recurved denticle; lateral margin of declivity ornamented by a row of very long hair, forming a small tuft below spine near apex; Mexico (Veracruz); *Leucena pulverulenta*; 1.7–2.4 mm **apicalis** Wood
- Apex of declivital suture normal, without a tubercle or emargination of suture 3
- 3(2). Lower declivity, including mesal margin of lateral arms, armed by 1 conspicuous tubercle or spine, never with a spine on dorsal margin of arms 4
- Lateral projecting arm of declivity bearing one spine at or posterior to level of apex of suture 7
- 4(3). Lateral projecting arm of declivity armed on mesal (lower or inner) margin by 1 moderate to large tubercle half or two-thirds distance from apex of suture to apex of arm 5
- Lower declivity anterior to level of apex of suture on floor of concave area on interstriae 1–2 without a large, short, blunt spine; lateral margin of projecting explanate arms armed by a spine 8
- 5(4). Tubercle on mesal margin of apical process on declivity rather small, on posterior half of U-shaped emargination, displaced slightly laterad from mesal margin; anterior margin of pronotum more narrowly rounded; color yellowish brown; Panama to Venezuela; 2.6–2.8 mm **terabella** Blandford
- Tubercle actually on mesal margin of apical process, projecting into emargination; anterior margin of pronotum more broadly rounded or emarginate 6
- 6(5). Apical emargination at end of elytral suture broad, mesal margin of lateral process constricted slightly before middle in male by an obtuse, pointed, subtuberculate angle directed mesad, in female this area bent dorsad (forming a strongly elevated crest from slightly before level of suture to near apex of lateral process); anterior margin of male pronotum truncate; female epistoma with a deep, narrow, longitudinal cleft; Costa Rica; tree limb; male 3.0–3.4 mm, female 2.4–2.7 mm **mirandus** Wood

CORTHYLINI

- Apical emargination at end of elytral suture very narrow on its anterior half, a large, slender spine arising on its mesal margin and projecting caudomesad and slightly dorsad; anterior margin of pronotum broadly procurved; pronotum and declivity dark brown, elytral disc and sides yellowish brown; Colombia (Antioquia) to Venezuela (Merida); 3.1–4.5 mm *explicitus* Wood
- 7(3). Lateral margin of declivity less strongly elevated, crest conspicuously lower than blunt spine on interstriae 1–2; punctures on face of declivity larger, more numerous; antennal club slightly stouter, sutures less strongly procurved; Mexico (Nayarit, Veracruz); tree limb; 1.7–1.9 mm *stenodermus* (Schedl)
- Lateral margin of declivity more strongly elevated, crest conspicuously higher than blunt spine on interstriae 1–2; punctures on declivity smaller, less numerous; antennal club more slender; sutures more strongly procurved; Mexico (Colima, Veracruz); at light; 2.5–3.0 mm *hybridus* Blandford
- 8(4). Lateral process on declivity more slender, gradually rounded from apex cephalad, without an abrupt angle at small spine on inner side of crest, this spine anterior to middle of process length at level of suture 9
- Lateral process stouter, dorsal crest of its apical margin straight to weakly arcuate to abrupt, obtuse angle at spine on or near crest; face of declivity with or without long hair 10
- 9(8). Declivital face glabrous, punctures not evident; tubercle on dorsal margin of lateral process on declivity very small, directed slightly mesad; Venezuela (Bolivar) to Brazil; *Eschweilera corrugata*; 3.7 mm *tenuis* Blandford
- Declivital face with many long setae, surface with numerous punctures; tubercles on dorsal margin of lateral process distinctly larger, on mesal side of crest, directed more nearly mesad; Colombia (Antioquia) to Venezuela (Merida); 3.3–4.0 mm *attenuatus* Wood
- 10(8). Spine on dorsal crest of lateral process on declivity pointed dorsad or dorsomesad; face of declivity (not crest) devoid of long setae 11
- Spine either displaced mesad from crest, or if on dorsal crest, then spine strongly, abruptly pointed mesad; face of declivity with long hair 15
- 11(10). Lateral processes at apex of elytra shorter, rather stout, emargination between these processes broadly U-shaped, conspicuously wider than deep, spine on lateral crest stout, directed mostly dorsad; Brazil (Bahia); at blacklight; 1.6 mm *bahiae* Wood
- Lateral processes longer, more slender, emargination between processes narrowly U-shaped, conspicuously deeper than wide 12
- 12(11). Frons minutely granular or coarsely rugose-reticulate; anterior margin of pronotum more broadly rounded, serrations smaller, closer, more numerous; explanate arms of declivity wider, emargination at apex of suture slightly deeper, narrower, sides parallel; face of declivity more strongly concave, especially on basal half 13
- Frons finely rugose-reticulate; anterior margin of pronotum more narrowly rounded, more coarsely serrate, one median serration projecting slightly; explanate arms of declivity not as wide; emargination at apex of suture not quite as deep, sides converge slightly toward suture; basal half of declivity face not as strongly concave 14
- 13(12). Male frons (also female?) with a small, median, rugose-reticulate area near epistoma; anterior margin of pronotum more narrowly rounded, armed by a subserrate costa on median half of pronotum width; declivital spine 1 larger, crest below and near spine 2 serrate; lateral crest of declivity at position of spine 3 with an obtuse callus; Brazil (Amazonas); 2.7 mm *electilis* Wood
- Frons without a median rugose-reticulate area; anterior margin of pronotum very broadly rounded, armed by a row of 16 basally separate serrations on median three-fourths of pronotum width;

- declivital spine 1 on interstriae 1 minute, crest below spine 2 not serrate; spine 3 with a subacutely pointed tubercle; Brazil (Mato Grosso); 2.3–2.4 mm *elegantulus* Schedl
- 14(12). Upper frons and vertex evenly convex, without a median crest or carina; spine on crest of lateral process with its apex pointed dorsomesad, mostly dorsad; lateral crest between spines 1 and 2 smooth, unarmed by small tubercles; asperities on anterior slope of pronotum smaller, less numerous; Costa Rica; tree limb; 1.8–1.9 mm *macellus* Wood
- Upper frons and vertex with a distinctly elevated, shining crest or weak carina; spine on crest of lateral process directed mostly mesad; lateral crest between spines 1 and 2 finely serrate; asperities on anterior slope of pronotum larger, more numerous; Venezuela (Aragua); Gutifferae sp., *Nectandra*; 2.3–2.4 mm *cracens* Wood
- 15(10). Upper frons and vertex evenly convex, without a shining median crest; spine on lateral process of declivity moderately displaced mesad from crest, its base joining lateral crest behind level of apex of spine, spine pointed mostly dorsad; lateral process behind apex of suture slightly longer than wide; inner face of declivity with long hair; Mexico (Veracruz); *Quercus laurina*; 2.6 mm *micidus* Wood
- Spine on lateral process connected to crest, pointed strongly mesad 16
- 16(15). Lateral process of declivity extending behind suture a distance slightly greater than distance equal to its width; Mexico (Nayarit); 2.0 mm *parilis* Wood
- Lateral process of declivity extending behind suture a distance distinctly greater than width of process behind apex of suture; Mexico (Guerrero); 2.6–3.3 mm *filliformis* Blandford
- 17(1). Frons ornamented by a definite central rugose-reticulate or reticulate area between epistoma and upper level of eyes 18
- Frons of uniform sculpture, minutely reticulate eye to eye from epistoma to vertex 36
- 18(17). Male: Anterior margin of pronotum produced into an attenuated, acutely pointed, median process; apex of elytra very strongly explanate, very narrowly, deeply emarginate at suture, emargination very narrowly U- or V-shaped, lateral explanate processes much longer than wide 19
- Male: Anterior margin of pronotum narrowly rounded (never forming an acute, median point); apex of elytra with a rather broad U-shaped emargination at suture, lateral explanate process short, wider than long 23
- 19(18). Male: spine on explanate process located well behind level of end of declivital suture, either on margin or slightly displaced mesad. Female: spine 1 usually present at base on declivital interstriae 1, 2 very small, on margin on basal fourth of declivity length, 3 large, on lower third of declivity, base arising on lateral margin, projecting slightly mesad; median area of front above epistoma strongly reticulate, margin of reticulation marked by a clearly defined line 20
- Male: spine placed at or very near level of apex of suture, on margin or displaced mesad. Female: spine 1 at base of declivity usually absent, 2 very small, on margin of basal fourth of declivity, 3 large, displaced mesad partly or entirely to declivital interstriae 3 and rather strongly elevated on middle third of declivity 21
- 20(19). Male: declivital spine on lateral margin of explanate process; reticulate area on frons broadly oval, slightly elevated; Female: declivital spine 3 triangular, pointed, basal width twice its height; reticulate area on frons triangular from lateral aspect (sides almost straight), its lower margin with a median tubercle; Brazil (Santa Catarina); male 4.3–5.0 mm, female 3.2–3.8 mm *spinachius* (Schedl)
- Male: declivital spine 3 blunt, displaced mesad from lateral margin one-third distance toward mesal margin; reticulate area on frons rather small, subcircular. Female: declivital spine 3 subquadrate, blunt, basal width twice height; reticulate area on frons somewhat semicircular, its

CORTHYLINI

- lower margin emarginate, without a median tubercle; Brazil (Santa Catarina); male 3.1–4.3 mm, female 2.8–3.2 mm *dohrni* (Eichhoff)
- 21(19). Male: ventral surface of anterior prolongation of anterior margin of pronotum not armed by a tubercle or low, obtusely pointed tubercle; spine 3 on declivity almost on margin, feebly displaced mesad, a fourth small spine at dorsal apex of an explanate process; reticulate area on frons broadly oval, width almost equal to half distance between eyes. Female: declivital spine 3 on interstriae 3 strongly elevated, ending abruptly, without a small tubercle at apex; reticulate area on frons narrowly elevated at lower margin (subtuberculate), evanescing on upper third to upper level of eyes (more than twice as long as wide); Venezuela (Caracas, Merida); *Croton*, etc.; male 2.6–3.6 mm, female 2.5 mm *acus* Wood
- Male: ventral surface of pronotum mucronate process armed by a small, simple tubercle or a transversely bituberculate process; reticulate area on frons smaller, subcircular 22
- 22(21). Male: ventral surface of pronotum on anterior mucro, unarmed or with a very feeble tubercle; pointed spine 3 on declivity displaced mesad almost half distance to suture. Female: reticulate area on frons clearly defined, more than twice as long as wide, its ventral margin rather abrupt, not forming a tubercle; Panama; tree branches; male 3.0–3.3 mm, female 2.6–2.7 mm *mucronatus* Wood
- Male: ventral surface of pronotum on anterior mucro armed by a large, transversely bituberculate process; spine 3 almost on margin of declivity, displaced mesad very slightly. Female: reticulate area on frons rather poorly defined, with a small median tubercle on its lower margin; Guatemala to Costa Rica; *Conostegia oerstediana*, *Parkinsonia aculeata*; male 3.7–4.2 mm, female 2.7–3.2 mm *fastigiatus* Blandford
- 23(18). Elytra weakly explanate, shallowly divaricate; punctures on elytral disc mostly in rows 24
- Elytra strongly to profoundly explanate, deeply divaricate; punctures on elytral disc mostly to entirely confused; basal margin of declivity armed by 3 or more pair of tubercles or small spines (spine 2 on interstriae 3 sometimes larger); larger species 30
- 24(23). Basal margin of declivity armed by 1 pair of small to moderately large spines (spine 2) on crest; spine 1 absent, spine 3 poorly formed at obtuse angle on crest of lower half of declivity; body less slender, about 3.0 times as long as wide 25
- Basal margin of declivity armed by two pair of small pointed spines, spine 3 near middle of declivity large, cylindrical, lateral process projecting caudad from near apex; body more slender, about 3.5 times as long as wide; bicolored 29
- 25(24). Bicolored, anterior half of pronotum and posterior half of elytra very dark brown, posterior half of pronotum and basal half of elytra yellowish brown; body slender (3.4 times as long as wide); emargination at apex of suture on declivity deeper than wide; lateral margin of declivity distinctly higher, more acute; Costa Rica; 2.4–2.8 mm *tornatilis* Wood
- Unicolorous, dark brown; less slender (less than 3.0 times as long as wide); emargination at apex of suture wider than deep; lateral crest of declivity not as high 26
- 26(25). Major elevation on lower half of elytral declivity in profile forming an angle greater than 90 degrees, apex slightly rounded 27
- Major elevation on lower half of elytral declivity with apex sharply defined, forming an angle of 90 degrees or slightly less 28
- 27(26). Face of declivity between punctures smooth, shining, punctures larger; pronotum smooth, shining between punctures; anterior margin of pronotum armed by 7 coarse serrations, bases of those on lateral half connected; crest for spine 3 strongly formed, rather broadly obtuse, profile of spine apex slightly more than 90 degrees; Costa Rica; tree branch; 2.3 mm *speciosus* (Schedl)

- Face of declivity between punctures reticulate, punctures smaller; pronotum reticulate; anterior margin of pronotum a continuous costa on each side, 1 isolated serration on median line; crest for spine 3 weakly formed, very broadly rounded longitudinally, weakly elevated; Brazil (Santa Catarina); 2.3 mm *gracilis* Eggers
- 28(26). Body less slender; 3.0 times as long as wide; anterior margin of pronotum less narrowly rounded, serrations smaller; elytral declivity less deeply concave, lateral margins not as high, less acute, spine 1 very small, acute, 3 not as high, its apex more acutely rounded; Costa Rica; *Theobroma cacao*; 2.3 mm *spectabilis* Wood
- Body more slender; 3.3 times as long as wide; anterior margin of pronotum more narrowly rounded, serrations distinctly larger; elytral declivity more deeply concave, lateral margins slightly higher, more acutely elevated, spine 1 larger, more obtuse, 3 higher, more broadly rounded at its apex; Mexico (Chiapas); *Theobroma cacao*; 3.0 mm *spectus* Wood
- 29(24). Smaller; pronotum disc with many small punctures, elytral disc regularly, conspicuously punctured; emargination at apex of declivital suture broad, very feebly indicated; Mexico (Morelos); Lauraceae; 2.6 mm *cordatus* Bright
- Larger; punctures on pronotum and elytra disc minute to obsolete; emargination at apex of declivital suture deeper, not as wide; Mexico (Durango); *Quercus*; 3.3–3.6 mm *rameus* Wood
- 30(23). Lateral crest of declivity elevated from spine 1 to apex, with only feeble, very obtuse angle on crest at level of suture apex (no spine); rugose-reticulate area on frons obscure on male, obsolete on female 31
- Basal half of declivity armed by two or more pair of spines, spine 3 clearly evident either on crest or displaced mesad to floor of concave area 32
- 31(30). Declivity face moderately concave, much less strongly explanate, distance from base of declivity to apex of suture 3.5 times greater than depth of emargination at apex of suture; explanate lateral processes poorly developed; angle where spine 3 should be very weak; Brazil (Sao Paulo); 2.1 mm *incisus* (Schedl)
- Declivital face strongly concave, much more strongly explanate, base of declivity to apex of suture 2.5 times greater than depth of emargination at apex of suture; explanate lateral processes broad, rather strongly developed; angle where spine 3 should be definite, obtuse; Venezuela (Merida); *Laurel paramero*, *Nectandra*; 3.3–3.4 mm *laureli* Wood
- 32(30). Anterior slope of pronotum gradually, steeply arched; basal half of elytral declivity armed on basal margin by two pair of spines, small spine 3 variously positioned on posterior half at angle on lateral crest or displaced mesad 33
- Anterior slope of pronotum abruptly impressed at summit, profile in some species concave on upper half; basal margin of elytral declivity armed by three pair of spines, spine 3 either on crest at angle on lateral margin near level of suture apex, or displaced mesad 34
- 33(32). Spine 3 at level of suture apex displaced slightly mesad from lateral crest; rugose-reticulate area on frons small, occupying median sixth of space between eyes, longitudinally elongate, three times longer than wide; explanate lateral process of declivity behind apex of suture slightly wider than long (5:6); uniformly brown; Brazil (Santa Catarina); male 2.8–2.9 mm, female 2.4–2.7 mm *rasilis* Schedl
- Larger species; rugose-reticulate area on frons wider than long, almost half as wide as distance between eyes; explanate process of elytra longer than wide (4:3); spine 3 on dorsal crest of lateral process of declivity; Costa Rica; 6.5 mm *belti* Blandford
- 34(32). Basal margin of declivity armed by three or more pair of spines, all smaller (#3 only slightly larger); rugose-reticulate area on frons occupying less than one-third of space between eyes; pronotum

CORTHYLINI

	with an abrupt, transverse impression immediately anterior to summit; Venezuela; 6.5–7.1 mm	<i>schaufussi</i> Blandford
—	Basal margin of declivity armed by three or more pair of spines, mostly larger (#3 more than twice as large; rugose-reticulate area occupying half of space between eyes; anterior pronotum abruptly declivous in front, without a transverse impression near summit	35
35(34).	Transverse impression immediately anterior to pronotum summit weak, not clearly longitudinally concave; spine 3 on crest of declivity positioned at angle, its apex directed dorsomesad, positioned slightly caudad from level of suture apex; pronotum and declivity dark brown, disc and sides of elytra yellowish brown; Guatemala; “Caldo de Frijol”; 7.3–7.8 mm	<i>balteatus</i> Blandford
—	Transverse impression on pronotum rather strong, abrupt immediately anterior to pronotum summit; spine 3 rather large, displaced mesad from lateral crest, positioned slightly anterior to level of suture apex; pronotum dark brown, a transverse spot of yellowish brown on less than middle third, declivity and posterior half of elytral disc and sides dark brown, anterior half of disc and sides yellowish brown; Venezuela; 4.7 mm	<i>bipunctatus</i> Eichhoff
36(17).	Pronotum disc smooth, shining or shagreened to base; mostly smaller, more slender species; 1.7–4.3 mm	37
—	Pronotum disc from summit to base with numerous, closely set transverse rugae; mostly larger species	47
37(36).	Very slender species, body more than 4.0 times as long as wide; apex of elytra deeply, broadly emarginate, lateral explanate processes very long, one-sixth to one-fourth length of elytra	38
—	Less slender species, 3.2–3.4 times as long as wide; apex of elytra shallowly, narrowly emarginate, lateral processes not projected	39
38(37).	Pronotum disc with punctures minute to obsolete; elytral disc with punctures minute to obsolete; serrations on anterior margin of pronotum much more slender, proportionately longer; color yellowish brown; Costa Rica; tree limb; 2.0–2.4 mm	<i>spinescens</i> Wood
—	Pronotum disc with small punctures rather numerous, distinct; elytral disc with small strial punctures; color dark reddish brown; Costa Rica; tree limb; 2.7–3.0 mm	<i>spinus</i> Wood
39(37).	Elytral declivity subconcavely impressed, mostly on lower half, lateral crest on upper half rounded, tubercles 2 and 3 minute, 3 on lateral margin in male, 3 displaced mesad from margin in female to near middle of concave area in all except <i>thunesi</i>	40
—	Elytral declivity more strongly, more broadly concave, lateral crest more narrowly, subacutely rounded, spine 2 and 3 moderately large to very large, male spine 3 on crest, female spine 3 displaced mesad to half distance from lateral crest to suture	44
40(39).	Declivital spine 2 on margin, small in male, minute to obsolete in female, spine 3 rather small, on lateral crest in both sexes; Costa Rica; <i>Pentaclethra macroloba</i> , <i>Goethalsia meiantha</i> , <i>Laetia procer</i> a; 1.5–1.7 mm	<i>thunesi</i> Wood
—	Declivital spine 2 on margin, usually larger in both sexes, spine 3 on margin in male, displaced mesad in female	41
41(40).	Elytral declivity very steep, subconcave on lower two-thirds, spine 1 absent, 2 minute; elytra rather weakly divaricate, emargination at suture very small, shallow	42
—	Elytral declivity more gradual, broadly, moderately concave from spine 1 to apex, spines 1 and 2 rather small, conspicuous; elytra more strongly explanate, emargination deeper than wide	43

- 42(41). Elytral declivity of female smooth, shining, punctures present, obscure; stria punctures on posterior half of disc mostly in identifiable rows; female declivity spine 2 almost obsolete; most punctures on basal fourth of pronotum disc normal, few if any with a transverse line; Costa Rica (Limon); *Theobroma cacao*; 2.2 **argutus** Wood
- Declivity more distinctly concave, spine 2 at base very small, 3 displaced mesad one-third distance from crest toward suture in female; face of declivity smooth, shining, moderately punctured (female); Bolivia (Cochabamba); 2.7 mm **minor** (Eggers)
- 43(41). Declivity less deeply concave, lateral convexities on lower half not as high, less abruptly elevated, crest more broadly rounded, spines 1 and 3 rather small, pointed, 3 on inner margin of crest, its lateral base on crest; emargination at apex of suture as wide as deep; Costa Rica; Leguminosae tree; 1.5–2.0 mm **micans** Wood
- Declivity more deeply concave, lateral convexities much higher, more abruptly elevated, crest more narrowly rounded, spines 1 and 2 twice as large, pointed, base of spine 3 clearly mesad of lateral crest; elytra more strongly explanate; emargination at apex of suture twice as deep as wide; Venezuela (Aragua); unidentified log; 2.6–2.7 mm **araguensis** Wood
- 44(39). Lateral crest of male declivity less strongly, less acutely elevated, rather narrowly rounded from suture at base to spine 3, spines 1 and 2 on basal fifth of declivity length, both very small and sharply pointed, spine 3 on crest well below middle of declivity length and more than twice as large as 2, apex pointed somewhat mesad; male body 3.0 times as long as wide; Colombia; 4.8 mm **sexdenticulum** (Wood)
- Lateral crest of male declivity more strongly, more acutely elevated, spine 1 rather large, near suture, 2 absent, 3 on crest at or slightly above or below middle of declivity length 45
- 45(44). Female spine 3 in lower half of concave area conspicuously closer to lateral margin than to suture; apical margin of female antennal club moderately procurved, its inner margin ornamented by a continuous row of long hair; lower half of male frons evenly convex to epistomal margin; Venezuela (Aragua); tree limb; male 3.3–3.8 mm, female 3.1–3.5 mm **eggersianus** Wood
- Female spine 3 in lower half of concave area conspicuously closer to suture than to lateral margin; male frons rather weakly, transversely impressed on lower third; female antennal club with apical margin ornamented by 2 separate tufts of long hair on inner and outer angles 46
- 46(44). Apical margin of female antennal club rather strongly procurved; Costa Rica; *Theobroma cacao*; male 2.8–3.1 mm, female 2.8–2.9 mm **fulgidus** Wood
- Apical margin of female antennal club broad, straight; Costa Rica; *Phoebe mexicana*; Costa Rica; male 4.2–4.3 mm, female 4.4 mm **melanura** Blandford
- 47(36). Elytral disc occupying at least half of elytra length; declivity very steep, rather weakly explanate, emargination small, less than three times as deep as wide; ventrolateral costa completing about two-thirds of a circumdeclivital ring; basal margin of declivity unarmed by spines, a conspicuous callus or large, blunt spine present at position of interstriae 3; stout species 48
- Basal margin of elytral declivity armed by one pair of small spines; declivity gradual, moderately to strongly explanate and divaricate; slender species 52
- 48(47). Declivital interstriae 1 smooth, unarmed by a tubercle, a weak callus slightly below middle of concave area; Peru; 2.9 mm **woytkowskii** Wood
- Declivital interstriae 1 armed by one tubercle or denticle positioned slightly below middle of concave area 49
- 49(48). Basal margin of elytral declivity at position of interstriae 3 bearing a weak, blunt callus, its lateral profile three or more times greater than its height; smaller species 50

- Basal margin of elytral declivity at position of interstriae 3 armed by a conspicuous, blunt spine, its basal width about equal to its height; larger species 51
- 50(49). Callus at basal margin of declivity feeble, scarcely altering contour of crest (about 140–160 degrees); Venezuela (Merida); *Inga*; 2.7–2.8 mm *quadridens* Wood
- Callus at basal margin of declivity protruding modestly, its apical contour, lateral aspect, forming an angle of about 110 to 120 degrees; Mexico (Chiapas) to Colombia (Brazil?); 2.3–2.4 mm *grouwellei* Blandford
- 51(49). Concave area anterior to large, subspinose process at base of declivity forming a semicircular impressed pattern; tubercles on interstriae 1 near center of declivity rather large, submamiform in shape; Venezuela (Aragua); *Theobroma cacao* branches, and a liana; 2.5–3.1 mm *brevior* Wood
- Concave area anterior to large, spinelike process forming a quadrate impressed pattern; tubercles on interstriae 1 near center of declivity very small, pointed; Guatemala to Costa Rica; tree branch; 3.4–4.0 mm *brevipennis* Blandford
- 52(47). Slender species; declivity subvertical, moderately concave, weakly explanate, emargination at apex of suture shallow, narrow; base of declivity armed by a small pointed tubercle on interstriae 1, a large, blunt, quadrate spine on position of interstriae 3 projecting caudad a distance about equal to its basal width, mesal face of this spine armed on its distal half by a moderate, pointed spine; anterior margin of pronotum truncate, armed by a continuous costa, a small, shallowly concave impression above costa; Mexico (Mexico); *Quercus*; 3.0–3.5 mm *splendens* Wood
- Large species, with gradual, concave declivity occupying more than half of elytra length; base of declivity armed by one small spine on interstriae 2 (weak or obsolete in female), a major spine on lateral crest near middle of declivity; elytra strongly explanate and divaricate in male, not as strong in female; frons with a clearly marked elongate rugose-reticulate area in both sexes 53
- 53(52). Declivital spines 1 and 2 on margin on basal fourth of declivity length, 2 pointed, three times as large as 1, crest of lateral processes at level of suture apex abruptly angled; emargination at suture apex deep, width about half as great as depth 54
- Declivital spine 1 not pointed, very small, 2 on crest near middle of declivity, rather large, rounded, 3 obsolete or represented by a small elevated callus on lateral half of floor of excavated area on apical fourth of declivity; emargination at suture apex very small to rather large 57
- 54(53). Lateral crest on declivity below spine 2 evenly rounded, broadly curved to apex; anterior margin of male pronotum shallowly emarginate on median one-fifth and without serrations (female procurved and with about 6 weak serrations); male apical margin of declivity near suture serrate (not in female); Colombia; 7.8 mm *lesnei* Hagedorn
- Lateral crest on declivity below spine 2 either abruptly angled at point of abrupt descent or armed by a small, pointed spine on crest where angulate rapid descent should be; anterior margin of male pronotum procurved on median area and with serrations; smaller species 55
- 55(54). Horizontal lateral crest on lower declivity unarmed except at abrupt angle at point of rapid descent to apex; anterior margin of pronotum armed by 5 coarse serrations; lower fourth of declivity smooth; Brazil (Santa Catarina); 5.3–5.5 mm *plaumanni* Schedl
- Horizontal lateral crest on lower declivity armed by a small, pointed spine near middle of length of horizontal portion; anterior margin of pronotum obscurely serrate; lower fourth of declivity dull, densely micropunctate; Brazil (Nova Freiburg); 5.3 mm *politus* Eichhoff
- 56(53). Callus representing spine 3 on lower fourth of declivital excavation small, its basal area circular in outline; posteromesal crest descending from spine 2 poorly formed; emargination at apex of suture very small, rather shallow, its depth four times greater than width; anterior margin of pronotum armed by subserrate crest; Brazil (Amapa); 5.5 mm *brownei* Schedl

- Callus on lower fourth of declivital excavation representing obsolete spine 3, almost obsolete to very elongate; mesal crest descending caudomesad from spine 2 more conspicuously developed; serrations on anterior area of pronotum remote from margin 57
- 57(56). Female spine 2 on crest of elytral declivity much more sharply pointed, male with posterior margin of spine 2 moderately to deeply emarginate; callus on floor of apical fourth representing spine 3, elongate, conspicuous; vestiture on apical area of declivity shorter, less abundant, less widely distributed; Mexico (Veracruz) to Suriname and Brazil (Rio de Janeiro); 6.1–7.7 mm *thoracicus* Erichson
- Female spine 2 with its apex rounded, male not seen; callus on floor of excavated area representing spine 3 weak, poorly formed; vestiture on apical areas of declivity distinctly larger, more abundant, more widely distributed; Peru; 8.0 mm *quadrimaculatus* Schedl

Amphicranus apicalis Wood, n. sp.

Amphicranus apicalis Wood: Holotype ♂; Rancho Grande 432, Jalapa, Veracruz, Mexico; USNM, Washington, designated below

Diagnosis: Distinguished by the very slender, elongate body form; by the pair of denticles at the apex of the declivital suture that forms a very small emargination; and by the elongate explanate processes of the male.

Male: Length 2.4 (female 1.7) mm, 5.4 (female about 4.4) times as long as wide; color yellowish brown, declivity darker. Frons broadly convex, a weak, transverse impression immediately above epistoma; surface reticulate, punctures sparse, minute; vestiture sparse, short on and near epistoma; antennal club oval, slightly shorter than scape, sutures 1 and 2 very weakly procurved, septate on both margins, aseptate on central third; setae very short, abundant, sutures not marked by setae. Pronotum 2.1 times as long as wide; widest on basal fourth, sides straight and parallel on central half, anterior margin a subserrate costa with median line weakly emarginate; summit one-eighth pronotum length from anterior margin; small asperities laterally on anterior fourth; surface smooth, shining, punctures small, elongate (obscure reticulation in some areas); minute setae on or near margins of anterior half. Elytra 3.0 times as long as wide, 1.3 times as long as pronotum; disc occupying basal 60 percent of elytra length; disc smooth, shining, stria punctures very small, in rows except obsolete at base and near declivity, interstriae impunctate. Declivity rather steep, margins abrupt, concavely excavated on more than central 90 percent; spine 1 at base of interstriae 2, moderately large, pointed, crest of basal fourth behind spine 1 armed by three very small serrations, subacute crest continuing on apical process to a large recurved spine on dorsal apex of apical process; apical process extending beyond suture apex a distance equal to distance from base of concave area to sutural apex; face of declivity strongly concave, smooth, shining, sparse punctures minute; apex of suture armed by a pair of tubercles, a small emargination between these tubercles; a row of long setae on basal margin continuing beyond level of suture apex then to most of inner face to apex of lateral process.

Female: Similar to male except impression on frons extending from epistoma almost to upper level of eyes; declivital excavation not as deep, lateral crests not as high, lateral processes not as long, spine 1 and spine on lateral process and tubercle at apex of suture all distinctly smaller.

Distribution: Mexico (Veracruz).

Type material: The male holotype and female allotype were taken at Rancho Grande 432, Jalapa, Veracruz, Mexico, 26-VIII-1983, FANM 45 *Leucena pulverulenta*, F.A. Noguera. The holotype and allotype are in the U.S. National Museum, Washington.

Amphicranus terebella Blandford
Plate CLXXVIII

Amphicranus terebella Blandford, 1905:296. Holotype ♂; Volcan de Chiriqui, Panama; BMNH, London (References in Wood & Bright c1992:1049)

Diagnosis: Distinguished from *apicalis* Wood by the absence of a pair of tubercles and presence of an emargination at the apex of the suture on the elytral declivity; by the presence of a tubercle on the mesal margin of the lateral process on the declivity; and by other characters cited below.

Male: Length 2.6–2.8 mm, 4.8 times as long as wide; color of pronotum and declivity reddish brown, elytra disc and sides yellowish brown. Frons strongly convex eye to eye from epistoma to vertex, surface strongly reticulate, glabrous except for a few rather short setae on epistoma; antennal club slightly longer than scape, sutures 1 and 2 moderately procurved, partly septate. Pronotum 1.9 times as long as wide; sides almost straight and parallel on basal three-fourths, rather broadly rounded in front; anterior margin armed by 12 coarse serrations; summit one-fourth of pronotum length from anterior margin, asperities sparse, small, confused; posterior areas reticulate, punctures very small, not close; almost glabrous. Elytra 2.8 times as long as wide, 1.4 times as long as pronotum; disc occupying about 50 percent of elytra length; disc smooth, shining, stria punctures in rows, rather small, interstitial punctures obsolete. Declivity rather steep, broadly concave, strongly explanate and

divaricate; basal margin abrupt, a minute tubercle on margin on interstriae 1, and another on 2, spine 1 on interstriae 3 large, pointed, twice as long as its basal width, crest from base of 3 to apex of lateral process acutely, strongly elevated, unarmed by tubercles; explanate lateral process deeply emarginate, emargination deeper than wide, lateral process about as wide as apical half of emargination, mesal margin of lateral process armed by a moderate spine near its apex; face of concave area reticulate, shining, sparse punctures small, confused. Vestiture absent from concave face of declivity, a few short setae on lateral surface of explanate process.

Distribution: Panama (Chiriqui) to Venezuela (Aragua).

Venezuela: Rancho Grande, Aragua, 9-IV-1970, 1100 m, Guttiferae sp., SLW.

Notes: The above treatment was based on the male holotype and on 3 additional males from Venezuela.

Amphicranus explicitus Wood, n. sp.

Plate CLXXVII

Amphicranus explicitus Wood: Holotype ♂; La Carbonera Experimental Forest 50 km NW Merida, Merida, Venezuela, 2500 m; USNM, Washington, designated below

Diagnosis: Distinguished from *terebella* Blandford by the larger size; by the presence of a rugose-reticulate area on the frons; by the much longer explanate process on the elytra, deeper emargination, and much longer spine on the mesal margin of the explanate process.

Male: Length 3.1–4.5 mm, 5.1 times as long as wide; pronotum reddish brown, anterior and basal fourths much darker; elytra yellowish brown, declivity almost black. Frons strongly convex eye to eye from epistoma to vertex; surface reticulate, with small punctures, median fifth from epistoma to upper level of eyes forming a longitudinally elongate rugose-reticulate area; almost glabrous except for very short epistomal brush; antennal club distinctly longer than scape, twice as long as wide, sutures 1 and 2 rather weakly arcuate, clearly septate. Pronotum 1.8 times as long as wide; sides almost straight and parallel on basal four-fifths, rather broadly rounded in front; anterior margin armed by 10 coarse serrations; summit one-sixth pronotum length from anterior margin; asperities small, numerous, confused; posterior areas mostly weakly reticulate, punctures small, rather close; glabrous except sparse on asperate area and sides near lateral margins. Elytra 3.3 times as long as wide, 1.8 times as long as pronotum; disc occupying basal 56 percent of elytra length; disc smooth, shining, small striae punctures in discernible rows, a few minute, confused interstitial punctures. Declivity rather steep, basal margin abrupt, armed on interstriae 1 and 2 by small pointed denticles of equal size, spine at base of interstriae 3 three or more times larger, blunt, crest from base of 3 to level of suture apex acutely, not strongly elevated; lateral processes profoundly explanate, deeply emarginate, lateral crest acute, moderately elevated, unarmed to apex, mesal mar-

gin armed by a large spine projecting mostly mesad midway between apex of suture and apex of lateral process; face of declivity smooth, shining, transversely almost flat, punctures small, confused; inner surface of explanate processes bearing abundant long hair, shorter on basal half of declivity.

Distribution: Colombia (Antioquia) to Venezuela (Merida).

Type material: The male holotype and female allotype were taken at La Carbonera Experimental Forest 50 km NW Merida, Merida, Venezuela, 4-X-1969, 2500 m, *Clusia*, S.L. Wood: 3 paratypes same locality, 14-X-1969, *Nectandra*, No. 61, 1 paratype same locality, 12-I-1970, *Vouchysia duguei*; 1 paratype is from La Mucuy, 20-X-1969, log. No. 74; 2 paratypes taken at Merida Teleferico, 3-I-1970, *Nectandra*; 5 paratypes are from Piedras Blancas 10 km E Medellin, Antioquia, Colombia, 15-VII-1970, 2000 m, No. 668, *Eucalyptus viminalis*, S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Amphicranus tenuis Blandford

Amphicranus tenuis Blandford, 1905:295. Holotype ♂; "Mexican" tobacco refuse intercepted at Paris [probably from Brazil, see Wood 1982] (References in Wood & Bright c1992:1049)

Diagnosis: Distinguished from *attenuatus* Wood by the slightly smaller size; by the almost glabrous elytral declivity; by the higher crests on the lateral declivital processes; by the presence of only three spines (1 and 2 minute, on interstriae 1 and 2) on the basal margin of the declivity; and by the almost obsolete punctures on the elytral disc.

Male: About 3.2–3.7 mm, about 4 times as long as wide; color reddish brown; this specimen has lost its head and prothorax. Elytra 2.4 times as long as wide; disc occupying basal 50 percent of elytra length; disc smooth, shining, striae punctures minute, mostly in rows, interstitial punctures minute, rather sparse, confused. Declivity rather steep, broadly, deeply concave; basal margin armed by three pair of spines, 1 on interstriae 1 small, pointed, 2 on interstriae 2 blunt, mostly obsolete, 3 on interstriae 3 and four or more times longer than 1, very slender, sharply pointed; lateral crest beginning at base of spine 3, crest strongly, acutely elevated to apex of strongly explanate ventrolateral process, a small, pointed tubercle on mesal margin of crest at level half distance between suture apex and apex of explanate lateral process; emargination between lateral processes rather broadly U-shaped; concave surface of face of declivity reticulate, a few confused punctures obscurely visible. Elytra glabrous, including inner surface of declivity.

Distribution: Venezuela: Campamento Rio Grande 30 km E Palmar, Bolivar, 12-VI-1970, 200 m, *Eschweilera corrugata* log, SLW.

Notes: The specimen described above was compared directly to Blandford's holotype; spine 3 at interstriae 3 on the holotype is less slender, the small spine on the

mesal margin of the crest of the lateral process is slightly more strongly displaced mesad from the margin than in my male, but I consider them conspecific (Wood 1982:1202).

Amphicranus attenuatus Wood, n. sp.

Plate CLXXIV

Amphicranus attenuatus Wood: Holotype ♀; La Carbonera Experimental Forest 50 km NW Merida, Merida, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *tenuis* Blandford by the larger size; by the presence of three pair of pointed spines arming the basal margin of the declivity; by the abundant long hair on the concave area of the declivity; and by the serrate mesal margin of the emargination at the apical end of the declivital suture.

Male: Similar to female except declivity more strongly impressed, spine 1 pointed, 2 larger, explanate process longer and wider.

Female: Length 3.3–4.0 mm, 4.5 times as long as wide; color of pronotum and declivity dark brown, disc and sides yellowish brown. Frons strongly convex eye to eye from vertex to moderate transverse impression immediately above epistoma; surface finely rugose-reticulate on vertex and on sides below upper level of eyes, central area below upper level of eyes with a definite area of a coarser rugose-reticulate sculpture; vestiture fine, sparse, mostly on or near epistoma; antennal club slightly longer than scape, obovate, suture 1 and 2 weakly procurved, septate. Pronotum 1.7 times as long as wide; widest at base, sides almost straight on basal four-fifths, converging slightly cephalad, rather broadly rounded in front; anterior margin armed by about 14 moderate serrations; summit one-sixth pronotum length from anterior margin; asperities small, abundant, confused; posterior areas reticulate, punctures very small, rather close; sparse short hair limited to lateral and anterior margins. Elytra 2.9 times as long as wide, 1.8 times as long as pronotum; disc occupying basal 58 percent of elytra length; disc smooth, shining, punctures very small, mostly organized into striae rows, interstriae punctures sparse, confused. Declivity moderately steep, broadly, shallowly concave; basal margin armed by three pair of spines, spines 1 and 2 on interstriae 1 and 2 very small, pointed, 3 on interstriae 3 three or four times larger, pointed, crest descending rapidly from base of spine 3 to level of middle of declivity then continuing subhorizontally to near apex; lateral arms strongly explanate, emargination between arms very deep, narrowly U-shaped; dorsal crest immediately behind level of apex of suture armed by a rather large spine displaced slightly mesad from crest; mesal margin of lateral arms weakly serrate. Vestiture within declivital excavation long, abundant, sparse to absent on disc and sides.

Distribution: Colombia (Antioquia) to Venezuela (Merida).

Type material: The female holotype was taken at the Pico Bolivar Teleferico, Merida, Merida, Venezuela, 3-I-1970, 2500 m, *Clusia*, by S.L. Wood; the male allotype is from La Carbonera Experimental Forest, 14-X-1969, 2500 m, *Clusia*, No. 50b, S.L. Wood; 2 female paratypes were taken at La Carbonera Experimental Forest 50 km NW Merida, Merida, Venezuela 14-X-1969, 2500 m, No. 61 *Nectandra*, by S.L. Wood; 3 female paratypes are from Piedras Blancas 10 km E Medellin, Antioquia, Colombia, 15-VII-1970, 2500 m, No. 668, *Eucalyptus*, by S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Amphicranus bahiae Wood, n. sp.

Amphicranus bahiae Wood: Holotype ♂?; Cepec, Ilheus, Bahia, Brazil; USNM, Washington, designated below

Diagnosis: Distinguished by the small size; by the small elytral punctures being mostly in striae rows; by the presence of only one pair of spines arming the anterior margin of the elytral declivity; the lateral arms of the declivity are explanate and divaricate (emargination as wide as deep); lateral crest armed at level of suture apex by a moderately large spine, displaced slightly mesad from crest.

Male(?): Length 1.6 mm, 4.1 times as long as wide; color yellowish brown. Frons mostly concealed by prothorax, apparently, weakly convex, vestiture mostly absent; antennal club slightly longer than scape, oval, sutures 1 and 2 weakly procurved. Pronotum 1.4 times as long as wide; sides almost straight and parallel on basal four-fifths of pronotum length, rather broadly rounded in front; anterior margin armed by 10 weak serrations; summit on anterior fourth, asperities small, rather sparse, confused; posterior areas reticulate, punctures very small, moderately close; almost glabrous. Elytra 2.3 times as long as wide, 1.2 times as long as pronotum; disc occupying 64 percent of elytra length; disc smooth, shining, minute punctures in striae rows, interstriae punctures apparently obsolete. Declivity moderately steep, deeply concave, margin rather abrupt; basal margin armed on interstriae 3 by a small, pointed spine (1 and 2 on interstriae 1 and 2 each represented by minute granules); crest from upper spine to apex of lateral process rather strongly, acutely elevated, crest armed on its inner margin at level of suture apex by a moderately coarse denticle; emargination between explanate arms slightly wider than deep. Vestiture limited to sparse hair on basal margin of declivity and lateral areas near declivity.

Distribution: Brazil (Bahia).

Type material: The holotype, presumed to be a male, was taken at Cepec, Ilheus, Bahia, Brazil, 11-III-1981, blacklight, by Kaston. The holotype is in the U.S. National Museum, Washington.

Amphicranus electilis Wood, n. sp.

Amphicranus electilis Wood: Holotype ♂; 69 km N Manaus, Brazil; USNM, Washington, designated below

Diagnosis: Distinguished from *laureli* Wood by the small rugose-reticulate area on the lower frons; by the total absence of spine 2 on interstriae 2 at the base of the declivity; by the larger spine 3; and by the serrate lateral crest below spine 3.

Male: Length 2.7 mm, 3.7 times as long as wide; color yellowish brown, anterior third of pronotum and most of declivity dark reddish brown. Frons broadly convex except a distinct impression at epistoma; surface strongly reticulate and finely, closely punctured from epistoma to vertex, median fifth from epistoma almost to upper level of eyes finely rugose-reticulate on a definite pattern; a few short setae on median third at epistoma; antennal club 1.5 times as long as wide, sutures moderately procurved, partly septate. Pronotum 1.6 times as long as wide; sides almost straight and parallel on basal 65 percent of pronotum length; anterior margin narrowly rounded, armed on median half by several basally connected, weak serrations. Disc weakly reticulate, punctures rather small, moderately close; almost glabrous. Elytra 2.0 times as long as wide, 1.2 times as long as pronotum; disc occupying 54 percent of elytra length; disc smooth, shining, punctures small, mostly in rows. Declivity steep, strongly concave, strongly explanate and divaricate; spine 1 at base on interstriae 1 small, pointed, spine 2 obsolete, 3 on interstriae 3 about three times as large as 1, pointed, crest from base of spine 3 serrate on strongly elevated crest half distance to abrupt angle and slightly caudad to level of apex of suture; apical margin weakly arcuate to deep emargination, emargination twice as deep as wide; face of declivity smooth, shining, convex, punctures minute.

Female: Similar to male except part of frons obscured by antennae (rugose-reticulate area not visible, if present), antennal club with several long setae on posterior face; explanate processes slightly shorter.

Distribution: Brazil (Amazonas).

Type material: The male holotype and female allotype were taken 69 km N Manaus, Amazonas, Brazil, 7-XII-1979, G. Stevens. The holotype and allotype are in the U.S. National Museum, Washington.

Amphicranus elegantulus Schedl

Amphicranus elegantulus Schedl, 1963:225. Holotype ♂; Rio Caraguata, Mato Grosso, Brazil; NHMW, Wien (References in Wood & Bright c1992:1047)

Diagnosis: Distinguished from *electilis* Wood by the smaller size and more slender body form; by the absence of a small rugose-reticulate area on the frons; by the more broadly rounded anterior margin of the pronotum which is armed by 16 or more basally separate serrations on a broader area; and by differences on the elytral declivity as described below.

Male: Length 2.3–2.4 mm, 4.2 times as long as wide; color yellowish brown, declivity reddish brown. Frons minutely granular, without a raised rugose-reticulate area; glabrous except for a sparse, short epistomal brush;

antennal club 1.07 times longer than wide, sutures weakly procurved, very weakly septate. Pronotum 1.8 times as long as wide; sides straight and parallel on basal three-fourths, broadly rounded in front; anterior margin armed by 16 basally separate, coarse serrations; asperities rather small, low; posterior areas mostly reticulate, punctures rather small, distinctly impressed; glabrous. Elytra 2.6 times as long as wide, 1.5 times as long as pronotum; disc occupying 64 percent of elytra length; disc smooth, brightly shining, punctures very small, in stria rows. Declivity rather steep, deeply, broadly concave; spine 1 on interstriae 1 at base of declivity minute (its apex usually marked by a stiff seta), 2 on crest, moderately large, acutely pointed, crest from spine 2 to 3 acutely elevated, weakly serrate near 2 on some specimens, crest descending rapidly below 2 then horizontal to 3, spine 3 subacutely pointed, apex directed mesad; from spine 3 acute crest arcuately descending abruptly to apex at margin of emargination; face of declivity smooth, shining, punctures small, confused on median area, smooth, shining on inner face of strongly explanate and divaricate process, emargination deep, 2.5 times deeper than wide. Vestiture mostly on margins of declivity, sparse on inner face of concave area near margins, a few short setae on sides near declivity.

Distribution: Brazil: Rio Caraguata, Mato Grosso, 21°48'B, 52°27'L, 400 m, III-1953, F. Plaumann.

Notes: The above treatment was based on the male holotype and 4 male paratypes from Brazil.

Amphicranus cracens Wood, n. sp.

Plate CLXXV

Amphicranus cracens Wood: Holotype ♂; Rancho Grande, Aragua, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *macellus* Wood by the larger size; by the spine on the lateral processes of the declivity being directed mostly mesad; and by the serrate crest between spines 1 and 2 at the base of the declivity.

Male: Length 2.3–2.4 mm, 4.3 times as long as wide; color yellowish brown. Frons rather strongly convex eye to eye from epistoma to vertex; surface reticulate, a few minute granules on median third immediately above epistoma, a weak, shining subcarinate crest from slightly below upper level of eyes to vertex; punctures small, on lower half, not clearly impressed; vestiture of short, sparse hair on and near epistoma; antennal club broadly ovate, slightly longer than scape, sutures 1 and 2 weakly procurved, partly septate. Pronotum 2.0 times as long as wide; slightly wider at base, sides almost straight and subparallel on basal three-fourths, rather broadly rounded in front; anterior margin armed by about 10 coarse serrations; summit on anterior fourth; asperities rather coarse, close, confused; posterior areas reticulate, punctures very small, rather close; almost glabrous. Elytra 2.6 times as long as wide, 1.4 times as long as pronotum; disc occupying basal 62 percent of elytra length; disc smooth,

shining, punctures small, mostly in strial rows. Declivity rather steep, strongly concave, strongly explanate and divaricate behind; basal margin with a minute granule at base of interstriae 1 and another at base of interstriae 2, interstriae 3 bearing a rather large, pointed spine (No. 1), crest from spine 1 moderately, subacutely serrate to spine No. 2; spine 2 pointed, positioned on mesal edge slightly behind level of suture apex; emargination at apex of suture U-shaped, slightly deeper than wide and about as wide as a lateral process. Glabrous except for sparse hair on basal margin of declivity and sparse short hair on inner face of lateral process near apex.

Female: Similar to male except explanate ventrolateral process of declivity not as long or as large.

Distribution: Venezuela (Aragua).

Type material: The male holotype, female allotype, and 2 male paratypes were taken at Rancho Grande, Aragua, 9-IV-1970, 1100 m, No. 432, Guttiferae sp., S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Amphicranus micidus Wood, n. sp.

Amphicranus micidus Wood: Holotype ♂; Banderilla, Veracruz, Mexico; USNM, Washington, designated below

Diagnosis: Distinguished from *cracens* Wood by the absence of a shining median crest on the upper frons; by the presence of long setae on the inner face of the elytral declivity; and by the slightly larger size.

Male: Length 2.6 mm, about 4.1 times as long as wide; color yellowish brown, declivity darker. Frons rather strongly convex, reticulate, punctures small, shallow, obscure; upper frons and vertex without a shining, median crest or carina; antennal club narrowly obovate, about 1.7 times as long as wide. Pronotum about as in *cracens*, anterior margin more finely serrate. Elytra and declivity similar to *cracens*, except tubercle at base on declivital interstriae 2 present, pointed, and tubercle on upper margin of lateral crest larger; more strongly displaced mesad, lateral connection of spine to crest caudad from spine; vestiture with concave area of declivity fine, long. Left elytron of type missing.

Distribution: Mexico (Veracruz).

Type material: The male holotype was taken at Banderilla, Veracruz, Mexico, 18-VII-1983, *Quercus laurina*, FANM 37, FA. Noguera. The holotype is in the U.S. National Museum, Washington.

Amphicranus spinachius (Schedl)

Plate CLXXVIII

Amphicranus spinachius (Schedl), 1939:584 (*Steganocranus*). Holotype ♂; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:1049)

Diagnosis: Distinguished from *dohrni* (Eichhoff) by the position of the male declivital spine 3 being on the lateral margin of the ventrolateral process; by the larger

rugose-reticulate area on the frons; female declivital spine 3 triangular; and by other characters mentioned in the above key.

Male: Length 4.3–5.0 mm (female 3.2–3.8 mm), male 5.0 times as long as wide; color almost black except basal half of elytra disc yellowish brown. Frons strongly convex eye to eye from epistoma to vertex, lateral and dorsal areas reticulate, rather coarsely punctured; rugose-reticulate area occupying median two-thirds from epistoma to upper level of eyes; vestiture sparse, rather short, restricted to margin of epistoma; antennal club obovate, slightly shorter than scape, sutures 1 and 2 rather weakly procurved, septate. Pronotum 1.8 times as long as wide; widest at base, sides almost straight and parallel on almost basal two-thirds, anterior third extended into an acute median pointed process; anterior margin forming an acute costa along margins of median process; summit indefinite about one-third pronotum length from anterior margin; anterior slope gradual, with asperities feebly indicated, almost obsolete; posterior areas minutely reticulate, punctures minute, sparse. Elytra 2.9 times as long as wide, 1.5 times as long as pronotum; disc occupying basal 40 percent of elytra length; disc smooth, shining, punctures very small, mostly confused. Declivity very strongly explanate and divaricate, broadly, moderately concave; basal margin of declivity armed by three pair of tubercles, 1 on interstriae 1, 2 on interstriae 2, both very small, pointed, 3 on interstriae 3 about twice as large, sharply pointed; lateral crest below spine 3 acutely, weakly elevated to a point slightly behind level of apex of suture where it ascends to an obtuse angle before continuing to apex; distance from base of declivity to apex of suture equal to distance from end of suture to apex of explanate process; emargination half as wide as deep, V-shaped. Glabrous.

Female: Similar to male except rugose-reticulate area on frons much smaller, close to epistoma; pronotum and elytral disc similar; declivity more gradual, less strongly impressed, spines 1 and 2 absent, 3 minute, spine on margin of declivity rather large, displaced mesad; explanate process much shorter; emargination broadly U-shaped.

Distribution: Brazil: Nova Teutonia, Santa Catarina, IV-1941, 11-X-1941, F. Plaumann; 1 male taken in Brazil (Beaver Code 033QY).

Notes: The above treatment was based on 1 female paratype and on 9 males from the type locality.

Amphicranus dohrni (Eichhoff)

Plates CLXXV, CLXXVI

Amphicranus dohrni (Eichhoff), 1878:461 (*Steganocranus*). Syntypes, 2, sex?; America meridionale; 1 syntype lost with Hamburg Museum, the other was deposited with the Dohrn material in the Stettin Museum, now in NHMW, Wien. It automatically becomes the holotype (Wood & Bright c1992:3), designated below

Diagnosis: Distinguished from *spinachius* (Schedl) by the spine on the male explanate process being displaced mesad from the crest; by the smaller, circular

rugose-reticulate area on the frons; and by the blunt, subquadrate spine 3 on the female declivity.

Male: Length 3.1–4.3 mm, 5.3 times as long as wide (female 2.8–3.8 mm); color yellowish brown. Frons about as in *spinachius*, except rugose-reticulate area much smaller; subcircular; antennal club smaller; suture 1 more strongly arcuate. Pronotum similar to *spinachius*, except anterior projection more slender; groove between anterior margin and main body of pronotum much narrower, not as deep. Elytra similar to *spinachius*, except basal third of declivity forming an acute angle (line from apices of both left and right spine 3 to suture at interstriae 1 near spine 1), this area broadly U-shaped in *spinachius*; spine near lateral margin on basal half of aplanate process distinctly displaced mesad from lateral margin.

Female: Similar to male except rugose-reticulate area on frons smaller, obscurely triangular in shape; antennal club obliquely truncate, sutures 1 and 2 conspicuously asymmetrical, apex with a small tuft of long hair. Pronotum with anterior median process much shorter, less slender. Elytra similar to *spinachius*, except declivity more gradual, spines 1, 2, and 3 greatly reduced in size, spine on margin of explanate process larger, quadrate (basal width almost equal to apical width).

Distribution: Argentina to Brazil.

Argentina: Misiones, Dep. Concepcion, Santa Maria.

Brazil: Nova Teutonia, Santa Catarina, X-1956, F. Plaumann.

Notes: The above treatment was based on 23 specimens from Brazil, 8 of which were identified by Schedl. The only known syntype of *Steganocranus dohrni* Eichhoff, was in the Stettin Museum and was taken by Schedl (Wood & Bright c1992:3) in 1944 to Austria, and it is now in the NHMW, Wien. That surviving syntype automatically becomes the holotype of *Steganocranus dohrni* Eichhoff.

Amphicranus acus Wood

Plate CLXXIV

Amphicranus acus Wood, 1974:66. Holotype ♀; El Laurel Experimental Farm 12 km SW Caracas, Venezuela, 1800 m; USNM, Washington (References in Wood & Bright c1992:1045)

Diagnosis: Distinguished from *dohrni* (Eichhoff) by the very different elytral declivity in both sexes, as described below.

Male: Length 2.6–3.6 mm, 5.1 times as long as wide (female 2.5 mm); color yellowish brown. Frons and pronotum about as in *dohrni*, except anterior extension of pronotum on ventral side with a conspicuous tubercle about one-third mucro (anterior process) length behind apex. Elytra similar to *dohrni*, except spines 1 and 2 at declivity base on interstriae 1 and 2 almost obsolete, spine 3 sharply pointed, directed caudad, positioned on crest about equal distance between base of concave area and apex of suture; crest of lateral explanate process armed at level of suture apex by a moderately large,

blunt, subcylindrical spine, a second small spine on mesal margin of crest at angle where horizontal part of crest meets arcuate apical margin; inner face of aplanate process and declivity smooth, shining, vestiture sparse, short, mostly near apex; explanate arms shorter than distance from base to apex of suture.

Female: Frons and pronotum somewhat similar to *dohrni*; antennal club slightly wider than long, apical margin evenly arcuate, slightly asymmetrical. Elytral disc about as in *dohrni*, declivity radically different; declivity rather gradual, impressed area shallowly, broadly concave, spines 1 and 2 at base of interstriae 1 and 2 obsolete, a subacutely, strongly elevated crest extending from lateral margin, slightly above middle of declivity to position of interstriae 3 and ending abruptly, slightly above level of suture apex, ventrolateral arms moderately explanate, emargination slightly wider than deep, vestiture of sparse, short setae on lateral parts of concave area.

Distribution: Venezuela: El Laurel Experimental Farm 12 km SW Caracas, 1-V-1970, 1800 m, No. 457, tree bole, S.L. Wood.

Notes: The above treatment was based on the type series.

Amphicranus gracilis Eggers

Amphicranus gracilis Eggers, 1943:383. Holotype, sex?; Cochabamba, Bolivia; USNM, Washington (References in Wood & Bright c1992:1047)

Tricolus granulipennis Schedl, 1950:170. Lectotype ♀; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien, designated by Schedl (1979:107) (References in Wood & Bright c1992:1043). *New synonymy*

Diagnosis: Distinguished from *speciosus* by the profile of the angle on the lateral crest of the lower declivity being slightly greater (about 120 degrees); by the conspicuously, convergently aciculate sculpture on lateral two-thirds of the frons, median third slightly elevated and partly rugose-reticulate; and by the strongly reticulate, obscurely punctured inner face of the declivity.

Male: Length 2.3 mm, 3.0 times as long as wide; color very dark reddish brown. Frons strongly convex, lateral thirds strongly, convergently aciculate, median third slightly elevated, reticulate above, partly rugose-reticulate below, punctures not evident, sparse, minute setae on lower half mostly on median area; antennal club about as long as scape, oval, sutures 1 and 2 very weakly arcuate, septate. Pronotum 1.4 times as long as wide; sides on basal half weakly arcuate, almost parallel, rather narrowly rounded in front; anterior margin armed by a feebly serrate, continuous costa with one separate median serration; summit on anterior third; asperities low, close, confused; posterior areas reticulate, punctures minute, rather close; almost glabrous. Elytra 1.7 times as long as wide, 1.2 times as long as pronotum; disc occupying 66 percent of elytra length; disc mostly smooth, shining, small areas of reticulation near suture and margin of declivity, punctures very small, mostly in rows, interstitial punctures sparse mostly confused. Declivity rather steep, broadly concave; ventrolateral processes moderately

explanate, shallowly, narrowly divaricate, spine 2 at base of interstriae 2 minute, almost obsolete, spine 3 on crest at interstriae 3 moderately large, pointed, crest on upper third subacutely, moderately elevated, rather abruptly elevated from angle on lower third to apex, profile angle very obtuse (more than 120 degrees), somewhat rounded, face of concave area strongly reticulate, minute granules confused, rather close. Vestiture of very sparse hair on sides near declivity.

Female: Similar to male except posterior face of antennal club with several long setae.

Distribution: Brazil: Nova Teutonia, Santa Catarina, VIII-1941, F. Plaumann.

Notes: The above treatment was based on 1 male paratype of *gracilis* and on the female holotype, 2 male and 2 female of *gracilipennis* Schedl.

Amphicranus incisus (Schedl), n. comb.

Amphicranus incisus (Schedl), 1976:84 (*Tricolus*). Holotype ♀; Caraguatuba, Sao Paulo, Res. Flor., 40 m, Brazil; MZUSP, Sao Paulo, Brazil (References in Wood & Bright c1992:1043)

Diagnosis: Distinguished from *Monarthrum scrobiceps* (Eichhoff) (= *Cosmocorynus vagabundus* Schedl) by the less strongly concave elytral declivity, and less strongly explanate declivital process, angle at spine 3 weak. Declivity resembling *M. scrobiceps*.

Female: Length 2.1 mm, 3.4 mm, color reddish brown. Frons mostly concealed by pronotum, apparently convex, with little or no vestiture; antennal club 1.3 times as long as wide, oval, suture 1 moderately procurved, 2 mostly obsolete. Pronotum 1.4 times as long as wide; sides straight and parallel on more than basal half, narrowly rounded in front; anterior margin armed by one median, separate denticle, lateral areas costate, weakly serrate; summit one-third pronotum length from anterior margin; asperities moderately large, close, confused; posterior areas strongly reticulate, punctures small, not close. Elytra 2.1 times as long as wide, 1.5 times as long as pronotum; disc occupying 58 percent of elytra length; disc smooth, shining, punctures small, mostly in stria rows. Declivity rather steep, strongly concave, emargination at apex of suture narrow, much deeper than wide; spine 1 at base of declivity on interstriae 1, lateral crest from base of spine 1 to apex of emargination acutely costate, 2 on crest of basal third, small, obtusely pointed, 3 on crest two-fifths of declivity length from apex, small, obtuse, sometimes pointed, crest continuing on arcuate course to apex at margin of emargination; declivity resembling *vagabundus*; inner face of declivity smooth, shining, punctures small, confused. Glabrous.

Distribution: Brazil: Caraguatuba, Sao Paulo, Res. Flor., 22-V-1-VI-1962, Hom, Exp. Dep. Zool.

Notes: The above treatment was based on the female holotype of *Tricolus incisus* Schedl, from Brazil. This species is here transferred from *Tricolus* to *Amphicranus*.

Amphicranus laureli Wood, n. sp.

Plate CLXXVII

Amphicranus laureli Wood: Holotype ♂; La Carbonera Experimental Forest 50 km NW Merida, Merida, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished by the narrowly rounded anterior margin of the pronotum, with the anterior margin coarsely serrate; by the strongly concave declivity, with the lateral processes broad, rather strongly explanate and divaricate; and by the small spines 1, 2, and 3 at the base of the declivity; the frons is without a definite rugose-reticulate area.

Male: Length 3.3–3.4 mm, 3.7 times as long as wide; anterior half of pronotum and posterior half of elytra dark reddish brown to black, posterior half of pronotum and anterior half of elytra medium reddish brown. Frons convex eye to eye from vertex to half distance between epistoma and upper level of eyes, lower area rather weakly, transversely impressed to epistoma; surface strongly reticulate, punctures very small, rather close, uniformly distributed; glabrous except for sparse, short setae along epistoma; antennal club broadly, asymmetrically oval, slightly longer than wide, sutures 1 and 2 moderately procurved, weakly septate. Pronotum 1.4 times as long as wide; sides on basal half almost straight and parallel, rather narrowly rounded in front, anterior margin rather narrowly rounded, armed by 11 coarse serrations, middle one at center and projecting slightly; summit one-third pronotum length from anterior margin, asperities rather coarse, close, confused; posterior areas reticulate, punctures fine, rather close; glabrous. Elytra 2.2 times as long as wide, 1.7 times as long as pronotum; disc occupying basal 54 percent of elytra length; disc smooth, shining, punctures rather small, confused. Declivity strongly concave, ventrolateral arms rather strongly explanate and divaricate; basal margin armed on interstriae 1 by a small, pointed spine 1, crest subacutely, strongly elevated from spine 1 to margin of apical emargination, spine 2 on interstriae 2 very poorly formed as a low irregularity, spine 3 on interstriae 3 small, pointed, equal to 1; lateral crest strongly, acutely elevated, an obtuse angle at level of suture apex; emargination at apex of suture deeper than wide (3:4); face of declivity smooth, shining, punctures rather small, distinct, confused.

Female: Similar to male except posterior face of antennal club with about a dozen long setae near apex; explanate processes slightly shorter.

Distribution: Venezuela (Merida).

Type material: The male holotype, female allotype, and 2 female paratypes were taken at La Carbonera Experimental Forest 50 km NW Merida, Merida, Venezuela, 22-IV-1970, 2500 m, No. 446, *Laurel paramero*, S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Amphicranus rasilis Schedl

Amphicranus rasilis Schedl, 1950:174. Holotype ♀; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:1048)

Diagnosis: Distinguished from *belti* Blandford by the smaller size; by the larger rugose-reticulate area on the frons that is longer than wide; by the less strongly explanate lateral processes on the declivity; and by declivital spine 3 being positioned conspicuously anterior to the conspicuous obtuse angle on the crest of the declivity at the level of the suture apex.

Male: Length 2.4–2.7 mm, 3.5 times as long as wide; color dark reddish brown, part or all of elytra a lighter brown. Frons broadly convex, a distinct, rather deep, transverse impression at epistoma; surface reticulate, punctures obscure; median raised rugose-reticulate area occupying median one-sixth from epistomal margin to upper level of eyes; antennal club rather large, obovate, 1.3 times as long as wide, sutures moderately procurved. Pronotum 1.5 times as long as wide; sides on basal two-thirds almost straight and parallel, rather broadly rounded in front; anterior margin armed by about 12 low, basally connected serrations; summit one-fourth pronotum length from anterior margin; asperities rather coarse, close, confused; posterior areas reticulate, punctures minute, many obscure; glabrous. Elytra 2.2 times as long as wide, 1.5 times as long as pronotum; disc occupying 57 percent of elytra length; disc smooth, shining, with many impressed, irregular lines, punctures very small, shallow, in stria rows. Declivity broadly, rather deeply concave, strongly explanate and divaricate; basal margin armed by two pair of spines, 1 at base of interstriae 1, small, sharply pointed, 2 on interstriae 2, three times larger than 1, obtusely pointed, crest from 1 to 2 very short, rounded, and from 2 to 3 rounded and descending rapidly, then curving to subhorizontal plane at obtuse angle on crest, and then subvertical to apex of emargination; spine 3 on horizontal area at level of suture apex, this spine on mesal side of crest, pointed, directed dorsomesad; emargination at apex of suture as wide as deep, occupying about one-third of declivity length; face of declivity deeply, broadly concave, surface smooth, shining, punctures very small, shallow, confused, mostly on basal two-thirds, obsolete below. Glabrous except sparse, short setae on sides near declivity.

Female: Similar to male except explanate lateral process not as well developed, lateral crest beginning at spine 3 much thicker, transversely more broadly rounded, and descending from spine 3 to apex at margin of suture (obtuse angle not visible, almost obsolete).

Distribution: Brazil: Nova Teutonia, Santa Catarina, 1944, F. Plaumann (2 paratypes), same 1-I-1956, 27°11'N, 52°23'W, 300–500 m.

Notes: The above treatment was based on 1 male paratype and 1 female paratype received from Schedl, and on 2 males and 2 females received from Plaumann.

Amphicranus schaufussi Blandford

Amphicranus schaufussi Blandford, 1905:293. Holotype, sex?; Venezuela; Hamburg Museum, lost (References in Wood & Bright c1992:1048)

Diagnosis: Distinguished from *balteatus* Blandford by the 3 pair of denticles on the basal margin of the declivity being of about equal size; rugose-reticulate area of frons occupying about one-third of space between eyes; abrupt, transverse impression immediately anterior to pronotum summit vertical or overhanging surface below.

Male: Length 6.5–7.1 mm, 3.9 times as long as wide; color uniformly very dark brown. Frons broadly convex eye to eye from epistoma to vertex; rugose-reticulate area oval, occupying median fourth immediately above epistoma; surface minutely reticulate, sparsely, finely punctured; glabrous, a few short setae on epistoma; antennal scape slightly shorter than club, funicle 3-segmented; club obovate, sutures moderately procurved, aseptate. Pronotum 1.6 times as long as wide; sides almost straight and parallel on more than basal half, a definite constriction on anterior fourth; anterior margin rather narrowly rounded; summit abruptly, precipitously impressed on anterior procurved margin; asperities sparse, rather coarse, spaces between asperities reticulate; posterior areas reticulate, punctures minute, sparse. Elytra 2.3 times as long as wide, 1.5 times as long as pronotum; disc occupying 45 percent of elytra length; disc smooth, shining, with many obscure impressed points. Declivity very gradual, broadly concave, profoundly explanate and divaricate behind; basal margin armed by three pair of spines of moderate size on interstriae 1, 2, and 3, with 2 slightly smaller, lateral crest subacutely elevated from base of spine 3 to angle at weak denticle at level of suture apex, then descending to apex of explanate process, emargination deep, rather narrow, three times deeper than wide; explanate process occupying one-third of declivity length; inner face of declivity mostly smooth, shining, minute punctures moderately close on basal two-thirds, several small tubercles on explanate processes. Vestiture of short hair on inner face of declivity, a few longer setae on sides near declivity.

Distribution: Venezuela: "Venezuela" (type); Rancho Grande, Aragua; 9-IV-1970, 1100 m, No. 417, Guttiferae sp. limb, SLW.

Biology: Specimens were taken in a very wet rain forest from a limb about 10 cm in diameter that had fallen to the forest floor.

Notes: The above treatment was based on 7 specimens now in the U.S. National Museum which were identified by me from the original description.

Amphicranus bipunctatus Eichhoff

Amphicranus bipunctatus Eichhoff, 1878:469. Holotype ♂; America meridionales (Nova Granada), now Venezuela; IRSNB, Brussels (References in Wood & Bright c1992:1046)

Diagnosis: Distinguished from *schaufussi* Blandford by the smaller size; by the less abruptly declivous anterior slope of the pronotum near the summit; by the declivital spines at the level of the suture apex being conspicuously displaced mesad from the lateral margin; and by the color pattern.

Male: Length 4.7 mm, 3.9 times as long as wide; color of pronotum and posterior half of elytra very dark brown except middle third of mesal half of pronotum and basal half of elytral disc yellowish brown. Frons entirely concealed on type by pronotum; both antennae missing from type except left scape. Pronotum 1.6 times as long as wide; sides straight and parallel on basal two-thirds, rather narrowly rounded in front; anterior margin narrowly rounded in front; anterior margin armed by a row of 13 basally connected serrations, middle one projecting slightly cephalad; summit one-seventh pronotum length from anterior margin; anterior slope steep, not precipitous near summit; asperities sparse, rather coarse, reticulation not apparent; posterior areas reticulate, punctures very minute, almost obsolete. Elytra 2.3 times as long as wide, 1.5 times as long as pronotum; disc occupying 52 percent of elytra length; disc smooth, shining, a few minute impressed points obscurely indicated. Declivity very similar to *schaufussi*, spines 1 and 2 small, pointed, 3 about three times larger, pointed; lateral crest acutely elevated, thicker at level of suture apex and bearing a moderately large, pointed spine directed mesad and displaced mesad (occupying lateral half of space between suture and lateral margin), lateral crest then continuing to apex; inner face of declivity smooth, shining, with minute, confused punctures rather numerous, a few minute tubercles near apex; aplanate arms occupying a third of declivity length, emargination about twice as deep as wide. Vestiture of fine, moderately long hair on lower half of declivity, shorter on basal half, a few setae on lateral margins near declivity.

Distribution: "Nouveau Granada, Dejean, Columbie," presumed to be present-day Venezuela.

Notes: The above treatment was based on the male holotype.

Amphicranus thunesi Wood, n. sp.

Amphicranus thunesi Wood: Holotype ♂; Est. Biol. La Selva, Heredia, Costa Rica, 50–150 m, 10°26'N, 84°01'W; USNM, Washington, designated below

Diagnosis: Distinguished from *argutus* Wood by the smaller size; by the slightly stouter pronotum; by the very minute striae punctures on the disc; by the very different upper declivity (described below); and by the much smaller punctures on the declivity face.

Male: Length 1.5–1.7 mm, 3.0 times as long as wide; color very dark reddish brown. Frons essentially convex, lower two-thirds of median half weakly, transversely impressed; surface minutely reticulate, lateral parts of impressed area with a few weak, subaciculate lines converging toward median line of epistoma; a few fine, short

setae on lower third uniformly distributed; antennal club oval, slightly longer than scape; two weakly procurved sutures divide club into equal thirds. Pronotum 1.26 times as long as wide; summit indefinite, on anterior half; declivous on anterior fourth, asperities rather small; surface of posterior two-thirds weakly subreticulate, punctures minute, moderately abundant. Elytra 1.6 times as long as wide, 1.3 times as long as pronotum; striae not impressed, punctures minute, mostly in rows, many almost obsolete; interstriae smooth, shining, punctures minute, mostly obsolete, some usually present on 2. Declivity very steep, limited to posterior one-fifth of elytra length, broadly, shallowly concave; basal margin at interstriae 2 with a small, subacutely pointed denticle, a subacutely raised crest extending to a slightly larger, pointed denticle on base at interstriae 3, a rounded crest extending from denticle on 3 meeting and continuous with acutely elevated suture; face of declivity almost flat on a broadly triangular area, smooth, shining, with several minute, subobsolete punctures; suture narrowly, weakly elevated.

Female: Essentially identical to male except posterior parts of visible sternum 5 and tergum 7 bearing several long setae on both sides; male setae present, but very short.

Distribution: Costa Rica (Heredia).

Type material: The male holotype, female allotype, and 7 paratypes were taken at Costa Rica, Heredia, Estacion Biologica La Selva, 50–150 m, 10°26'N, 84°01'W, INBIO, primary forest GIS 900-150, *Pentaclethra macroloba*, log 15, reared 17-IX-1994, Thunes/Varga. Four paratypes are from the same site: borde de suampo, Malaise trap, M/18/701, 23-I-1998, canopy fogging, *Goethalsia meiantha*, FOT/50/16; 15-V-2000; bosque primario, Malaise trap M/07/632, 15-IV-1966; fallen *Laetia procera* tree, CES 600, 15-I-1996, K. H. Thunes. The holotype, allotype and two paratypes are in the U.S. National Museum, Washington; four paratypes are in the INBIO Collection, San Jose, Costa Rica; five paratypes are with L.R. Kirkendall, Univ. Bergen.

Amphicranus minor (Eggers)

Amphicranus minor (Eggers), 1935:332 (*Anchonocerus*). Holotype ♂; Cochabamba, Bolivia; USNM, Washington

Diagnosis: Distinguished from *argutus* Wood by the larger size; by the more distinctly concave elytral declivity; by declivital spine 2 being smaller, spine 3 is displaced mesad one-third distance from lateral crest toward suture; and by the smooth, shining face of the declivity.

Female: Length 2.7 mm, 2.9 times as long as wide; color dark reddish brown. Frons broadly convex, a feeble transverse impression above epistoma; surface reticulate, sparse punctures very small; median sixth of epistoma distinctly projecting orad; glabrous epistomal brush short, sparse; antennal club 1.3 times longer than wide, ovate; sutures almost straight. Pronotum 1.3 times

as long as wide; sides straight and parallel on basal half, rather narrowly rounded in front; anterior margin very weakly serrate; asperities rather coarse, close, confused; posterior areas minutely reticulate, shining, punctures very minute; almost glabrous. Elytra 1.7 times as long as wide, 1.4 times as long as pronotum; disc occupying basal 83 percent of elytra length; disc smooth, brightly shining, a few irregular impressed lines present, punctures minute, in stria rows. Declivity very steep, moderately concave; spine 2 very minute, a moderate sulcus extending cephalad at suture less than half distance toward base of elytra; lateral crest rounded from spine 2 about two-thirds distance to level of suture apex, spine 3 slightly below middle of declivity length, displaced mesad about one-third distance from crest toward suture; apical margin subacute, weakly explanate, emargination obsolete; face of declivity smooth, shining, confused punctures of moderate size. Almost glabrous.

Distribution: Bolivia: Cochabamba, (Germain) 1907, H. Donckier [Paris Museum].

Notes: The male holotype is in the U.S. National Museum, Washington. A female identified by Eggers in 1941 was examined and was used as the basis for the above description.

Amphicranus araguensis Wood, n.sp.

Amphicranus araguensis Wood: Holotype ♂; Colonia Tovar, Aragua, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *micans* Wood by the larger size; by the more deeply concave declivity, with the lateral convexities more abruptly more strongly elevated, and spines 1 and 2 much larger; and by the more strongly explanate and divaricate elytra.

Male: Length 2.6–2.7 mm, 3.3 times as long as wide; color dark reddish brown, basal half of pronotum much lighter reddish brown. Frons strongly convex eye to eye from epistoma to vertex, surface rugose-reticulate, punctures small, rather close; glabrous, epistomal brush narrow, sparse, very short; antennal club as long as scape, somewhat obovate, sutures 1 and 2 feebly procurved, septate. Pronotum 1.5 times as long as wide; sides on basal two-thirds almost straight and parallel; anterior margin rather narrowly rounded, armed by about 14 basally connected serrations; summit on anterior third, asperities moderately coarse, close, confused; posterior areas reticulate, punctures very small, rather close; almost glabrous. Elytra 1.8 times as long as wide, 1.3 times as long as pronotum; disc occupying basal 65 percent of elytra length; disc smooth, shining, stria punctures mostly in rows, interstriae with a few impressed lines. Declivity rather steep, rather strongly concave; spine 1 rather large, pointed, positioned at base on interstriae 2, crest subacutely, moderately elevated to apex, spine 2 on mesal side of crest at level of suture apex, pointed, directed mesad; emargination small, about as wide as deep; concave area smooth, shining, mesal half with many confused, rather small punctures. Vestiture of a

few long setae at apical margin of declivity, and on lateral areas near declivity.

Distribution: Venezuela (Aragua).

Type material: The male holotype and 1 male paratype were taken at Colonia Tovar, Aragua (near the Moritz home), 4-V-1970, 1700 m, No. 509, tree branch (type), No. 503, in a log (paratype), by S.L. Wood. The holotype and paratype are in the U.S. National Museum, Washington.

Amphicranus sexdentulum
(Wood), n. comb.

Amphicranus sexdentulum (Wood), 1989:178 (*Anchonocerus*). Holotype ♂; Aguatal, Colombia; USNM, Washington, automatic, replacement name (References and synonymy in Wood & Bright c1992:1062)

Anchonocerus sexdentatum Eggers, 1935:331. Holotype ♂; Aguatal, Colombia; preoccupied by Eggers 1935:83

Diagnosis: Remotely allied to *melanura* (Blandford) but distinguished in the male by the small, pointed spines 1 and 2 on the basal fifth of the elytral declivity length; by the larger, more strongly projecting spine 3; and by the larger, stouter body form.

Male: Length 4.8 mm, 3.0 times as long as wide. Frons entirely concealed on type by pronotum. Pronotum 1.15 times as long as wide; sides on almost basal two-thirds straight and parallel, rather narrowly rounded in front; anterior margin with about 8 weak serrations; summit indefinite, anterior to middle of pronotum length; asperities rather small, close, confused; posterior areas minutely reticulate, punctures very minute, not close; sparse setae on and near anterior margin. Elytra 1.75 times as long as wide, 1.4 times as long as pronotum; disc occupying basal 66 percent of elytra length; disc smooth, brightly shining, punctures very minute, confused. Declivity broadly, deeply concave; lateral crest acutely elevated on its lower fifth, narrowly rounded above to suture at base; crest on basal fifth of declivity length armed by very small, pointed spines 1 and 2, distance from suture to 1 equal to distance from 1 to 2, from suture to 2 slightly greater than 2 to 3; spine 3 more than twice as large as 2, with 3 on crest and pointed moderately mesad; face of declivity smooth, shining, punctures small, confused, many impressed points near suture; suture weakly elevated. Almost glabrous, about six setae on sides near declivity.

Distribution: Colombia: Aguatal (not found on available maps).

Notes: The above treatment was based the male holotype of *Anchonocerus sexdentatus* Eggers. When this Eggers name was transferred to *Monarthrum* (Wood & Bright c1992:1062) it became a junior homonym of *M. sexdentatum* Eggers (1935:83) and required a new name. Because *Monarthrum sexdentatum* Eggers (1935:83) is now a synonym of *M. bicolor* (Ferrari), see below, that name does not affect the nomenclature of this species.

Amphicranus eggersianus
Wood, n. sp.

Amphicranus eggersianus Wood: Holotype ♂; Rancho Grande, Aragua, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *araguensis* Wood by the larger size; by the procurved apical margin of the female antennal club, its posterior face of the apical margin ornamented by a continuous row of long hair; by female declivital spine 3 being closer to the lateral margin than to the suture; and by other characters described below.

Male: Length 3.3–3.8 mm, 2.8 times as long as wide; color of anterior half of pronotum and posterior half of elytra very dark reddish brown, posterior half of pronotum and anterior half of elytra light reddish brown. Frons broadly, rather strongly reticulate, a weak, transverse impression on lower fourth immediately above weakly elevated epistomal process; surface minutely rugose-reticulate, obscure small punctures almost obsolete; glabrous; antennal club somewhat obovate, sutures weakly procurved, partly septate. Pronotum 1.3 times as long as wide; sides almost straight and parallel on basal two-thirds, rather narrowly rounded in front; anterior margin armed by very feebly developed serrations; summit one-third of pronotum length from anterior margin; asperities rather coarse, close, confused; posterior areas smooth, shining, impressed points mostly obsolete; glabrous. Elytra 1.7 times as long as wide, 1.3 times as long as pronotum; disc occupying 70 percent of elytra length; disc smooth, shining, a few obscure impressed points present. Declivity very steep, moderately concave; spine 1 on interstriae 2 rather large, 1.5 times longer than basal width, lateral crest rather narrowly rounded, spine 2 on crest slightly below middle of declivity, crest acutely, moderately elevated from apex to near lower margin of spine 2; face of declivity smooth, shining, a few small punctures on mesal fourth. Glabrous.

Distribution: Venezuela (Aragua).

Type material: The male holotype, female allotype, and 16 paratypes were taken at Rancho Grande, Aragua, Venezuela, 9-IV-1970, 1100 m, No. 434, tree limb, S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Amphicranus woytkowskii Wood, n. sp.

Amphicranus woytkowskii Wood: Holotype ♂; Almirante, Dep. San Martín, Peru; USNM, Washington, designated below

Diagnosis: Remotely allied to *brevipennis* Blandford but distinguished by the smaller body size; by the absence of a pair of tubercles within the concave area of the declivity on interstriae 1; and by the presence of a small acute point on the blunt spine on the basal margin of the declivity.

Male(?): Length 2.8 mm, 2.6 times as long as wide; color dark reddish brown. Frons transversely, very weakly convex, median profile longitudinally almost straight

on upper half, feebly concave below; surface minutely reticulate, a few minute punctures widely separated; glabrous except for a sparse brush of short setae on epistomal margin; antennal scape half as long as club, club elongate-ovate, sutures weakly arcuate. Pronotum 1.1 times as long as wide, widest and subparallel on basal three-fifths of pronotum length, broadly rounded in front; anterior submargin armed by a weak carina; summit one-fifth pronotum length from anterior margin, asperities small, close, confused; posterior areas reticulate, with minute punctures rather close except basal 30 percent on median fourth with numerous transverse carinae; glabrous. Elytra 1.3 times as long as wide, 1.14 times as long as pronotum; disc occupying basal 58 percent of elytra length; surface almost smooth, shining, striae punctures small, in obscure rows. Declivity with basal margin elevated and narrowly rounded at base to base of large, blunt spine (apex of spine forming an angle of about 90 degrees) at about interstriae 5, crest below spine acute, emargination at apex of suture minute, shallow; blunt spine on lateral crest with a minute, acute apex; floor of concave area smooth, shining, punctures abundant, very close; crest on lower two-thirds rather strongly, narrowly elevated; lower third of suture within concave area with a small callus.

Distribution: Peru (San Martín).

Type material: The male holotype was taken at Almirante, Dep. San Martín, Peru, 12-XII-1936, No. 3737, F Woytkowski, 1900 m, subtropical forest. The holotype is in the U.S. National Museum, Washington.

Amphicranus quadridens
Wood, n. sp.

Amphicranus quadridens Wood: Holotype ♂; 13 km SW El Vigia, Merida, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *grouwellei* Blandford by the more distinct crest at the basal margin of the declivity, angle of callus on crest at about interstriae 3 less definite; by the slightly larger size; and by the double tubercle on interstriae 1 at the middle of the declivity length.

Male: Length 2.7–2.8 mm, 2.7 times as long as wide; color very dark reddish brown. Frons moderately convex above eyes, more broadly convex from epistoma to upper level of eyes; surface finely reticulate above, almost rugose-reticulate in median area immediately above epistoma; glabrous, epistomal brush rather dense, setae moderately long; antennal club longer than scape, 1.4 times longer than wide; outline somewhat ovate, sutures weakly procurved. Pronotum 1.2 times as long as wide; sides on basal 85 percent of pronotum length straight and parallel; anterior margin very broadly rounded, armed by a broken costa; summit one-fifth pronotum length from anterior margin; asperities moderately coarse, close, confused; posterior areas finely reticulate except posterior two-fifths on median half with numerous transverse rugae. Elytra 1.4 times as long as wide, 1.16 times as

long as pronotum; disc occupying basal 50 percent of elytra length; disc shining, almost smooth, some irregular impressed lines, punctures small, confused toward suture, almost in recognizable rows on striae 3 to about 6. Declivity steep, costa on lower two-thirds rather strongly, acutely elevated, crest on basal third abrupt, subacutely elevated, armed by an obtusely elevated callus forming a transverse angle of about 140–160 degrees on crest at about interstriae 3. Face of declivity mostly convex, interstriae 1 with a pair of pointed, longitudinally bituberculate tubercles slightly above middle of declivity length; face smooth, shining, densely, rather coarsely punctured; emargination at end of declivital suture small, narrow, twice as deep as wide. Glabrous.

Female: Similar to male except rugose-reticulate area on frons larger, more definite; asperities on pronotum slightly larger; callus on basal crest of declivity on interstriae 3 less definite.

Distribution: Venezuela (Merida).

Type material: The male holotype and female allotype were taken at 13 km SW El Vigia, Merida, Venezuela, 22-X-1970, 100 m, No. 76, *Inga* branch, S.L. Wood. The holotype and allotype are in the U.S. National Museum, Washington.

Amphicranus grouvellei Blandford

Amphicranus grouvellei Blandford, 1905:294. Syntypes 2, sex[?]; tobacco refuse intercepted at Paris, said to be of Brazilian origin; BMNH, London (References in Wood & Bright c1992:1047)

Diagnosis: Distinguished from *quadridens* Wood by the less abrupt basal margin of the declivity; by the less abruptly angled callus on the lateral crest at interstriae 3; and by the striae punctures on the disc organized mostly in rows.

Male: Length 1.3–1.4 mm, 2.7 times as long as wide; mature color black. Frons as in *woytkowskii*. Pronotum 1.3 times as long as wide; about as in *woytkowskii*, except transverse rugose area smaller, occupying basal fourth on median third, asperities on anterior slope smaller, less numerous. Elytra 1.4 times as long as wide, 1.1 times as long as pronotum; disc occupying basal 66 percent of elytra length; disc almost smooth, shining, striae punctures mostly in rows. Declivity steep, basal margin abrupt, obtusely rounded, callus on crest at about interstriae 3 weakly elevated, forming an angle of about 110 to 120 degrees. Declivity about as in *quadridens*, except angle on crest at interstriae 3 less abrupt and denticle on face of declivity at interstriae 1 forming a single point on each side of suture.

Female: Similar to male except margin of declivity not as high, basal margin less strongly rounded.

Distribution: Mexico (Chiapas) to Colombia, and (?) Brazil.

Colombia: Caicedonia, near Seville, VIII-1959, Duque.

Notes: The type specimens were obtained from tobacco refuse at Paris that was presumed to have been of Brazilian origin. Presumed “Mexican” tobacco refuse

taken about that same time is now known to have originated in Brazil. Because there is a strong possibility that the labeling of samples could have been mixed there is doubt as to the type locality of this species. It is definitely known to exist in Mexico, but not in Brazil. Recognition of its occurrence in Brazil must await confirmation. The above treatment was based on 1 male from Colombia that was compared by me directly to the syntypes and to 1 female from 22 km N Ocozocoautla, Chiapas, Mexico 2-VII-1969, D.E. Bright.

Amphicranus brevior Wood, n. sp.

Amphicranus brevior Wood: Holotype ♂; Valle de Choroni, Aragua, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *brevipennis* Blandford, of Guatemala and Costa Rica, by the smaller body size; by the semicircular pattern of the impression at the base of the elytra anterior to the large, spinelike protuberances on about interstriae 3; and by the numerous impressed points on the elytra disc.

Male: Length 2.5–3.1 mm, 2.8 times as long as wide; color dark reddish brown. Frons and antenna about as in *brevipennis*. Pronotum 1.2 times as long as wide; about as in *brevipennis*, transversely rugose area on mesal half of basal fifth; glabrous. Elytra 1.4 times as long as wide, 1.1 times as long as pronotum; disc occupying basal 52 percent of elytra length; disc shining, somewhat irregular, punctures confused from suture to striae 3, striae 3 to 5 with punctures mostly in rows, numerous impressed points on interstriae. Declivity steep; area between and anterior to tips of spine on interstriae 3 forming a moderately deep concave semicircle; spine 3 and lower declivity about as on *brevipennis*, except impressed area of primary central impression more strongly concave, spines on interstriae 1 submamiform; face of declivity smooth, shining, punctures small, numerous, confused. Glabrous.

Female: Similar to male except sculpture of elytral disc finer; spine at base on interstriae 3 on declivity conspicuously smaller; lateral margin from spine 3 to apex not as high.

Distribution: Venezuela (Aragua).

Type material: The male holotype, female allotype, and 7 paratypes were taken at Valle de Choroni, Venezuela, 3-IV-1964, *Theobroma cacao*, J.L. Saunders. Other paratypes are: 2 from Rancho Grande, Aragua, 9-IV-1970, 1100 m, No. 431, *Nectandra*; 4 from same place, No. 445, tree pole; 1 same place No. 414, tree branch; and 2 from 20 km SW El Vigia, Merida, 10-XII-1969, 50 m, liana, all taken by S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Amphicranus lesnei Hagedorn

Amphicranus lesnei Hagedorn, 1903:550. Lectotype ♂; Valle de Cauca, Colombia; MNHN, Paris, present designation (References in Wood & Bright c1992:1047)

Diagnosis: Distinguished from other members of the *A. thoracicus* Erichson species group by the large size; by the longer, more cylindrical spine 2 on the lateral crest of the declivity; by the evenly curved, unarmed apical lateral margin of the declivity; by the shallowly emarginate, unarmed median area of the male declivity; and by the serrate posterior margin of the female declivity near the emargination.

Male: Length 8.7–8.8 mm, 3.0 times as long as wide; bicolored, prothorax bright reddish brown, elytra and ventral areas black. Frons entirely concealed by pronotum on both lectotype and lectoallotype; antennal club 1.7 times as long as wide, suture 1 abruptly angulate, 2 less abruptly procurved. Pronotum 1.2 times as long as wide; sides almost straight and parallel on basal half, then converging to broadly rounded anterior margin, median fifth shallowly emarginate (seen only from anterior aspect), no serrations; indefinite summit on anterior fourth of pronotum length, slope steep on anterior one-sixth, asperities coarse, close, confused; disc from summit to middle of pronotum length with weak, transverse crests (resembling scales), basal half with numerous close, low, transverse carinae to base on median half; a few small punctures on disc in scaled area; glabrous. Elytra 1.8 times as long as wide, 1.3 times as long as pronotum; disc occupying basal 32 percent of elytra length; disc smooth, shining, with many minute punctures, some of these punctures in apparent rows in positions of striae 2 and 3; a few impressed lines present. Declivity strongly, broadly excavated; a shallow sulcus anterior to spine 2 to suture extending an indefinite distance cephalad; spine 2 on crest moderately large, pointed (about 90 degrees); descending crest subacute and smooth to base of large spine 2 on crest, spine 2 about as high as its basal width, apex blunt and pointing slightly caudad, two crests extend caudad from spine 2, mesal crest short, ending in excavation, lateral crest subacutely elevated and ending at apical emargination, lateral crest rather evenly rounded (no abrupt angles or spines); callus in lower declivity, apparently representing position of spine 3 almost obsolete; surface of excavation smooth, shining to apex (no tubercles or rugosities); sparse minute punctures over most of excavated area, more numerous and with short setae to and near apical margin; emargination narrow, rather deep, two or more times deeper than wide.

Female: Similar to male except antennal club with many long setae on apical three-fourths of posterior face; mesal area of anterior margin of pronotum procurved and armed by about 8 low serrations; spine 2 on declivity very small, blunt, 2 about half as large, less cylindrical, lateral crest below spine 2 not as high.

Distribution: Colombia: Valle de Cauca, M. De Mathau, 1898, R. Oberthur, 1900.

Notes: A male type and a female type are in the MNHN, Paris. The male was subsequently labeled holotype, the female as a paratype. Because this species was based on syntypes, the male is here designated as the lectotype and the female as the lectoallotype of *Amphicranus lesnei* Hagedorn.

Amphicranus plaumanni Schedl

Amphicranus plaumanni Schedl, 1978:305. Holotype ♀; Nova Teutonia, Santa Catarina, Brazil, 300–400 m, 27°11'Br., 52°23'L; NHMW, Wien (References in Wood & Bright c1992:1048)

Diagnosis: Distinguished from *brownei* Schedl by having spine 2 on the anterior fourth of the elytral declivity, pointed, and on the lateral crest, spine 3 small, pointed, and also on the lateral crest; emargination at apex of suture deeper and conspicuously wider; antennal club slender; 2.1 times as long as wide.

Male: Length 5.3–5.5 mm, 3.1 times as long as wide; color of anterior third of pronotum and disc to base and sides of elytra and all of declivity black, sides of pronotum and disc of elytra yellowish brown. Frons broadly convex from impression above epistoma to vertex dull, reticulate, median fifth from epistoma to upper level of eyes forming a weakly elevated, convex, rugose-reticulate area; epistomal brush of short, sparse setae; antennal club elongate, 2.1 times longer than wide, sutures moderately, subangulately procurved. Pronotum 1.2 times as long as wide; sides on more than basal half almost straight and parallel, narrowly rounded; anterior margin armed by 5 serrations, median one largest; summit on anterior fourth, asperities coarse, close, somewhat confused, area from asperities to middle of pronotum length subasperate then transcending into flattened surface scales, and then transcending to a smooth, punctured area (including sides), basal half on median third with numerous very close, transverse rugae; glabrous. Elytra 1.7 times as long as wide, 1.3 times as long as pronotum; disc occupying basal 46 percent of elytra length; disc smooth, shining, punctures very small, confused. Declivity gradual, strongly explanate and divaricate behind; spine 1 on interstriae 1 at base, rather small, sharply pointed, 2 on basal third on crest, three times larger than 1, pointed, crest descending rapidly from spine 2 to level of middle of declivity then continuing horizontally to level of suture apex, spine 3 on crest, small, pointed, obtusely positioned at level of suture apex, crest then arcuately continuing to apex at margin of emargination; emargination about twice as deep as wide. Glabrous except for a few short setae on sides near declivity.

Female: Similar to male except antennal club with several long setae on posterior face.

Distribution: Nova Teutonia, Santa Catarina, Brazil, 27°11'B, 50°23'L, IX-1973, 300–500 m, F. Plaumann (type and 3 paratypes), 1 paratype same except VIII-1973.

Amphicranus politus Eichhoff

Amphicranus politus Eichhoff, 1869:276. Holotype ♀; Nova Freiburg, Brazil; IRSNB, Brussels (References in Wood & Bright c1992:1048)

Diagnosis: Distinguished from *plaumanni* Schedl by having a small, pointed denticle on the lateral crest of the declivity anterior to the level of the suture apex, the angle between the horizontal and apical margins unarmed by a denticle; by the feebly serrate anterior margin

of the pronotum; and by the area of dense micropunctures on the apical fourth of the declivity.

Female: Length 5.3 mm, 3.1 times as long as wide; color almost black. Frons concealed by pronotum on type; antennal club elongate-oval, 1.7 times as long as wide, sutures weakly subangulate, a few long setae on posterior face. Pronotum 1.4 times as long as wide; sides almost straight and parallel on basal two-thirds, rather narrowly rounded in front; anterior margin on median sixth weakly produced and obscurely suberrate; summit one-fourth of pronotum length from anterior margin, anterior slope very steep, asperities rather coarse, close, confused; posterior areas reticulate and finely, rather closely punctured from summit to middle of disc, basal area with numerous close, weak, transverse grooves on median third, ridges between grooves not at all costate. Elytra 1.8 times as long as wide, 1.3 times as long as pronotum; disc occupying about basal 50 percent of elytra length; disc smooth, shining, punctures very small, confused, surface with a few weak impressed lines. Declivity gradual, deeply, broadly concave, strongly explanate and divaricate; spine 1 on crest at base of interstriae 1, minute, pointed, spine 2 on crest, three or more times larger than 1, obtusely pointed, crest descending rapidly below spine 2, then subhorizontal to level of suture apex, subhorizontal portion armed midway on crest by a small, pointed spine; obtuse angle formed between horizontal and subvertical areas of crest marked by a callus (no spine); emargination at apex of suture about equal in depth to one-fifth of declivity length, about 1.5 times deeper than wide (elytra of type spread slightly); face of declivity smooth, shining on basal two-thirds, with small, confused punctures, apical third appearing dull, with dense micropunctures. Vestiture of sparse, short setae in apical third of concave area; a few long setae on sides near declivity.

Distribution: Brazil: Nova Freiburg, at light, Deyrolle.

Notes: The above treatment was based on the female holotype.

Amphicranus brownei Schedl

Amphicranus brownei Schedl, 1979:128. Holotype ♂?; Amapa, Alt. Amapari, Brazil; NHMW, Wien, replacement name (Synonymy and references in Wood & Bright c1992:1046)

Amphicranus elegantulus Schedl, 1978:304. Holotype ♂?; Amapa, Alt. Amapari, Brazil; NHMW, Wien, preoccupied by Schedl 1963:225

Diagnosis: Distinguished from *plaumanni* Schedl by the location of blunt spine 2 on the crest near the middle of the elytral declivity, with spine 3 displaced mesad from the crest to the floor of the concave area; by the antennal club being only slightly longer than wide; and by the emargination at the apex of the suture being greatly reduced in size.

Male (?): Length 5.5 mm, 2.9 times as long as wide; color reddish brown, except sides of elytra and declivity black. Frons concealed by pronotum on type; antennal club 1.5 times as long as wide, slightly obovate. Pronotum 1.3 times as long as wide; sides straight and parallel on

more than basal half, broadly rounded in front; anterior margin obscurely serrate on median fourth; summit on anterior fourth of pronotum length; asperities coarse, close, confused; remainder of pronotum as in *plaumanni*. Elytra 1.7 times as long as wide, 1.3 times as long as pronotum; disc occupying 45 percent of elytra length; disc smooth, shining, punctures small, confused; Declivity gradual, rather strongly, broadly concave; elytra strongly explanate, narrowly, shallowly divaricate; spine 1 at base of declivity weakly represented by a low, obtuse callus, 2 positioned on crest near middle of declivity, large, blunt, crest between 1 and 2 narrowly rounded, crest below spine 2 subacutely elevated to apex; spine 3 small, rounded, positioned on lower fourth and displaced mesad from lateral crest almost half distance toward suture; emargination at suture apex very narrow, moderately deep, four times deeper than wide; face of declivity rather deeply, broadly concave, smooth, brightly shining. Vestiture of moderately abundant, short hair on apical sixth of declivity face; a few short setae on sides near declivity.

Distribution: Brazil: Amapa, Alt. Amapari, by Lane.

Notes: The above treatment was based on the holotype that is presumed to be a male.

Amphicranus thoracicus Erichson

Plate CLXXVI

Amphicranus thoracicus Erichson, 1836:64. Holotype ♂; Brazil; MNB, Berlin (Synonymy and references in Wood & Bright c1992:1049)

Piezorhopalus nitidulus Guerin-Meneville, 1838:107. Holotype, sex?; Brazil; presumably at MNHN, Paris; not seen, synonymy by Blandford 1904:290

Amphicranus elegans Eichhoff, 1869:276. Holotype ♀; Mexico; IRSNB, Brussels (References in Wood & Bright c1992:1047). *New synonymy*

Amphicranus retusus Eichhoff, 1869:276. Holotype ♀; America meridionalis (Cayenne); IRSNB, Brussels (References in Wood & Bright c1992:1048). *New synonymy*

Amphicranus crenatus Eichhoff, 1878:465. Holotype ♂; America meridionalis (Brazil); IRSNB, Brussels. *New synonymy*

Diagnosis: The holotypes of *thoracicus* Eichhoff, *elegans* Eichhoff, *retusus* Eichhoff, and *crenatus* Eichhoff were examined. A male specimen of *nitidulus* Guerin-Meneville that was compared by Eichhoff to the type of *thoracicus* was also examined. My male and female were removed as a mated pair from the same tunnel, firmly associating the sexes of this species. My male was compared to the homotype of *nitidulus*, and to the holotype of *crenatus*, and my female to the holotypes of *elegans* and *retusus*. It is obvious that all represent the same species. This species group was apparently derived from the *grouellei* species group, but is distinguished by the large size, elongate body form, gradual declivity, and by the strongly explanate and divaricate elytral declivity.

Male: Length 7.1–7.7 mm (female 6.1–7.1 mm), 3.2 (female 2.7) times as long as wide; mature color black, immature adults sometimes with prothorax, abdomen, or other parts reddish brown. Frons broadly convex eye to eye from epistoma to vertex; surface finely rugose-reticulate, median one-ninth coarsely rugose-reticulate

on a definite pattern from epistoma to well above upper level of eyes; sparse setae on and near epistoma, glabrous above; scape elongate, slightly shorter than club, club elongate-oval, 2.2 times longer than wide, sutures 1 and 2 asymmetrically angulate, weakly septate. Pronotum 1.23 times as long as wide; sides almost straight and parallel on basal half, rather broadly rounded in front, anterior margin with a short transverse carina on median submargin; summit on anterior third, anterior slope very steep (almost subvertical), asperities rather coarse, close, confused; surface shining, smooth on anterior half, some areas marked by a scalelike posterior line, posterior half on median two-thirds with dense, transverse subcarinate rugae; glabrous. Elytra 1.9 times as long as wide, 1.5 times as long as pronotum; disc occupying 36 percent of elytra length; disc smooth, shining, a few impressed lines present, punctures minute, confused, a broad, weak sulcus extending from near scutellum to base of declivity. Declivity gradual, rather deeply, broadly concave; elytra strongly explanate, deeply divaricate; basal margin armed on interstriae 2 by a moderately large spine (appearing submamiform from dorsal aspect), crest subacute from base of spine 1 to base of major spine 2, moderately high, blunt, much larger than 1; posterior outline of spine 2 strongly emarginate and descending subvertically then continuing caudad to apex of lateral process; emargination on posterior side of major spine small and deep on Brazilian specimens, much wider on Costa Rican specimens; inner face of concave area smooth, brightly shining, punctures very small, numerous, confused, glabrous except for fine, short hair near apical margin.

Female: Similar to male except posterior face of antennal club with a tuft of long hair; spine at base of declivital interstriae 2 greatly reduced in size, sometimes obsolete; major declivital spine smaller, pointed, entirely without an emargination on posterior slope; declivity less strongly divaricate and explanate, emargination at apex of declivital suture not as deep.

Distribution: Brazil and French Guyane to Central America and Mexico (Veracruz).

Mexico: Cordova (=Cordoba), Toxpam.

Nicaragua: Chontales (Blandford 1904:290).

Costa Rica: Finca LaLola, Limon Prov., VIII-1964, *Theobroma cacao*, J.L. Saunders.

Ecuador: Blandford (1904:291).

French Guyane: *America meridionalis* (Cayenne).

Brazil: Rio de Janeiro by Fry (Blandford 1904:291).

Biology: Most specimens have been taken at light in very wet rain forest environments. Those taken from the host were in limbs. Broods are apparently very small.

Notes: The above treatment was based on the male holotype of *crenatus* Eichhoff, the female holotype of *elegans* Eichhoff, the female holotype of *retusus* Eichhoff, and the specimen of Chapuis that was compared to the male holotype of *nitidulus* Guerin-Meneville.

Amphicranus quadrimaculatus Schedl

Amphicranus quadrimaculatus Schedl, 1966:127. Holotype ♀; Chanchamajo, Junin Dep., Peru; NHMW, Wien (References in Wood & Bright c1992:1048)

Diagnosis: Distinguished from *thoracicus* Eichhoff by the larger size; by the female spine 2 on the declivity with its apex rounded, spine 3 poorly formed, represented by a rounded callus on the floor of the declivity; setae on the lower declivity longer, more abundant, more widely distributed.

Female: Length 8.0 mm, 3.2 times as long as wide; color very dark reddish brown, with spots of pale reddish brown on sides of pronotum and on discal interstriae 2 to 4 at middle of the elytral disc. Frons broadly convex, a weak, transverse impression immediately above epistoma, surface finely rugose-reticulate on sides and above, punctures small, obscure; raised area more coarsely rugose-reticulate on a subquadrate pattern on median third from narrow point at epistoma to broad area distinctly above upper level of eyes; antennal club 2.0 times as long as wide, outline somewhat oval, with anterior apical angle reduced, sutures angulately procurved, posterior face with a tuft of long hair. Pronotum 1.4 times as long as wide; sides almost straight and parallel on posterior half, narrowly rounded in front; anterior submargin armed on median fourth by short, subserrate costa positioned well above margin; summit on anterior fifth; asperities rather small, close, confused; area from summit to middle of pronotum length transcending from low asperities to a scale-like pattern, then to irregularly punctured, posterior half of disc with numerous, low, transverse rugae on more than median half; some areas weakly reticulate; glabrous. Elytra 1.8 times as long as wide, 1.3 times as long as pronotum; disc occupying 44 percent of elytra length; disc smooth, shining, with many impressed, irregular lines, punctures small, confused. Declivity gradual; broadly, rather deeply concave; spine 1 at base on apparently interstriae 1 (represented by a blunt callus), 2 rather large, blunt, crest between 1 and 2 a low, subacutely elevated crest to apex of 2 and part of posterior descent, crest rounded on lower half of base of spine 2 following a steep descent, subacute crest resuming on lateral margin of strong explanate process to suture; emargination at suture very narrow, rather deep; face of declivity smooth, shining, punctures small, confused; apical third becoming subgranulate, dull, with abundant, rather long hair; spine 3 represented by a small rounded tubercle almost half distance from lateral crest to suture about one-third declivity length from apical margin. Vestiture mostly on lower fourth of declivity face; a few setae on sides near declivity.

Distribution: Peru: "Chanchamajo, det. Eggers 1942" [Junin Dep., central Peru].

Notes: The above treatment was based on the female holotype that was given a manuscript name by Eggers in 1942, but was published under the name of Schedl (Wood in Wood & Bright c1992:2-3).

GENUS *MONARTHURUM* KIRSCH

- Monarthrum* Kirsch, 1866:213. Type-species: *Monarthrum chapuisi* Kirsch, monobasic (Synonymy and references in Wood & Bright c1992:1050–1064)
- Corthylomimus* Ferrari, 1867:48. Type-species: *Bostrichus fasciatus* Say, subsequent designation by Hopkins 1914:118
- Cosmocorynus* Ferrari, 1867:62. Type-species: *Cosmocorynus cristatus* Ferrari, monobasic
- Pterocyclon* Eichhoff, 1869:276. Type-species: *Pterocyclon laterale* Eichhoff, subsequent designation by Hopkins 1914:128, neotype designated for type-species by Wood 1966:25
- Anchonocerus* Eichhoff, 1878:67, 431. Type-species: *Anchonocerus rufipes* Eichhoff = *Pterocyclon ingens* Eichhoff, monobasic
- Phthorius* Eichhoff, 1878:67, 433. Type-species: *Pterocyclon ingens*, monobasic
- Trypocranus* Eichhoff, 1878:67, 435. Type-species: *Trypocranus cinnamatus* Eichhoff, monobasic
- Xyleborips* Reitter, 1913:79, 111. Type-species: *Xyleborus meuseli* Reitter, monobasic (References in Wood & Bright c1992:704).
New synonymy
- Eupteroxylon* Eggers, 1936:392. Type-species: *Eupteroxylon comatum* Eggers, monobasic

Diagnosis: Distinguished from *Amphicranus* by the less strongly explanate and divaricate elytral declivity; by the sexually dimorphic protibiae; by the prosternal precoxal piece usually subacutely pointed behind and projecting between coxae; and by the much more conspicuous, diverse, secondary sexual characters. Most species are polygynous.

Description: Length 1.4–6.4 mm, 2.4–3.4 times as long as wide; color yellowish brown to very dark brown, a few species bicolored. Frons frequently dimorphic, male usually convex, conservatively sculptured, female often similar to male, some variously concave or elaborately impressed, glabrous to elaborately ornamented by setae. Eye oval, deeply emarginate, usually finely faceted. Antennal scape slender to triangular, finely pubescent in female of some species; funicle 2-segmented; club slender to broadly oval or strongly triangular in female of some species, sutures almost always present, sutures straight to moderately procurved, posterior face of female usually ornamented by long hair. Pronotum longer than wide, summit at or anterior to middle of pronotum length; anterior slope asperate, anterior margin serrate in male, usually unarmed or more finely armed in female; posterior areas finely sculptured. Scutellum rather large, flat. Elytral disc finely sculptured, punctures usually small, confused; declivity very gradual to subvertical, convex to elaborately excavated, unarmed to armed by conspicuous spines; suture apex entire to conspicuously emarginate;

vestiture usually absent except on or near declivity. Anterior coxae contiguous, a definite prosternal area always present; tibiae dimorphic, posterior face subinflated and armed by numerous confused tubercles in female.

Biology: All species are xylomycetophagous. They attack and breed in felled or injured boles, logs or limbs up to 50 cm in diameter or larger; however, a few small tropical species breed in branches or lianas as small as 1 cm in diameter. Some of the smaller species are apparently monogynous. In all observed cases, the male initiates the attack on a new host and forms the radial entrance tunnel and nuptial chamber in xylem tissue. As many as 7 females may be admitted by the male to his tunnel. Each female then forms an egg gallery that radiates from the nuptial chamber on a transverse plane, often following growth rings of the host. Eggs are deposited in separate niches in rows on the upper and lower surfaces of the egg tunnel. Each larva then enlarges its own niche, presumably feeding on a mixture of host tissues and ambrosial fungi. Young adults emerge from the individual pupal cells and depart from the brood host through the parent entrance hole.

Notes: This large and diverse genus is very difficult to classify due to the large number of similar species. Named species are known from very limited material taken mostly in flight or at light. The habits of few species have been recorded. Wood and Bright (c1992:1050–1064) list 131 species from North and South America. Of these, 74 species were recorded from South America.

While preparing the following treatment, it was observed that a substantial number of North American *Monarthrum* species belonged to groups not represented south of Costa Rica. However, because of the potential for movement through commerce all North, Central, and South American species are included in the key.

The classification of species in this genus is unusually difficult. Although both sexes are required for accurate identification, a high percentage of the species before me were represented by only one sex. As one progresses through the key there are places where it was necessary to resort to both male and female characters in order to proceed forward. It is realized that when only one sex is available, this presents a very difficult situation. Until more specimens are available to provide the needed characters it will be necessary to follow both alternatives in a couplet until it becomes obvious which one is correct.

Key to the Species of *Monarthrum*

- 1. Male declivity armed by two pair of small denticles between spine 2 (on interstriae 3) and suture at base of declivity; lateral margin rounded or elevated lateral crest obscure 2
- Male declivity with only one or no denticle between spine 2 and suture, lateral crest clearly marked 7

- 2(1). Male declivity with a large quadrate process on lateral crest below spine 2, ventrolateral crest extending laterad from suture to below spine 3 (restricted to lower fourth of declivity length); larger species 3
- Male declivity without a large quadrate process on lateral crest, spine 3 cylindrical; ventrolateral crest extending from suture to or above spine 3; small species (basal denticles between spine 2 and suture minute in one species) 4
- 3(2). Male spine 3 on declivity margin united with large, laterally compressed quadrate process, apical margin of this process acutely pointed at its apex; female frons uniformly convex to vertex; Mexico (Oaxaca); 4.3–4.6 mm *spinatum* (Bright)
- Male spine 3 on crest of declivity caudad to and separate from large quadrate process, posterior angle of this process obtuse; female vertex with a deep, narrowly subcordate median excavation well above upper level of eyes; female declivity mostly convex, with several rounded tubercles on lateral two-thirds of declivity width; Mexico (Hidalgo) to Panama and (?) Colombia; *Quercus*; 4.3–4.8 mm *vallidum* (Ferrari)
- 4(2). Female antennal club on distal half tapered, subacutely pointed at apex; female frons with a conspicuous elevation on median third from epistoma to upper level of eyes, lateral thirds weakly impressed, surface glabrous to ornamented on median third by a pair of small penicellate tufts of hair; male declivity with spine 3 more distinctly displaced mesad from lateral margin (equal to thickness of this spine); Mexico (Puebla) to Costa Rica, Colombia (Valle de Cauca), and Brazil; *Inga*, Leguminosae trees; 1.4–1.8 mm *egenum* (Blandford)
- Apical half of female antennal club broad, apex broadly rounded; female frons evenly convex, without a median elevation; male declivity with spine 3 on lateral margin to feebly displaced mesad (less than half thickness of spine) 5
- 5(4). Female frons distinctly impressed from mesal margin of eye dorsad to or toward vertex; male declivity armed by 2 pair of spines (2 and 3), tubercles on crest between 1 and suture very minute (one or more of these sometimes obsolete); Venezuela (Merida); Leguminosae trees; 1.6–2.0 mm *insidiosum* Wood
- Female frons evenly convex, without an impression at inner margin of eye; base of male declivity armed by two distinct denticles between spine 2 and suture (on interstriae 1 and 2) 6
- 6(5). Frons in both sexes rather strongly convex and more finely punctured, female with a small, weak impression immediately above epistoma, punctures small, obscure, setae sparse, short, mostly on or near epistoma; Colombia to Venezuela; Leguminosae tree; 1.8–2.2 mm *dolosum* Wood
- Frons in both sexes rather weakly convex and more coarsely punctured; female frons with a weak, transverse impression on lower half, and with moderately numerous, rather long setae uniformly distributed; Brazil (Santa Catarina); 1.7–2.2 mm *plaumanni* (Schedl)
- 7(1). Circumdeclivital costa on elytra never complete in either sex 8
- Male declivity with circumdeclivital costa forming a complete or almost complete circle, face of declivity concave, basal margin armed on crest by spine 1 on interstriae 1, and spine 2 on interstriae 2, spine 3 displaced to slightly below middle of declivity length and half distance from lateral crest toward suture; female with declivity weakly sulcate on basal third, flattened below; spine 1 absent, 2 on basal crest in interstriae 2, spine 3 slightly above middle of declivity length and displaced as much as three-fourths of distance from lateral crest toward suture 42
- 8(7). Male declivity with one spine (spine 1) between spine 2 and suture at base of declivity, spine 3 positioned on crest of lateral margin (except displaced in *bicavum*); female declivital spine 3 either on crest or displaced mesad 9
- Declivital spine 1 absent; male declivital spine 3 either on crest or conspicuously displaced mesad from lateral crest 43

CORTHYLINI

9(8).	Declivity convex in both sexes, shallowly sulcate in male on median third of upper third of declivity length; female with spines 2 and 3 displaced half distance from lateral crest toward suture, male with spines 1 and 2 on crest and with three or more additional tubercles on middle third of declivity, all displaced mesad; female frons with a median crest, lateral halves (separated by a median crest) moderately concave from epistoma to vertex; Mexico (Nayarit); <i>Quercus</i> ; 2.8–3.2 mm	<i>bicavum</i> Wood
—	Declivity concave at least in male	10
10(9).	Male and female declivital spine 3 on lateral crest (in <i>bicolor</i> species group spine 3 on inner margin of crest but connected by a short crest); in <i>bicolor</i> , female with several rounded tubercles, spine 3 not identifiable, but female with a conspicuous impression above eye	11
—	Male declivital spine 3 on lateral crest, female spine 3 displaced mesad from lateral margin at least one-third of distance toward suture (also see couplets 19 to 21)	27
11(10).	Male and (?)female declivital spines 1 and 2 on basal fourth of declivity, distance from spine 1 to 2 less than from 2 to 3; male declivity more broadly, more strongly convex	12
—	Male declivital spine 2 not on basal fourth of declivity length, distance from spine 1 to 2 equal to or greater than distance from 2 to 3; male declivity more nearly sulcate, impression rather deep, much narrower	22
12(11).	Male declivital spine 1 small, less than half as large as 2; female frons uniformly convex (female not seen for three of four species listed)	13
—	Male declivital spine 1 very large and sharply pointed, often larger than 2; female frons with conspicuous impressions on various areas	18
13(12).	Elytral declivity shallowly to moderately, broadly concave, spine 3 rather small, surface of concave area reticulate; bicolored	14
—	Elytral declivity deeply concave at least on male, spine 3 rather small to large	15
14(13).	Weak, transverse impression on frons occupying lower third of area below upper level of eyes, surface finely rugose-reticulate below upper level of eyes, reticulate to smooth above upper level of eyes, punctures rather fine below, larger on vertex; lateral margin of declivity with 5 to 8 small tubercles, crest continued below last tubercle to level of suture apex; Colombia to Bolivia; 3.5 mm	<i>chapuisi</i> Kirsch
—	Weak impression on frons occupying area from epistoma to upper level of eyes, surface more coarsely rugose-reticulate over a larger area to above eyes, with numerous small rugae in rugose area; lateral crest of declivity armed by 3 to 5 tubercles, crest ending at last tubercle (spine 3) well above level of suture apex; Bolivia to Peru; 4.2 mm	<i>intermedium</i> Schedl
15(13).	Male declivital spines moderately large, sharply pointed, distance from spine 1 to 2 about equal to distance from 2 to 3, lateral profile of spine 3 and angle formed by spine 3 about 90 degrees; pubescence within face of declivity very sparse, rather short; bicolored; Guiana; 3.0 mm	<i>bicoloratum</i> Wood
—	Male declivital spines 1 and 2 rather small, on base, distance from 1 to 2 equal to about one-third of distance from 2 to 3, spine 3 very large	16
16(15).	Smaller, slender species, 3.5 times as long as wide; male declivital spine 3 slightly above middle of declivity length, large, cylindrical, projecting caudad; anterior margin of pronotum narrowly rounded, armed by a row of about 8 low serrations; Brazil (Para); 1.6 mm	<i>gracilentum</i> (Schedl)
—	Larger species; male declivity more strongly impressed, declivital spine 3 below middle of declivity length, small or large, conical, projecting dorsomesad; female declivital spines 1 and 2 obsolete, enlarged base of 3 present but spine obsolete	17

- 17(16). Anterior margin of male pronotum rather narrowly rounded, weakly serrate; male spine 3 on declivity small, conical, impressed area almost glabrous; Brazil (Santa Catarina); 2.2 mm
 *amphicranoides* (Schedl)
- Anterior margin of pronotum in both sexes costate, with a rather large median denticle; male spine 3 on declivity very large, impressed area with abundant setae; Brazil (Santa Catarina); 3.0–3.4 mm *bicallosum* (Schedl)
- 18(12). Male declivital spine 2 positioned below middle of declivity, spines 2 and 3 very small, 2 remote from 1; declivity much more gradual; female frons with lateral thirds below eyes conspicuously, concavely impressed, antennal club conspicuously wider than long, tuft of hair, very large; female impressed area on declivity less strongly concave; Colombia (Antioquia) to Venezuela (Merida); *Eucalyptus*, *Nectandra*; 5.3–6.6 mm *scrobiceps* (Eichhoff)
- Male declivital spine 2 anterior to middle of declivity length, 2 and 3 of moderate size, 2 closer to 1 than to 3; declivity much steeper; smaller species 19
- 19(18). Male declivity not as steep, spine 2 on crest, as large as 1, sharply pointed, positioned equal distance between 1 and 3; male frons with a distinct transverse epistomal impression on lower third, surface of impression mostly rugose-reticulate; Peru; 4.2 mm *sulcipenne* (Schedl)
- Male declivity steeper; frons without an epistomal impression at least on median fourth; smaller species 20
- 20(19). Apex of female spine 2 closer to 1 than to apex of 3, base of spine 2 somewhat inflated, especially on lower margin; female frons bearing a large, median epistomal horn twice as long as wide projecting cephalad, impressed area on frons extending to vertex above and to eye laterally; Guatemala to Costa Rica and Venezuela; *Spondias purpurea*, etc.; 3.0–3.4 mm
 *lobatum* (Ferrari)
- Male apex of spine 2 closer to 3 than to 1, base of 2 normal; smaller species 21
- 21(20). Male declivital spine 2 closer to 3 than to 1; punctures on elytral disc larger, closer, deeper; anterior margin of pronotum with a weak, subserrate costa; Bolivia (Cochabamba); 2.4 mm
 *denticulatum* Wood
- Male not seen, female declivital spine 2 closer to 1 than to 3; female punctures on elytral disc very small, shallow, not as close; female pronotum broadly rounded in front, unarmed, with many setae; declivital spine 2 closer to 1 than to 3; female frons bearing a short, median, hornlike process, horn as wide as long; Mexico (Veracruz); *Leucana pulverulenta*; 2.3 mm
 *lobellum* Wood
- 22(11). Female frons strongly to very strongly impressed mandible to mandible on lower half of area below upper level of eyes, lateral sixth or less rather weakly to strongly impressed from mesal or dorsal margin of eye to or toward vertex; female declivital spines (1 usually minute to obsolete) 2 and 3 small, displaced mesad from lateral margin slightly to almost half distance toward suture; female antennal club longer than wide; bicolored 23
- Female frons strongly, transversely impressed from epistoma to upper level of eyes; declivity more broadly impressed in both sexes, crest of lateral margin armed by three to four small tubercles; female antennal club twice as wide as long 26
- 23(22). Transverse impression above female epistoma very deep, extending from epistomal margin to upper level of eyes, its upper margin abrupt at least on median area; lateral impressions above female eye smaller 24
- Transverse impression above female epistoma not as deep, occupying lower half of area below upper level of eyes, upper margin of transverse groove more gradual, lateral impression above eye extending to vertex 25

CORTHYLINI

- 24(23). Transverse groove above female epistoma sparsely pubescent, upper margins of groove abrupt, not forming a tubercle; male declivity broadly, moderately concave, lateral crest elevated from near base to near apex, two small tubercles on crest of basal fourth, a larger tubercle on crest near middle, several granules on crest below lowest tubercle; Ecuador; 3.1–3.5 mm *fulgens* Schedl
- Transverse groove above female epistoma with numerous fine, long setae, upper margin of groove with a rather large, rounded, median tubercle; lateral areas on female declivity with numerous small tubercles, major tubercles (spines 1 and 2) displaced mesad half distance from lateral margin toward suture; Bolivia; 4.9 mm *fenestratum* Eggers
- 25(23). Transverse impression above female epistoma much deeper, not extended dorsad in lateral areas, groove from vertex to eye extending below emargination of eye; median area of frons strongly convex and bearing a flattened median prominence; Colombia (Antioquia) to Venezuela (Aragua); 2.9–3.3 mm *bicolor* (Ferrari)
- Transverse impression above female epistoma not as deep, impression in lateral areas shallow, occupying lateral thirds below and extending dorsad to upper level of eyes, lateral impression from eye to vertex arising at upper margin of eye; central area of female frons more broadly rounded; Peru; 3.0 mm *peruvianum* Wood
- 26(22). Area on female vertex giving rise to median tuft of hair not impressed; crest of female epistoma armed by a pair of small tubercles near median line; Mexico (Michoacan, Puebla) to Venezuela (Aragua) and Brazil (Bahia); *Alnus*, *Quercus*; 2.6–3.1 mm *laterale* (Eichhoff)
- Area of female vertex giving rise to median tuft of hair distinctly impressed; female epistomal area armed by a pair of tubercles near base of mandibles (not on epistoma); Mexico (Veracruz) to Venezuela (Aragua, Caracas), and Brazil (Guanabara); *Spondias purpurea*, *Ficus*, *Erythrina*, etc.; 2.2–2.4 mm *fimbriaticorne* (Blandford)
- 27(10). Elytral disc in both sexes with a conspicuous impression on disc from basal fourth and extending toward declivity on interstriae 1 and 2, each of these interstriae armed on disc by a row of tubercles; female frons with conspicuous lateral impressions, and with elaborate ornamentation by long hair 28
- Elytral disc normal in both sexes; female frons without deep lateral impressions, vestiture modest when present 30
- 28(27). Sulcus conspicuous only on basal half of elytral disc, obsolete before declivity; female frons impunctate and glabrous on large median triangular area, this area half as wide as frons at point immediately above epistoma; Panama; 3.8–4.0 mm *sulcatum* (Blandford)
- Discal sulcus continuous from basal fourth to declivity; impunctate glabrous area on female frons elongate, less than one-third as wide as frons at its widest point 29
- 29(28). Raised median impunctate area on female frons triangular (1.3 times as long as wide), conspicuously wider than lateral fovea at inner margin of eye, longitudinal area of epistomal brush on lateral third much larger, bearing more setae; Venezuela (Aragua) to Brazil (Parana); 2.4–2.7 mm *crisatum* (Ferrari)
- Raised median impunctate area on female frons narrowly ovate in outline (2.0 times as long as wide), conspicuously narrower than lateral fovea, epistomal brush below fovea much smaller, with fewer setae; Mexico (Veracruz) to Panama; 2.4–2.7 mm *ferrarii* (Blandford)
- 30(27). Ventrolateral subacute costa on male declivity short, completing less than half of a complete circle; mostly smaller species 31
- Ventrolateral subacute costa on male declivity much longer, completing two-thirds of a complete circle; mostly larger species 38

SCOLYTIDAE OF SOUTH AMERICA

- 31(30). Male ventrolateral subacute costa completing less than one-third of a complete circle, spine 3 (including its base) below middle of declivity length 32
- Male ventrolateral subacute costa attaining middle of declivity (2 exceptions), spine 3 positioned above middle of declivity; bicolored 35
- 32(31). Base of male declivital spine 3 small, with base quadrate, longitudinally elongate; discal punctures small, distinct in both sexes; female vertex with a median, moderately large impression, declivity dull, reticulate, with three pair of small spines, all above middle of declivity length; bicolored; Mexico (Hidalgo) to Honduras; *Quercus*; 3.0–3.7 mm *querneum* Wood
- Male declivital spine 3 conical or subcylindrical, positioned below middle of declivity length; discal punctures on elytra minute to obsolete; female vertex evenly convex; spine 3 below middle of declivity length 33
- 33(32). Male declivital spine 3 cylindrical, pointing caudad; elytra reticulate; female declivity mostly smooth, with only 2 pair of spines; Brazil (Santa Catarina); 2.6–2.9 mm *quadridens* (Eichhoff)
- Male declivital spine 3 conical, pointing somewhat mesad; pronotum and elytra brightly shining; female not seen; 3.8 mm or larger 34
- 34(33). Male declivital spines 1 and 2 rather small, conical, of about equal size; spine 3 below middle of declivity length on mesal margin of lateral crest, acutely pointed (on a rather broad base), pointing mesad; concave area of declivity shining, slightly less deep; color medium brown; Colombia; 3.8 mm *brunneum* (Eichhoff)
- Male declivital spine 1 half as large as spine 2, crest from 2 to 3 much more narrowly rounded; spine 3 smaller, more slender, on a much smaller base, pointing mesad; elytra brilliantly shining; concave area slightly deeper; color much darker; Peru; 4.0 mm *subductum* (Schedl)
- 35(31). Crest on basal margin of male declivity rather broadly rounded from suture to spine 3; female declivity more gradual, with basal margin rounded, spine 1 minute to obsolete, 2 small, conical 36
- Crest on basal margin of male declivity acutely to subacutely elevated, spines 1 and 2 on this crest, spines larger; female with basal crest from suture to near spine 3 moderately elevated, its summit narrowly rounded (not acute) and bearing at least two tubercles, declivity very steep, spine 3 above middle of declivity length 37
- 36(35). Male declivity much more broadly impressed from base to apex, shallowly concave, surface rugose-reticulate, spine 1 minute, on crest, 2 on crest, three or more times larger than 1, with 3 large, conical, sharply pointed, positioned at middle of declivity length; posterolateral margin of declivity acutely elevated from apex to level of spine 3; Costa Rica to Panama; 2.7–3.2 mm *punctifrons* (Blandford)
- Male declivity moderately sulcate on basal half, more broadly impressed below, surface subgranular, spine 1 minute to almost obsolete; ventrolateral margin of declivity acutely elevated only half distance from apex to spine 3; Costa Rica; *Quercus*; 2.8–3.4 mm *pseudoscutellare* (Schedl)
- 37(35). Male declivital spines 1, 2, and 3 smaller, 3 conical, declivity weakly concave on basal half, almost flat below; surface not smooth, punctures minute to obsolete; Bolivia; 3.2 mm *eggersi* Wood
- Male declivital spines 1, 2, and 3 distinctly larger, 3 cylindrical, three times larger than 1 or 2, declivity moderately concave, smooth, brightly shining, punctures small, distinct; female declivity much steeper, moderately concave on basal half, shallowly on posterior area, basal fourth of margin subacutely elevated and armed by three small tubercles, spine 3 rather small, conical, with a connecting crest to lateral margin, displaced mesad from lateral margin one-fifth distance toward suture; Costa Rica to Panama; log; 2.6–2.7 mm *bispinum* (Blandford)

CORTHYLINI

- 38(30). Spines 1 and 2 on base of male declivity in a transverse row, 1 obtuse, small, base of 2 at level of apex of 1, with 2 sharply pointed, declivity very strongly explanate, deeply divaricate, emargination three times deeper than wide, spine 3 obtuse, positioned below middle of declivity length, preceded by an almost horizontal crest equal in length to almost half length of declivity; female declivity with spine 2 half as high as wide, apex rounded, displaced mesad from lateral margin two-thirds distance toward suture; Mexico (Durango, Michoacan); *Quercus*; 4.4–4.6 mm *quercum* (Wood)
- Male declivital spine 1 sharply pointed, positioned distinctly anterior to 2, spine 3 on upper half of declivity length, ventrolateral crest acutely, strongly elevated from 3 to suture apex; female declivity with various arrangements of spines 39
- 39(38). Basal margin of male declivity armed by 3 pair of pointed tubercles; female declivity with three pair of small tubercles on basal half of declivity; smaller species 40
- Basal margin of male declivity with 2 pair of pointed tubercles; female declivity with two to four pair of small tubercles; larger species 41
- 40(39). Male epistomal process unarmed by a median tubercle; female frons with median area on lower half distinctly elevated and punctured as on upper areas, small lateral areas immediately above level of epistoma ornamented by a few long setae; Canada (British Colombia) to Mexico (Baja California); *Quercus*; 3.0–3.5 mm *scutellare* (LeConte)
- Male epistomal process armed by a small, median tubercle; female frons weakly impressed below upper level of eyes, almost flat, surface of impressed area much more finely, densely punctured and ornamented by a brush of hair, pubescent area attaining upper level of eyes; USA (Arizona); *Quercus*; 3.0–3.5 mm *huachucae* Wood
- 41(39). Ventrolateral crest on male declivity deeply notched, with base of spine 3 broadly quadrate above this notch, spines 1 and 2 at base of declivity of moderate size, sharply pointed; female vertex with a small, shallow circular impression, frons flattened on central two-thirds, densely punctured and with abundant pubescence on central half; Mexico (Chihuahua) to Panama; *Quercus*; 3.7–4.3 mm *quercicolens* Wood
- Ventrolateral crest of male declivity strongly, uniformly elevated from spine 3 to emargination at apex, spines 1 and 2 at base, pointed, very small; female frons moderately convex, a weak, subacute carina from upper margin of eye to vertex, a small median tubercle above epistoma, glabrous, with dense, short, erect setae on lower third of area below upper level of eyes, declivity moderately impressed on median half, tubercle 1 obsolete, 2 conical, at base near suture, 3 conical, below middle and displaced mesad from lateral margin two-thirds distance toward suture; Colombia to Venezuela and Peru; *Clusia*, *Ficus*, *Nectandra*; 5.3–6.4 mm *ingens* (Eichhoff)
- 42(7). Lateral margin of male declivity subacutely elevated, rising gradually from floor of excavated area to lateral crest; spine 1 on basal margin of male declivity slender, sharply pointed, spine 2 rather slender, longer; Mexico (Puebla to Hidalgo); *Quercus*; 2.0–2.4 mm *corditicum* Wood
- Lateral margin of male declivity on more than lower three-fourths abruptly elevated, elevation as high as its thickness; spine 1 on basal margin of male declivity smaller, 2 much larger, cylindrical; Guatemala to Panama; *Quercus*; 2.2–2.4 mm *cordatum* (Blandford)
- 43(8). Elytral declivity armed by 2 pair of denticles (spines 2 and 3) in both sexes 44
- Elytral declivity armed by only 1 pair of denticles (spine 3) in both sexes 104
- 44(42). Smaller slender species, 1.5–2.4 mm, 2.8–3.6 times as long as wide; male declivity more deeply, more broadly impressed, spines 2 and 3 on lateral crest; female declivity usually much less strongly, less broadly impressed, spine 3 moderately to strongly displaced mesad from lateral crest toward suture 45

- Either larger and stouter species having acute ventrolateral margin of declivity ending well below level of spine 3, or small, slender to stout species with ventrolateral margin of declivity extending to or above level of spine 3, female often with spine 3 displaced mesad 49
- 45(44). Declivity in both sexes very steep, impression in male very broad, spine 3 on crest at middle of declivity length, spine 2 on crest of basal fourth 46
- Male declivity more gradual, female declivity steeper; male spine 3 on crest, slightly below middle of declivity length, spine 2 on crest of basal fourth of declivity length 47
- 46(45). Basal half of lateral crest on male declivity more strongly, more narrowly elevated except near suture, spines 1 and 2 much smaller, conical; impressed area on declivity reticulate, punctures small, obscure; USA (California, Arizona, W Texas) to Mexico (Baja California); 1.8–2.2 mm *dentigerum* (LeConte)
- Crest of male declivity less strongly, more broadly elevated from end of acute ventrolateral crest almost to suture, spines 2 and 3 much larger, basal half of 3 cylindrical, apical half of 3 and all of 2 conical, face of declivity more strongly concave, punctures much larger, mesal half smooth, shining; Mexico (Chihuahua to Guerrero, Michoacan); *Quercus*; 1.9–2.5 mm *desem* Wood
- 47(45). Color uniformly dark reddish brown; elytra reticulate in both sexes; male declivital spines 1 and 2 smaller, conical; female spines 2 and 3 displaced mesad from crest two-thirds distance toward suture; Mexico (Veracruz); 1.9–2.2 mm *xalapensis* Wood
- Bicolored; elytra brightly shining in both sexes; male spines 1 and 2 larger, 2 conical, 3 laterally compressed, blunt 48
- 48(47). Mesal margin of male declivital spine 2 much more acute, left and right mesal margins of spine 2 almost parallel, spine 2 much more acute, slightly longer, spine 3 much smaller, pointed mesad, lower base of 3 from apex of spine to lateral costa continuous (not emarginate); male frons uniformly convex on mesal third from upper level of eyes to epistoma, surface reticulate; French Guyane; 2.4 mm *parvum* Eggers
- Mesal margin of male declivital spine 2 less acute, left and right mesal margins divergent from base of spines at about 90-degree angle, apex of spine 2 less acute, slightly smaller, spine 3 distinctly larger and with a definite cleft between base of spine 3 and lateral margin; male frons rugose-reticulate (dull), a shallow, transverse impression on lower third; Colombia; *Dialyanthera gordonifolis*; 2.5 mm *pseudoparvum* Wood
- 49(44). Small, slender species, 3.0–3.4 times as long as wide; male declivity rather broadly impressed, spines 1 and 2 on lateral crest, female more narrowly impressed, spines 1 and 2 displaced from lateral margin half distance toward suture 50
- Mostly stouter species, 2.1–3.1 times as long as wide; male declivity either less strongly, more narrowly impressed, with acute ventrolateral crest short, spine 3 always and 2 frequently displaced one-fourth to two-thirds distance from lateral margin toward suture, or declivity steep, broadly flattened, with ventrolateral crest acutely costate from sutural emargination to above level of spine 3 (some extending to or near suture at base of declivity) 65
- 50(49). Declivity rather steep; emargination at apex of suture small, about as deep as wide 51
- Declivity more gradual; emargination at apex of elytra deeper, at least twice as deep as wide, apex more strongly, rather narrowly explanate 59
- 51(50). Male frons with a low median carina from epistomal margin about two-thirds distance toward upper margin of eyes; female frons with a moderate concave impression from margin of eye one-third distance between eyes and from epistoma almost to upper level of eyes, median third slightly elevated on a square area, this area smooth, brightly shining, with a longitudinal row of setae on sides; Costa Rica to Venezuela (Caracas); tree bole; 1.8–2.0 mm *bifoveatum* Wood

CORTHYLINI

- Male frons without a median carina; female frons evenly convex, without impressions or a smooth median elevation 52
- 52(51). Declivity very shallowly impressed in both sexes, spines 1 and 2 minute 53
- Declivity more deeply impressed in both sexes, spines 1 and 2 larger; frons strongly reticulate on upper three-fourths 54
- 53(52). Frons rugose-reticulate from epistoma to upper level of eyes in both sexes; distance between left and right male spine 1 less than between left and right spine 2; Mexico (Veracruz); 1.3–1.5 mm *aztecum* Wood
- Frons weakly reticulate and coarsely punctured from epistoma to vertex; declivity slightly more strongly impressed, reticulate, distance between left and right male spine 1 equal to distance between left and right spine 2; Brazil (Amapa); 1.7 mm *amapae* Wood
- 54(53). Male declivity spine 2 rather close to suture, dorsal crest of spine from its apex to base elongate, somewhat subcarinate, 3 smaller, conical, distance from left to right spine 3 twice as great as from left to right spine 2; lower declivity near apex less strongly impressed, lateral crests much more broadly rounded; Costa Rica (Limon); log; 1.5 mm *morsum* Wood
- Male declivital spine 2 positioned farther from base and from suture, conical, space between left and right spine 2 only slightly less than from left to right spine 3, lower declivity near apical margin more strongly impressed, lateral crests more strongly rounded 55
- 55(54). Male declivital spines 2 and 3 slightly smaller, lateral crests more broadly rounded, mesal slope of lateral elevation not as steep, mesal third of declivital impression smooth, shining, lateral two-thirds more reticulate 56
- Male declivital spines 2 and 3 slightly larger, lateral crests more abruptly, strongly rounded, mesal slope of lateral elevation much steeper, mesal two-thirds of declivital impression smooth, shining, reticulation mostly laterad from spines 57
- 56(55). Male declivital spine 3 positioned distinctly below middle of declivity length; frons broadly convex, reticulate, with small punctures, without a median elevation; Mexico (Nayarit to Veracruz) to Colombia and Venezuela; 1.4–1.6 mm *gracilior* (Schedl)
- Male declivity with spine 3 at middle of declivity length, 2 nearer base, entire declivity reticulate; male frons very broadly convex, reticulate, punctured, with a weak median crest ending at epistoma in a small tubercle; Mexico (Morelos); trampa luz negra; 1.8 mm *tuberculatum* Wood
- 57(55). Male declivity minutely punctured on median two-thirds, most punctures spaced by two or more diameters of a puncture, more strongly explanate near apex; punctures on pronotum disc minute to obsolete; Costa Rica to Panama; *Conostegia oerstediana*, *Inga*, etc.; 1.6–2.1 mm *proprium* Wood
- Male declivity more coarsely, more densely punctured, most punctures obscure, spaced by less than diameter of a puncture 58
- 58(57). Elytral declivity very steep, disc occupying 80 percent of elytra length, apical margin very weakly explanate; declivital spines 2 and 3 conical, subequal in size, 3 pointed mostly mesad; disc reticulate almost from basal margin to margin of declivity, punctures minute; Brazil (Mato Grosso); 1.8 mm *semipalens* Schedl
- Elytral declivity less steep, disc occupying 67 percent of elytra length, apical margin moderately explanate; declivital spine 3 less than half as large as 2 and pointing only slightly mesad; disc smooth, shining from base to upper declivity, punctures moderately large, deep; male suture rather deeply, narrowly sulcate on posterior third of disc to upper declivity; Brazil (Mato Grosso) to Paraguay; 1.6–1.8 mm *minutissimum* (Schedl)

- 59(50). Declivital impression less than half as wide as elytra, very shallowly impressed, weakly explanate below, entirely reticulate 60
- Male declivity much more broadly, strongly impressed 61
- 60(59). Color very dark brown; outline of antennal club apex pointed (about 90 degrees) in both sexes; elytral declivity more narrowly convex, left and right spine 3 more widely separated from one another than left and right spine 2, impression between spines of the same pair not as deep; Argentina; 1.4–1.5 mm *subimpressum* Wood
- Color reddish brown; apical margin of antennal club evenly rounded; elytral declivity more broadly impressed, subconvex above, subconcave below; left and right spine 3 more narrowly separated (space equal to separation between left and right spine 2), impression between left and right spine 3 deeper; intercepted in “Ostsibiria,” probably from southern South America; 2.4 mm *meuseli* (Reitter)
- 61(59). Frons with a finely, subacutely elevated median carina from epistoma to upper level of eyes (very weak in some males); female with spines 1 and 2 on lateral crest almost as in male; Costa Rica to Panama; *Brunellia costaricensis*, and tree bole; 2.5–2.8 mm *carinatum* Wood
- Frons evenly convex in both sexes, without a median elevation; smaller species 62
- 62(61). Male declivity steeper, less strongly explanate, distance from spine 2 to 3 greater than distance from spine 3 to apical margin 63
- Male declivity less steep, more strongly explanate, distance from spine 2 to 3 equal to or less than distance from spine 3 to apical margin 64
- 63(58). Male elytral disc and declivity rather strongly reticulate; male declivity deeper, crest of lateral margin narrowly rounded, spines 2 and 3 on summit of crest; female epistomal margin larger on median area, declivital setae more numerous, longer; Mexico (Veracruz) to Colombia and Venezuela; 1.8–2.1 mm *exornatum* (Schedl)
- Male disc obscurely reticulate, almost smooth, without reticulation; male declivital impression not as deep, lateral convexities much more broadly rounded, spines 2 and 3 displaced mesad to mesal margin of crest; female epistoma smaller, of uniform longitudinal width, declivital setae less numerous, shorter; Costa Rica to Colombia and Venezuela; 2.4 mm *septulosum* Wood
- 64(62). Male declivital impression wider, deeper, lateral convexities higher, more narrowly rounded, spine 2 on crest, 3 on mesal margin of narrow crest, face of declivity much narrower; female frons weakly protuberant immediately above epistoma, left and right spine 1 much closer to one another than left and right spine 3; Costa Rica and Panama to Colombia (Antioquia) and Venezuela (Aragua); 1.8–2.3 mm *dimidiatum* (Ferrari)
- Male declivital impression narrower, not as deep, lateral convexities not as high, more broadly rounded, spine 2 on crest, closer to suture, 3 on mesal margin of broad crest, face of declivity much wider; female frons feebly impressed above epistoma, left and right spine 1 very slightly closer to one another than left and right spine 3; Brazil (Santa Catarina); 1.9–2.5 mm *nudum* (Schedl)
- 65(49). Elytral declivity moderately, more narrowly impressed to convex, lateral convexities broadly rounded, spines 2 and 3 strongly displaced mesad from lateral margin toward suture; ventrolateral margin of declivity short, extending from emargination to a point below level of spine 3; mostly larger species 66
- Elytral declivity usually flattened to either weakly convex or weakly concave; ventrolateral margin of declivity acutely elevated to above level of spine 3 and attaining suture at base in a few species; mostly small species, under 3.0 mm 112

CORTHYLINI

- 66(65). Male declivity more strongly, more broadly impressed, lateral crests subacutely to more narrowly rounded, spines 2 and 3 on mesal margin of crest or on lateral fourth of area between crest and suture; female variable, spines 2 and 3 displaced mesad from lateral crest slightly to half distance toward suture; mostly larger species 67
- Male declivity less strongly, more narrowly impressed, lateral crests more broadly rounded, spine 3 displaced mesad at least half distance from crest toward suture; female variable; mostly smaller species 75
- 67(66). Small, slender species, 3.0–3.3 times as long as wide; lateral crests of male declivity narrowly rounded, spine 2 positioned on crest one-fourth declivity length from base, apical margin from spine 3 to apical margin more broadly flattened 68
- Larger, stouter species, less than 3.0 times as long as wide; male declivity between spine 3 and apical margin more narrowly impressed 69
- 68(67). Male declivital spine 2 small, conical, 3 about four times larger than 2, almost cylindrical, apical fourth of declivity flattened from suture to beyond spine 3; most males with two or more minute tubercles on crest between spine 2 and suture; female frons with a deep, transverse impression almost eye to eye on lower half of area between epistoma and upper level of eyes; declivity reticulate in both sexes; Costa Rica; log; 2.3–2.5 mm *notatum* Wood
- Male declivital spines small, conical, apical third of declivity flattened from spine 3 to apical margin, surface near suture smooth, shining, with small punctures, subreticulate on lateral half and at base of declivity; Venezuela (Bolivar); *Eschweilera corrugata*; 2.0 mm *connexum* Wood
- 69(67). Male declivity with spines 2 and 3 on summit of subacute lateral crest; both sexes with a median callus (male) or carina (female) between epistoma and upper level of eyes; Costa Rica to Panama; *Clusia*, *Podocarpus*, *Quercus*; 2.5–4.0 mm *nevermanni* (Schedl)
- Male declivity with spine 3 on mesal margin of lateral crest or connected to it by an elevated crest; female with spine 3 displaced from lateral crest one-third to one-half distance toward suture, never with a transverse impression above epistoma 70
- 70(69). Male declivital spines 2 and 3 moderately large, both subcylindrical, declivital impression above spine 3 deeper, wider; Mexico (Jalisco to Nayarit); *Persea americana*; 3.1–3.5 mm *conversum* Wood
- Male declivital spines 2 and 3 smaller, conical, impression above spine 3 not as deep or as wide 71
- 71(70). Male declivital spine 3 displaced mesad from lateral crest about one-fourth distance toward suture and with an elevation connecting crest to lateral margin 72
- Male declivital spine 3 on inner margin of lateral crest, connecting crest not conspicuous; female antennal club more slender, 1.3–1.5 times longer than wide 74
- 72(71). Male declivital spine 3 larger, connecting crest to lateral margin more prominent, frons more coarsely punctured, more evenly convex, without a median crest; female antennal club broad apically, 1.2 times longer than wide; Costa Rica to Panama; *Croton*, *Conostegia*, *Ochroma*; 3.0–3.4 mm *consimile* (Blandford)
- Male declivital spine 3 smaller; connecting crest to lateral margin less prominent, frons with a weak, median crest or carina 73
- 73(72). Male elytral disc reticulate from base to margin of declivity, discal punctures larger; male frons much more coarsely punctured, rugose-reticulate from epistoma to upper level of eyes, smooth, shining above, a low, subacute median carina on upper half of area below upper level of eyes; Bolivia; 3.2 mm *marcidium* (Schedl)

SCOLYTIDAE OF SOUTH AMERICA

- Male elytral disc mostly smooth, shining (some reticulation at base), discal punctures smaller; male frons strongly reticulate from epistoma to vertex, punctures very small, a weak, obtuse, median crest from epistoma to vertex, ending below in a small epistomal tubercle; Peru; 3.4 mm
 *peruanum* (Schedl)
- 74(71). Basal area of pronotum more coarsely punctured, male without any rugae at base of disc; basal area of declivity in both sexes very weakly impressed; female antennal club stouter, apical margin broadly rounded; Mexico (Puebla) to Guatemala; *Quercus*; 2.3–2.6 mm
 *luctuosum* (Blandford)
- Basal area of pronotum very finely punctured, in male some punctures near base with transverse rugae; declivity between and anterior to spine 2 much more strongly impressed; distance from male spine 2 to 3 less than from 3 to apical margin; female antennal club with apical margin strongly arched; Mexico (Puebla); *Alnus*; 2.9–3.2 mm *umbrinum* (Blandford)
- 75(66). Male declivital spine 3 displaced from lateral margin one-third distance toward suture, declivital impression wider; area below spine 3 flattened laterally beyond level of spine 3; female frons convex, never with a strong, transverse impression above epistoma 76
- Male declivital spine 3 displaced from lateral margin at least half distance toward suture, apical area below spine convex; female frons either convex or with a transverse impression or groove above epistoma 82
- 76(75). Base of male declivity normal, without a conspicuous predeclivital impression 77
- Base of male declivity with a conspicuous predeclivital impression occupying half of space between spine 2 and base of elytra 84
- 77(76). Elytral apex of male, in angle between suture and apical margin, weakly impressed, without a small, blunt tubercle, emargination at apex of suture deeper, more distinct 78
- Elytral apex of male with a distinct, blunt tubercle in angle between suture and apical margin, emargination almost obsolete 81
- 78(77). A much larger species; male declivital impression not as wide, occupying mesal half of declivity, lateral convexities more broadly rounded; female frons flattened on lateral areas, a low elevation on median one-sixth on upper half, lateral and lower margins of elevation ornamented by long hair; lateral margins from mandible to mesal margin of eye with a row of long hair; epistoma with a median tuft of long hair; Bolivia to Venezuela (Aragua); log; 4.3–4.6 mm *obtusum* Eggers
- Smaller species; male declivital impression wider, lateral margins more abruptly rounded; female frons not ornamented by long hair 79
- 79(78). Distance from male spine 2 to 3 about 1.2 times greater than from 3 to apical margin; frons in both sexes mostly smooth, shining, punctures larger, more strongly impressed, without a median elevation, a transverse groove extending mandible to mandible above epistoma; Costa Rica to Panama; *Brunellia costaricensis*, *Clusia*, *Quercus*; 2.6–3.0 mm *vittatum* (Blandford)
- Distance on male declivity from spine 2 to 3 about equal to distance from 3 to apical margin, ventrolateral margin from suture to lateral margin more strongly curved; frons rugose-reticulate at least on lower half 80
- 80(79). Male with lower half of frons rugose-reticulate, without a median carina, punctures larger, distinct; Brazil (Pernambuco); 2.2 mm *dubiosum* (Schedl)
- Male frons rugose-reticulate from epistoma to above upper level of eyes, with a weak median carina in both sexes, punctures smaller, more obscure; Costa Rica; *Phoebe mexicana*; 2.3–2.6 mm *carinulum* Wood

CORTHYLINI

- 81(77). Frons more broadly convex in both sexes, punctures above eyes slightly larger, without a median crest above epistoma in either sex; punctures on disc of pronotum distinct, very small; Mexico (Veracruz); *Alnus*, *Miconia*, etc.; 2.3–2.7 mm **hoegi** (Blandford)
- Frons more strongly convex in both sexes, punctures above eyes slightly smaller; a weak, median, subcarinate crest on male above epistoma, female with a much more conspicuous, subcarinate median elevation above epistoma; punctures on disc of pronotum minute to obsolete; Mexico (Puebla to Oaxaca); *Alnus*; 2.8–3.1 mm **oaxacensis** Bright
- 82(75). Male declivity more strongly, more broadly impressed, spine 2 almost conical, its anterior dorsal crest much shorter; rounded; lower male declivity more broadly impressed, lateral crest more narrowly rounded, spine 3 displaced mesad from crest half distance toward suture; female frons more coarsely punctured; Costa Rica; *Miconia caudata* and a liana; 2.1–2.7 mm **limulum** Wood
- Male declivity less strongly impressed, spine 2 with anterior crest at base subcostate, lower area more narrowly impressed, lateral crest more broadly rounded 83
- 83(82). Male declivital spine 3 displaced from lateral crest one-third distance toward suture; punctures on face of male declivity smaller; more widely spaced, left and right declivital spine 2 conspicuously closer to one another than left and right spine 3; Costa Rica to Trinidad; *Spondias purpurea*; 2.3–2.5 mm **robustum** Schedl
- Male declivital spine 3 displaced half distance from lateral crest toward suture, punctures on face of declivity larger, very closely spaced; distance between left and right spine 2 equal to distance between left and right spine 3; Brazil (Mato Grosso); 2.5 mm **costatum** (Eggers)
- 84(76). Male and female frons convex from epistoma to vertex 85
- Male and female frons with a moderately (male) to strongly (female) impressed, transverse groove on lower half of area below upper level of eyes 98
- 85(84). Elytral declivity in both sexes with spine 3 closer to or equal distance to spine 2 than to apical margin 86
- Elytral declivity in both sexes with spine 3 closer to apical margin than to spine 2; transverse, epistomal impression weak in both sexes 96
- 86(85). Lower half of declivity in both sexes convex, ventrolateral margin much less strongly elevated; much smaller species, 1.6–3.0 mm 87
- Lower half of female declivity flat to shallowly concave, ventrolateral margin moderately elevated almost to level of spine 3, mostly larger species, 1.6–3.3 mm 97
- 87(86). Smaller, more slender species, at least 3.0 times as long as wide 88
- Larger, stouter species, less than 2.7 times as long as wide 92
- 88(87). Declivital spines 2 and 3 on both sexes displaced mesad from lateral crest about half distance toward suture; South American species 89
- Declivital spines 2 and 3 in both sexes displaced mesad from lateral margin three-fourths distance toward suture; North American species 90
- 89(88). Male elytral disc reticulate, declivity minutely granular from suture to lateral margin, without granules on mesal third; Venezuela (Caracas); tree branch; 1.6–1.8 mm **minutum** (Schedl)
- Male elytral disc mostly smooth, shining on posterior half, declivity smooth and shining on mesal third and with many rounded granules, granulate on lateral two-thirds; Brazil (Santa Catarina); *Malus*; 2.4–2.6 mm **laevigatum** (Eichhoff)

SCOLYTIDAE OF SOUTH AMERICA

- 90(88). Male declivital spines 2 and 3 larger, 3 larger than 2; male elytral disc smooth, shining, punctures small, distinctly impressed, frons rugose-reticulate; color rather dark brown; Mexico (Colima, Morelos); *Quercus*; 2.3–2.5 mm **tetradontium** Wood
- Male declivital spines 2 and 3 smaller, 2 minute to obsolete; elytral disc either reticulate or partly reticulate 91
- 91(90). Color uniformly light brown; declivital spine 3 subequal in size to 2; sutural interstriae on declivity without a row of minute tubercles in both sexes; frons reticulate; USA (eastern); 1.8–2.4 mm **mali** (Fitch)
- Bicolored; declivital spine 3 minute in male, obsolete in female; sutural interstriae on declivity with a row of minute tubercles in both sexes; frons mostly (female) or entirely reticulate; USA (eastern); 2.3–2.8 mm **fasciatum** (Say)
- 92(87). Female declivity smooth, shining between punctures on median half, color uniformly very dark brown; Costa Rica; 2.8–3.0 mm **difficile** (Blandford)
- Declivity reticulate (female) or granulate (male); color reddish brown in both sexes 93
- 93(92). Male declivity with surface rugose-reticulate or granular, surface of mesal margin of lateral crest on basal half without a longitudinal row of six or more tubercles 94
- Male declivity with surface reticulate or rugose-reticulate, with a definite longitudinal row of conspicuous tubercles on basal half of lateral crest 95
- 94(93). Male declivital surface rugose-reticulate, mesal half of area between suture and spines 2 and 3 with many minute tubercles from base to level of spine 3; punctures on elytral disc small, distinct; Venezuela (Caracas); *Croton*; 2.3 mm **granulifer** Wood
- Male declivital surface rugose, without a definite area of tubercles near suture; punctures on elytral disc minute to obsolete; female with anterior margin of pronotum unarmed by serrations, declivity reticulate; Honduras; *Quercus*; 2.6–2.8 mm **hondurensis** Wood
- 95(93). Longitudinal row of tubercles on mesal margin of male crest on basal half of declivity rather poorly developed, small, declivital sulcus between suture and spines 2 and 3 less strongly impressed, surface rising laterad gradually toward spines; Honduras; *Persea popenoi*; 2.4–2.8 mm **subgranulatum** Wood
- Longitudinal row of tubercles on mesal margin of male crest coarse, conspicuous, sulcus from suture to spines 2 and 3 more strongly impressed, surface rising laterad precipitously to spines; Mexico (Puebla, Oaxaca); 2.6–2.8 mm **granulatum** Bright
- 96(85). Elytra not emarginate at suture apex; female with declivity irregularly flattened, spine 2 small, at base on crest, left and right spine 2 much more widely spaced than between left and right spine 3; spine 3 small, positioned at middle of declivity two-thirds distance from lateral crest toward suture, conical, pointed, two or more times longer than 2; frons broadly convex, reticulate, punctures very small, a weak impression on median sixth above epistoma; Mexico (Tlaxcala); 3.5 mm **furnissi** Wood
- Emargination at apex of suture on declivity very small; female with declivity more nearly flat, without a weak summit at spine 3, ventrolateral crest continuing dorsad to slightly above level of spine 3; lower female frons apparently convex to epistoma; Mexico (Durango); *Quercus*; 3.3 mm **durangoensis** Wood
- 97(84). Male(?) pronotum disc with punctures minute to obsolete, elytral disc entirely reticulate; male declivity smooth, shining, moderately sulcate on mesal half, spine 3 displaced mesad from lateral crest one-third distance toward suture; Costa Rica; *Phoebe mexicana*; 1.6 mm **obscuriceps** Wood

CORTHYLINI

- Male pronotum disc with punctures small, distinct, elytral disc mostly smooth, shining, some impressed lines present, some reticulation mostly on basal third; male declivity dull, rugose-reticulate, sulcus much deeper, numerous small, subgranulate punctures between suture and spines 2 and 3; Venezuela (Aragua, Caracas); tree limb, liana; 2.3–2.7 mm *obscurum* Wood
- 98(84). Frons above transverse groove without a median carina in both sexes; male declivital spine 3 large, quadrate (lateral aspect) 99
- Frons with a median crest or carina above transverse groove in both sexes; male spine 3 conical 100
- 99(94). Male declivity steeper, shallowly sulcate on median half, lateral areas weakly convex, lateral crest broadly rounded above spine 3, surface rugose-reticulate, dull, spine 3 with two small tubercles at summit; female frons with area above transverse groove with punctures on lateral fourths moderately coarse, median half almost impunctate; female declivity less strongly impressed, spines smaller, surface strongly reticulate; Mexico (Puebla); *Alnus*; 2.3–2.5 mm *bidentatum* Wood
- Male declivity not as steep, much more broadly flattened, lateral crest obtusely abrupt from suture to spine 2, surface smooth, shining, with numerous micropunctures; female frons with lateral thirds very coarsely punctured, median area less protuberant, with small punctures; female declivity more strongly, more widely impressed, spines larger, surface less strongly reticulate; Costa Rica to Panama; *Conostegia*; 2.7–2.8 mm *bidens* (Blandford)
- 100(98). Female epistomal groove weak to obsolete, surface with small punctures, reticulation weak to obsolete, median carina subacute from upper level of eyes half distance to epistoma, its lower end declining gradually (not dentate); Panama; 3.3 mm *subcarinatum* Wood
- Epistomal groove weak, median area above epistoma rather strongly elevated in female, its lower end dentate 101
- 101(100). Female frons weakly reticulate, median carina short, rather strongly elevated, occupying one-third distance from epistoma to upper level of eyes; punctures on pronotum disc and elytral disc minute to obsolete (obscure); male declivity more broadly, more deeply impressed, spine 3 displaced from lateral crest one-fourth distance toward suture; Costa Rica; 2.4–2.7 mm *insignatum* Wood
- Female frons reticulate to rugose-reticulate from epistoma to vertex, median carina extending at least half distance from epistoma to upper level of eyes; punctures on pronotum disc and elytra disc small, distinct; male declivity less strongly impressed, spine 3 displaced from lateral crest one-third to one-half distance toward suture 102
- 102(101). Frons rugose-reticulate in both sexes from epistoma to vertex, somewhat protuberant toward median area in female; Costa Rica; liana; 2.1–2.3 mm *fastigiorum* Wood
- Frons more evenly convex, surface reticulate 103
- 103(102). Female frons more strongly convex, punctures moderately large, deep; Panama; 2.4–2.6 mm *dentifrons* Wood
- Female frons more evenly, less strongly convex, punctures much smaller; Costa Rica; canopy light trap; 2.0–2.3 mm *canalis* Wood
- 104(43). Male declivity with mesal margin of suture emargination normal, not elevated to form a conspicuous, spinelike denticle 105
- Mesal margin of emargination on male declivity at apex of suture armed by a conspicuous denticle directed dorsad 110

- 105(104). Male declivity with a complete, acute circumdeclivital costa, face of declivity strongly concave, spine 2 on summit of basal costa on interstriae 2, spine 3 obsolete; female with ventrolateral costa short, ending below level of spine 3, spine 2 obsolete, lateral margin on upper half of declivity narrowly rounded, frons convex and with a median, subtuberculate crest on epistomal margin; Guiana to Venezuela (Barinas); *Protium*; 2.0–2.3 mm ***hagedorni* (Schedl)**
- Declivity moderately concave to weakly convex, lateral crest on more than upper half rounded, ventrolateral costa acute from emargination to near level of spine 3 107
- 106(105). [deleted]
- 107(106). Female frons with a strong, transverse impression on lower two-thirds of area from epistoma to upper level of eyes; Colombia (Valle de Cauca); “arbol ubol”; 2.4 mm ***marginatum* Wood**
- Frons convex in both sexes, without an epistomal impression; elytral declivity less strongly impressed (some males with one or more minute granules at base of declivity) 108
- 108(107). Male frons convex, without a median crest or tubercle, declivity rugose-reticulate, spine 3 very small; Brazil (Amazonas); 1.4 mm ***insolitum* (Schedl)**
- Male frons either with a tubercle or median carina, declivity weakly reticulate to minutely granular, spine 3 rather small but larger than *insolitum* 109
- 109(108). Female frons unarmed, male frons with a small, median tubercle on epistoma; Venezuela (Aragua, Caracas); tree bole and branch; 1.6–1.8 mm ***bituberculatum* Wood**
- Frons in both sexes with a low, subacute median carina almost to upper level of eyes; Venezuela (Merida); *Clusia*, *Eucalyptus viminalis*, *Podocarpus*; 2.5–3.0 mm ***carinifrons* Wood**
- 110(104). Declivity rugose-reticulate in both sexes; spine of male at base of sutural emargination; female emargination with costa weakly elevated, not dentate; Venezuela (Aragua to Merida); Melastomaceae sp., etc.; 1.8–2.0 mm ***granulosum* Wood**
- Declivity mostly smooth, shining in both sexes; male spine on emargination margin larger, occupying half to two-thirds of lateral crest length; female with apical emargination acute, subdentate 111
- 111(110). Declivital spine 3 small, conical; elytral disc weakly (male) to moderately (female) reticulate; Costa Rica; tree limb; 1.3–1.4 mm ***infradentatum* Wood**
- Male declivity with spine 3 large, cylindrical, elytral disc smooth, shining; Guiana to Suriname; *Eschweilera segotianum*; 1.6–1.8 mm ***surinamensis* Wood**
- 112(65). Male declivity with acute ventrolateral margin ending above level of spine 3, never approaching level of spine 2 113
- Male declivity with acute ventrolateral margin attaining spine 2 114
- 113(112). Declivital sulcus deeper, narrower, occupying slightly less than half width of declivity on basal half of declivity, lateral margins more broadly rounded; body stouter, 2.7 times as long as wide; Brazil (Santa Catarina) and Venezuela; 2.5 mm ***catarinensis* Wood**
- Declivital sulcus less deeply, more broadly impressed, lateral convexities much more abruptly rounded in both sexes; Costa Rica; *Theobroma cacao*; 1.7–1.9 mm ***corculum* Wood**
- 114(112). Mesal end of male ventrolateral costa on elytra flared upward into an obtuse tubercle at apex of suture 115
- Mesal end of male ventrolateral costa not elevated at angle formed by apex of suture and apical margin; slightly smaller species 116

- 115(114). Male declivital costa rounded from spine 2 to suture, spine 2 positioned slightly below basal crest; punctures on male elytral disc rather small, distinct, female disc reticulate, punctures minute; Venezuela (Bolivar); *Alexia imperitricia*; 2.5–2.8 mm **annulatum** Wood
- Male declivital costa much more acutely elevated from spine 2 to suture, spine 2 on summit of basal costa; punctures on elytral disc minute in both sexes, female reticulate; Costa Rica; *Miconia pubescens*, etc.; 1.9–2.3 mm **proximum** Wood
- 116(114). Ventrolateral crest on male declivity subacutely costate to half distance between level of spine 2 and 3 117
- Ventrolateral crest on male declivity subacutely costate to level of spine 2 or above 119
- 117(116). Male declivity with a slight sulcus between suture and spines 2 and 3, lower declivity less extensively flattened, area around base of spine 3 gradually elevated toward spine 3, punctures or granules not clearly evident except a distinct row of punctures on sutural interstriae; Mexico (Nayarit); 1.9 mm **semitruncatum** Wood
- Declivity without a sulcus between suture and spines 2 and 3, face of declivity with many punctures or granules 118
- 118(117). Male declivity with spine 3 two or three times larger than 2, face of declivity without many small tubercles, acute ventrolateral crest ending at level half distance between spines 2 and 3; Mexico (Puebla); tree limb; 2.2 mm **diligens** Wood
- Female declivity with spine 3 small, subequal to 2, face of declivity smooth, shining, with numerous small granules; Colombia (Valle de Cauca); *Lecythis*; about 2.0 mm **granulosum** Wood
- 119(116). Male declivity with subacute ventrolateral costa ending at level of spine 2, spine 2 displaced slightly ventrad from basal margin, basal margin from spine 2 to suture distinctly elevated but crest rounded (not costate); declivital face smooth, shining, numerous punctures rather small, distinct; Costa Rica; tree limb; 1.7–2.1 mm **posticum** Wood
- Male declivity with subacute or acutely rounded costa continuing from spine 2 to suture, face of declivity smooth, shining, punctures very small to minute below spine 3; Costa Rica; at light; 1.4 mm **terminalis** Wood

Monarthrum validum (Ferrari)

Monarthrum validum (Ferrari), 1867:55 (*Corthylus*). Lectotype ♂; Mexico; NHMW, Wien, designated by Wood 1974:285 (References and synonymy Wood & Bright c1992:1063)

Amphicranus mexicanus Eggers, 1931:18. Holotype ♂; Mexico; MNB, Berlin

Pterocyclon jalapae Schedl, 1939:584. Holotype ♂; Jalapa, Veracruz, Mexico; NHMW, Wien

Diagnosis: Distinguished from other members of this genus by the large size; in the male by the concave declivity, with 3 pair of minor tubercles at the base of the declivity, followed, on the crest below, by a large, quadrate, spine and a longer cylindrical spine; in the female by a large, deep, subcordate excavation on the vertex and by the basically convex declivity, with a moderate, median spine 1 and 2, and few confused tubercles laterally.

Male: Length 4.3–4.8 mm, 2.8 times as long as wide; color very dark reddish brown. Frons broadly convex, a weak, transverse impression on median half of lower half of area below upper level of eyes, a moderately large,

blunt, median tubercle at upper level of eyes; surface reticulate on lower fourth, smooth, shining above, punctures small above, replaced by small tubercles below; glabrous, a weak epistomal brush of short setae; antennal club 1.8 times as long as wide, sutures weakly procurved. Pronotum 1.2 times as long as wide; sides feebly arcuate, subparallel on basal half, rather broadly rounded in front; anterior margin armed by 14 moderate serrations; summit one-third pronotum length from anterior margin; asperities on anterior slope rather coarse, close, low, confused; posterior areas minutely reticulate, punctures minute, shallow, rather close; glabrous except sparse hair near anterior margin. Elytra 1.7 times as long as wide, 1.4 times as long as pronotum; disc occupying 58 percent of elytra length; surface smooth, shining, with many weak, irregular lines, punctures minute, in striae and interstriae rows. Declivity moderately steep, strongly, broadly concave; crest of excavated area armed on basal margin on interstriae 1, 2, and 3 by a tubercle, 1 small, 2 twice as large as 1, and 3 twice as large as 2,

organized one behind the other on a diagonal line; spine 4 on crest at middle of declivity, quadrate in lateral profile, about one-third as high as its basal width, apex at anterior and posterior angles armed by a small tubercle, spine 5 cylindrical, 1.5 times longer than wide, longer than 3, adjacent to 3; ventrolateral crest of explanate lateral processes acute, extending from base of spine 5 to apex of suture; face of concave area almost smooth, shining, a few very small, confused punctures. Vestiture of a few short setae within concave area and a few longer setae on sides near declivity.

Female: Similar to male except median tubercle on frons absent, vertex with an elongate, deep median (inversely cordate) excavation about three times longer than wide; serrations on anterior margin of pronotum absent; declivity mostly convex, a moderate, median sulcus above, more broadly flattened below, denticles replaced by 5 rounded tubercles on upper half; ventrolateral crest present, weaker.

Distribution: Mexico (Veracruz) to Panama and (?) Colombia.

Notes: The above treatment was based on 20 specimens from Costa Rica and 4 from Panama (Chiriqui). All are from *Quercus* logs. Reports of this species from Colombia and Venezuela have not been confirmed. Because *Quercus* is endemic to Colombia, the occurrence of this species there is expected. Two males from my Costa Rican series were compared directly by me to the male holotypes of both *Monarthrum validum* (Ferrari) and *M. jalapae* (Schedl).

Monarthrum egenum (Blandford)

Monarthrum egenum (Blandford), 1904:280 (*Pterocyclon*). Holotype ♀; San Juan, Verapaz, Guatemala; BMNH, London (Synonymy and references in Wood & Bright c1992:1054)

Brachyspartus bisetosus Schedl, 1954:38. Lectotype ♀; Rio Caraguata, Mato Grosso, Brazil; NHMW, Wien, designated by Schedl 1979:41

Diagnosis: Distinguished from most *Monarthrum* species by the rounded lateral margin of the prothorax; male declivity broadly, strongly concave, spines 1 and 2 both on margin; female declivity broadly, shallowly impressed, spine 1 on crest, 2 strongly displaced mesad; frons evenly convex in both sexes, female modified as described below; bicolored.

Male: Length 1.4–1.8 mm, 2.9 times as long as wide; bicolored, dark on anterior third of pronotum and declivity and pale brown on remaining areas. Frons broadly, moderately convex, surface finely rugose-reticulate, part of vertex smooth, shining, punctures obscure on upper half; epistomal margin smooth, shining, weakly elevated; glabrous except epistomal brush short, sparse; antennal club oval, 1.2 times as long as wide, sutures weakly procurved. Pronotum 1.3 times as long as wide; sides almost straight and parallel on basal half, rather broadly rounded in front; anterior margin armed by about 10 moderate serrations; summit on anterior third of pronotum length, asperities rather coarse, close, confused; pos-

terior areas finely reticulate, punctures minute, rather close; glabrous except sparse, short setae on sides and on asperate area. Elytra 1.6 times as long as wide, 1.2 times as long as pronotum; disc occupying basal 67 percent of elytra length; disc smooth, shining, several irregular impressed lines present, punctures very small, some in apparent stria rows. Declivity steep, broadly, moderately convex; margin narrowly rounded (not exactly acute), spine 1 on interstriae 2 at base, small, acutely pointed, spine 2 on crest at middle of declivity, cylindrical, about twice as high as wide, blunt, curving slightly mesad; face of declivity smooth, shining, punctures rather coarse, deep, one row at suture, then confused to lateral margin, rather close; apex of suture very weakly, shallowly emarginate. Vestiture of fine short hair of moderate abundance in concave area and on sides near declivity.

Female: Similar to male except antennal club as long as wide, obscurely obovate, posterior face with a tuft of long hair; anterior margin of pronotum unarmed by serrations; elytra reticulate; declivity much steeper; lateral margins rounded, obscurely sulcate on basal half, more broadly, shallowly impressed below, spine 1 minute, slightly below basal margin on interstriae 2 and positioned near middle of declivity, displaced mesad from lateral margin less than half distance toward suture, declivital punctures much smaller, less numerous.

Distribution: Mexico (Puebla) to Brazil.

Brazil: Cepec, Ilheus, Bahia, II-III-1881, blacklight, Kaston; Rio Caraguata, Mato Grosso, 3-III-1953, F. Plaumann.

Colombia: Carton de Colombia forest 8 km S Colonia, Valle de Cauca, 9-VII-1970, 30 m, No. 646, *Inga*, SLW; Douma Encino Santander Sur, 26-VI-1959, guamo, A. Benevides; El Centro Matanza, Santander Sur, 26-VI-1959, guamo, R. Parra.

Venezuela: El Laurel Experimental Farm 12 km SW Caracas, 1-V-1970, 1300 m, No. 151, limb, SLW; 20 km SW El Vigia, Merida, 21-X-1969, 50 m, No. 146, limb, SLW.

Hosts: Leguminosae trees.

Notes: The above treatment was based on 1 female of *egenum* (Blandford) that was compared by me directly to the female holotype, on 2 paratypes of *Brachyspartus bisetosus* Schedl, on 32 specimens from Costa Rica, 8 from Colombia, 14 from Brazil, and more than 50 from Venezuela.

Monarthrum insidiosum Wood, n. sp.

Monarthrum insidiosum Wood: Holotype ♀; El Vigia, Merida Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *egenum* (Blandford) by the broadly rounded apex of the female antennal club; by the absence of a median elevation on the female frons, with a distinct impression on median margin of eye extending to vertex; and by declivital spine 3 being positioned on the lateral crest, slightly displaced mesad.

Male: Distinguished from female by absence of impression on mesal margin of eye by a small tuft of hair at apex of antennal club; by the presence of about 8 serrations on the anterior margin of the pronotum; and by the more broadly, more deeply concave declivity, spines 2 and 3 on lateral crest, 2 small, pointed, 3 much larger, cylindrical, directed slightly mesad.

Female: Length 1.6–2.0 mm, 3.0 times as long as wide; color light brown to bicolored. Frons evenly convex, reticulate, punctures obscure, with a distinct impression from mesal margin of eye extending toward vertex; apex of antennal club rather broadly rounded. Pronotum 1.5 times as long as wide; anterior margin armed by 6 serrations; summit slightly anterior to middle of pronotum length; sides straight and parallel on basal two-thirds, rather narrowly rounded in front; asperities on anterior slope small, close, confused; posterior areas reticulate, minute punctures obscure to obsolete; sparse hair restricted to anterior margin. Elytra 1.5 times as long as wide, 1.1 times as long as pronotum; disc occupying basal 82 percent of elytra length; disc reticulate, punctures mostly in rows, minute, shallow. Declivity very steep; broadly sulcate on basal third, broadly, obscurely concave below; lateral crest on basal third rounded, moderately elevated, spine 2 small, blunt, on crest at interstriae 2, spine 3 small, pointed, positioned at middle of declivity length and displaced mesad from crest one-third distance toward suture; emargination at suture apex very small, obscure, ventrolateral crest subacute from suture to slightly below level of spine 3; face of declivity smooth, shining, striae 1 with a row of small punctures on middle half, punctures on lateral areas obscure to obsolete. Vestiture confined to a few setae on sides near declivity.

Distribution: Venezuela (Merida to Caracas and Bolivar).

Type material: The female holotype and 9 paratypes are from 20 km SW El Vigia, Merida Venezuela, 21-XI-1969, 50 m, No. 151, Leguminosae tree limb, S.L. Wood; the male allotype and 36 paratypes were taken at 20 km SW El Vigia, Merida, Venezuela, 21-XI-1969, 50 m, No. 146A, Leguminosae tree, S.L. Wood; 3 paratypes are from El Laurel Experimental Farm 12 km SW Caracas, 1-V-1970, 1300 m, (2) same locality No. 466, log, (1) No. 455, *Croton*, S.L. Wood; 2 paratypes are from Campamento Rio Grande 30 km E Palmar, Bolivar, 12-VI-1970, 200 m, No. 563, *Inga alba*, S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Monarthrum dolosum Wood, n. sp.

Monarthrum dolosum: Holotype ♂; 20 km SW El Vigia, Merida, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *insidiosum* Wood by the evenly convex female frons that lacks an impression above the dorsal margin of the eye, and from *plaumanni* (Schedl) by the more strongly convex frons in both sexes, the female with a weak impression above the epistoma.

Male: Length 1.8–2.2 mm, 3.2 times as long as wide; bicolored, pale and dark brown. Frons broadly convex, a small, median, epistomal lobe extending to epistomal margin; surface rugose-reticulate almost to vertex, punctures rather large and impressed above eyes, obscure to obsolete below; a row of short, sparse setae on epistoma; antennal club slightly obovate, 1.3 times as long as wide. Pronotum 1.3 times as long as wide; sides almost straight and parallel on basal two-thirds, rather narrowly rounded in front; anterior margin armed by about 10 low serrations; summit on anterior third of pronotum length; anterior slope steep, asperities small, close, confused; posterior areas finely rugose-reticulate, punctures minute, shallow. Elytra 1.6 times as long as wide, 1.3 times as long as pronotum; disc occupying 60 percent of elytra length; disc almost smooth, punctures minute to obsolete, mostly in rows. Declivity broadly, moderately concave; basal margin subacutely elevated from suture to spine 2, two minute pointed tubercles on crest between suture and spine 2; spine 2 moderately large, pointed, on crest a fourth of declivity length from base; 3 on crest, twice as large as 2, cylindrical, directed slightly mesad, crest from 2 to 3 narrowly rounded; ventrolateral crest subacute from suture almost to spine 3; striae 1 on face of declivity with an obscure row of punctures, lateral areas not smooth, partly rugose, punctures obscure. Vestiture short, moderately numerous in concave area of declivity, a few setae on sides near declivity.

Female: Similar to male except a small, weak impression above epistoma; antennal club 1.2 times longer than wide, apical margin broadly rounded, a tuft of long hair at apex; anterior margin of pronotum unarmed by serrations; declivity broadly sulcate on basal third, shallowly concave below, basal margin rounded, tubercles near suture usually obsolete, spine 2 almost on crest, 3 displaced from margin one-third distance toward suture, face of declivity partly reticulate, setae shorter.

Distribution: Costa Rica to Colombia (Santander Sur), and Venezuela (Merida).

Type material: The male holotype was taken at 20 km SW El Vigia, Merida, Venezuela, 21-XI-1969, 50 m, No. 146A, Leguminosae tree, S.L. Wood. The female allotype is from El Laurel Experimental Farm 12 km SW Caracas, Venezuela, 1-V-1970, No. 466, in flight, S.L. Wood. Three paratypes are from Doima, Encino, Santander Sur, Colombia, 26-VI-1959, in guamo, A. Benabides; 1 paratype is from El Centro Matanza, Santander Sur, Colombia, 26-VI-1959, arbol guamo, R. Parra; 1 paratype is from Turrialba, Cartago, Costa Rica, 20-VIII-1966, 200 m, in flight, S.L. Wood; 1 paratype is from Volcan Baru, Chiriqui, Panama, 11-I-1964, in flight, S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Monarthrum plaumanni (Schedl)

Monarthrum plaumanni (Schedl), 1937:68 (*Pterocyclon*). Lectotype ♂; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien, designated below (References in Wood & Bright c1992:1060)

Diagnosis: Similar to *dolosum* Wood except frons more broadly convex and more coarsely punctured in both sexes; female frons weakly impressed on lower half, and with numerous long setae uniformly distributed.

Male: Length 1.7–2.2 mm, 2.7 times as long as wide; bicolored, anterior half of pronotum and declivity dark brown, basal half of pronotum and basal two-thirds of elytra pale. Frons broadly convex, a weak, transverse impression above epistoma; surface rugose-reticulate from epistoma to upper level of eyes, reticulate above, punctures rather coarse above, becoming obsolete on lower third; antennal club oval, 1.3 times as long as wide. Pronotum 1.2 times as long as wide; sides almost straight and parallel on basal half, rather broadly rounded in front; anterior margin armed by 12 serrations; summit on anterior third; anterior slope steep, asperities small, close, confused; posterior areas reticulate, punctures minute to obsolete; sparse setae on lateral and anterior margins. Elytra 1.4 times as long as wide, 1.1 times as long as pronotum; disc occupying basal 67 percent of elytra length; disc almost smooth, shining; punctures minute, mostly in rows, obscure impressed points numerous. Declivity rather steep, broadly, moderately concave; crest of basal margin narrowly rounded, two minute, pointed tubercles on crest between suture and spine 2; spine 2 on crest one-fourth declivity length from base, 2 moderately large, sharply pointed; 3 almost on crest, distinctly below middle of declivity length, twice as large as 2, directed slightly mesad; face of declivity smooth, shining, coarsely punctured on mesal half, somewhat rugose on lateral half. Vestiture of rather numerous, short hair on declivity, a few setae on sides near declivity.

Female: Similar to male except body 3.1 times as long as wide; frons broadly convex, coarsely, closely punctured, lateral fourth to anterior margin of eye concavely impressed and sublongitudinally grooved; numerous long setae uniformly distributed on frons; antennal club with a tuft of long hair at apex; anterior margin of pronotum unarmed; declivity subsulcate toward suture; median fourth smooth, shining, some reticulation near apex.

Distribution: Brazil: Nova Teutonia, Santa Catarina, Brazil, 20-V-1935, F. Plaumann (lectotype, lectoallotype, 2 paratypes, 1 non-type same data except 1944); Rio Caraguata, Mato Grosso, IV-1953, F. Plaumann.

Notes: This species was based on a syntypic series. Schedl (1979:196) subsequently designated a male holotype, female allotype, and paratypes. Because his act was not in keeping with the International Code of Zoological Nomenclature, I here designate his male holotype as the lectotype of *Pterocyclon plaumanni* Schedl, the female allotype as the lectoallotype, and his paratypes as lectoparatypes of this species. The above treatment was based on the male lectotype, female lectoallotype, 1 male lectoparatype and 1 female lectoparatype, and 2 female non-types, all at NHMW, Wien.

Monarthrum chapuisi Kirsch

Plate CLXXXV

Monarthrum chapuisi Kirsch, 1866:213. Holotype ♂; Bogata, Colombia; MNB, Berlin (Synonymy and references in Wood & Bright c1992:1052)

Monarthrum bolivianum Eggers, 1935:80. Holotype ♀; Bolivia (Cochabamba); USNM, Washington

Diagnosis: Distinguished from *intermedium* Schedl by the smaller size; by the lateral crest of the male declivity being armed by three to five small tubercles, a weak crest continuing ventrad below lowest tubercle; by the slightly elevated, weakly recurved epistomal margin of the male, with a weak median tubercle, frons weakly rugose-reticulate, more finely sculptured.

Male: Length 3.5 mm, 2.9 times as long as wide; bicolored, dark and pale brown. Frons broadly convex, a weak, transverse impression above epistoma on lower third of area below upper level of eyes, epistomal margin feebly recurved, distinctly elevated, with a weak, median tubercle; surface of frons finely rugose-reticulate below upper level of eyes, reticulate to smooth above, punctures rather fine below, larger on vertex; glabrous except for sparse epistomal brush; antennal club 1.8 times as long as wide. Pronotum 1.55 times as long as wide; sides almost straight and parallel on basal half, rather broadly rounded in front; anterior margin armed by 10 moderate serrations; summit on anterior third of pronotum length; asperities small, close, confused; posterior areas finely reticulate, punctures very small, rather close; glabrous except for a few setae on anterior margin. Elytra 1.7 times as long as wide, 1.4 times as long as pronotum; disc occupying basal 72 percent of elytra length; disc reticulate, punctures very small, most confused. Declivity broadly, moderately concave; basal margin subacute, spine 1 on interstriae 1 minute, pointed, on crest, 2 on interstriae 2, on crest, slightly larger than 1, spine 3 minute, on crest, spine 4 on crest, slightly larger than 2, pointed, acute crest highest at spine 4, declining to its end at level of apex of suture; acute subapical margin extending from apex of suture to lateral margin at level of suture apex; face of declivity almost flat on median two-thirds, punctures small, confused on median third. Glabrous except for a few moderately long setae on sides near declivity.

Distribution: Colombia (and Venezuela?) to Bolivia.

Bolivia: Cochabamba (type of *bolivianum*).

Colombia: Bogota (type of *chapuisi*).

Peru: Near Chachapoyas, Dep. Amazonas, Andes 2000 m, 10-VIII-1936, F. Woytkowski.

Venezuela: "Caracas" (Eichhoff 1878:440–441) [It is probable that this specimen came from Dr. Moritz at Colonia Tovar].

Notes: My male, from Peru, was compared directly to the type of *bolivianum* Eggers. These 2 specimens and those of Eichhoff (1878:440–441) appear to represent the same species, except that the median frontal carina might appear larger under the hand lens of Eichhoff than it actually is. Kirsch (1866:217) estimated

the length of his specimen as 4 mm; Eichhoff estimated his as 3 mm.

Monarthrum intermedium Schedl

Plate CXCIII

Monarthrum intermedium Schedl, 1970:105. Holotype ♂; Jungas de Arepucho, Chacisacho, Bolivia ca 1500 m; ZSSM, Munchen (References in Wood & Bright c1992:1057)

Diagnosis: Distinguished from *chapuisi* Kirsch by the larger size; by the more coarsely subrugose frons; and by the smaller median tubercle on the epistoma.

Male: Length 4.2 mm, 3.2 times as long as wide; bicolor, dark and pale brown. Frons similar to *chapuisi*, except epistomal impression extending almost to upper level of eyes, surface to upper level of eyes strongly rugose-reticulate with numerous small rugae intermixed, shining and rather coarsely punctured above eyes; epistomal margin and median tubercle as in *chapuisi*; antennal club 2.0 times as long as wide. Declivity with lateral margin having spines 2 and 4 about as in *chapuisi*, spines 1 and 2 almost obsolete, lateral crest below spine 4 not present.

Distribution: Bolivia to Peru.

Bolivia: Jungas de Arepucho, Chacisacho, ca 1500 m (holotype).

Peru: Near Shishmay, Dep. Huanuco, 15-20-IX-1937, Andes 3600–4100 m, Highland Lakes, No. 3787, F. Woytkowski.

Notes: The above treatment was based on my male from Peru that was compared by me directly to the male holotype in September 1965, while it was in the possession of Schedl.

Monarthrum bicoloratum Wood

Plate CLXXXI

Monarthrum bicoloratum Wood, 1974:284. Holotype ♂; Mile 10 on Bartica-Potaro Road, Guiana; BNMH, London, automatic (Synonymy and references in Wood & Bright c1992:1051)

Monarthrum bicolor Wood, 1968:4. Holotype ♂; Mile 10 on Bartica-Potaro Road, Guiana; BMNH, London, preoccupied by Ferrari 1867:56

Diagnosis: Apparently allied to *chapuisi* Kirsch, distinguished by the smaller size; by the stouter body form; by the more deeply concave male declivity, with spines 1, 2, and 3 much larger; and by other characters described below. The size of the male declivital spines suggests a possible relationship to *lobatum* (Ferrari).

Male: Length 3.0 mm, 2.5 times as long as wide; bicolor, anterior slope of pronotum, with median half of disc, and elytra from declivity to lateral fourths of sides dark brown, remaining areas pale brown. Frons broadly convex above upper level of eyes, rugose-reticulate below and with a weak, transverse impression; a small, median tubercle at upper level of eyes; vestiture restricted to epistomal fringe of short hair; antennal club 2.0 times as long as wide, apex subacutely pointed, mesal half of sutures 1 and 2 obsolete, septate on lateral half. Pronotum

1.07 times as long as wide; sides straight and parallel on basal half, rather broadly rounded in front; anterior margin armed by 12 moderate serrations; summit slightly in front of middle of pronotum length; anterior slope steep, asperities rather small, close, confused; posterior areas strongly reticulate, punctures small, shallow, some with posterior margin forming a weak, transverse ruga; sparse setae restricted to lateral and anterior margins. Elytra 1.5 times as long as wide, 1.3 times as long as pronotum; disc occupying basal 56 percent of elytra length; surface smooth, shining, a few impressed lines and many minute impressed points, punctures rather small, distinct, mostly confused on striae 1 to 3. Declivity moderately steep, rather strongly, broadly concave; ventrolateral crest subacutely elevated from suture apex to crest at middle of declivity, ending in spine 3; spine 3 pointed, obtuse (about 90 degrees), spine 1 at base on interstriae 1, rather large, sharply pointed, 2 about twice as large as 1, sharply pointed; concave face smooth, brightly shining, with numerous impressed points, punctures rather small, confused, sutural interstriae armed by a row of minute setiferous tubercles, setae in this row moderately long, semi-recumbent, directed laterad, a few other setae present.

Distribution: Guiana: Mile 10 Bartica-Potero Road, X-1948-III-1949, *Caryocar nuciferum*, D.J. Atkinson.

Notes: The above treatment was based on 2 male paratypes.

Monarthrum gracilentum (Schedl)

Monarthrum gracilentum (Schedl), 1972:75 (*Pterocyclon*). Holotype ♂; Jacareacanga, Para, Brazil; NHMW, Wien (References in Wood & Bright c1992:1056)

Diagnosis: Remotely allied to *bicoloratum* Wood, distinguished by the very small, slender body form; ventrolateral crest of the declivity shorter, spine 3 very long, cylindrical, apex hooked mesad.

Male: Length 1.6 mm, 3.1 times as long as wide; color yellowish brown. Frons concealed by pronotum on type, both antennae broken, scape present on both sides. Pronotum 1.6 times as long as wide; sides straight and parallel on basal two-thirds, apparently finely serrate in front (type covered by glue); summit one-fourth length from anterior margin; anterior slope steep, asperities small, positioned irregularly, confused; posterior areas smooth, shining, with small areas of weak reticulation, punctures minute, distinct; vestiture short, sparse on asperate area and lateral margins. Elytra 2.0 times as long as wide, 1.17 times as long as pronotum; disc occupying basal 67 percent of elytra length; disc smooth, shining, punctures mostly in rows. Declivity moderately steep, broadly, rather strongly concave; ventrolateral margin subacute near apex, narrowly rounded to base of spine 3; spine 3 very long, almost cylindrical, apex point hooked mesad, positioned slightly above middle of declivity length, spine 1 on interstriae 1, small, pointed, 2 twice as large as 1, pointed, positioned equal distance between 1 and 3, basal margin narrowly rounded from

suture to base of spine 3; concave face smooth, brightly shining, punctures confused, moderately large. Sparse setae moderately long in concave area, a few setae on sides near declivity.

Distribution: Brazil: Jacareacanga, Para, XII-1969, F.R. Barbosa (holotype).

Notes: The above treatment was based on the male holotype.

Monarthrum amphicranoides (Schedl)

Plate CLXXIX

Monarthrum amphicranoides (Schedl), 1963:225 (*Pterocyclon*). Holotype ♂; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:1051)

Diagnosis: Allied to *bicallosum* (Schedl) distinguished by the smaller size and slender body form; and by the different elytral declivity as described below.

Male: Length 2.2 mm, 3.36 times as long as wide; color of pronotum dark brown, elytral declivity rather dark, disc light brown. Frons moderately convex, median one-sixth from epistoma to upper level of eyes rugose-reticulate and slightly elevated; lateral and upper areas reticulate, punctures small, shallow, obscure; vestiture sparse, short from epistoma to upper level of eyes; antennal club broadly ovate, 1.3 times as long as wide, sutures 1 and 2 moderately procurved. Pronotum 1.4 times as long as wide; sides almost straight and parallel on basal two-thirds, narrowly rounded in front; anterior margin armed by 8 weak serrations; summit on anterior third of pronotum length; anterior slope rather steep, small, close, confused; posterior areas reticulate, punctures very small, distinct; sparse short setae on anterior margin. Elytra 1.9 times as long as wide, 1.3 times as long as pronotum; disc occupying 63 percent of elytra length; disc mostly smooth, shining, impressed lines and other irregularities on basal third; punctures small to obsolete, mostly in rows on sides and on posterior half of disc. Declivity rather steep, broadly, moderately concave; ventrolateral crest subacute near apex, narrowly rounded to spine 3, more broadly rounded from suture at base to 3; spine 1 on crest at interstriae 1, minute, pointed, 2 on crest distinctly larger, bluntly pointed, 3 on crest, small, pointed, apex of 3 directed mostly mesad; concave area smooth, shining, punctures on upper two-thirds small, shallow, distinct, obsolete below; emargination moderately large, slightly deeper than wide. Concave area glabrous, sparse, short setae on sides near declivity.

Distribution: Brazil: Nova Teutonia, Santa Catarina, VIII-1941, F. Plaumann.

Notes: The above treatment was based on the male holotype.

Monarthrum bicallosum (Schedl)

Plates CLXXIX, CLXXX

Monarthrum bicallosum (Schedl), 1939:577 (*Pterocyclon*). Holotype ♂; Brasilien; NHMW, Wien (References in Wood & Bright c1992:1051)

Diagnosis: Remotely related to *quadridens* (Eichhoff), but distinguished by the larger size; by the emarginate anterior margin of the male pronotum; by the radically different declivity, as described below; and by the median tubercle on the anterior margin of the pronotum in both sexes.

Male: Length 3.0–3.4 mm, 3.3 times as long as wide; color dark reddish brown. Frons broadly convex, surface minutely rugose-reticulate; glabrous, except for weak epistomal brush; antennal club 1.5 times as long as wide, sutures weakly procurved. Pronotum 1.5 times as long as wide; anterior margin shallowly emarginate on median two-thirds (visible only from cephalic aspect); sides straight and parallel on more than basal half, broadly rounded in front; anterior margin armed by 1 moderate median serration from which a continuous costa extends to lateral angle; anterior slope rather steep, asperities small, close, confused, area at and slightly behind summit resembling flattened scales; posterior areas minutely reticulate, punctures very small, rather close; vestiture restricted to anterior margin. Elytra 1.8 times as long as wide, 1.2 times as long as pronotum; disc occupying 53 percent of elytra length; disc smooth, shining, punctures minute, mostly in striae and interstriae rows. Declivity moderately steep, broadly, strongly concave; crest on acute basal margin armed by two moderately coarse tubercles, crest descending on basal half, then briefly horizontal, spine 3 positioned on mesal side of crest at two-thirds declivity length from base, spine large, directed dorsad and moderately mesad, subacute crest continuing to apex at emargination; emargination very narrow, shallow; face of declivity with suture weakly elevated, punctures on median half rather coarse, lateral areas granular on lower half. Vestiture long, rather abundant.

Female: Similar to male except emargination on anterior margin of pronotum absent; antennal club with a small tuft of hair on posterior face; anterior margin of pronotum with median serration smaller; lateral costa weak; scaled pattern behind summit of pronotum absent; declivital spines 1, 2, and 3 absent, elevated base on which 3 should be positioned feebly formed by at middle of declivity length.

Distribution: Brazil: Nova Teutonia, Santa Catarina, IV-1940, F. Plaumann (paratype), same data except VIII-1939.

Notes: The above treatment was based on the female holotype, male allotype, 1 male paratype, and on 1 other female.

Monarthrum scrobiceps (Eichhoff)

Monarthrum scrobiceps (Eichhoff), 1878:458 (*Pterocyclon*). Holotype ♀; E Colombia; Hamburg Museum, lost (References in Wood & Bright c1992:1062)

Eupteroxylon comatum Eggers, 1936:393–394. Holotype ♀; Cochabamba, Bolivia; type lost except for one metathoracic leg; USNM, Washington (Wood & Bright c1992:1052). *New synonymy*

Cosmocorynus latum Schedl, 1966:126. Holotype ♂; Unleserlich, vielleicht Maydes, vermutlich Columbien; NHMW, Wien, selected by first revisor choice (References in Wood & Bright c1992:1058). *New synonymy*

Cosmocorynus vagabundus Schedl, 1966:124. Holotype ♀; Bolivien; NHMW, Wien (References in Wood & Bright c1992:1050). *New synonymy*

Diagnosis: Remotely allied to *ingens* (Eichhoff) but distinguished by the very different structure of the male declivity, as described below; by the very deeply excavated lateral thirds of the female frons and radically different female antenna; and by other characters described below.

Male: Length 5.5 mm, 3.2 times as long as wide; color dark reddish brown, disc of elytra pale reddish brown. Frons broadly, moderately convex eye to eye on upper three-fourths, a rather weak, transverse impression at epistoma; a low rounded, moderately large median tubercle on epistoma; surface almost smooth, punctures rather coarse, close; almost glabrous except for weak epistomal brush; antennal club small, 1.9 times as long as wide; narrowly obovate, sutures weakly procurved. Pronotum 1.26 times as long as wide; sides almost straight and parallel on slightly more than basal half, broadly rounded in front; anterior margin armed by 16 basally connected, rather large serrations; summit one-third length of pronotum from anterior margin; asperities rather coarse, close, confused; posterior areas minutely reticulate, punctures minute; vestiture mostly absent, a few setae near margin in asperate area. Elytra 1.9 times as long as wide, 1.5 times as long as pronotum, disc occupying 55 percent of elytra length; disc almost smooth, shining, punctures minute, numerous, confused. Declivity rather steep, deeply concave, emargination at apex of suture slightly wider than deep; spine 1 on interstriae 1 large, pointed, crest from spine 1 to margin of apical emargination acutely, strongly, almost uniformly elevated, spine 2 very small, positioned half distance from spine 1 to 3 at weak angle on crest; floor of concave area smooth, shining, punctures very small. Glabrous except for a few setae on sides of declivity.

Female: Length 5.0–5.3 mm, 3.1 times as long as wide; color reddish brown. Frons with lateral thirds deeply concave from upper level to eyes to near epistoma, vertex convex; surface smooth, shining, vertex with sparse, small punctures and many impressed points; glabrous except epistomal brush of many long setae; antennal club very large, twice as wide as long, posterior face with very long setae. Pronotum about as in male except anterior margin unarmed by serrations, asperities smaller, less numerous. Elytra similar to male except declivity steeper; lateral crest narrowly rounded (not acute), spine 1 much smaller, pointed, 2 small, obtusely pointed, 3 on lower half of declivity length, displaced mesad from lateral margin two-fifths distance from crest toward suture; emargination at suture apex not deep, depth equal to one-fourth total width of declivity, lateral crests narrowly rounded, feebly or not at all explanate; inner face of declivity moderately concave, surface almost smooth, shining, punctures very small, confused, often obscure. Glabrous except for sparse, short setae on sides near declivity.

Distribution: Bolivia to Colombia (Antioquia) and Venezuela (Merida).

Bolivia: “Bolivien” (*vagabundus* female holotype, male allotype); “Mojck” (1 male, 1 female).

Colombia: Piedras Blancas, 11 km E Medellín, Antioquia, 15-VII-1970, 2500 m, No. 668, *Eucalyptus viminialis*, SLW.

Peru: Cochabamba (holotype of *comatum*).

Venezuela: La Carbonera Experimental Forest 50 km NW Merida, Merida, 9-XII-1969, No. 171, log, SLW, same 16-IX-1969, *Ficus*, SLW, same 14-X-1969, No. 50, *Clusia*, same 14-XI-1969, No. 61, *Nectandra*, SLW.

Notes: The above treatment was based on the male holotype of *Cosmocorynus latum* Schedl and 2 male homotypes that were compared by me directly to the male holotype of *latum*, on the female holotype and male allotype of *C. vagabundus* Schedl, on 17 specimens from Colombia, and on 55 specimens from Venezuela. Although the type locality of *latum*, as published by Schedl, leaves much to be desired, this is a common, easily recognized species that can breed in several hosts. The holotype of *latum* is a variant having the declivity steeper and the concave area not as deep. My series from Colombia and Venezuela contain examples of this variant as well as males with a more gradual declivity and higher lateral margins and many intermediate variants. The description of *Pterocyclon scrobiceps* Eichhoff (1878:458–459) fits the female of this species in every detail, including size, distribution, female frons, antenna, declivity, etc., and is considered to be the senior synonym even though the holotype is lost.

Eggers named *Eupterocydon comatus* from a unique female taken in Peru. This holotype was deposited in USNM, Washington, and was subsequently lost except for 1 metathoracic leg and an illustration of the antenna prepared by Schedl (Eggers 1936:389; fig. 2). The length of this holotype was given by Eggers as 3.8 mm. Eggers presumed that his specimen was allied to (*Monarthrum*) *scrobiceps* Eichhoff (5.0–5.3 mm), *plagiatum* Eichhoff, *penicillatum* (Eichhoff), and *fimbraticorne* Blandford. I have examined authentic material of *scrobiceps* and *fimbraticorne*. Type material of *plagiatum* and *penicillatum* was lost with the Hamburg Museum in 1944. Eichhoff (1878:69, key couplet 11) indicates that these 2 species had mostly black elytra and were of smaller size; for these reasons, I associate these 2 “species” with *bicolor* (Ferrari), but synonymy should not be considered until the scolytid fauna of Peru is much more thoroughly understood. My series of *scrobiceps* from Colombia and Venezuela match Ferrari’s specimens (NHMW, Wien) and Eichhoff’s keys and descriptions completely, except for the slightly larger size. The hind leg of *comatum* (body length “3.8 mm”) has the length of the femur and tibia almost exactly the same as my females of 5.0–5.1 mm (body length). The female antenna is exactly the same as that figured by Schedl. It is presumed that Eggers length of the type of *comatum* is in error and that *E. comatum* is a junior synonym of *scrobiceps* (Eichhoff).

Monarthrum sulcipenne (Schedl)

Plate CCIV

Monarthrum sulcipenne (Schedl), 1978:304 (*Pterocyclon*). Holotype ♂; Torentoy Canyon (base of Machu-Picchu), Peru, 2000 m; NHMW, Wien (References in Wood & Bright c1992:1063)

Diagnosis: Distinguished from *lobatum* male by the larger size; by the larger declivital spine 2 and modified crest at spine 2 to 3; and by a weak, transverse impression above the epistoma.

Male: Length about 4.0 mm, 3.0 times as long as wide; color yellowish brown (mature?). Frons broadly convex above, a weak, transverse impression above epistoma on lower half; surface on lower half of area below upper level of eyes smooth, shining, and rather coarsely punctured above almost to vertex; glabrous except epistomal margin; antennal club oval, 1.6 times as long as wide. Pronotum about 1.1 times as long as wide (crushed on type); sides almost straight and parallel on more than basal half, rather broadly rounded in front; anterior margin armed by 12 coarse serrations; summit on anterior third; anterior slope steep, asperities small, close, confused; posterior areas minutely reticulate, punctures minute to obsolete. Elytra 1.9 times as long as wide, 1.6 times as long as pronotum; disc occupying basal 52 percent of elytra length; disc smooth, shining, punctures minute to obsolete. Declivity broadly, strongly concave; sutural emargination very small, ventrolateral margin subacutely elevated from emargination to spine 3; spine 3 on crest, very small, conical; spine 1 on crest at interstriae 1 on base, very large, pointed, 2 on crest equal distance from 1 and 3, slightly larger than 1, sharply pointed, crest from suture to 3 acute above, narrowly rounded below; face of declivity strongly concave, surface smooth, shining, punctures small, shallow, distinct. Glabrous on concave area, a few setae on sides near declivity.

Distribution: Peru: Torentoy Canyon (base of Machu-Picchu), VI-VII-1964, 2000 m, B. Balkin (holotype).

Notes: The above treatment was based on the male holotype.

Monarthrum lobatum (Ferrari)

Plate CXCX

Monarthrum lobatum (Ferrari), 1867:57 (*Corthylus*). Holotype ♂; Venezuela; NHMW, Wien (References in Wood & Bright c1992:1058)

Diagnosis: Male distinguished from the *sulcipenne* (Schedl) holotype by the smaller size; by the much smaller declivital spine 2, with its base obtuse. Female frons armed by a large, median epistomal horn.

Male: Length 3.0–3.4 mm, 3.1 times as long as wide; color yellowish brown, somewhat bicolored. Frons broadly convex; smooth, shining above, partly reticulate below, punctures rather coarse, close, deep; a small, median tubercle above epistomal margin; glabrous except for sparse, short setae on epistomal brush; antennal club 1.6 times as long as wide. Pronotum 1.2 times as long as

wide; sides almost straight and parallel on basal two-thirds, rather broadly rounded in front; anterior margin armed by 8 to 10 coarse serrations; summit on anterior third of pronotum length; anterior slope rather steep, asperities small, close, confused; posterior areas minutely reticulate, punctures minute to obsolete; a few short setae on anterior margin. Elytra 1.8 times as long as wide, 1.4 times as long as pronotum; disc occupying 64 percent of elytra length; disc almost smooth, shining, punctures minute to obsolete, some in obscure rows. Declivity steep, broadly, deeply concave; emargination at suture apex obscure, ventrolateral crest subacutely elevated from suture almost to spine 3; spine 3 small, conical, on crest well below middle of declivity; 2 on crest, pointed, on a broadly obtuse base; spine 1 on crest on interstriae 1 near suture, very large, pointed, 2 closer to 1 than to 3; face of declivity strongly concave, mostly smooth, shining, punctures moderately large, shallow, confused; sutural interstriae distinctly elevated, crest of lower half smooth, crest of upper half weakly serrate. Glabrous except a few setae on sides near declivity.

Female: Similar to male except frons strongly impressed from epistoma almost to upper level of eyes, then moderately impressed to vertex; epistoma armed by a large, median epistomal horn projecting cephalad, about 1.5–2.0 times as long as wide; median line above horn mostly carinate, two dense rows of long hair on base of carina from horn to vertex; sparse, short setae widely scattered; antennal club larger, 1.7 times as long as wide, a tuft of long hair at apex on posterior face.

Distribution: Costa Rica to Venezuela (Merida, Aragua, Caracas).

Venezuela: El Laurel Experimental Farm 12 km SW Caracas, 1-V-1970, 1300 m, No. 474, tree bole, SLW; La Carbonera Experimental Forest 50 km NW Merida, Merida, 12-I-1970, 2500 m, No. 83, *Nectandra*, SLW; Merida, Merida, 28-II-1970, 1300 m, *Clusia*, SLW.

Notes: The male holotype was compared directly by me to my Merida series, and they are identical. The above treatment was based on 1 female from Costa Rica and 77 specimens from Venezuela.

A female labeled "Dr. Moritz, 1858, Venezuela" is in NHMW, Wien. It was examined and initialed by Blandford and bears the identification label of Schedl. The species is clearly described in the Ferrari key on p. 54. The Moritz specimen is not labeled as the type, but clearly fits the label data and physical structure described by Ferrari (1867:54). My series taken near the Moritz home at Colonia Tovar and other localities in Venezuela and Costa Rica are clearly conspecific with the Ferrari specimen.

Monarthrum dentatulum Wood

Monarthrum dentatulum Wood, 1989:178. Holotype ♂; Cochabamba, Bolivia; USNM, Washington, automatic (Synonymy and references in Wood & Bright c1992:1053)

Monarthrum dentatum Eggers, 1935:84. Holotype ♂; Cochabamba, Bolivia; USNM, Washington, preoccupied by Eggers 1931:19

Diagnosis: Closely allied to *lobatum* (Ferrari), distinguished from the male by the much smaller size; by the larger declivital spine 1, the distinctly smaller spine 2 that is positioned equal distance between spines 1 and 3, base of 2 greatly reduced; and by the larger punctures on the elytral disc.

Male: Length 2.4 mm, 3.0 times as long as wide; color brown, obscurely bicolored. Frons concealed on type by pronotum; antennae lost except for scape. Pronotum 1.2 times as long as wide; sides almost straight and parallel on more than basal half, rather narrowly rounded in front; anterior margin weakly subserrate; obscure summit on anterior third of pronotum length; anterior slope moderately steep, asperities very small, close, confused; posterior areas reticulate, punctures very small, distinct; sparse, short setae on anterior margin. Elytra 1.7 times as long as wide, 1.5 times as long as pronotum; disc occupying 62 percent of elytra length; disc mostly smooth, shining, some reticulation on basal third, punctures of moderate size, mostly in rows. Declivity rather steep, deeply, broadly concave; emargination at apex of suture obsolete, ventrolateral crest subacute only on apical margin, then narrowly rounded to spine 3, also narrowly rounded between 1 and 2, and 2 and 3; spine 1 moderately large, pointed, on crest at interstriae 1 on base, 2 on crest, smaller than 1, pointed, base of 2 obtuse, 3 below middle of declivity length, small, conical; face of declivity strongly concave, less than in *lobatum*, surface shining, punctures coarse, shallow, confused, sutural interstriae weakly elevated, crest on basal third weakly subserrate. A few setae on lateral margins and on sides near declivity.

Distribution: Bolivia: Cochabamba (cotype).

Notes: The above treatment was based on a male cotype of *dentatum* Eggers.

Monarthrum lobellum Wood, n. sp.

Plate CXCVI

Monarthrum lobellum Wood: Holotype ♀; Jalapa, Veracruz, Mexico; USNM, Washington, designated below

Diagnosis: Very closely related to *lobatum* (Ferrari), but distinguished by the small size; by the less strongly concave declivity; by the much shorter epistomal lobe of the female; and by other characters mentioned in the above key.

Female: Length about 2.3 mm (crushed), about 3.0 times as long as wide; bicolored, yellowish brown, anterior third of pronotum and elytral declivity dark brown. Frons rather strongly, transversely impressed on area below upper level of eyes from eye to eye half distance to epistoma, then narrowed to half width of epistoma at epistoma, impressed area reticulate, a hornlike lobe rising on median third of epistoma and projecting dorsad a distance slightly more than its basal width, cephalic view of apex of horn broadly rounded (as wide as its base), lateral fourths of epistomal area very finely punctured, with rather abundant, long hair, a median subcarinate crest extending dorsad, its crest pubescent, extending

dorsad from base of lobe, areas above eyes concealed by pronotum; antennal club obovate, 1.4 times as long as wide, sutures weakly procurved, posterior face with several long setae. Pronotum crushed, about 1.2 times as long as wide; sides almost straight and parallel on more than basal half, broadly rounded in front; anterior margin unarmed by serrations; summit on anterior one-eighth of pronotum length; anterior slope short, gradual, asperities low, close, confused; posterior areas reticulate, punctures very small, most obscure; glabrous, except some abundant, long hair at and near anterior margin. Elytra about 1.6 times as long as wide, 1.4 times as long as pronotum; disc occupying about basal 72 percent of elytra length; disc reticulate, punctures small, shallow, some in apparent stria rows. Declivity steep, narrowly, moderately concave; spine 1 largest, pointed, on crest at base on interstriae 2, spine 2 small, with a very broad base (about 120 degrees), on crest about one-third declivity length below basal margin, spine 3 below middle, on crest, pointed, slightly larger than 2; acute ventrolateral margin curving dorsad only slightly, ending well below spine 3; face of concave area reticulate, punctures moderately small, confused, mostly on median half. Glabrous except for very sparse hair on sides near declivity.

Distribution: Mexico (Veracruz).

Type material: The female holotype was taken at Jalapa, Veracruz, Mexico, 13-VII-1983, *Leucana pulverulenta*, FA. Noguera. The damaged holotype is in the U.S. National Museum, Washington.

Monarthrum fulgens Schedl

Monarthrum fulgens Schedl, 1971:153. Holotype ♂; Quito, Ecuador; UZMC, Copenhagen (References in Wood & Bright c1992:1056)

Diagnosis: Distinguished from *fenestratum* Eggers by the smaller size; by the sparsely pubescent female transverse epistomal groove, upper margin of groove not armed by a tubercle; male declivity moderately concave, lateral crest moderately elevated from near base to apex.

Male: Length 3.1–3.5 mm, 3.0 times as long as wide; bicolored, anterior two-thirds of pronotum, declivity and sides of elytra dark brown, base of pronotum and elytral disc pale brown. Frons concealed by pronotum; antennal club not clearly visible on type. Pronotum 1.2 times as long as wide; sides on basal half almost straight and parallel, narrowly rounded in front; anterior margin armed by 10 coarse serrations; summit slightly anterior to middle of pronotum length; anterior slope rather steep, asperities moderately large, close, confused; posterior areas reticulate, punctures very small; sparse, short setae on asperate area. Elytra 1.8 times as long as wide, 1.4 times as long as pronotum; disc occupying basal 70 percent of elytra length; disc mostly reticulate, smooth and shining near declivity, punctures minute to obsolete, confused. Declivity steep, broadly, rather strongly concave; emargination at apex of suture rather large, twice as wide as deep; ventrolateral margins subacute at apical

margin, then narrowly rounded; crest on basal two-thirds subacutely elevated and armed by 5 spines, second, fourth, and fifth spines slightly larger (represent spines 1, 2, and 3rd); face of concave area reticulate, shallow punctures obscure, confused. A few setae on sides near declivity.

Female: Similar to male except frons strongly, transversely impressed on lower two-thirds of area below upper level of eyes; apparently with a small, concave impression above dorsal, mesal margin of eye (largely concealed on type by pronotum); anterior margin of pronotum unarmed by serrations; elytral disc entirely reticulate; declivity moderately sulcate on basal third of declivity length, broadly flattened below, spine 1 minute on interstriae 1, spine 2 on interstriae 2, on crest, blunt, three minute tubercles on crest below level of spine 2, spine 3 blunt, at middle of declivity length, displaced mesad from lateral crest half distance toward suture, face of declivity mostly reticulate on basal two-thirds, punctures minute to obsolete, glabrous.

Distribution: Ecuador: Quito, 14-XII-1920, C.E. Golbach.

Notes: The above treatment was based on a male paratype and on a female non-type from NHMW, Wien, bearing identical data.

Monarthrum fenestratum Eggers

Monarthrum fenestratum Eggers, 1935:85. Holotype ♀; Cochabamba, Bolivia; MNHN, Paris (References in Wood & Bright 1992:1056)

Diagnosis: Transverse groove above female epistoma ornamented by many setae, upper margin of groove with a large, median, rounded tubercle; declivity as in female *fulgens* Schedl except minor tubercles on lateral fourth more numerous, more widely distributed; body size much larger.

Female: Length 4.9 mm, 3.2 times as long as wide; bicolored, similar to *fulgens*. Frons deeply, broadly, transversely impressed from epistomal margin almost to upper level of eyes, with a blunt median tubercle on dorsal crest, impression with numerous long setae uniformly distributed; dorsal areas partly rugose-reticulate; area above dorsal margin of eye with a large, concave impression (about half as large as eye); antennal scape near apex with a long, slender, blunt spine, club 1.46 times as long as wide, without a tuft of hair near apex on posterior face. Pronotum 1.3 times as long as wide; sides on more than basal half subparallel, weakly arcuate, rather broadly rounded and unarmed by serrations in front; summit slightly anterior to middle of pronotum length; anterior slope rather gradual, asperities small, close, confused; posterior areas reticulate, punctures minute to obsolete, obscure. Elytra 1.8 times as long as wide, 1.3 times as long as pronotum; disc occupying basal 77 percent of elytra length; disc reticulate, punctures very small, shallow, confused. Declivity moderately sulcate on basal third, broadly subconcave on lower half; emargination at apex of suture about three times as wide as deep; spine 2 low, blunt, on crest at base of declivity,

spine 3 blunt, small, at middle of declivity length, displaced from lateral crest half distance toward suture; face mostly reticulate, punctures very small to obsolete; lateral fourths with many very small, rounded tubercles. Sparse, moderately long setae on suture and lateral and basal areas, and on sides near declivity.

Distribution: Bolivia: Cochabamba (Germain), 1907, H. Donckier.

Notes: The above treatment was based on the female cotype at NHMW, Wien.

Monarthrum bicolor (Ferrari)

Plates CLXXX, CLXXXI

Monarthrum bicolor (Ferrari), 1867:56 (*Corthylus*). Holotype ♀; Venezuela [presumably Colonia Tovar, Aragua, where Dr. Moritz lived]; NHMW, Wien (Synonymy and references in Wood & Bright c1992:1051)

Corthylus signatus Ferrari, 1867:56. Syntypes ♂; Venezuela [presumably Colonia Tovar, Aragua]; NHMW, Wien

Phthorinus edentatus Hagedorn, 1903:549. Holotype ♂; Colonia Tovar, Aragua, Venezuela; MNHN, Paris

Monarthrum sexdentatum Eggers, 1935:83. Holotype ♀; Cochabamba, Bolivia; NHMW, Wien (References in Wood & Bright c2992:1062).
New synonymy

Diagnosis: Allied to *laterale* (Eichhoff), but distinguished by the unique female frons, as described below; by the presence of 4 to 8 small, rounded, confused tubercles on the female declivity lateral to spines 1 and 2, on the male these tubercles are on or near the lateral crest; and by the slightly larger size.

Male: Length 2.9–3.3 mm, 3.4 times as long as wide; bicolored, anterior half of pronotum and declivity dark brown, pale brown in other areas. Frons broadly, moderately convex, a moderate, transverse impression on lower third of area below upper level of eyes, a weak, median crest from epistoma to upper level of eyes; surface strongly rugose-reticulate to above eyes, punctures small, uniformly distributed; glabrous except for sparse epistomal brush; antennal club 1.6 times as long as wide. Pronotum 1.3 times as long as wide; sides almost straight and parallel on basal half, rather narrowly rounded in front; anterior margin armed by 10 coarse serrations; summit on anterior third of pronotum length; asperities coarse, close, confused; posterior areas reticulate, punctures minute; glabrous, except sparse hair on lateral and anterior margins. Elytra 2.1 times as long as wide, 1.5 times as long as pronotum; disc occupying 70 percent of elytra length; disc mostly reticulate, smooth near declivity, punctures minute, some in obscure rows. Declivity rather steep, narrowly, moderately concave on about median 60 percent; lateral crest obtuse, acutely margined on apical margin from apex of suture laterad to level of suture apex; spine 1 very small, on crest, at interstriae 2, spine 2 at least twice as large as 1, on highest point of lateral crest, declining to dorsal limits of subacute margin; face of concave area reticulate near suture, densely micropunctate in lateral areas, punctures small, obscure, confused. Glabrous, except for a few setae on sides near declivity.

Female: Similar to male except frons transversely, deeply concave below upper level of eyes, lateral fourths deeply concave from margin of eye to vertex, epistomal groove pubescent, lateral grooves glabrous; central area convex, shining, finely punctured; apex of antennal club more narrowly rounded, a few long setae on posterior face at apex; anterior margin of pronotum unarmed by setae; elytral declivity moderately sulcate on median third of upper half, much more broadly flattened below; spine 1 as in male, 2 displaced mesad to interstriae 2, same size and position level (dorsoventral) as in male; about 8 rounded tubercles in lateral areas, entire surface reticulate.

Distribution: Colombia (Antioquia) and Venezuela (Aragua) to Argentina.

Argentina: Alpachim RA, Tucuman, 29-VIII-1946, R. Goldbach.

Colombia: Piedras Blancas 11 km E Medellin, Antioquia, 15-VII-1970, 2500 m, No. 668, *Eucalyptus viminalis*, SLW; Vista Nieve, San Lorenzo Mt., 16-XII-1922 (Hagedorn specimen).

Venezuela: Colonia Tovar, Aragua (near Dr. Moritz home), 4-V-1970, 1700 m, No. 482, bole, SLW; La Carbonera Experimental Forest 50 km NW Merida, Merida, 28-IV-1970, 2500 m, No. 444, *Laurel parmero*, SLW, same 14-X-1969, No. 50-B, *Clusia*, SLW.

Notes: The above treatment was based on 19 specimens from Colombia, 118 from Venezuela, and 1 from Argentina. Two females from Colonia Tovar were compared by me directly to the female holotype of *bicolor*, and 2 males to the male holotype of *edentatus*. The female holotype of *sexdentatum* Eggers was examined by me and compared to my series. They are clearly of the same species.

Monarthrum peruvianum Wood

Monarthrum peruvianum Wood, 1981:122. Holotype ♀; Tambo Enenas, Cam. del Pechis, Peru; NHMW, Wien, automatic (Synonymy and references in Wood & Bright c1992:1060)

Monarthrum peruanum Schedl, 1978:306. Holotype ♀; Tambo Enenas, Cam. del Pechis, Peru; NHMW, Wien, preoccupied by Schedl 1950:168

Diagnosis: Distinguished from *bicolor* (Ferrari) by the less strongly impressed, transverse groove above the female epistoma, lateral areas shallowly impressed, occupying lateral thirds to upper level of eyes, impression above eye deep, extending toward vertex, central area of frons more broadly rounded.

Female: Length 3.0 mm, 2.8 times as long as wide; bicolored, dark and pale brown. Frons with transverse epistomal groove moderately deep, shallow in lateral areas and extending on lateral thirds to slightly above upper level of eyes, median area above groove moderately convex, smooth, shining, punctures sparse, small; sparse setae of moderate length in transverse groove; antennal club 1.5 times as long as wide. Pronotum 1.2 times as long as wide; sides on more than basal half almost straight and parallel, broadly rounded in front;

anterior margin with feeble serrations; summit at middle; anterior slope moderate; asperities small, close, confused; posterior areas finely rugose-reticulate, punctures minute to obsolete; vestiture sparse, short on asperate area. Elytra 1.6 times as long as wide, 1.3 times as long as pronotum; disc occupying basal 80 percent of elytra length; disc reticulate, punctures minute to obsolete, in obscure rows. Declivity very steep, moderately sulcate on basal third, broadly, weakly convex on lower half; spine 2 on crest on interstriae 2, small, conical, spine 3 well above middle of declivity length, small, blunt, displaced mesad from lateral margin half distance toward suture; crest anterior to spine 2 and on lateral crest to level of spine 3 with about six small, rounded tubercles; distance from spine 2 to 3 equal to about one-third distance from 3 to apical margin; face of declivity reticulate, punctures very small, sparse; sparse setae on lateral margins and on sides near declivity.

Distribution: Peru: Tambo Enenas, Cam. Pechis, 30-VII-1920.

Notes: The above treatment was based on the female holotype.

Monarthrum laterale (Eichhoff)

Plate CXCIV

Monarthrum laterale (Eichhoff), 1869:278 (*Pterocyclon*). Holotype ♂; Mexico; Hamburg Museum, lost. Neotype ♂; Toxpam, Mexico; BMNH, London, designated by Wood 1966:25 (Synonymy and references in Wood & Bright c1992:1057)

Cosmocorynus trifasciatus Schedl, 1950:173. Holotype ♀; Mexico; NHMW, Wien

Pterocyclon durum (Schedl), 1972:74. Holotype ♂; Repressa Rio Grande, Guanabara, Brazil; NHMW, Wien. *New synonymy*

Diagnosis: Allied to *bicolor* (Ferrari), except male transverse epistomal impression not as strong, rugose-reticulate area smaller; male antennal club wider; male declivity with lateral margin subacute, armed by spines 1 and 2, plus about four additional minor tubercles; female frons more deeply, elaborately impressed and ornamented, antennal club much wider than long, declivity more deeply, extensively concave.

Male: Length 2.6–3.1 mm, 3.2 times as long as wide; bicolored, anterior half of pronotum, declivity and part of sides of elytra dark brown, remaining areas pale brown. Frons as in male *bicolor*, except transverse, frontal impression not as strong, rugose-reticulate area weaker, less extensive, ending at upper level of eyes, punctures larger, deeper; antennal club 1.2 times as long as wide, sutures weakly procurved. Pronotum 1.2 times as long as wide; about as in *bicolor*. Elytra 1.7 times as long as wide, 1.4 times as long as pronotum; disc occupying 70 percent of elytra length; about as in *bicolor*. Declivity more broadly, more deeply concave than *bicolor*; basal crest more narrowly rounded, lateral crest more nearly subacute; spines 1 and 2 acutely pointed, rather small, 2 distinctly above middle of declivity length, spine 3 very small on crest slightly above level of suture apex; face of declivity smooth, shining, punctures small, confused. Vestiture very sparse, on sides near declivity.

Female: Similar to male except frons with a deep, procurved groove from upper margin of eye then across frons to upper margin of opposite eye; area above groove convex, shining, with small punctures, vertex with a penicillate tuft of long hair on upper area of vertex, its basal area not impressed; below transverse groove a median groove continuing from transverse groove to epistoma, lateral areas irregularly, moderately elevated, smooth, shining, a tuft of hair near margin of eye; epistomal margin weakly elevated into a rounded median tubercle, a pair of smaller pointed tubercles lateral to median one; antennal scape stout, with tuft of short hair, club triangular, 1.5 times wider than long, sutures weakly procurved, apical margin bearing a tuft of very long hair. Pronotum with anterior margin unarmed, weakly declivous. Elytra less strongly, more narrowly concave, spine 1 on crest of declivity on basal third, small, spine 2 on lower third, displaced mesad from crest one-fourth distance toward suture; lower half moderately concave, reticulate.

Distribution: Mexico (Michoacan, Puebla, Veracruz) to Brazil.

Brazil: Cepec, Ilheus, Bahia, 1966–1968, blacklight (Kaston); Represa, Rio Grande, Guanabara (holotype of *durum*)

Venezuela: Rancho Grande, Pittier National Park, 9-IV-1970, 1100, No. 413, tree branch, SLW.

Notes: The male from Bahia was compared to and is identical to the male holotype of *Pterocyclon durum* Schedl; 2 males from Costa Rica were compared directly by me to the lectotype of *P. laterale* Eichhoff, and 2 females to the female holotype of *Cosmocorynus trifaciatum* Schedl. Examined, in addition, were 34 specimens from Mexico, 35 from Venezuela, and 3 from Brazil. All are clearly of the same species.

Monarthrum fimbriticorne (Blandford)

Plate CLXXXVIII

Monarthrum fimbriticorne (Blandford), 1905:285 (*Pterocyclon*). Holotype ♀; Purula, Alta Verapaz, Guatemala; BMNH, London (Synonymy and references in Wood & Bright c1992:1056)

Pterocyclon turbinatum Schedl, 1961:230. Holotype ♂; Cordoba, Veracruz, Mexico; CAS, San Francisco

Pterocyclon obliquum Schedl, 1970:99. Holotype ♂; Rio Caraguata, Mato Grosso, Brazil; NHMW, Wien (References in Wood & Bright c1992:1060). *New synonymy*

Diagnosis: Very closely allied to *laterale* (Eichhoff), but distinguished by the smaller size; by the impressed area on the female vertex from which the median tuft of hair arises; by the pair of tubercles on the lateral areas above the epistoma; and by the less acutely margined crest on the elytral declivity.

Male: Length 2.2–2.4 mm. Very closely allied to *laterale*, except epistomal, transverse impression more abrupt, lower frons more strongly convex, lateral crest on declivity less acute; antennal club 1.1 times as long as wide. Pronotum about as in *laterale*. Elytra similar to *laterale*, except reticulate from base to some parts of

declivity. Declivity not quite as deeply impressed or as wide, lateral margin slightly more broadly rounded.

Female: Similar to female *laterale*, except area bearing median tuft of hair on vertex distinctly impressed; transverse impression on frons longitudinally much more strongly, extensively impressed; median tubercle on epistomal margin present, without a pair of sublateral tubercles on crest, a pair of larger tubercles in lateral area above mandible base separate from epistomal margin; antennal club similar to *laterale*, except 1.6 times as long as wide.

Distribution: Mexico (Veracruz) to Venezuela (Caracas) and Brazil.

Brazil: Rio Caraguata, Mato Grosso, III-1953, F Plauermann (holotype of *obliquum*).

Venezuela: Colonia Tovar, Aragua, 4-V-1970, 1700 m, No. 484, Melastomaceae, SLW; El Laurel Experimental Farm 12 km SW Caracas, 1-V-1970, 1300 m, tree bole, SLW; Rancho Grande, Pittier National Park, Aragua, 9-IV-1970, No. 444, tree bole, SLW; 8 km SW Bumbum, Barinas, 11-II-1970, 160 m, Moraceae, SLW.

Notes: The above treatment was based on 77 specimens from Mexico to Costa Rica, and 26 specimens from Venezuela. One male from Costa Rica was compared directly by me to the male holotype of *Pterocyclon turbinatum* Schedl. The Brazilian record was based on the holotype of *Pterocyclon obliquum* Schedl which was compared by me to the above specimens.

Monarthrum cristatum (Ferrari)

Plate CLXXXV

Monarthrum cristatum (Ferrari), 1867:64 (*Cosmocorynus*). Holotype ♀; Colonia Tovar, Aragua, Venezuela, lost from pin; neotype bearing identical data designated below (References in Wood & Bright c1992:1053)

Diagnosis: Closely allied to *ferrarii* (Blandford) from Panama, distinguished in female by the median impunctate area on frons triangular, conspicuously wider than lateral fovea at inner margin of eye, longitudinal area of epistomal brush on lateral thirds much larger, bearing more setae.

Male: Length 2.4–2.5 mm, 3.0 times as long as wide; bicolored, dark brown and pale brown. Frons broadly convex above upper level of eyes, shallowly, transversely impressed below, epistomal margin with a median tubercle; surface rugose-reticulate; epistomal brush with numerous short setae; antennal club 1.4 times as long as wide. Pronotum 1.2 times as long as wide; sides feebly arcuate and subparallel on basal two-thirds, rather broadly rounded in front; anterior margin armed by 14 coarse serrations; summit anterior to middle of pronotum length; anterior slope steep, asperities rather coarse, close, confluent; posterior areas strongly reticulate, punctures minute; sparse, short setae on asperate area. Elytra 1.6 times as long as wide, 1.3 times as long as pronotum; disc occupying 76 percent of elytra length; middle third of disc conspicuously, concavely impressed on interstriae

1 and 2, a weak sulcus extending on interstriae 1 to declivity, margins on middle third armed by 3 pair of rather coarse, pointed tubercles; surface on basal third reticulate, smooth, shining behind, punctures minute on basal third, small, distinct behind. Declivity steep, moderately sulcate on basal third, broadly, moderately concave below; spine 1 small, pointed, at base on interstriae 1, with 2 slightly larger, conical, on crest, 3 on crest, larger than 2, positioned slightly below middle of declivity length, distance from spine 1 to 2 equal to distance from 2 to 3; emargination at apex of suture small, ventrolateral subacute margin only on apical margin, crest narrowly rounded above. Sparse setae on lateral margins and on sides near declivity.

Female: Similar to male except frons with a triangular area on median third smooth, shining, feebly convex, glabrous, with a row of long setae on each side of triangle, setae very long at triangle apex above, lateral thirds on more than upper half strongly concave, shining, glabrous; areas below impressions ornamented by numerous short setae; antennae not present on neotype. Pronotum about as in male except anterior margin unarmed by serrations, anterior slope not as steep. Elytral disc about as in male except entirely reticulate, impressed area slightly smaller. Declivity less strongly impressed than in male, sulcate from base to level of spine 3, shallowly impressed below, lateral margins broadly rounded; spine 3 displaced mesad from lateral margin one-third distance toward suture; face of declivity reticulate, punctures small, obscure.

Distribution: Colombia to Venezuela (Aragua) and Brazil (Rio Grande do Sul).

Brazil: Resort Socope, Itaara, Rio Grande do Sul, 18-I-1998, ethanol trap in deciduous forest, A-3, T.E.F. Silva; Telemaco Borba, Parana, 17-XI-1993, Klabin Papel e Cellulose forest, ethanol trap, *Pinus taeda* stand, C.A.H. Flechtman.

Colombia: "Colombie" (male "holotype").

Venezuela: Colonia Tovar, 1858, Dr. Moritz (female holotype, lost, and female non-type).

Notes: The female holotype of Ferrari is missing from its pin. A female at NHMW, Wien, bearing the type data is here designated as the neotype of *Cosmocorynus cristatus* Ferrari. This species is also transferred to the genus *Monarthrum*, where allied species have been placed. A male "type," labeled in 1932 by Eggers and invalidly labeled "holotype" by Schedl, is here designated as the neallotype of this species.

Monarthrum quadridens (Eichhoff)

Plates CC, CCI

Monarthrum quadridens (Eichhoff), 1869:277 (*Pterocyclon*). Holotype ♂; Brasilia; NHMW, Wien (References in Wood & Bright c1992:1061)

Pterocyclon dubium Eichhoff, 1869:277. Holotype, sex?; Brasilia; Hamburg Museum, lost

Monarthrum brasiliensis (Schedl), 1936:107 (*Anchonocerus*). Holotype ♂; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:1052). *New synonymy*

Pterocyclon eumerum Schedl, 1952:459. Syntypes 2 ♂; Misiones, Dep. Concepcion, Santa Maria, Argentina, 1 in NHMW, Wien, 1 in Viana Collection (References in Wood & Bright c1992:1054). *New synonymy*

Diagnosis: Distinguished from *bicallosum* (Schedl) by the larger emargination at the suture apex; by the more broadly concave declivity, spine 3 smaller, directed dorsad; by the anterior margin of the pronotum lacking a broad emargination in the male, and having 4 to 6 serrations on the anterior margin.

Male: Length 2.6–2.9 mm, 3.0 times as long as wide; color very dark reddish brown. Frons moderately convex, rather coarsely, closely punctured, smooth, shining between punctures on upper half, reticulate below; a weak, irregular transverse impression above epistoma; glabrous except for weak epistomal brush; antennal club 1.3 times as long as wide, sutures very weakly procurved. Pronotum 1.3 times as long as wide; sides almost straight and parallel on basal two-thirds, rather narrowly rounded in front; anterior margin armed by 8 low serrations; summit indefinite, anterior to middle of pronotum length; asperities coarse, close, confused, declining to somewhat scalelike pattern by middle of pronotum length; posterior areas reticulate, punctures very small; glabrous except for sparse setae on anterior margin. Elytra 1.8 times as long as wide, 1.6 times as long as pronotum; disc occupying 70 percent of elytra length; disc reticulate, punctures small, rows obscure. Declivity rather steep, broadly concave; spines 1 and 2 at base, on crest, rather small, pointed, 3 below middle of declivity length, slightly flattened, subquadrate, almost twice as long as wide, acute subapical margin extending from margin of emargination to slightly below spine 3; emargination moderately large, deeper than wide; face of declivity smooth, shining on median two-thirds, partly granular in lateral areas; punctures rather small, confused. Vestiture of sparse hair on sides near declivity.

Female: Similar to male except frons rugose-reticulate, punctures rather small; antennal club with a small tuft of hair on posterior face; declivity sulcate between spines, more broadly flattened below; spine 1 at basal crest of interstriae 2, spine 2 at middle of declivity length about half distance from suture to lateral margin.

Distribution: Argentina to Brazil.

Argentina: Misiones, Dep. Concepcion, Santa Maria, M.J. Viana.

Brazil: "Brasilia" (holotype of *quadridens*); Nova Teutonia, Santa Catarina, XII-1934 (holotype), VIII-1941 (allotype) of *brasiliensis*, same locality 1-I-1967, 300–500 m, F. Plaumann; Telemaco Borba, Parana, 16-I-2004, Klabin Papel e Cellulose forest, baited funnel trap in *Pinus taeda* stand, C.A.H. Flechtman; Monte Alegre, Parana, 6-X-1995, 12-VII-1996, ethanol trap in *Eucalyptus grandis* stand, C.A.H. Flechtman; Resort Socope, Itaara, Rio Grande do Sul, 17-VIII-1997-8-III-1998, baited funnel trap, deciduous forest, and *Eucalyptus grandis* stand, T.E.F. Silva; Recanto Champagnat, 12-XII-1997-18-V-1998, ethanol trap, T.E.F. Silva.

Notes: The above treatment was based on the male holotype, female allotype, 6 paratypes, and 52 other specimens of *Anchonocerus brasiliensis* Schedl. Two of these males were compared by me directly to the male holotype of *brasiliensis*. The male holotype of *Pterocyclon eumerum* Schedl was also examined and compared to the holotypes of *brasiliensis* and *P. quadridens* Schedl. The holotype of *quadridens* was recovered by Schedl (Wood & Bright c1992:3) and was examined by me and compared to the other material cited above. These 3 nominate species are identical to one another and *brasiliensis* and *eumerum* are here placed in synonymy under the senior name *quadridens*, as indicated above.

Monarthrum brunneum (Eichhoff)

Monarthrum brunneum (Eichhoff), 1869:278 (*Pterocyclon*). Holotype ♂; Colombia; IRSNB, Brussels (References in Wood & Bright c1992:1052)

Corthylus plagiatus Eichhoff, 1869:279. Lectotype ♀; Colombia, IRSNB, Brussels, present designation (References in Wood & Bright c1992:1060). *New synonymy*

Diagnosis: Closely allied to *subductum* (Schedl), male distinguished by the slightly smaller size and medium brown color; by declivital spines 1 and 2 being rather small, conical, and subequal in size; and by the larger, obtuse base of spine 3.

Male: Length 4.0 mm, 2.9 times as long as wide; color medium brown. Frons broadly convex; surface below upper level of eyes reticulate, dull, punctures minute to obsolete, concealed by pronotum above; sparse short setae on epistoma; antennal club 1.7 times as long as wide. Pronotum 1.25 times as long as wide; sides almost straight and parallel on basal two-thirds, rather narrowly rounded in front; anterior margin armed by about 8 very weak serrations; summit distinctly anterior to middle of pronotum length; anterior slope moderately steep, asperities small, close, confused; posterior areas minutely reticulate, punctures minute to obsolete; sparse, short setae on asperate area. Elytra 1.6 times as long as wide, 1.2 times as long as pronotum; disc occupying basal 70 percent of elytra length; disc smooth, shining, with many impressed lines, punctures minute, mostly confused. Declivity strongly convex, about as in *subductum*, with lateral crests less narrowly rounded, spines 1 and 2 on basal fourth of declivity length, conical, subequal in size; spine 3 below middle of declivity length, sharply pointed and directed mostly mesad, base broad, positioned on mesal margin of crest; face of declivity smooth, shining, sparse, small, obscure punctures on mesal half. Sparse setae on lateral crests and on sides near declivity.

Female: Length 3.9 mm, 2.9 times as long as wide; color dark reddish brown, elytral disc on basal three-fourths on more than median half pale brown. Frons broadly convex, weakly protuberant on lower half above shallow, transverse impression immediately above epistoma; glabrous except sparse, weak epistomal brush; surface of frons minutely reticulate, punctures sparse, very minute; antennal club as wide as long, broadly triangular,

apical margin feebly emarginate; cirrus divided into anterior and posterior penicillate, very long tufts both conspicuously longer than club. Pronotum similar to male except anterior margin more distinctly serrate. Elytral disc about as in male except bicolored. Declivity with spine 1 entirely absent, 2 minute and acutely pointed; face of declivity much more strongly impressed than in male, moderately sulcate on median half from spine 3 to base; more broadly, less strongly impressed on lower half; lateral margin rather broadly rounded on upper two-thirds, subacutely, narrowly rounded on lower third; spine 3 displaced mesad three-fifths of distance from lateral margin toward suture, subequal in size and shape to spine 2; base of spine 2 at summit of a weakly submamiform elevation, its lateral extremity attaining lateral margin.

Distribution: Colombia: "Colombie, Nouvell Grenada, Dej." (*brunneum* holotype); Colombie, Thomson (female holotype, male allotype of *plagiatus*).

Notes: The above treatment was based on the male holotype of *Pterocyclon brunneum* Eichhoff and on the female holotype and male allotype of *Corthylus plagiatus* Eichhoff. Page priority is given to *brunneum*.

Monarthrum subductum (Schedl)

Plate CCIII

Monarthrum subductum (Schedl), 1978:303 (*Pterocyclon*). Holotype ♂; Torentoy Canyon (base Machu-Picchu), Peru; 2000–2200 m; NHMW, Wien (References in Wood & Bright c1992:1063)

Diagnosis: Distinguished from *quadridens* (Eichhoff) by the larger size; by the conical male declivital spine 3 that is directed mesad; and by the smooth, shining elytra.

Male: Length 4.0 mm, 3.0 times as long as wide; color very dark reddish brown. Frons broadly convex; median one-sixth of epistoma overlapping epistomal margin; surface reticulate, dull, punctures small, rather sparse; glabrous except for sparse setae on epistoma; antennal club obscurely obovate, 1.5 times as long as wide. Pronotum 1.2 times as long as wide; sides on basal half almost straight and parallel, rather narrowly rounded in front; anterior margin feebly serrate; summit on anterior third of pronotum length; anterior slope rather steep; asperities small, close, confused; posterior areas minutely reticulate, punctures minute to obsolete; sparse, short setae on anterior margin. Elytra 1.5 times as long as wide, 1.2 times as long as pronotum; disc occupying basal 75 percent of elytra length; disc smooth, shining, punctures minute to obsolete, confused. Declivity very steep, broadly, moderately concave; emargination at apex of suture rather small, wider than deep; ventrolateral subacute costa extending from emargination to slightly below spine 3, crest very narrowly rounded to subacute above spine 3; spines 1 and 2 on crest of basal fourth of declivity length, 1 on crest at interstriae 1, small, acutely pointed, 2 on crest at interstriae 2, more than twice as large as 1, sharply pointed, spine 3 below middle of declivity length, on crest, larger than 2, conical, pointed,

apex directed slightly mesad; concave face of declivity smooth, brightly shining, punctures small to minute, confused. Glabrous.

Distribution: Peru: Torentoy Canyon (base of Machu-Picchu), 2000–2200 m (holotype).

Notes: The above treatment was based on the male holotype.

Monarthrum eggersi Wood, n. sp.

Monarthrum eggersi Wood; Holotype ♂; Cochabamba, Bolivia; USNM, Washington, designated below

Diagnosis: Closely allied to *bispinum* Blandford from Panama, distinguished by the larger size; by the smaller male declivital spines; and by the almost flat lower declivity.

Male: Length 3.2 mm, 3.1 times as long as wide; bicolored, anterior two-thirds of pronotum very dark brown, remaining areas pale brown. Frons mostly concealed by pronotum on type, apparently more broadly convex than in *bispinum*, surface dull, reticulate (?); club missing from both antennae of type. Pronotum 1.2 times as long as wide; sides almost straight and parallel on basal half, rather narrowly rounded in front; anterior margin armed by 10 coarse serrations; summit anterior to middle of pronotum length; anterior slope steep; asperities coarse, close, confused; posterior areas weakly reticulate, punctures very small; sparse setae on anterior margin. Elytra 1.8 times as long as wide, 1.4 times as long as pronotum; disc occupying 73 percent of elytra length; disc weakly reticulate on basal third, smooth, shining behind, punctures small, mostly in stria rows. Declivity steep, shallowly planoconcave; emargination at apex of suture very wide, depth about one-third of width; ventrolateral costa acute from suture to distinctly below spine 3; spines 1 and 2 on crest, rather small, sharply pointed, of subequal size, spine 3 on crest, sharply pointed, its base obtuse, rather large; face of declivity almost flat, feebly concave on apical fourth, surface reticulate, confused punctures minute to obsolete. Sparse setae on crest and on sides near declivity.

Distribution: Bolivia.

Type material: The male holotype was taken at Cochabamba, Bolivia. The holotype is in the U.S. National Museum, Washington.

Notes: The female holotype of *Monarthrum sexdentatum* Eggers (1935:83) was examined and found to be a female (and junior synonym) of *M. bicolor* (Ferrari). The male allotype of *M. sexdentatum* (Eggers 1935:83) is a different species. That allotype is here transferred to a different species that is named above as *M. eggersi* Wood, present designation.

Monarthrum obesum (Schedl)

Plate CXCVII

Monarthrum obesum (Schedl), 1970:99 (*Pterocyclon*). Holotype ♀; Peru; NHMW, Wien (References in Wood & Bright c1992:1059–1060)

Diagnosis: Female distinguished from female *bispinum* (Blandford) by the larger size; by the weak, transverse impression on the lower frons; by having declivital spine 3 on the lower third of the declivity and displaced mesad from the lateral margin one-third distance toward suture.

Female: Length 2.9 mm, 3.0 times as long as wide; color dark reddish brown. Frons mostly concealed by pronotum, apparently convex above, a weak, transverse impression above epistoma; surface reticulate, punctures small; antennal club 1.2 times as long as wide, obovate, apical margin rather broadly rounded. Pronotum 1.2 times as long as wide; sides on basal two-thirds almost straight and parallel, rather broadly rounded on unarmed anterior margin; summit on anterior third of pronotum length, anterior slope steep; asperities low, broad, close, confused; posterior areas minutely reticulate, punctures very small, distinct; sparse, short setae on anterior margin. Elytra 1.6 times as long as wide, 1.3 times as long as pronotum; disc occupying 86 percent of elytra length; disc smooth, shining, punctures small, distinct, confused on basal half, mostly in rows behind. Declivity very steep, shallowly, broadly concave; lateral crest rather broadly rounded on basal two-thirds, subacute on apical margin; spine 1 on interstriae 1 on crest, minute, 2 obsolete, 3 distinctly below middle of declivity length and displaced from lateral margin one-third distance toward suture. Sparse setae on sides near declivity.

Distribution: Peru: “Peru.”

Notes: The above treatment was based on the female holotype.

Monarthrum ingens (Eichhoff)

Plate CXCII

Monarthrum ingens (Eichhoff), 1869:278 (*Pterocyclon*). Lectotype ♂; Colombie; IRSNB, Brussels, present designation (Synonymy and references in Wood & Bright c1992:1057)

Anchonocerus rufipes Eichhoff, 1878:431. Holotype ♀; America meridionalis Nova Granada; IRSNB, Brussels

Anchonocerus excavatus Eggers, 1935:330. Holotype ♂; Bolivia; USNM, Washington (Wood & Bright c1992:1054). *New synonymy*

Pterocyclon assequens Schedl, 1978:302. Holotype ♂; Marcapata-Thal, Nfl. de Madre de Dios, Marcapata-Thal, Nfl. De Madre de Dios, Peru, 3000 m; NHMW, Wien

Diagnosis: Remotely allied to *scrobiceps* (Eichhoff), but distinguished by the larger size; by the very different male and female declivity and frons, described below; and by numerous other characters cited below.

Male: Length 5.3–6.4 mm, 3.1 times as long as wide; color dark reddish brown. Frons broadly convex, smooth and shining (at 2500 m) to dull (at 200 m and type), lowest third transversely impressed, reticulate, and very finely punctured, upper two-thirds moderately, rather deeply punctured, mostly smooth, shining between punctures; glabrous, a weak epistomal brush of short setae; antennal club 2.4 times as long as wide, sutures weakly procurved, scape straight. Pronotum 1.3 times as long as wide; sides feebly arcuate, slightly converging

cephalad, rather narrowly rounded in front; anterior margin armed by 10 rather coarse serrations; summit slightly anterior to middle, anterior slope rather coarsely, closely asperate, asperities becoming very small slightly anterior to summit; posterior areas minutely reticulate, minute punctures closely spaced; glabrous except sparse hair on and near margins. Elytra 1.9 times as long as wide, 1.4 times as long as pronotum; disc occupying 60 percent of elytra length; disc smooth, shining, punctures very small, confused, with many impressed points and a few impressed irregular lines. Declivity steep, strongly concave; crest of basal margin narrowly rounded, armed by 3 or 4 minute tubercles; crest on lower three-fourths strongly, acutely elevated to an abrupt 90-degree angle, crest continued on an even, acute level to margin of emargination; sutural emargination slightly wider than deep; face of declivity smooth, shining, punctures rather small, close, confused.

Female: Similar to male except with a dense brush of rather long hair on lower fifth of frons; antennal club three times longer than wide, scape strongly curved on its apical half; anterior margin of pronotum feebly serrate; declivity very shallowly concave, armed at upper margin by a moderate conical tubercle, a similar tubercle slightly below middle of declivity length midway between suture and rounded lateral margin; apical crest acute only near apex.

Distribution: Colombia to Venezuela (Merida) and Bolivia.

Bolivia: Cochabamba (holotype of *Anchonocerus excavatus* Eggers).

Colombia: Nova Grenada, Colombie, Dejean (syntypes); Colombia, VIII, C.F.C. Beeson.

Peru: Cuzco, Nfl. de Madre de Dios, Dep. Marcapata-Thal, 3000 m.

Venezuela: La Carbonera Experimental Forest 50 km NW Merida, Merida, 10-IX-1969, 2500 m, No. 123, log, SLW, same No. 20, *Ficus*, same No. 61, *Nectandra*; Merida (Eggers Collection).

Notes: The above treatment was based on 1 specimen from Bolivia, 1 from Peru, 21 from Venezuela and on the 2 male syntypes from "Colombie." One of those male syntypes is here designated as the lectotype of *Pterocyclon ingens* Eichhoff as cited above. A male homotype compared to the type of *ingens* by Eggers, 1931, from the Beeson Collection was also examined. The male holotype of *P. assequens* Schedl was compared by me directly to the lectotype of *P. ingens* Eichhoff; they are of the same species. The holotype of *Anchonocerus excavatus* Eggers was compared to my series of *ingens*; they also are of this species.

Monarthrum parvum (Eggers)

Plate CXCIX

Monarthrum parvum (Eggers), 1933:22 (*Anchonocerus*). Holotype ♂; Nouveau Chantier, French Guyane; MNHN, Paris (Synonymy and references in Wood & Bright c1992:1060)

Monarthrum preclarum Wood, 1968:6. Holotype ♂; Manaka, Guiana; BMNH, London

Diagnosis: Distinguished from *xalapensis* Wood by the slightly larger size; by the bicolored color pattern; by the absence of spine 1, by the larger declivital spine 2, and by the laterally compressed, blunt spine 3 on the elytral declivity.

Male: Length 2.4–2.6 mm, 3.0 times as long as wide; bicolored, anterior half of pronotum and declivity dark brown, remaining areas pale brown. Frons moderately, transversely impressed from epistoma to upper level of eyes, surface dull, mostly reticulate, punctures small, obscure; epistomal brush short, sparse; antennal club oval, 1.2 times as long as wide. Pronotum 1.3 times as long as wide; sides almost straight and parallel on basal five-eighths, rather broadly rounded in front; anterior margin armed by about 10 weak serrations; summit obscure, on anterior third of pronotum length; anterior slope moderately steep, asperities large, close, confused; posterior areas minutely reticulate, punctures minute to obsolete; sparse short setae on anterior margin. Elytra 1.7 times as long as wide, 1.3 times as long as pronotum; disc occupying basal 66 percent of elytra length; disc smooth, brightly shining, punctures minute to obsolete. Declivity steep, strongly, broadly concave; emargination at apex of suture rather small, deeper than wide; lateral crest acutely, strongly elevated from emargination to suture at base; spine 2 on crest at base of interstriae 2 acutely pointed, its base obtuse, mesal margin of left and right spine 2 parallel, spine 3 on crest slightly below middle of declivity length, larger than 2, blunt, slightly, laterally compressed, pointed mesad, without a cleft between its base and lateral margin; face of declivity brightly shining, deeply concave, suture subacutely, weakly elevated, striae 1 with an obscure row of small punctures, remaining punctures small, confused. Vestiture of sparse hair on crest of declivity below spine 3; a few setae on sides near declivity.

Distribution: Colombia to Guiana.

Colombia: San Isidro, Valle de Cauca, 10-IX-1977, 0–200 m, *Dialalyanthera gordonifolis*, H. Schmitzenhofer.

French Guyane: Nouveau Chantier, 1909, Le Moul (holotype of *parvum*).

Guiana: Manaka, X-1948-III-1949, *Peltogyne*, O.J. Atkinson (type of *preclarum*).

Notes: The above treatment was based on 1 male paratype and 1 other specimen from Guiana, and on 3 males and 3 females from Colombia.

Monarthrum pseudoparvum

Wood, n. sp.

Monarthrum pseudoparvum Wood: Holotype ♂; San Isidro, Valle de Cauca, Colombia; USNM, Washington, designated below

Diagnosis: Distinguished from *parvum* (Eggers) by the rugose-reticulate male frons; by the shallow, transverse impression on the lower male frons; by the less acute, diverging left and right spine 2 on the male declivity; and by the larger spine 3, with a cleft between the base of spine 3 and the lateral crest.

Male: Length 2.2–2.5 mm, 3.0 times as long as wide; bicolored. Frons weakly, transversely impressed on area from epistoma to upper level of eyes; surface rugose-reticulate, dull, punctures minute, obscure; sparse setae on epistomal margin. Pronotum 1.3 times as long as wide; sides almost straight and parallel on basal two-thirds of pronotum length, rather narrowly rounded in front; anterior margin armed by about 14 low, basally contiguous serrations; summit indefinite on anterior third of pronotum length, asperities low, coarse, close, confused; posterior areas minutely reticulate, punctures minute, not close. Elytra 1.8 times as long as wide, 1.3 times as long as pronotum; disc occupying basal 66 percent of elytra length; disc smooth, brilliantly shining, striae very minutely punctured, mostly in rows, a few obscurely impressed lines, interstitial punctures obsolete. Declivity very similar to *parvum*, except for the following: spine 2 smaller, less sharply pointed, mesal margin of left and right spine 2 less acutely elevated and diverging at an angle of almost 90 degrees; spine 3 larger, more distinctly, laterally flattened, almost quadrate from lateral aspect, a distinct cleft between spine 3 and elevated apical part of lateral crest; face of declivity strongly concave; suture feebly elevated, lateral areas smooth brilliantly shining, punctures small, confused, except striae 1 mostly uniseriate. Glabrous.

Female: Similar to male except transverse impression on lower frons almost obsolete; antennal club with many long setae on posterior face; serrations on anterior margin of pronotum; feeble to obsolete; elytral declivity shallowly concave, spine 2 minute, near suture, diverging very slightly; lateral crests rounded on upper half, narrowly rounded on lower third to subacutely elevated at and near suture, middle third of length of lateral crest more broadly rounded, an inflated extension extending mesad to minute spine 3 located at position of interstriae 2 near middle of declivity length, most of impressed area reticulate, most visible punctures on striae 1; very sparse setae on sides near declivity.

Distribution: Colombia (Valle del Cauca).

Type material: The male holotype, female allotype, 2 female and 1 male paratypes were taken at San Isidro, Valle del Cauca, Colombia, 10-IX-1977, *Dialyanthera gordonifolis*, H. Schmitzenhofer. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Monarthrum bifoveatum Wood

Plate CLXXXII

Monarthrum bifoveatum Wood, 1974:137. Holotype ♀; San Jose, San Jose, Costa Rica; USNM, Washington (References in Wood & Bright c1992:1051)

Diagnosis: Distinguished by the narrower male declivity, with lateral margins rounded, female declivity more distinctly impressed; by the reticulate elytra in both sexes; by the unique female frons, described below; and by the weak median carina.

Male: Length 1.8–2.1 mm, 3.0 times as long as wide; color dark reddish brown. Frons broadly convex, finely rugose-reticulate below upper level of eyes, subreticulate above, punctures moderately large, shallow, a low median carina from epistoma to near upper level of eyes; glabrous except for a short, weak epistomal brush; antennal club oval, sutures feebly procurved. Pronotum 1.3 times as long as wide; sides straight and parallel on more than basal half, rather broadly rounded in front; anterior margin armed by about 12 low serrations; summit one-third pronotum length from anterior margin; asperities rather small, close, confused; posterior areas strongly reticulate, punctures minute. Elytra 1.6 times as long as wide, 1.3 times as long as pronotum; disc occupying 75 percent of elytra length; disc reticulate, punctures small, shallow, some in obscure striae rows. Declivity steep, rather narrowly concave; margins rather broadly convex above, moderately, narrowly convex on middle third, subacute from level of spine 2 to suture apex, emargination at suture apex narrow, shallow; spine 1 on crest a third of declivity length from anterior margin, pointed, 2 as large as 1, slightly below middle of declivity, positioned on inner margin of crest; face of declivity rather strongly concave, suture weakly elevated, lateral half rugose-reticulate, mesal half almost smooth, shining, some impressed lines, punctures small, obscure. Sparse, short setae in concave area, a few longer setae on sides near declivity.

Female: Similar to male except frons occupied by a smooth, shining raised square area on median third from epistoma to upper level of eyes, lateral margins of square impressed and bearing a row of setae; antennal club with a tuft of long setae on posterior face; anterior margin of pronotum unarmed; declivity shallowly concave on central half, spines 1 and 2 displaced from margin (1 slightly down from crest and mesad, 2 mesad almost half distance from lateral crest toward suture).

Distribution: Costa Rica to Venezuela.

Venezuela: El Laurel Experimental Farm 12 km SW Caracas, 1-V-1970, 1800 m, No. 512, tree bole, SLW.

Notes: The above treatment was based on the type series of 15 specimens from Costa Rica and 26 specimens from Venezuela.

Monarthrum aztecum Wood, n. sp.

Monarthrum aztecum Wood: Holotype ♂; Jalapa, Veracruz, Mexico; USNM, Washington, designated below

Distinguished from *morsum* Wood by the absence of a predeclivital impression on the elytral disc; by the reticulate disc and declivity of the elytra; by the rugose-reticulate frons; and by the stouter antennal club.

Male: Length 1.4–1.5 mm, 3.1 times as long as wide; color very dark reddish brown. Frons broadly convex, punctures small above upper level of eyes, replaced on lower areas by small tubercles; a rather weak, transverse groove immediately above epistoma; epistomal brush very sparse, setae short; antennal club 1.1 times as long

as wide, suture 1 weakly procurved, 2 almost straight. Pronotum 1.35 times as long as wide; sides almost straight and parallel on more than basal half, rather narrowly rounded in front, anterior margin armed by about 12 weak serrations; summit on anterior third; asperities rather coarse, close, confused; posterior areas reticulate, punctures minute; glabrous, except a few small setae on anterior margin. Elytra 1.8 times as long as wide, 1.3 times as long as pronotum; disc occupying 70 percent of elytra length; disc reticulate, punctures small, mostly in stria rows. Declivity steep, shallowly subconcave on central half; margins rounded, spine 1 at base on crest at interstriae 2; spine 2 on lateral crest slightly below middle of declivity; apical margin acute from margin of emargination laterad to a point below spine 2; face of declivity shallowly subconcave between spines from spine 1 to apical margin, surface smooth, shining from suture almost to spines 1 and 2, lateral areas (including crest) rugose-reticulate; shining areas with close, rather coarse, confused punctures. Glabrous, except sparse, short hair on sides near declivity.

Female: Similar to male except spines 1 and 2 much closer to suture; rugose-reticulate area on declivity extending from lateral margin almost to suture.

Distribution: Mexico (Veracruz).

Type material: The male holotype and female allotype were taken at Jalapa/Xalapa, Veracruz, Mexico, 10-VIII-1983, FANM 32, *Quercus*, F.A. Noguera. The holotype and allotype are in the U.S. National Museum, Washington.

Monarthrum ampara Wood, n. n.

Monarthrum ampara Wood: Holotype ♀; Rio Felicio, Ampara, Brazil; NHMW, Wien, present designation

Mimips brasiliensis Schedl, 1976:72. Holotype ♀; Rio Felicio; Amapa, Brazil; NHMW, Wien, preoccupied by *Anchonocerus brasiliensis* Schedl 1936:107, both names now in *Monarthrum* (References in Wood & Bright c1992:479)

Diagnosis: Distinguished from *aztecum* Wood by the slightly larger size; by the more strongly impressed declivity, with spines 2 and 3 distinctly larger; and by the weakly reticulate female frons, with the punctures conspicuously larger.

Female: Length 1.7 mm, 3.2 times as long as wide; elytra brown, pronotum yellowish brown. Frons strongly convex, a weak, transverse impression above epistoma; surface reticulate, punctures rather coarse, uniformly distributed; sparse, short hair on lower half; both antennae missing from type. Pronotum 1.3 times as long as wide; sides almost straight and parallel on basal two-thirds, rather broadly rounded in front; anterior margin armed by about 10 low serrations; summit on anterior third; anterior slope very steep; asperities rather coarse, close, confused; posterior areas reticulate, punctures minute; sparse, short setae on asperate area. Elytra 1.8 times as long as wide, 1.4 times as long as pronotum; disc occupying basal 80 percent of elytra length; disc almost smooth, shining, punctures minute, most in stria and

interstria rows. Declivity very steep, shallowly concave on central two-thirds; suture apex not emarginate, ventrolateral margin rounded from suture at apex to suture at base of declivity; spine 2 small, conical, pointed on crest on basal fourth; spine 3 on crest one-third declivity length from apical margin, conical, pointed, as large as 2; reticulate, punctures small, obscure. Vestiture of moderately long setae on sutural interstriae, more numerous on lateral crests, sides, and base of declivity, and on posterior third of elytral disc and sides.

Distribution: Brazil: Rio Felicio, Ter. Amapa VII-1959, J. Laneco C.

Notes: The inflated, tuberculate posterior face of the protibia and structure and sculpture of the pronotum and elytra require that this species be transferred from *Mimips* (a synonym of *Acanthotomicus*) to *Monarthrum*. In *Monarthrum* the name *brasiliensis* is preoccupied by *Anchonocerus brasiliensis* Schedl (1936:107) now in *Monarthrum* and a synonym of *M. quadridens* (Eichhoff). The new name *amapae* is here proposed as a replacement name for *Monarthrum brasiliensis* (Schedl 1976:72), originally named in *Mimips*. This species is the only *Monarthrum* known to me in which the ventrolateral margin of the elytra is rounded at and near the suture. It must be very primitive in this genus.

Monarthrum gracilior (Schedl)

Plate CLXXXIX

Monarthrum gracilior (Schedl), 1959:553 (*Pterocyclon*). Holotype ♂; Jacareacanga, Para, Brazil; NHMW, Wien (References in Wood & Bright c1992:1056)

Pterocyclon pennatum Schedl, 1963:167. Holotype ♀; Cordoba, Veracruz, Mexico; NHMW, Wien (References in Wood & Bright c1992:1060). *New synonymy*

Pterocyclon glabriculum Schedl, 1976:82. Holotype ♂; Represa Rio Grande, Guanabara, Brazil; NHMW, Wien (References in Wood & Bright c1992:1056). *New synonymy*

Diagnosis: Distinguished from *proprium* Wood by the smaller size; by the less deeply, less broadly concave declivity; by the broadly convex female frons that is uniformly reticulate and finely, shallowly punctured.

Male: Length 1.4–1.6 mm, 3.2 times as long as wide; color yellowish to dark reddish brown. Frons broadly, moderately convex, obscurely protuberant near epistoma, a feeble, transverse epistomal groove, its margin shining, upper areas reticulate, punctures small, shallow; antennal club 1.3 times as long as wide, sutures moderately procurved. Pronotum 1.4 times as long as wide; sides almost straight and parallel on more than basal half, rather narrowly rounded in front; anterior margin armed by 10 low serrations; summit on anterior third of pronotum length; asperities small, close, confused; posterior areas reticulate, punctures minute, often obscure; glabrous except a few short setae near anterior margin. Elytra 1.9 times as long as wide, 1.25 times as long as pronotum; disc occupying 72 percent of elytral length; disc reticulate, subshining, punctures mostly obsolete to very small, obscure. Declivity steep, rather broadly, moderately

concave; as in *bifoveatum* Wood, except spine 2 positioned lower, median area of face more brightly shining, punctures smaller, deeper. Glabrous except sparse, fine, long hair on lateral margin of declivity.

Female: Similar to male except epistoma protuberance not evident, groove obscure, almost obsolete; antenna without a tuft of hair on posterior face; anterior margin of pronotum unarmed by serrations; punctures on elytral disc obscure, but visible; declivity moderately sulcate on median half, lateral margins broadly rounded, spine 1 obsolete, 2 at middle of declivity, displaced mesad two-thirds distance from margin toward suture.

Distribution: Mexico (Nayarit to Veracruz) to Colombia and Venezuela.

Colombia: Piedras Blancas 11 km W Medellin, Antioquia, 17-VII-1970, 2300 m, No. 692, *Weinmannia pubescens*, SLW.

Venezuela: El Laurel Experimental Farm, 12 km SW Caracas, 1-V-1970, 1300 m, No. 457, tree bole, SLW.

Notes: The above treatment was based on 53 specimens from Mexico, 3 from Guatemala, 1 from Honduras, 30 from Costa Rica, 9 from Colombia, and 45 from Venezuela. The male holotype of *Pterocyclon gracilior* Schedl, the female holotype of *P. pennatum* Schedl, and the male holotype of *P. glabriculum* Schedl were examined and compared to one another. All are of the same species. The two junior names were placed in synonymy, as indicated above.

Monarthrum tuberculatum

Wood, n. sp.

Monarthrum tuberculatum Wood: Holotype ♂; Ocoaxtepec, Ocuituco, Morelos, Mexico; USNM, Washington, designated below

Diagnosis: Distinguished from *gracilior* (Schedl) by having male declivital spine 3 at the middle of the declivity length, 2 near base; by the reticulate elytral declivity; by the male frons being very broadly convex and reticulate, a weak, median crest ending at epistoma in a small tubercle.

Male: Length 1.8 mm, 3.0 times as long as wide; color yellowish brown. Frons weakly convex; surface reticulate, median crest feebly elevated, ending at epistoma in a small tubercle; setae very sparse, mostly on epistoma. Pronotum 1.26 times as long as wide; sides on basal two-thirds feebly arcuate, subparallel, broadly rounded in front; anterior margin armed by 12 low serrations; summit indefinite, anterior to middle of pronotum length; asperities on anterior slope small, close, confused; posterior areas strongly reticulate, punctures minute, rather close; almost glabrous, a few minute setae on anterior and lateral margins. Elytra 1.9 times as long as wide, 1.5 times as long as pronotum; disc occupying 77 percent of elytra length; disc reticulate, striae not impressed, punctures very minute, most obscure, a few on posterior half in obscure rows; interstitial punctures mostly obsolete. Declivity very steep, moderately impressed on basal half, more broadly, strongly impressed below; reticulate;

sutural interstriae rather weakly elevated, crest subacute from base to apex; striae not indicated, a few confused punctures between sutural interstriae and lateral elevation; spine 2 on crest small, very acutely pointed, near base; spine 3 at middle of declivity length, on mesal margin at highest point on lateral margin; shallowly rather broadly emarginate at apex of suture; apical margin acutely elevated from lateral end of emargination, crest becoming rounded as it curves dorsad; width of lower impression greater than distance between left and right spine 3. Vestiture of minute setae of moderate abundance in impressed area and a few on lateral areas near impressed area.

Distribution: Mexico (Morelos).

Type material: The male holotype was taken at Ocoaxtepec, Ocuituco, Morelos, Mexico, XI-1982, trampa luz negra, F. Bustamante. The holotype is in the U.S. National Museum, Washington.

Monarthrum semipalens (Schedl)

Monarthrum semipalens (Schedl), 1954:41 (*Pterocyclon*). Lectotype ♂; Rio Caraguata, Mato Grosso, Brazil; NHMW, Wien, designated by Schedl 1979:224 (References in Wood & Bright c1992:1062)

Diagnosis: Distinguished from *proprium* Wood from Central America by the slightly larger size; by the more coarsely, more densely punctured male declivity; and by the male declivital spine 3 pointing slightly mesad.

Male: Length 1.8 mm, 3.4 times as long as wide; obscurely bicolored, anterior pronotum and posterior half of elytra dark reddish brown, remaining areas pale brown. Frons rather strongly convex, a feeble transverse impression above epistoma; surface rugose-reticulate on lower third of area below upper level of eyes, then strongly reticulate to vertex, punctures rather coarse above, obsolete below; sparse, short setae on epistoma; antennal club oval, 1.4 times as long as wide. Pronotum 1.2 times as long as wide; sides on basal two-thirds almost straight and parallel, broadly rounded in front; anterior margin armed by about 8 low serrations; summit on anterior third, anterior slope moderately steep, asperities rather small, close, confused; posterior areas reticulate, punctures minute to obsolete; vestiture short, sparse on anterior margin. Elytra 1.8 times as long as wide, 1.4 times as long as pronotum; disc occupying basal 77 percent of elytra length; disc reticulate on basal half, almost smooth, shining on posterior half, punctures minute to obsolete, mostly in obscure rows. Declivity very steep, broadly, moderately concave; emargination at apex of suture small, deeper than wide; apical margin subacute only near emargination, lateral crest narrowly rounded to spine 2, rather broadly rounded at base; spine 2 on crest one-third declivity length from base, conical, pointed, moderately large, 3 on crest one-third declivity length from apical margin, equal in size to spine 2, obtusely conical, apex pointing slightly mesad; face of declivity smooth, shining, punctures small to minute, confused, rather numerous. Sparse setae on lateral crests of declivity and on sides near declivity.

Distribution: Brazil: Rio Ibicaui, Rio Grande do Sul, VII-1980, *Theobroma cacao*, S. Lemardo; Rio Caraguata, Mato Grosso, III-1953, F. Plaumann (lectotype); Ibate, Sao Paulo, 10-IV-1985, Ripasa, ethanol trap, C.D. Santo.

Notes: The above treatment was based on the male holotype and on 2 other males in my collection.

Monarthrum minutissimum (Schedl)

Monarthrum minutissimum (Schedl), 1954:40 (*Pterocyclon*). Lectotype ♂; Rio Caraguata, Mato Grosso, Brazil; NHMW, Wien, designated by Schedl 1979:155 (References in Wood & Bright c1992:1059)

Diagnosis: Distinguished from male *semipalens* Schedl by the more gradual, more explanate declivity, with the suture sulcate on the posterior third of the disc to base of declivity; male disc more brightly shining, with punctures conspicuously larger; spine 2 on declivity twice as large as spine 3.

Male: Length 1.6–1.8 mm, 3.3 times as long as wide; color reddish brown, declivity darker. Frons moderately convex, a weak, transverse impression above epistoma; reticulate on epistomal impression, smooth, shining above, punctures rather small, distinct; sparse, short setae on epistoma; antennal club 1.4 times as long as wide. Pronotum 1.4 times as long as wide; sides almost straight and parallel on basal two-thirds, rather broadly rounded in front; anterior margin armed by 10 very weak serrations; summit on anterior third; anterior slope steep, asperities small, close, confused; posterior areas reticulate, punctures minute. Elytra 1.8 times as long as wide, 1.2 times as long as pronotum; disc occupying 73 percent of elytra length; disc smooth, shining, with many impressed points and several impressed lines, punctures rather large, mostly in rows; suture rather strongly sulcate on posterior third of disc to upper declivity. Declivity moderately steep, rather broadly, subconvexly sulcate, lateral crests rounded, apical margin distinctly explanate; spine 2 on inner margin of lateral crest positioned one-third declivity length from base, three times larger than spine 3; spine 3 minute, conical, on lateral crest, distance from apical margin to spine 3 equal to one-third distance from 2 to 3; face of declivity mostly shining, striae 1 with a distinct row of small punctures, lateral areas subgranular, punctures obscure. Sparse setae on lateral crests and on sides near declivity.

Female: Similar to male except antennal club with several long setae on posterior face at apex; sulcus on posterior elytral disc weak; declivital sulcus much less strongly impressed, spine 2 displaced moderately toward suture, larger than 3; spine 3 displaced mesad from lateral margin almost half distance toward suture; apical margin feebly explanate.

Distribution: Brazil to Paraguay.

Brazil: Rio Caraguata, Mato Grosso, 21°48'B, 52°27'L, III-1953 (lectotype, 3 lectoparatypes), IV-1953 (2 lectoparatypes), V-1953 (lectoallotype), 400 m, F. Plaumann.

Paraguay: Carumbe, Dep. San Pedro, 28-I-10-III-1965, R. Golbach.

Notes: The above treatment was based on the male lectotype, female lectoallotype, 5 lectoparatypes from Brazil, and 1 male from Paraguay.

Monarthrum subimpressum

Wood, n. sp.

Monarthrum subimpressum Wood: Holotype ♀; Salta-Oran, Abra Grande, Argentina; USNM, Washington, designated below

Diagnosis: Remotely allied to *amapae* Wood, distinguished by the narrowly, less strongly impressed declivity; by the short, subacute apical ventrolateral margin of the elytra; by the minute spines 2 and 3 on the declivity; and by the subacute apical margin of the antennal club, especially in the female.

Male: Similar to female except antennal club with apex more strongly, subacutely pointed, its posterior face without long setae near apex; by the six moderately coarse serrations on anterior margin of pronotum; and by less numerous setae on elytra.

Female: Length 2.4–2.5 mm, 3.2 times as long as wide; color very dark reddish brown. Frons moderately convex, without an epistomal impression, rugose-reticulate from epistoma to vertex; punctures small, obscure above upper level of eyes, almost obsolete below; sparse, short setae below upper level of eyes; antennal club 1.5 times as long as wide, apex subacutely pointed, posterior face near apex with many long setae. Pronotum 1.3 times as long as wide; sides almost straight and parallel on basal two-thirds, rather narrowly rounded in front; anterior margin unarmed by serrations; summit on anterior third of pronotum length; anterior slope moderately steep; asperities small, close, confused; posterior areas reticulate, punctures very small; vestiture short, sparse on asperate area. Elytra 1.7 times as long as wide, 1.3 times as long as pronotum; disc occupying 75 percent of elytra length; disc strongly reticulate, punctures small, obscure. Declivity steep, shallowly impressed on median half; emargination at apex of suture very small, as wide as deep; apical margin subacute, lateral margin rather broadly rounded from well below spine 3 to declivity base; spine 2 on crest one-third declivity length from base, very small, bluntly pointed, spine 3 on crest, very small, pointed, positioned one-third declivity length from apical margin, lower pair of spines more widely spaced from one another; face of declivity strongly reticulate, small punctures obscure to obsolete. Minute setae rather numerous in impressed area, on crests, and on lateral areas from crests slightly cephalad to base of declivity.

Distribution: Argentina.

Type material: The female holotype was taken at Salta-Oran, Abra Grande, Argentina, 10-I-III-1967, R. Golbach. The male allotype is labeled RA Tucuman, II-1956, R. Golbach. The holotype and allotype are in the U.S. National Museum, Washington.

Monarthrum meuseli
(Reitter), n. comb.

Monarthrum meuseli (Reitter), 1905:249 (*Xyleborus*). Holotype ♀; Ussunsk (Sajan occid.) Ostsibirien; NHMB, Budapest (References in Wood & Bright c1992:750)

Diagnosis: Rather closely allied to *subimpressum* Wood, female distinguished by the slightly smaller size; by the reddish brown color; by the slightly flattened female declivity, the impression between left and right declivital spine 2 slightly deeper; left and right spine 3 much more closely spaced (same as for spine 2) a feeble crest curving laterad then mesad from spine 2 to 3, impression between spines less than for upper pair (spine 2); apex of antennal club more broadly rounded [more nearly resembling male *dimidiatum* (Ferrari)].

Female: Length 2.4 mm, 3.0 times as long as wide; color reddish brown. Frons broadly convex eye to eye (upper half concealed on type by pronotum), surface minutely rugose-reticulate; sparse setae on epistoma, glabrous above; antennal scape club-shaped, as long as club, club 1.3 times as long as wide, widest at segment 3, apex broadly, evenly rounded, sutures 1 and 2 weakly septate, weakly procurved. Pronotum 1.37 times as long as wide; sides on basal two-thirds straight and parallel, broadly rounded in front; anterior margin feebly serrate; summit on anterior third of pronotum length; anterior slope steep, asperities rather small, close, confused; posterior areas strongly reticulate, punctures very small, moderately close; sparse short setae on anterior and lateral margins. Elytra 1.5 times as long as wide, 1.3 times as long as pronotum; disc occupying basal 72 percent of elytra length; disc strongly reticulate, weaker near declivity, punctures minute to obsolete, mostly confused. Declivity steep, broadly impressed, subconvex on basal half, subconcave below, median fifth shallowly sulcate on basal half; spine 2 small, acutely pointed, displaced mesad from lateral margin, spine 3 smaller than 2, obtusely pointed, displaced mesad from lateral margin almost three-fourths distance toward suture, position equal distance between spine 2 and apical margin; a feeble crest arched laterad connecting bases of spine 2 to 3; surface minutely rugose-reticulate from base to apex, punctures obscure to obsolete except obscure row at striae 1. Vestiture very sparse, confined to declivity, several moderately long setae on lateral crest, a few minute setae in sulcus between suture and spines.

Distribution: "Ostsibirien, Prov. Sajan (Ussinsk)" (Reitter 1913:111).

Notes: This species was originally labeled as *Xyleborus meuseli* Reitter, 1905, but was published as "*Xyleborips* (n.g.) *meuseli* (n.sp.) Reitter." The female holotype was examined and clearly belongs to the American genus *Monarthrum* to which it is here transferred from *Xyleborus*. The most closely allied known species are from northern Argentina to southern Brazil. This type was either mislabeled or it reached eastern Siberia in a wood product transported in a ship coming from South

America. It represents a valid species known to me only from this type specimen. M. Yu. Mandelshtam (2000:204) reported this as a *Monarthrum* species and was kind enough to call this specimen to my attention for this volume.

Monarthrum exornatum (Schedl)

Plate CLXXXVII

Monarthrum exornatum (Schedl), 1939:575 (*Pterocydon*). Holotype ♀; Colonia (vermutlich Mexico); NHMW, Wien (Synonymy and references in Wood & Bright c1992:1055)

Pterocydon gracilicornum Schedl 1939:576. Holotype ♂; Mexico, Jalapa; NHMW, Wien

Male: Length 1.8–2.2 mm, about 3.1 times as long as wide (elytra spread on specimens at hand; female 3.5 times as long as wide); color reddish brown; frons broadly convex, a feeble, transverse impression on lower third; surface reticulate to vertex, punctures rather coarse, close, a feeble, median, noncarinate crest on lower two-thirds; glabrous except for very sparse, short epistomal brush; antennal club 1.1 times as long as wide, sutures moderately procurved. Pronotum 1.3 times as long as wide; sides almost straight and parallel on basal two-thirds, very broadly rounded in front; anterior margin armed by about 10 low, basally connected serrations; summit on anterior third of pronotum length; posterior areas reticulate, punctures minute; glabrous except for a few setae on anterior margin. Elytra about 1.7 times as long as wide, about 1.4 times as long as pronotum (elytra spread); disc occupying 70 percent of elytra length; disc reticulate, punctures minute to obsolete, partly in striae rows. Declivity resembling *septulosum* Wood impression of concave area but distinctly deeper, wider, spine 1 slightly larger, at least three times larger than 2; median two-thirds of impressed area smooth, shining, small punctures confused, lateral crest rugose-reticulate from suture above spine 1 along lateral crest to apical emargination below level of suture emargination. Glabrous except for a few setae on sides near declivity.

Female: Similar to male except frons very weakly protuberant on lower half; antennal club more slender, sutures less strongly procurved; declivital spines 1 and 2 slightly smaller; floor of impressed area on declivity smooth and shining only on median half.

Distribution: Mexico (Guerrero, Oaxaca, Pubela) to Venezuela (Bolivar, Caracas).

Venezuela: El Laurel Experimental Farm 12 km SW Caracas, 1-V-1970, 1300 m, No. 457, tree bole, SLW; Campamento Rio Grande 30 km E Palmar, Bolivar, 12-VI-1970, 1200 m, No. 549, *Alexa imperatrix*, SLW.

Notes: The above treatment was based on 1 male and 4 females; 1 female from Oaxaca, Mexico was compared by me directly to the holotype. Schedl (1939:575) named this species from "Colonia," an unknown locality, apparently Mexico or Colombia, and *Pterocydon moritzi* Schedl (1939:727) from a locality in Venezuela in 1758. It is logical to assume that Moritz took this specimen at or near his home at Colonia Tovar, Aragua, Venezuela. It is also

logical to assume that the "Colonia" specimen of Schedl (1939:575) came from Moritz, since Schedl had access at NHMW, Wien, to other Moritz material similarly labeled. Both *M. dimidiatum* (Ferrari) and *M. exornatum* (Schedl) occur in both Mexico and in Venezuela near the Moritz home.

Monarthrum septulosum Wood, n. sp.
Plate CCII

Monarthrum septulosum Wood: Holotype ♂; El Bosque, Caicedonia, Valle de Cauca, Colombia; USNM, Washington, designated below

Diagnosis: Distinguished from *exornatum* (Schedl) by the entirely reticulate declivity; and by the less strongly impressed, narrower lower male declivity.

Male: Length 1.8–2.2 mm, 2.3 times as long as wide; color reddish brown. Frons broadly convex, slightly protuberant, reticulate on sides and lower fourth; glabrous, except epistomal brush weak; antennal club 1.16 times as long as wide, obovate, sutures moderately procurved. Pronotum 1.4 times as long as wide; sides almost straight and parallel on basal two-thirds, broadly rounded in front; anterior margin armed by about 10 low serrations; summit on anterior third of pronotum length; asperities small, close, confused; posterior areas strongly reticulate, punctures very small, rather close; glabrous except a few short setae on anterior margin. Elytra 1.9 times as long as wide, 1.3 times as long as pronotum; disc occupying basal 70 percent of elytra length; disc strongly reticulate, punctures minute to obsolete. Declivity moderately impressed on median third on basal third, expanding to two-thirds width on lower third of declivity length, spine 1 slightly below crest, spine 2 closer to apical margin than to spine 1, displaced mesad from lateral margin one-third distance toward suture, entirely reticulate (no smooth, shining area), punctures on median half of area between spines, very small, shallow. A few short setae on sides near declivity.

Distribution: Costa Rica (San Jose Prov.) to Colombia (Caicedonia) and Venezuela (Caracas).

Type material: The male holotype was taken at El Bosque, Caicedonia, Valle del Cauca, Colombia, VI-1959, en cafe, sco. #1, J. Restrepo. The female allotype is from El Laurel Experimental Farm 12 km SW Caracas, Venezuela, 1-V-1970, 1300 m, No. 457, tree bole, S.L. Wood. One female paratype is from Campamento Rio Grande 30 km E Palmar, Bolivar, Venezuela, 12-VI-1970, 200 m, No. 549, *Alexa imperatrix*, S.L. Wood, and 1 female paratype is from Escasu, San Jose Prov., Costa Rica, 2-X-1963, 1300 m, No. 217, *Ficus*, S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Monarthrum dimidiatum (Ferrari)
Plate CLXXXVI

Monarthrum dimidiatum (Ferrari), 1867:57 (*Corthylus*). Syntypes ♂; Venezuela; NHMW, Wien (Synonymy and references in Wood & Bright c1992:1054)

Pterocyclon moritzi Schedl, 1939:727. Holotype ♂; Venezuela, taken by Dr. Moritz in 1758, probably near his home at Colonia Tovar, Aragua

Diagnosis: Distinguished from *carinatum* Wood by the more gradual, less broadly concave elytral declivity; by spine 2 of the elytral declivity being distinctly smaller than 1; by the deeper, narrower emargination at the apex of the declivital suture; and by the mostly smooth, shining elytral disc.

Male: Length 1.8–2.3 mm, 3.2 times as long as wide; color reddish brown. Frons broadly convex eye to eye from epistoma to vertex, obscurely protuberant on lower half; surface obscurely reticulate on lower half, smooth, shining above, punctures rather coarse, close; almost glabrous except for sparse epistomal brush; antennal club oval, 1.2 times as long as wide. Pronotum 1.3 times as long as wide; sides straight and parallel on basal two-thirds, broadly rounded in front; anterior margin armed by 8 low basally connected serrations; summit on anterior third of pronotum length; asperities rather small, close, confused; posterior areas strongly reticulate, punctures sparse, minute; glabrous except sparse, short hair on anterior and lateral margins. Elytra 1.9 times as long as wide, 1.5 times as long as pronotum; disc occupying basal 70 percent of elytra length; disc mostly weakly reticulate, some areas mostly smooth, shining, punctures very small, confused, a few obscurely impressed lines. Declivity rather strongly concave on median five-eighths, lateral margins rounded except at apex; spine 1 on basal third of declivity length, on interstriae 2, moderately large, pointed, on inner margin of crest, 2 a third as large as 1, closer to apical margin than to spine 1, pointed, very slightly displaced mesad from crest; ventrolateral margin acute from apex of suture emargination, ending laterally to and slightly below spine 2; concave area rather deep on lower two-thirds, surface smooth, shining from suture to spines, punctures small, confused. Glabrous except for sparse hair on sides near declivity.

Female: Similar to male except frons more distinctly protuberant; antennal club with several long setae on posterior face; declivity slightly steeper; less strongly concave.

Distribution: Costa Rica and Panama to Colombia (Antioquia) and Venezuela (Aragua).

Colombia: Altos de los Padres, Bucaramanga, 26-VI-1959, cafetos verde, Gustavo, Nino; Piedras Blancas 11 km E Medellin, Antioquia 15-VII-1970, Melastomaceae limb, SLW.

Venezuela: Rancho Grande, Pittier National Park, Aragua, 9-IV-1970, 1100 m, No. 448, tree bole, SLW; El Laurel Experimental Farm 12 km SW Caracas, 1-V-1970, 1300 m, No. 458, tree branch, SLW; Merida, Merida, 11-IX-1969, 1700 m, No. 4, *Croton*, SLW.

Notes: The above treatment was based on 2 specimens from Colombia and on 30 from Venezuela. Two of the Rancho Grande males were compared by me directly to the male holotype.

Monarthrum nudum (Schedl)

Plate CXCVII

Monarthrum nudum (Schedl), 1939:143 (*Pterocyclon*). Holotype ♂; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:1059)

Pterocyclon appendiculatum Schedl, 1967:14. Holotype ♂; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:1051). *New synonymy*

Diagnosis: Distinguished from male *dimidiatum* Ferrari by the narrower, less strongly impressed declivity, the lateral convexities not as high, spine 2 is on the lateral crest, but closer to the suture, spine 3 is on the mesal margin of the broad crest. The female frons is feebly impressed above the epistoma.

Male: Length 1.9–2.5 mm, 2.8 times as long as wide; color very dark reddish brown. Frons broadly convex, rugose-reticulate on lower third of area below upper level of eyes, reticulate above to vertex, coarsely, shallowly, uniformly punctured; sparse, short setae on epistomal margin; antennal club 1.2 times as long as wide. Pronotum 1.2 times as long as wide; sides almost straight and parallel on basal two-thirds, broadly rounded in front; anterior margin armed by 8 low serrations; summit on anterior third of pronotum length, anterior slope steep; asperities rather small, close, confused; posterior areas reticulate, punctures very small; sparse, short setae on anterior margin. Elytra 1.6 times as long as wide, 1.3 times as long as pronotum; disc occupying 68 percent of declivity length; disc mostly reticulate, punctures small, shallow, mostly in stria rows. Declivity steep, shallowly, narrowly concave; spine 2 on crest on basal fourth, conical, moderately large; spine 3 smaller than 2, positioned one-third declivital length from apical margin and displaced mesad from lateral margin one-third distance toward suture; ventrolateral margin subacute only near suture; face of declivity smooth, shining, with small, confused punctures on mesal half, reticulate and punctures obsolete laterally. Vestiture very sparse on declivity and on sides near declivity.

Female: Similar to male except a weak, transverse impression above epistoma; anterior margin of pronotum feebly serrate; elytral disc entirely reticulate; declivity sulcate on median half, lateral crests broadly rounded, spine 1 on mesal margin of crest on basal fourth of declivity length, 2 displaced mesad half distance from crest toward suture; spines 2 and 3 small, conical, subequal in size, 3 closer to apical margin than to 2, left and right spine 2 very slightly closer to one another; declivity reticulate, punctures small, shallow, obscure. Sparse, minute setae on face of declivity, four longer setae at spines, very sparse on sides near declivity.

Distribution: Brazil: Nova Teutonia, Santa Catarina, VIII-1941, F. Plaumann (holotype male, 1 male paratype); Santa Catarina (allotype); Nova Teutonia, Santa Catarina, VI-196_ (1 male); Nova Teutonia, IV-1941 (4 females); Monte Alegre, Parana, 4-VI-1997, ethanol trap, C.A.H. Flechtmann.

Notes: The above treatment was based on the male holotype, female allotype, 1 male paratype of *Pterocyclon nudum* Schedl, 1 male and 4 female non-types, and on the male holotype of *Pterocyclon appendiculatum* Schedl which was compared by me directly to the holotype of *P. nudum*.

Monarthrum connexum Wood, n. sp.

Monarthrum connexum Wood: Holotype ♂; Campamento Rio Grande 30 km E Palmar, Bolivar, Venezuela, 200 m; USNM, Washington

Diagnosis: Allied to *carinatum* Wood except median carina on frons absent, lower frons reticulate, upper frons subreticulate; lower declivity broadly flared laterally, shallowly concave; dorsal crest of spines 1 and 2 connect spines to lateral crest.

Male: Length 2.0 mm, 3.0 times as long as wide; color reddish brown. Frons broadly convex, lower half of area below upper level of eyes transversely, rather strongly impressed almost eye to eye, surface almost rugose-reticulate, a feeble median elevation at epistoma, upper areas subreticulate, not smooth, punctures small, not deep; glabrous, epistomal brush weak; antennal club 1.4 times as long as wide, sutures feebly procurved. Pronotum 1.15 times as long as wide; sides on basal half feebly arcuate, rather narrowly rounded in front; anterior margin armed by 8 rather coarse serrations; summit one-third pronotum length from anterior margin; asperities on anterior slope coarse, close, confused; somewhat minutely granular; punctures obsolete; glabrous, except sparse, short setae on anterior margin. Elytra 1.5 times as long as wide, 1.3 times as long as pronotum; disc occupying 64 percent of elytra length; half of area between base and position of spine 1 occupied by a shallow predeclivital impression, surface of disc and predeclivital impression mostly smooth, shining, with some impressed, irregular lines. Declivity rather gradual, broadly sulcate on basal half, broadly flattened, weakly concave on lower half; spine 1 on interstriae 2 one-fourth of declivity length from base, small, pointed, its dorsal base carinate, 2 twice as large as 1, at middle of declivity length, displaced slightly mesad, a connecting crest on its dorsal margin and extending to lateral crest, lateral crest rounded; surface reticulate on lateral and upper areas, smoother and finely punctured on mesal third. Glabrous, a few setae on sides near declivity.

Distribution: Venezuela (Bolivar).

Type material: The male holotype was taken at Campamento Rio Grande 30 km E Palmar, Bolivar, 12-VI-1970, 200 m, No. 546, *Eschweilera corrugata*, S.L. Wood. The holotype is in the U.S. National Museum, Washington.

Monarthrum longus (Schedl)

Monarthrum longus (Schedl), 1950:172 (*Anchonocerus*). Holotype ♀; Cochabamba, Bolivia; NHMW, Wien (References in Wood & Bright c1992:1058)

Diagnosis: Not in the above key. Known only from the female holotype. The large size and very slender body form suggest a position in classification somewhere between *meusei* (Reitter) and *dimidiatus* (Ferrari). Accurate placement is not possible, at this time, without the male.

Female: Length 3.0 mm, 3.7 times as long as wide; color light reddish brown, anterior two-fifths of pronotum and elytral declivity slightly darker. Frons (more than upper half concealed by pronotum on type) broadly convex, an acute median carina from epistomal margin to near middle of frons length, a weak, subacutate etching evident, punctures or granules minute; antennal club 2.5 times as long as wide, obovate, apical margin rather broadly rounded, sutures 1 and 2 procurved, weakly impressed, cirrus on posterior face slightly anterior to apex, consisting of a tuft of about a dozen setae, longest setae about equal in length to width of club. Pronotum 1.4 times as long as wide; sides on posterior two-thirds straight, parallel, rather narrowly rounded in front; 8 feeble serrations on anterior margin; summit indefinite, one-fourth pronotum length from anterior margin; anterior slope with asperities rather small, close, confused; posterior areas reticulate, punctures very minute, rather sparse; glabrous. Elytra 2.3 times as long as wide, 1.6 times as long as pronotum; disc occupying 80 percent of pronotum length; disc reticulate, punctures very minute, confused, moderately numerous. Declivity moderately sulcate from base to spine 3 on median third, a moderate impression on median two-thirds below spine 3; spine 2 minute, on lateral crest, spine 3 blunt, slightly larger than 2 and displaced mesad from lateral crest half distance toward suture; surface reticulate except becoming smooth, shining in sulcus near apex. Glabrous, except very small, fine setae at base of declivity and on lateral areas near crest.

Distribution: Bolivia: Cochabamba.

Notes: The above treatment was based on the female holotype. An Eggers determination label on this pin states "Gnathotrichus 2, n. sp, Eggers 3434, slide 4289." A later label gives "Anchocercus longus, n. sp., type, Eggers det. 1932." This obviously is a specimen removed by Schedl from the Eggers Collection and taken on loan by him (Wood in Wood & Bright [c1992:3]).

Monarthrum marcidum (Schedl)

Plate CXCVI

Monarthrum marcidum (Schedl), 1970:98 (*Pterocyclon*). Holotype ♂; Yungas del Palmar, Bolivia, 2000 m; NHMW, Wien (References in Wood & Bright c1992:1059)

Diagnosis: Distinguished from *peruanum* (Schedl) by the reticulate male elytral disc, discal punctures larger; by the rugose-reticulate frons from epistoma to the upper level of the eyes, the punctures larger; and by the male frons having a low, subacutate median carina on the upper half of the area below the upper level of the eyes.

Male: Length 3.2 mm, 3.0 times as long as wide; color reddish brown. Frons broadly convex, rugose-reticulate

from epistoma almost to upper level of eyes, punctures rather coarse, close to well above eyes; a weak, subacutate median carina on upper half of area below upper level of eyes; sparse setae on lower half of frons, more numerous on epistomal brush; antennal club 1.3 times as long as wide. Pronotum 1.2 times as long as wide; sides weakly arcuate and subparallel on basal three-fifths of pronotum length, narrowly rounded in front; anterior margin armed by 6 rather coarse serrations; summit two-fifths of pronotum length from anterior margin; anterior slope steep, asperities rather coarse, close, confused; posterior areas reticulate, punctures very small; sparse setae on and near anterior margin. Elytra 1.6 times as long as wide, 1.3 times as long as pronotum; disc occupying 84 percent of elytra length; disc reticulate from base to base of declivity, punctures very small, confused. Declivity very steep, shallowly subconcave; emargination at apex of suture small, margins of emargination elevated on its basal half; ventrolateral margin subacutely elevated from emargination to well below level of spine 3; lateral crests rather broadly rounded; spine 1 small, conical, on mesal margin of crest one-fourth declivity length from base; spine 3 conical, more than twice as large as 2, displaced mesad from crest one-fourth distance toward suture, positioned slightly below middle of declivity length, distance from apical margin to spine 3 slightly greater than from 2 to 3; face of declivity moderately concave from base to level of spine 3, more broadly flattened below; surface almost smooth, shining, with numerous impressed points, punctures on median half small, shallow, obscure. Sparse setae on margins and on sides of elytra near declivity.

Distribution: Bolivia: Yungas del Palmar, 10-X-1950, 200 m, "Zleehka" (?).

Notes: The above treatment was based on the male holotype.

Monarthrum peruanum (Schedl)

Plate CC

Monarthrum peruanum (Schedl), 1950:168 (*Pterocyclon*). Holotype ♂; Peru; NHMW, Wien (References in Wood & Bright c1992:1060)

Diagnosis: Distinguished from *marcidum* (Schedl) by having the male elytral disc mostly smooth, shining, the discal punctures smaller; by the male frons being strongly reticulate from the epistoma to the vertex, the punctures very small, with a weak, obtuse, median crest from the epistoma to upper level of eyes, ending below in a small epistomal tubercle.

Male: Length 3.4 mm, 3.1 times as long as wide; color reddish brown. Frons broadly convex, rugose-reticulate from epistoma to vertex, punctures small to minute; an obtuse median crest from upper level of eyes ending on epistoma as a small tubercle; sparse, very short setae on lower half of area below upper level of eyes, sparse longer setae on epistoma; antennal club 1.2 times as long as wide. Pronotum 1.16 times as long as wide; about as in *marcidum*. Elytra 1.9 times as long as wide,

1.6 times as long as pronotum; disc occupying 72 percent of elytra length; disc obscurely reticulate on basal fourth, smooth, shining behind, with numerous impressed points, punctures small, distinct, most in obscure rows. Declivity about as in *marcidum*, except margins of emargination not elevated, spine 3 blunt, distance from spine 2 to 3 slightly greater than from 3 to apical margin.

Distribution: Peru: "Peru."

Notes: The above treatment was based on the male holotype.

Monarthrum obtusum (Eggers)

Monarthrum obtusum (Eggers), 1935:334 (*Pterocyclon*). Holotype ♂; Cochabamba, Bolivia; NHMW, Wien (References in Wood & Bright c1992:1059)

Pterocyclon quadridentatum Eggers, 1935:333. Lectotype ♂; Venezuela; USNM, Washington, designated by Anderson & Anderson 1971:28 (References in Wood & Bright c1992:1061). *New synonymy*

Diagnosis: Male declivity sulcate, spine 1 conical, on lateral crest at interstriae 3, spine 2 slightly below middle of declivity, positioned midway between suture and lateral margin, very similar to female; female frons ornamented on sides and central area by tufts of long hair.

Male: Length 4.0–4.8 mm, 3.1 times as long as wide; color dark reddish brown. Frons broadly convex, a moderate, transverse impression on lower third of area below upper level of eyes; surface weakly reticulate below upper level of eyes, smooth, shining above, punctures rather coarse, deep, moderately close; glabrous except for weak epistomal brush; antennal club 1.5 times as long as wide, sutures very weakly procurved. Pronotum 1.37 times as long as wide; sides almost straight and parallel on basal half, rather broadly rounded in front; anterior margin armed by 10 coarse serrations; summit one-third pronotum length from anterior margin; asperities small, close, confused; posterior areas very finely reticulate, punctures minute, rather close; glabrous except for a few setae on anterior margin. Elytra 1.7 times as long as wide, 1.4 times as long as pronotum; disc occupying 80 percent of elytra length; disc surface smooth, shining, a few impressed irregular lines present, punctures very small, mostly confused. Declivity steep, a moderate sulcus on median half, more broadly impressed on lower third; all margins broadly rounded except apical margin subacute from emargination laterad to level of suture apex; spine 1 on basal margin at position of interstriae 3, rather small, conical, spine 2 closer to apical margin than to spine 1, positioned equal distance between suture and lateral margin, conical, pointed, moderately large. Glabrous except for a few sparse, short setae on sides near declivity. Face of declivity mostly smooth, punctures very small.

Female: Similar to male except frons weakly convex eye to eye, surface mostly smooth, shining; a row of long setae from base of mandible to margin of eye, central third with a tuft of long hair from above epistoma to lower vertex, small median area on epistoma with a rather short penicillate tuft of hair projecting forward; anterior

margin of female pronotum unarmed by serrations; elytral disc minutely reticulate; declivity not as deeply impressed, spines 1 and 2 slightly smaller, with three or four small, rounded tubercles on lateral areas.

Distribution: Venezuela to Bolivia.

Bolivia: Cochabamba (male holotype of *obtusum*).

Venezuela: "Venezuela" (male holotype of *quadridentatum*); Colonia Tovar, Aragua, 4-V-1970, 1700 m, No. 506, log, SLW.

Notes: The above treatment was based on 31 specimens from Venezuela, 1 male of which was compared by me directly to the male holotype of *Pterocyclon obtusum* Eggers and of *P. quadridentatum* Eggers and were found to represent the same species. The name *obtusum* was selected for this species by first revisor's choice, because both names were first described in the same article.

Monarthrum dubiosum (Schedl)

Monarthrum dubiosum (Schedl), 1976:82 (*Pterocyclon*). Holotype ♂; Caruaru, Pernambuco, Brazil; NHMW, Wien (References in Wood & Bright c1992:1054)

Diagnosis: Distinguished from *carinulum* Wood, from Costa Rica, by the smaller size; by the rugose-reticulate area on the male frons being restricted to the lower half of the frons; and by the frons being without a median carina, the punctures are large and more distinct.

Male: Length 2.2 mm, 2.7 times as long as wide; color brown. Frons moderately convex, surface rugose-reticulate on central area of lower half of area below upper level of eyes and to upper level of eyes on lateral areas, punctures rather coarse, distinct, uniformly distributed; sparse, short setae on epistoma; antennal club 1.9 times as long as wide. Pronotum 1.13 times as long as wide; sides almost straight and parallel on basal half, rather broadly rounded in front; anterior margin armed by 8 coarse serrations; summit slightly anterior to middle; anterior slope steep, asperities coarse, close, confused; posterior areas reticulate, punctures minute to obsolete; glabrous. Elytra 1.4 times as long as wide, 1.3 times as long as pronotum; disc occupying 78 percent of elytra length; disc reticulate, punctures small, confused on basal half, in rows on posterior half. Declivity steep, broadly, moderately concave; spine 2 small, conical, one-third declivity length from base (on mesal margin of rounded crest, spine 3 moderately large, conical, closer to 2 than to apical margin, displaced mesad from lateral crest one-third distance toward suture; emargination small, ventrolateral crest acute from emargination half distance to spine 3; face of concave area reticulate, punctures obscure to obsolete. Sparse setae on lateral crests and on sides near declivity.

Distribution: Brazil: Caruaru, Pernambuco, IV-1972, M. Alvarenga.

Notes: The above treatment was based on the male holotype and on 1 male paratype.

Monarthrum robustum (Schedl)

Plates CCI, CCII

Monarthrum robustum (Schedl), 1966:123 (*Pterocyclon*). Holotype ♀; Las Mercedes, Santa Clara [district in Limon], Costa Rica, 100 m; NHMW, Wien (References in Wood & Bright c1992:1062)

Diagnosis: Distinguished from *consimile* (Blandford) by the smaller size; by the conspicuous predeclivital impression commencing in the middle of the elytra length; by the mesad displacement of spine 2, but with a connecting costa to the lateral margin; and by details of the frons as described below.

Male: Length 2.3–2.5 mm, 2.6 times as long as wide; color dark reddish brown. Frons broadly convex, epistoma weakly elevated, shining; surface finely rugose-reticulate from epistoma to upper level of eyes, upper areas smooth, shining, punctures rather coarse, close, except sparse on median area above; antennal club 1.6 times as long as wide, sutures straight. Pronotum 1.4 times as long as wide; sides straight and parallel on basal half, broadly rounded in front; anterior margin armed by 10 serrations; summit slightly in front of middle of pronotum length; asperities coarse, close, confused; posterior areas mostly reticulate, punctures very small, basal third of disc on median half with several transverse lines; glabrous, a few short setae on anterior margin. Elytra 1.4 times as long as wide; basal third of disc weakly reticulate, smooth, shining behind, a few impressed lines present, punctures small, those on striae 2 to 5 in rows, confused elsewhere. Declivity gradual; a predeclivital sulcus commencing at middle of elytra length to level of spine 1, steeper and more broadly impressed below spine 1; left and right spine 2 more widely separated than left and right spine 1; subapical margin extending from apex of suture laterad to slightly below and lateral to spine 2; face of declivity smooth, shining; broadly flattened below spine 2; punctures in impressed area rather small, deep, confused. Glabrous except for a few setae on sides near declivity.

Female similar to male except frons less strongly convex; scape ornamented by a tuft of short hair, posterior face of antennal club with a tuft of long hair; anterior margin of pronotum unarmed; predeclivital impression not present.

Distribution: Costa Rica to Trinidad.

Notes: The above treatment was based on 31 specimens from Costa Rica and 2 from Trinidad. The occurrence of this species in both Costa Rica and Trinidad strongly suggests that it may also occur in northern South America.

Monarthrum costatum (Eggers)

Monarthrum costatum (Eggers), 1937:85 (*Brachyspartus*). Holotype ♂; Bahia, Brazil; BMNH, London (References in Wood & Bright c1992:1053)

Diagnosis: Distinguished from *robustum* (Schedl) by having declivital spine 3 displaced mesad from lateral

margin half the distance toward the suture, the punctures on the face of the declivity are larger and very closely spaced; and by the distance from left to right spine 2 equal to the distance from left to right spine 3.

Male: Length 2.5 mm, 2.6 times as long as wide; color dark reddish brown. Frons moderately convex, a weak transverse impression above epistoma; surface rugose-reticulate on lower third of area below upper level of eyes, shining above, punctures rather coarse, close; short sparse setae on epistoma; antennal club 1.6 times as long as wide. Pronotum 1.1 times as long as wide; sides almost straight and parallel on more than basal half, rather broadly rounded in front; anterior margin armed by eight coarse serrations; summit slightly anterior to middle of pronotum length; anterior slope steep, asperities rather coarse, close, confused; posterior areas reticulate, punctures small to obsolete; short sparse setae on and near anterior margin. Elytra 1.4 times as long as wide, 1.3 times as long as pronotum; disc occupying 47 percent of elytra length; disc smooth, shining, with several impressed lines and many impressed points, punctures rather small, confused. Declivity and predeclivital impression rather deeply, broadly sulcate from spine 3 to base, more broadly flattened to weakly convex below; spine 2 apex at middle of declivity length, a subacute costa extending from apex of spine 2 half distance to base of declivital sulcus, crest broadly rounded above; spine 3 blunt, twice as large as 2; spine 2 on lateral crest, 3 displaced mesad from lateral crest half distance toward suture; emargination at apex of suture much wider than deep; ventrolateral crest acutely elevated from emargination to level of spine 3 (but laterad from spine 3); face of impressed area smooth, shining, punctures on striae 1 in a row, lateral punctures similar but confused. Sparse setae on lateral crests and on sides near declivity.

Distribution: Brazil: "Bahia" (type); RS/RGS Expedition to Brazil, 12°31'S, 51°46'W, 23-XI-1968, R.A. Beaver (homotype).

Notes: The above treatment was based on my male homotype that I compared directly to the holotype of *Brachyspartus costatus* Eggers. This species is in *Monarthrum* and is closely allied to *robustum*.

Monarthrum minutum (Schedl)

Monarthrum minutum (Schedl), 1939:577 (*Pterocyclon*). Lectotype ♂; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien, designated by Schedl 1979:157 (References in Wood & Bright c1992:1059)

Pterocyclon gibber Schedl, 1952:460. Holotype ♂; Concepcion, Argentina; NHMW, Wien (References in Wood & Bright c1992:1056).

New synonymy

Pterocyclon vernaculum Schedl, 1952:460. Syntypes 2; Santa Maria, Dep. Concepcion, Argentina; NHMW, Wien (References in Wood & Bright c1992:1046). *New synonymy*

Pterocyclon distans Schedl, 1970:97. Holotype ♂; Santa Maria, Dep. Concepcion, Misiones, Argentina; NHMW, Wien (References in Wood & Bright c1992:54). *New synonymy*

Diagnosis: Distinguished from *connexum* Wood by the steeper declivity, with the emargination at the apex of

the suture deeper and wider; and by the dull, reticulate frons in both sexes, frons without a transverse impression.

Male: Length 1.7–2.1 mm, 3.1 times as long as wide, color mostly dark reddish brown. Frons broadly convex, rugose-reticulate on lower half, subreticulate above, small punctures on upper half; epistoma feebly elevated; antennal club oval, 1.5 times as long as wide, sutures moderately procurved. Pronotum 1.17 times as long as wide; sides almost straight on basal half, rather narrowly rounded in front; anterior margin armed by 8 moderate serrations; summit one-third pronotum length from anterior margin; anterior slope with asperities coarse, close, confused; posterior areas reticulate, a few minute punctures present; glabrous, except for a few short setae on anterior margin. Elytra 1.6 times as long as wide, 1.3 times as long as pronotum; disc occupying 78 percent of elytra length; disc strongly reticulate, punctures minute, mostly obsolete. Declivity very steep, shallowly sulcate on median half, more broadly impressed below; spine 1 very small, pointed, about one-third declivity length from base, displaced slightly mesad from crest, spine 2 slightly closer to apical margin than to spine 1, displaced mesad from lateral margin almost half distance from margin toward suture, surface mostly granular laterally, subgranular near suture, a few confused, minute punctures on mesal half of area between spines 1 and 2 and suture. Almost glabrous, three or four minute setae on lateral areas near declivity.

Distribution: Venezuela to Argentina.

Argentina: Santa Maria, Misiones, Dep. Concepcion, (holotype of *distans*).

Brazil: Repres Rio Grande, Guanabara, III-1972, F.M. Oliviera; Nova Teutonia, Santa Catarina, III-1937 (holotype of *minutum*), IV-1941, F. Plaumann (allotype & paratypes of *vernaculum*; lectotype, allotype, paratypes of *minutum*); Nova Teutonia, Santa Catarina, III-1937 (holotype of *minutum*), IV-1941, F. Plaumann (allotype, paratypes of *vernaculum*, allotype, paratypes of *minutum*).

Venezuela: El Laurel Experimental Farm 12 km SW Caracas, Venezuela, 1-V-1970, 1300 m, No. 458, tree branch, SLW; Rancho Grande, Aragua, 9-IV-1970, 1100 m, No. 439, tree seedling, SLW, same locality and date, No. 432, from a Guttiferae tree; Colonia Tovar, Aragua, 4-V-1970, 1700 m, No. 482, tree bole, SLW.

Notes: The above treatment was based on the male lectotype of *Pterocyclon minutum* Schedl, the male holotype of *P. gibber* Schedl, the male and female syntypes of *P. vernaculum* Schedl, the male holotype of *P. distans* Schedl, on 13 specimens from Brazil, and on 14 specimens from Venezuela, all of which were compared directly by me to the 4 primary types and are conspecific.

Monarthrum laevigatum (Eichhoff)

Plate CXCI

Monarthrum laevigatum (Eichhoff), 1869:278 (*Pterocyclon*). Holotype ♀; Brasilia; NHMW, Wien (References in Wood & Bright c1992:1057)

Pterocyclon adjunctum Schedl, 1967:15. Holotype ♀; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:1051). *New synonymy*

Diagnosis: Distinguished from *minutum* (Schedl) by the larger size; by the smooth, shining posterior half of the elytral disc; the declivity is smooth and shining on the mesal third in some specimens; the lateral thirds usually have several minute tubercles.

Male: Length 2.4–2.6 mm, 2.8 times as long as wide; color reddish brown, posterior half of elytra much darker. Frons without a transverse impression immediately above epistoma; epitomal rugose-reticulate area continued on lateral areas to upper level of eyes, smooth, shining above and with rather coarse punctures; sparse setae on epistoma; antennal club 1.6 times as long as wide. Pronotum 1.3 times as long as wide; sides on more than basal half almost straight and parallel, rather broadly rounded in front; anterior margin armed by 10 rather coarse serrations; summit slightly anterior to middle of pronotum length; anterior slope steep, asperities coarse, close, confused; posterior areas reticulate, punctures very small; sparse, short setae on anterior margin. Elytra 1.6 times as long as wide, 1.3 times as long as pronotum; disc occupying basal 62 percent of elytra length; disc obscurely reticulate on most areas, subshining, punctures very small, obscure, confused. Declivity very steep; moderately, broadly sulcate from base to level of spine 3, more broadly, more convexly impressed below; spine 2 small, conical, positioned on mesal margin of broadly rounded lateral crest slightly above middle of declivity length; spine 3 at least twice as large as 2, conical, positioned about one-third declivity length from apical margin, distance from spine 2 to 3 equal to distance from 3 to apical margin; spine 3 displaced mesad from lateral crest half distance toward suture. Sparse setae on lateral crest and on sides of elytra near declivity.

Female: Similar to male except a weak, transverse groove above epistoma; antennal club 1.3 times as long as wide; anterior margin of pronotum with serrations very weak; spine 3 on declivity distinctly smaller.

Distribution: Brazil: “Brasilien” (*laevigatum* type); Nova Teutonia, Santa Catarina, I-VIII-1941, F. Plaumann (holotype of *adjunctum*, “allotype” of *adjunctum*); Urubici, Santa Catarina, 1975, apple.

Notes: The 2 females in NHMW, Wien, are labeled “Brasilien,” the first as “*Pterocyclon laevigatum* det. Eichhoff, type on a K.E. Schedl determination label,” the second as “Brazilien, *Pter. laevigatum* Eichh., mit type vergleichen” on an Eggers determination label. The female holotype and female “allotype” (labeled as a male by Schedl) of *Pterocyclon adjunctum* Schedl are conspecific with the NHMW, Wien, *laevigatum* females. In the original description (Eichhoff 1868:278), the characters used are too vague to identify this species; however, in Eichhoff (1878:449–450) it is clear that his male was actually a female that fits this species. Although both the locality and determination labels were written by Schedl, on the first NHMW, Wien, female, the potential

for Schedl obtaining the original type (=holotype) from the Stettin Museum is real (Wood in Wood & Bright c1992:3). The first female, above, is here recognized as the holotype of *Pterocyclon laevigatum* Eichhoff. In addition to the 4 females cited above, I have also examined 1 male and 1 female in my collection. The above treatment was based on this male and on 5 females, 1 of which was the holotype. The third female in the NHMW, Wien, series (from Varginha, M. Gerais, Brazil, II-1972) is of another species.

Monarthrum granulifer Wood, n. sp.

Monarthrum granulifer Wood: Holotype ♂; El Laurel Experimental Farm 12 km SW Caracas, Aragua, Venezuela; USNM, Washington, designated below

Diagnosis: Remotely allied to *subgranulatum* Wood, distinguished by the smaller size; by the absence of a row of tubercles mesad from spines 2 and 3; and by the occurrence of many minute, confused granules on the elytral declivity.

Male: Length 1.3 mm, about 2.4 times as long as wide (estimated, elytra spread on type); color reddish brown. Frons broadly convex, reticulate, punctures obscure on lower half (concealed by pronotum); antennal club 1.5 times as long as wide. Pronotum 1.06 times as long as wide; sides almost straight and parallel on more than basal half, rather broadly rounded in front; anterior margin armed by 10 coarse serrations; summit slightly anterior to middle of pronotum length; anterior slope steep, asperities coarse, close, confused; posterior areas reticulate, punctures minute to obsolete; sparse short setae on anterior margin. Elytra spread on type, about 1.4 times as long as wide, about 1.3 times as long as pronotum; disc occupying about basal 60 percent of elytra length; disc obscurely reticulate, punctures small, shallow, confused on basal half, mostly in rows behind. Declivity very steep, moderately sulcate on mesal third; spine 2 at middle of declivity length, displaced mesad one-third distance toward suture, small, conical; spine 3 twice as large as 2, conical, displaced mesad one-third distance toward suture, small, conical; lateral crests broadly rounded; surface strongly reticulate, with many very small, rounded granules on lateral half, mesal half with very minute rugosities between obscure punctures. Sparse, short setae on lateral crests and on sides of elytra near declivity.

Distribution: Venezuela (Caracas).

Type material: The male holotype was taken at El Laurel Experimental Farm 12 km SW Caracas, Venezuela, I-V-1970, 1300 m, No. 455, *Croton*, S.L. Wood. The holotype is in the U.S. National Museum, Washington.

Monarthrum hondurensis
Wood, n. sp.

Monarthrum hondurensis Wood: Holotype ♂; Cerro Pena Blanca, Honduras; USNM, Washington, designated below

Diagnosis: Closely allied to *granulifer* Wood but distinctly larger; distinguished by the more deeply im-

pressed declivity; and by the minutely granular surface of the elytra.

Male: Length 2.6–2.8 mm, 2.6 times as long as wide; color reddish brown, anterior slope of pronotum and posterior third of elytra darker. Frons strongly convex; surface rugose-reticulate on lower two-thirds of area below upper level of eyes, area above eyes smooth, shining, punctures rather small, deep, and with numerous impressed points; sparse, short setae on epistoma; antennal club 1.4 times as long as wide. Pronotum 1.13 times as long as wide; about as in *granulifer*. Elytra 1.5 times as long as wide, 1.3 times as long as pronotum; disc occupying basal 70 percent of elytra length; disc mostly smooth, shining, with many impressed points, punctures minute, mostly confused. Declivity very steep, more strongly, more broadly impressed than in *granulifer*; spines 2 and 3 also similar; surface of impressed and lateral convexities granular, without small, rounded tubercles. Sparse short setae on lateral crests and on sides near declivity.

Female: Similar to male except antennal club 1.3 times as long as wide and with posterior face near apex with a tuft of long setae; serrations very weak on anterior margin of pronotum; elytral disc strongly reticulate; declivital impression not as strong or as broad, spine 3 smaller; surface of declivity reticulate, without any granulation.

Distribution: Honduras.

Type material: The male holotype and female allotype were taken at Cerro Pena Blanca, Honduras, 2000 m, 23-IV-1964, No. 532, *Quercus tomentocalis*, S.L. Wood. The holotype and allotype are in the U.S. National Museum, Washington.

Monarthrum furnissi Wood, n. sp.

Monarthrum furnissi Wood: Holotype ♀; Via real, Tlaxcala, Mexico; USNM, Washington, designated below

Diagnosis: Distinguished by the moderately large size; by the absence of an emargination at the apex of the elytral suture; by the left and right spine 2 being rather close together and located near the middle of the declivity, and spaced much more closely together than left and right spine 3; and by the frontal reticulation extending to the vertex, a transverse impression above the epistoma much more definite.

Female: Length 3.5 mm, 3.1 times as long as wide; color very dark reddish brown. Frons with a moderate, transverse impression on lower third of area below upper level of eyes, a small, rather deep median extension also present, area above impression broadly convex; finely reticulate from epistoma to vertex, punctures very small, rather close; vestiture of minute, sparse, fine hair; longer on epistomal brush; antennal club oval, 1.4 times as long as wide, sutures feebly arcuate, posterior face with a brush of long hair. Pronotum 1.2 times as long as wide, sides feebly arcuate on more than basal half, rather broadly rounded in front on median third, unarmed by serrations; asperities rather coarse, close, confused;

posterior areas rugose-reticulate, punctures minute, sparse setae on asperate area. Elytra 1.7 times as long as wide, 1.3 times as long as pronotum; disc occupying 52 percent of elytra length; disc strongly reticulate, punctures minute, obscure, confused. Declivity steep, irregularly flattened on median three-fourths on upper half, shallowly concave below; lateral margin rounded on basal two-thirds, spine 1 small, on crest on interstriae 2, spine 2 three or more times larger than 1, with 2 positioned at middle of declivity, pointed, submammiform, rising from a convex base, displaced from lateral margin three-fourths distance toward suture, distance between left and right spine 2 much less than distance from left to right spine 1; subconcave between spines to apical margin; surface rugose-reticulate. Setae on declivity sparse, rather long.

Distribution: Mexico (Tlaxcala).

Type material: The female holotype was taken at Via Real, Tlaxcala, Mexico, 20-VII-4-VIII-1978, Repl. V, Trap 2, Hopk 6185, M.M. Furniss. The holotype is in the U.S. National Museum, Washington.

Monarthrum durangoensis
Wood, n. sp.

Monarthrum durangoensis Wood: Holotype ♀; 5 km (3 mi) W El Salto, Durango, Mexico; USNM, Washington, designated below

Diagnosis: Very closely allied to *furnissi* Wood, distinguished by the more strongly impressed elytral declivity; by the absence of a transverse, epistomal impression, with the reticulation extending only from the epistoma to slightly above the upper level of the eyes; and by the much shorter declivital setae.

Female: Length 3.3 mm, 2.8 times as long as wide; color brown. Frons broadly convex, reticulation ending before vertex, punctures slightly larger, vestiture mostly obsolete; antennal club somewhat obovate, sutures moderately procurved, posterior face with a brush of long hair. Pronotum 1.3 times as long as wide; sides straight on more than basal half, rather narrowly rounded in front, unarmed by serrations; summit on anterior third of pronotum length, asperities small, close, confused; posterior areas reticulate to rugose-reticulate, punctures minute; sparse setae on asperate area. Elytra 1.7 times as long as wide, 1.4 times as long as pronotum; disc occupying about 70 percent of elytra length; disc strongly reticulate, punctures very small, mostly confused. Declivity steep, broadly, shallowly concave; lateral margin rounded on less than basal half, subacute from apex of suture almost to level of spine 2; spine 1 at base on interstriae 2, small, pointed, spine 2 at least twice as large as 1, obscurely submammiform, rising from a flattened base, distance from left to right spine 2 only slightly less than from left to right spine 1. Setae on declivity sparse, rather short.

Distribution: Mexico (Durango).

Type material: The female holotype was taken 5 km (3 miles) W El Salto, Durango, Mexico, 7-VI-1965, 7500

ft., No. 32, *Quercus*, S.L. Wood. The holotype is in the U.S. National Museum, Washington.

Monarthrum obscuriceps
Wood, n. sp.

Monarthrum obscuriceps Wood: Holotype ♀; Tapanti, Cartago, Costa Rica; USNM, Washington, designated below

Diagnosis: Distinguished from *vittatum* (Blandford) by the smaller size; by the less strongly impressed, rugose-reticulate, transverse epistomal groove; by the evenly, broadly convex, reticulate upper frons, with minute punctures; and by the reticulate elytral disc, with punctures minute to obsolete (not in rows).

Female: Length 1.7 mm, 2.6 times as long as wide; color yellowish brown. Frons broadly convex, with a moderately strong epistomal groove extending mandible to mandible, surface rugose-reticulate from epistoma to upper level of eyes, punctures very small, but less numerous on central third; glabrous, except epistomal brush very sparse, setae short; antennal club oval, 1.4 times as long as wide, several long setae near apex on posterior face. Pronotum 1.17 times as long as wide; sides almost straight and parallel on basal two-thirds, broadly rounded in front; anterior margin unarmed by serrations; summit on anterior third of pronotum length; asperities rather coarse, close, confused; posterior areas strongly reticulate, punctures minute to obsolete; glabrous, except a few short setae on anterior margin. Elytra 1.5 times as long as wide, 1.2 times as long as pronotum; disc occupying basal 70 percent of elytra length; disc reticulate, punctures minute, many obsolete, not in rows. Declivity steep, moderately sulcate on median half; lateral margins rounded, spine 1 on crest at base on interstriae 2, very small, obtusely pointed, spine 2 on median side of crest, closer to apical margin than to spine 1, spine 2 small, acutely pointed, at least twice as large as 1; face of impressed area smooth, shining, several micropunctures present; emargination at apex of suture very shallow, ventrolateral costae diverge from one another at a strongly obtuse angle, curving dorsally laterad from level of spine 2 and ending below level of spine 2. Glabrous, a few hairlike setae on sides near declivity.

Distribution: Costa Rica (Cartago).

Type material: The female holotype was taken at Tapanti, Cartago, Costa Rica, 24-X-1963, 1300 m, No. 265, *Phoebe mexicana*, S.L. Wood. The holotype is in the U.S. National Museum, Washington.

Monarthrum obscurum Wood, n. sp.
Plate CXCVIII

Monarthrum obscurum Wood: Holotype ♂; El Laurel Experimental Farm 12 km SW Caracas; Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *obscuriceps* Wood by the larger size; by the smooth, shining elytral disc on the anterior two-thirds; and by the dull, rugose-reticulate male declivity, with the sulcus deeper.

Male: Length 2.3–2.7 mm, 2.5 times as long as wide; color dark reddish brown. Frons broadly convex, a weak, transverse impression above epistoma, impression rugose-reticulate; upper areas smooth, shining, with many impressed points, punctures rather large, deep, uniformly distributed; sparse short setae on epistoma; antennal club 1.5 times as long as wide. Pronotum 1.16 times as long as wide; sides almost straight and parallel on almost basal two-thirds of pronotum length, broadly rounded in front; anterior margin armed by 10 coarse serrations; summit slightly anterior to middle of pronotum length; anterior slope steep, asperities coarse, close, confused; posterior areas reticulate, punctures very small; sparse, short setae on and near anterior margin. Elytra 1.5 times as long as wide, 1.3 times as long as pronotum; disc occupying basal 65 percent of elytra length; disc mostly smooth, shining, weak reticulation near base, punctures small, confused; some impressed points present, a few impressed lines. Declivity very steep, rather strongly sulcate on median half; lateral margins rather broadly rounded; spine 2 rather small, conical, spine 3 conical, three times larger than 2, positioned at middle of declivity length, displaced mesad from lateral crest one-third distance toward suture; face of declivity rugose-reticulate, dull, obscure, small punctures on mesal half; many small granules on lateral crests of basal third of declivity length. Sparse setae on lateral crests and on sides near declivity.

Female: Similar to male, except transverse epistomal groove more strongly impressed; antennal club 1.3 times as long as wide, a small tuft of long setae on posterior face near apex; serrations on anterior margin of pronotum almost obsolete; declivity reticulate, spines 2 and 3 smaller.

Distribution: Venezuela (Aragua to Caracas).

Type material: The male holotype, female allotype, and 82 paratypes were taken at El Laurel Experimental Farm 12 km SW Caracas, Venezuela, 1-V-1970, 1300 m, lianas, tree limbs, and boles, S.L. Wood. Two paratypes are from Rancho Grande, Aragua, Venezuela, 9-IV-1970, 1100 m, No. 415, tree limb, S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Monarthrum subcarinatum
Wood, n. sp.

Monarthrum subcarinatum Wood: Holotype ♀; Guadalupe Arriba, Chiriqui, Panama; USNM, Washington, designated below

Diagnosis: Distinguished from female *insignatum* Wood by the less strongly impressed transverse epistomal groove; by the lower median carina on the frons, without a denticle at its lower end; and by the larger size.

Female: Length 3.3 mm, 3.0 times as long as wide; color reddish brown. Frons broadly convex, a low median carina from epistoma to upper level of eyes; surface weakly reticulate, punctures rather coarse, shallow; transverse, epistomal groove feeble to absent; sparse short setae on

epistomal brush; antennal club 1.2 times as long as wide, a tuft of long hair on posterior face near apex. Pronotum 1.14 times as long as wide; sides almost straight and parallel on basal three-fifths, broadly rounded in front; anterior margin unarmed by serrations; summit indefinite, anterior to middle of pronotum length; anterior slope moderately steep, asperities coarse, close, confused; posterior areas minutely rugose-reticulate, minute punctures obscure to obsolete; sparse setae on asperate area. Elytra 1.8 times as long as wide, 1.5 times as long as pronotum; disc occupying 68 percent of elytra length; disc reticulate, punctures minute to obsolete, confused. Declivity steep, moderately sulcate from base to spine 3; lateral crests broadly rounded above level of spine 3; spine 2 on crest of basal fourth, small, obtusely conical; spine 3 twice as large as 2, obtusely conical, displaced mesad from lateral crest half distance toward suture; face of impressed area obscurely reticulate on mesal third, punctures minute, confused. Sparse setae on sides near declivity.

Distribution: Panama.

Type-material: The female holotype was taken at Guadalupe Arriba, Chiriqui, Panama, 3-30-X-1984, luz, H. Wolda. The holotype is in the U.S. National Museum, Washington.

Monarthrum dentifrons Wood, n. sp.

Monarthrum dentifrons Wood: Holotype ♀; Guadalupe Arriba, Chiriqui, Panama; USNM, Washington, designated below

Diagnosis: Distinguished from *canalis* Wood by the more strongly convex, less strongly reticulate female frons; punctures on frons much smaller in both sexes.

Male: Similar to female except transverse impression above epistoma distinct, weak, median carina obtuse, weak, without a denticle at lower end, punctures on frons smaller; antennal club without a tuft of long setae at apex; anterior margin of pronotum armed by 6 coarse serrations; declivity more strongly impressed, angle between emargination and declivity apex with a denticle.

Female: Length 2.4–2.6 mm, 2.9 times as long as wide; color reddish brown. Frons broadly convex, moderately protuberant on median area above rather strong, transverse groove above epistoma, crest of protuberance carinate from upper level of eyes and ending below in an acute denticle at margin of transverse groove; surface reticulate, punctures rather coarse, uniformly distributed; sparse setae on epistoma; antennal club 1.3 times as long as wide, a tuft of hair on posterior face near apex. Pronotum 1.2 times as long as wide; sides almost straight and parallel on basal two-thirds of pronotum length, broadly rounded in front; anterior margin with very feeble serrations; summit on anterior third of pronotum length; asperities small, close, confused; posterior areas reticulate, punctures minute; sparse on anterior margin. Elytra 1.7 times as long as wide, 1.3 times as long as pronotum; disc occupying basal 78 percent of elytra length; disc reticulate, punctures minute,

confused. Declivity very steep, moderately sulcate from base to level of spine 3, more broadly impressed below; spine 2 on crest of basal third of declivity length, small, conical; spine 3 one-third declivity length from apex, twice as large as 2, obtusely conical, displaced mesad from lateral crest half distance toward suture; face of impression reticulate, punctures minute, confused. Sparse setae on sides near declivity.

Distribution: Panama.

Type material: The female holotype and male allotype were taken at Guadaloupe Arriba, Chiriqui, Panama, 3-30-X-1984, luz, H. Wolda. The holotype and allotype are in the U.S. National Museum, Washington.

Monarthrum canalis Wood, sp. n.

Monarthrum canalis Wood: Holotype ♂; Est. Biol. La Selva, Heredia, Costa Rica, 50–150 m; USNM, Washington, designated below

Diagnosis: Distinguished from *fastigiorum* Wood by the more evenly convex, more finely punctured frons that lacks a median elevation; by the female transverse, epistomal impression on the median one-fifth, a weak transverse elevation on its upper margin; by the slightly less steep, more narrowly impressed elytral declivity, with both pair of male denticles distinctly smaller.

Male: Length 1.6–1.9 mm, 2.4 times as long as wide; color dark brown. Frons broadly convex from eye to eye from epistoma to vertex, with no indication of a median crest, weakly elevated toward epistomal margin; surface strongly reticulate, punctures small, shallow, moderately abundant; glabrous. Pronotum 1.1 times as long as wide; summit at middle, anterior slope strongly declivous, rather coarsely, closely asperate, anterior margin armed by 6 coarse serrations; posterior areas finely reticulate, punctures minute, sparse, obscure; glabrous. Elytra 1.4 times as long as wide, 1.2 times as long as pronotum; disc reticulate, striae marked by rows of minute, shallow punctures. Declivity confined to posterior third of elytra length, steep; interstriae 3 armed by a small, obtuse denticle one-third of declivital length from base, a distinctly larger; obtuse denticle at apparent junction of 5 and 7 about two-thirds declivital length from base of declivity, spine 1 closer to spine 2 than to its mate (opposite member spine 1), 2 closer to ventrolateral crest than to 1; ventrolateral crest acutely (not strongly) elevated from suture almost to lateral base of spine 2; face of declivity reticulate, obscure, small punctures confused, a small, obtuse spine on interstriae 2 just before apex (as in *fastigiorum*), basal third of declivital impression rather narrow, middle third extending laterally to bases of denticles, lower third to well beyond denticle 2. Almost glabrous.

Female: Similar to male except median half of frons with a transverse, reticulate sulcus immediately above epistomal margin, its upper margin rather abrupt but weak, a feeble, median crest present but without any dorsal extension of crest; antennal club ornamented by long hair; pronotal asperities and serrations on anterior

margin much smaller; declivital denticles smaller, impression not as strong, narrower, tubercle near apex of interstriae 1 entirely absent.

Distribution: Costa Rica (Heredia).

Type material: The male holotype, female allotype, and 10 paratypes are labeled Costa Rica, Heredia, Est. Biol. La Selva, 50–150 m, 10°26'N, 84°01'W, INBIO, OET, primary forest, GIS 900.150, *Pentaclethra macroloba*, log 2, Thunes/Vargas, 29-XI-1994, 10-I-1995.

Monarthrum hagedorni (Schedl)

Plate CXCI

Monarthrum hagedorni (Schedl), 1939:727 (*Pterocyclon*). Holotype ♂; Camopi, Guiana; MNHN, Paris, replacement name for *Pterocyclon dimidiatum* Hagedorn (Synonymy and references in Wood & Bright c1992:1057)

Pterocyclon dimidiatum Hagedorn, 1903:550. Holotype ♂; Camopi, Guiana; MNHN, Paris, preoccupied by Ferrari 1867:57

Diagnosis: Distinguished by having a complete male circumdeclivital costate ring, spine 1 on crest of upper part of circumdeclivital ring; female declivity subtruncate, margins rounded on upper half, subacute on lower half, spine 1 displaced ventrad one-third declivity length from base and half distance from lateral margin toward suture; female epistoma with a median tubercle, an obtuse crest continuing dorsad from tubercle half distance to upper level of eyes.

Male: Length 2.0–2.3 mm, 3.1 times as long as wide; color yellowish brown, declivity darker. Frons broadly convex; surface mostly smooth, reticulate, punctures rather coarse, deep; epistoma with a median tubercle, its dorsal obtuse crest extending about one-fourth distance toward upper level of eyes; vestiture absent except for a sparse epistomal brush; antennal club 1.3 times as long as wide, sutures moderately procurved. Pronotum 1.3 times as long as wide; sides almost straight and parallel on basal two-thirds, rather narrowly rounded in front; anterior margin armed by 6 coarse serrations; summit on anterior third of pronotum length, anterior slope rather gradual, asperities rather coarse, close, confused; posterior areas reticulate, punctures minute, almost glabrous, a few short setae on anterior and lateral margins. Elytra 1.8 times as long as wide, 1.3 times as long as pronotum; disc occupying 70 percent of elytra length; disc smooth, shining, with many irregular lines, punctures minute, mostly confused. Declivity steep, obliquely, truncate, strongly concave; crest acutely, uniformly elevated except spine 1 on crest, positioned on interstriae 2, rather small, acutely pointed; face of declivity strongly concave, densely, deeply, rather finely punctured, apical area somewhat rugose. Mostly glabrous, except face of declivity with dense, very short, stout setae, sparse setae on sides near declivity.

Female: Similar to male except lower half of frons shallowly impressed on each side of median crest; antennal club larger, subtriangular; anterior margin of pronotum unarmed by serrations; declivity subconcave on median half, less strongly on apical half to lateral and

apical margins, spine 1 pointed, positioned midway between lateral margin and suture one-third declivity length from base, lateral margins rounded on basal half, subacute on apical half.

Distribution: French Guyane to Venezuela (Barinas).
French Guyane: Camopi.

Venezuela: 40 km SE Socopo, Barinas, 25-I-1970, 150 m, No. 256, *Protium*, SLW; 8 km SW Bumbum, Barinas, 11-II-1970, 150 m, No. 312, *Protium*, SLW, same No. 309, unknown limb.

Notes: The above treatment was based on 15 males and 11 females from Venezuela. Three of these females were compared directly to the holotype of *dimidiatum* Hagedorn (nec Ferrari).

Monarthrum marginatum
Wood, n. sp.

Monarthrum marginatum Wood: Holotype ♀; Betulia Alto, San Jose, Timbio, Valle del Cauca, Colombia; USNM, Washington, designated below

Diagnosis: Distinguished from allied species by the larger body size; by the more gradual elytral declivity, with the apical emargination smaller; female frons mostly smooth, shining, with a rather strongly impressed, transverse groove on the lower half of the area below the upper level of the eyes, a distinct median tubercle on the epistoma, and by other characters described below.

Female: Length 2.4 mm, 2.9 times as long as wide; color reddish brown. Frons mostly smooth, shining, a strong, transverse groove on lower half of area below upper level of eyes, a distinct median tubercle on epistomal margin; punctures sparse, very small on area above groove; glabrous, except for a sparse epistomal brush; antennal club 1.2 times as long as wide, broadly obovate, sutures moderately procurved; several long setae on posterior face near apex. Pronotum 1.3 times as long as wide; sides almost straight and parallel on basal two-thirds, rather broadly rounded in front; anterior margin unarmed by serrations, as in females of most species in this genus; summit one-third pronotum length from anterior margin; anterior slope rather gradual, asperities small, close, confused; posterior areas strongly reticulate, punctures minute; almost glabrous, a few setae on anterior margin. Elytra 1.7 times as long as wide, 1.3 times as long as pronotum; disc occupying basal 70 percent of elytra length; disc strongly reticulate, punctures very small, most obscure to obsolete. Declivity moderately impressed on median third on upper half of declivity, more broadly impressed below; spine 1 obscure to absent, spine 2 at middle of declivity, displaced mesad two-thirds distance from lateral margin toward suture, spine moderately large, pointed; surface reticulate, punctures small, obscure. Sparse hair on sides near declivity.

Distribution: Colombia (Valle de Cauca).

Type material: The female holotype was taken to Betulia Alto, San Jose, Timbio, Valle del Cauca, Colombia, 27-IV-1959, arbol Ubol, L.H. Narvaez. The holotype is in the U.S. National Museum.

Monarthrum insolitum (Schedl)

Monarthrum insolitum (Schedl), 1976:83 (*Pterocyclon*). Holotype ♂; Manaus, Amazonas, Brazil; NHMW, Wien (References in Wood & Bright c1992:1057)

Diagnosis: Distinguished from *bituberculatum* Wood by the smaller size; by the convex frons that is without a median crest or tubercle; and by the rugose-reticulate declivity, with spine 3 very small.

Male: Length 1.4 mm, 3.0 times as long as wide; color dark reddish brown, basal fourth of pronotum pale. Frons broadly convex, a feeble, transverse impression above epistoma; lower third of area below upper level of eyes rugose-reticulate then reticulate to vertex; punctures very small; sparse setae on epistoma; antennal club 1.2 times as long as wide. Pronotum 1.2 times as long as wide; sides almost straight and parallel on basal two-thirds, rather narrowly rounded in front; anterior margin armed by 8 coarse serrations; summit slightly anterior to middle of pronotum length; anterior slope steep, asperities small, close, confused; posterior areas reticulate, punctures minute, mostly obsolete. Elytra 1.5 times as long as wide, 1.4 times as long as pronotum; disc occupying 70 percent of elytra length; disc reticulate, punctures minute to obsolete, in obscure stria rows. Declivity steep, weakly convex; spine 2 on crest at interstriae 2, very minute, pointed, spine 3 twice as large as 2, conical, positioned well above middle of declivity length and displaced mesad from lateral crest one-third distance toward suture; emargination at apex of suture rather large, margins of emargination distinctly elevated, ventrolateral crest acutely elevated almost to level of spine 3; face of impressed area rugose-reticulate, punctures small, obscure. Minute setae on lateral crest and on sides of elytra near declivity.

Distribution: Brazil: Manaus, Amazonas, IV-1972, Roppa e Oliveira.

Notes: The above treatment was based on the male holotype.

Monarthrum bituberculatum Wood, n. sp.
Plate CLXXXIII

Monarthrum bituberculatum Wood: Holotype ♂; El Laurel Experimental Farm 12 km SW Caracas, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *insolitum* (Schedl) by the complete absence of declivital spine 2, spine 3 slightly below middle of declivity length in both sexes; by the occurrence of a small median tubercle on the epistoma; and by the slightly larger size.

Male: Length 1.6–1.8 mm, 3.2 times as long as wide; color reddish brown. Frons broadly convex, a feeble, transverse impression above epistoma, a small, median tubercle on epistoma; surface strongly reticulate, punctures rather coarse from middle to slightly above upper level of eyes; sparse short setae on epistoma; antennal club 1.3 times as long as wide. Pronotum 1.4 times as

long as wide; sides almost straight and parallel on basal two-thirds, rather broadly rounded in front; anterior margin armed by 10 coarse serrations; summit on anterior third of pronotum length; anterior slope steep, asperities rather coarse, close, confused; posterior areas reticulate, punctures minute to obsolete; vestiture of short setae on asperate area. Elytra 1.9 times as long as wide, 1.4 times as long as pronotum; disc occupying basal 76 percent of elytra length; disc reticulate on basal third and near declivity, mostly smooth, shining on middle half of disc length, punctures minute to obsolete, mostly in obscure rows. Declivity steep, somewhat flattened; spine 2 absent, spine 3 moderately large, conical, positioned slightly below middle of declivity length, displaced mesad from lateral crest two-thirds distance toward suture; face of declivity weakly sulcate on more than basal half, transversely impressed on lower third and subconcave on median half, surface strongly reticulate, obscure punctures minute to obsolete. Many short, stout setae on lateral fourths of declivity, sparse setae on sides near declivity.

Female: Similar to male except epistomal tubercle minute; antennal club without a tuft of long setae near apex; anterior margin of pronotum unarmed by serrations; declivital spine 3 much smaller, displaced from lateral margin three-fourths distance toward suture; setae on declivity slender, longer.

Distribution: Venezuela (Aragua to Caracas).

Type material: The male holotype, female allotype, and 28 paratypes were taken at El Laurel Experimental Farm 12 km SW Caracas, Venezuela, 1-V-1970, 1300 m, from tree branches and boles, by S.L. Wood. Four paratypes were from Rancho Grande, Aragua, Venezuela, 9-IV-1970, 1100 m, *Nectandra*, S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Monarthrum carinifrons Wood, n. sp.

Plate CLXXXIV

Monarthrum carinifrons Wood: Holotype ♂; Pico Bolivar Teleferico, Merida, Merida, Venezuela; USNM, Washington, designated below

Diagnosis: Remotely allied to *dimidiatum* (Ferrari) from which it is distinguished by having the declivital spine 1 closer to spine 2 than spine 2 is from acute subapical margin; by the low, acute median carina on the frons in both sexes; and by having declivital spine 1 very small (obsolete in some females).

Male: Length 2.3–3.0 mm, 3.6 times as long as wide; color dark reddish brown. Frons broadly convex, weakly, longitudinally etched (obscurely aciculate) from epistoma to vertex, an acute, uniformly elevated, shining carina from epistoma to upper level of eyes, punctures small, not clearly formed; glabrous except for a sparse epistomal brush; antennal club somewhat oval, 1.4 times as long as wide, sutures rather weakly procurved. Pronotum 1.35 times as long as wide; sides straight and subparallel on basal two-thirds, rather broadly rounded

in front; anterior margin armed by 8 low, basally connected serrations; summit on anterior third of pronotum length; asperities low, close, confused; posterior areas strongly reticulate, punctures minute, many obscure; glabrous, except a few setae on lateral and anterior margins. Elytra 2.2 times as long as wide, 1.6 times as long as pronotum; disc occupying 67 percent of elytra length; disc strongly reticulate on anterior two-thirds, shining behind, punctures small, shallow, mostly in striae rows. Declivity rather broadly sulcate, lateral margins rounded on basal three-fourths, subacute from apex of emargination to level of suture apex; spine 1 minute, on crest at interstriae 2, moderately small, slightly above middle of declivity length, displaced mesad from margin a third of distance from margin toward suture; face of declivity closely micropunctate, dull, punctures not evident. Glabrous, except for a few short setae on sides near declivity.

Female: Similar to male except posterior face of antennal club bearing a tuft of long hair; anterior margin of pronotum unarmed; declivital sulcus narrower; spine 2 larger, closer to suture than to lateral margin, spine 1 usually absent.

Distribution: Colombia (Antioquia) to Venezuela (Merida).

Type material: The male holotype, female allotype, and 13 paratypes were taken at Pico Bolivar Teleferico, Merida, Merida, Venezuela, 3-I-1970, 2500 m, No. 217, *Clusia*, by S.L. Wood; 12 paratypes are from La Carbonera Experimental Forest 50 km NW Merida, Merida, Venezuela, 14-X-1969, 2500, No. 50-B, *Clusia*, S.L. Wood, same data 1 paratype 23-IV-1970, No. 446, *Laurel peramero*, same data; 1 paratype La Mucuy, 20 km W Merida, Merida, Venezuela, 20-X-1970, No. 74, log, all by S.L. Wood; 1 paratype 30 km N Merida, Merida, Venezuela, 8-I-1970, 2200 m, No. 228, *Podocarpus*, S.L. Wood. One paratype Piedras Blancas, 10 km E Medellin, Antioquia, Colombia, 15-VII-1970, 2500 m, No. 668, *Eucalyptus vernalis*, S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Monarthrum granulosum Wood, n. sp.

Plate CXC

Monarthrum granulosum Wood: Holotype ♂; Colonia Tovar, Aragua, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *infradentatum* Wood by the smaller size; by the granular, dull surface of the elytral declivity, punctures on the elytral declivity are almost obsolete; by the larger spine 1; and by the ventrolateral crest of the declivity ending at or below the level of spine 1. Funicle 2-segmented.

Male: Length 1.8–2.1 mm, 3.5 times as long as wide; color of anterior half of pronotum and declivity dark brown, remaining areas pale brown. Frons broadly convex, a feeble, transverse impression above epistoma; surface rugose-reticulate, punctures small, shallow; glabrous,

epistomal brush sparse, setae short; antennal club 1.4 times as long as wide, sutures weakly procurved; funicle 2-segmented. Pronotum 1.5 times as long as wide; sides straight and parallel on basal two-thirds, narrowly rounded in front; anterior margin armed by 8–10 coarse serrations; summit on anterior third of pronotum length; asperities rather small, close, confused; posterior areas reticulate, punctures minute; glabrous, except sparse setae at anterior margin. Elytra 2.0 times as long as wide, 1.4 times as long as pronotum; disc occupying basal 75 percent of elytra length; disc reticulate, punctures obscure to obsolete. Declivity very steep, surface mostly flat, broadly sulcate on basal half; surface finely granular; margins of basal half rounded, spine 1 of moderate size, pointed, widely separated, displaced mesad from lateral margin half distance toward suture; spine 2 entirely absent; emargination at apex of suture moderately deep, its mesal margin armed on apical half by a large denticle; ventrolateral margin acute from apex of emargination to level of and lateral to spine 1; face of declivity with punctures obscure. Sparse setae at lower margin of declivity face and on sides near declivity.

Female: Similar to male except posterior face of antennal club with several long setae; declivital spine 1 smaller, displaced mesad from lateral margin more than half distance toward suture.

Distribution: Venezuela (Aragua to Merida).

Type material: The male holotype and 22 paratypes were taken at Colonia Tovar, Aragua, Venezuela, 4-V-1970, 1700 m, No. 482, tree bole, S.L. Wood; the female allotype and 11 paratypes bear the same data as the type except collection No. 484, Melastomaceae; 1 paratype bears the same data except No. 483, and 2 paratypes No. 496, tree seedling; 21 paratypes are from Merida, Merida, 28-II-1970, 2000 m, No. 336, tree limb, S.L. Wood. One paratype is from El Laurel Experiment Farm 12 km SW Caracas, Venezuela, 1-V-1970, 1300 m, No. 459, tree branch, S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Monarthrum surinamensis Wood, n. sp.

Plate CCIV

Monarthrum surinamensis Wood: Holotype ♂; Jodensavane, Camp 8, Suriname; USNM, Washington, designated below

Diagnosis: Distinguished from *infradentatum* Wood by the smaller size; by the much longer, cylindrical spine 1 on the elytral declivity; by the much larger spine arising from the mesal margin of the emargination at the apical end of the suture; and by the brightly shining elytral disc, with the striae punctures much larger and in definite rows. Funicle 4-segmented.

Male: Length 1.6–1.8 mm, 3.2 times as long as wide; color yellowish brown. Frons moderately convex, brilliantly shining, smooth, punctures sparse, coarse; lower third of area below upper level of eyes moderately, transversely impressed, impressed area mostly reticulate; epistoma with a small, median tubercle, a short median

carina extending dorsad from tubercle to upper margin of impression; glabrous except for a sparse epistomal brush; antennal club obscurely quadrate, sutures feebly procurved, septate and rows of setae evident on lateral third only, funicle 4-segmented. Pronotum 1.3 times as long as wide; sides almost straight and parallel on basal two-thirds of elytra length, rather narrowly rounded in front; anterior margin armed by about 8 very low serrations; summit on anterior third of pronotum length, asperities on anterior slope coarse, close, confused; posterior areas shining, surface minutely, longitudinally etched, punctures minute, shallow; glabrous except for a few setae at anterior margin. Elytra 1.9 times as long as wide, 1.5 times as long as pronotum; disc occupying basal 67 percent of elytra length; disc smooth, brilliantly shining, punctures rather small, distinctly impressed, in striae rows, a few impressed points present. Declivity rather steep, irregularly flattened, not at all concave, weakly sulcate above; a weak, predeclivital impression on basal third of declivity length, lateral margins rounded on basal two-thirds; spine 1 very large, cylindrical, positioned on interstriae 2 about one-third declivity length from base, spine 2 obsolete, identified by a long, stout seta below middle, displaced one-third distance from lateral margin toward suture; emargination at apex of suture large, deep, its entire mesal margin occupied by a large denticle, ventrolateral crest acute from apex of emargination to level of suture apex on lateral margin; face of declivity smooth, shining, with coarse, confused punctures. Vestiture sparse on sides and margins of declivity, four setae on declivity face.

Female: Similar to male except posterior face of antennal club with several long setae.

Distribution: Guiana to Suriname.

Type material: The male holotype and female allotype were taken at Jodensavane, Camp 8, Suriname, 1961, at light trap, Schultz, No. 742. One male paratype is from British Guiana, Manaka, X-1948-III-1949, *Eschweilera sigotianum*, D.J. Atkinson. The holotype, allotype, and paratype are in the U.S. National Museum, Washington.

Monarthrum catarinensis Wood, n. sp.

Monarthrum catarinensis Wood: Holotype ♂; Urubici, Santa Catarina, Brazil; USNM, Washington, designated below

Diagnosis: Distinguished from *corculum* Wood by the smaller size; by the deeper sulcus on the male declivity, particularly on the basal half; by having declivital spine 2 slightly displaced mesad from crest, with spine 3 larger; and by the less abundant declivital setae.

Male: Length 2.5 mm, 2.7 times as long as wide; color dark reddish brown. Frons broadly convex, a weak, transverse impression above epistoma; surface mostly shining, weak reticulation in some areas, punctures small, weak, obscurely impressed; glabrous; antennal club obovate, 1.4 times as long as wide. Pronotum 1.2 times as long as wide; sides almost straight and parallel

on more than basal half, rather narrowly rounded in front; anterior margin armed by 8 serrations; summit slightly anterior to middle of pronotum length; anterior slope steep, asperities small, close, confused; posterior areas reticulate, punctures minute, obscure to obsolete; sparse, short setae on asperate area. Elytra (spread on type) about 1.6 times as long as wide, 1.4 times as long as pronotum; disc occupying 67 percent of elytra length; disc reticulate on basal third, mostly smooth, shining, punctures small, confused. Declivity steep, moderately sulcate on mesal half above spine 3, crest broadly rounded above spine 3; ventrolateral margin acute from emargination to level of spine 3; spine 2 small, conical, displaced slightly mesad from crest toward suture, positioned a third of declivity length from basal margin; spine 3 pointed, three times as large as 2, positioned closer to apical margin than to spine 2 and displaced mesad from lateral crest half distance toward suture; face of declivity mostly smooth, shining, and closely, deeply punctured on mesal half, reticulate and without punctures on lateral half. Sparse setae on lateral crests and on sides near declivity.

Distribution: Brazil (Santa Catarina).

Type material: The male holotype was taken at Urubici, Santa Catarina, Brazil. The holotype is in the U.S. National Museum, Washington.

Monarthrum annulatum Wood, n. sp.

Monarthrum annulatum Wood: Holotype ♂; Campamento Rio Grande 30 km E Palmar, Bolivar, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished by having declivital spine 1 on the margin in both sexes (not displaced ventrad in the female); by having the area between spines 1 and 2 and the suture distinctly and extensively impressed; and by the precipitous upper margin of the frontal groove.

Male: Length 2.3–2.4 mm, 2.4 times as long as wide; color dark reddish brown. Frons broadly convex eye to eye from near epistoma to vertex, a shallow, transverse impression immediately above epistoma; surface on lower fourth rugose-reticulate, transcending to reticulate then micropunctate on vertex, punctures small, sparse, uniformly distributed; glabrous, except a few setae on epistomal brush; antennal club obscurely obovate, 1.3 times as long as wide, sutures weakly procurved. Pronotum 1.15 times as long as wide; sides almost straight and parallel on basal half, rather narrowly rounded in front; anterior margin armed by 8 to 10 coarse serrations; summit slightly anterior to middle of pronotum length; asperities coarse, close, confused; posterior areas reticulate, punctures small, rather sparse; glabrous except for a few setae on anterior margin. Elytra 1.3 times as long as wide, 1.1 times as long as pronotum; disc occupying 83 percent of elytra length; disc smooth, shining, punctures small, mostly in stria rows. Declivity very steep, obliquely truncate; emargination at apex of suture broad (about 120 degrees), acute ventrolateral margin

strongly elevated near apex of suture, continued at normal height to ventrolateral angle then to suture at base of declivity, margin abrupt on lower three-fourths of circumdeclivital costa, projecting slightly near suture at base on upper margin; spine 1 on basal margin on interstriae 2 (or 3rd), small, pointed; face of declivity smooth, brightly shining, slightly impressed from spines to suture from margin of emargination below to basal margins above, punctures rather coarse, uniformly distributed; spine 1 on basal crest, spine 2 positioned distinctly below middle of declivity and displaced mesad almost two-thirds of distance from lateral margin toward suture. Vestiture restricted to sparse, minute hair on lower half of declivity.

Female: Similar to male except epistomal groove deeper, narrower on median half; posterior face of antennal club with a tuft of long hair; anterior margin of pronotum unarmed; spines 1 and 2 on declivity smaller.

Distribution: Venezuela (Bolivar).

Type material: The male holotype and female allotype were taken at Campamento Rio Grande 30 km E Palmar, Bolivar, Venezuela, 12-VI-1970, 200 m, No. 557, *Alexa imparatrix*, S.L. Wood. One female paratype bears similar data, except it is from collection No. 559, *Eschweilera grata*. The holotype, allotype, and paratype are in the U.S. National Museum, Washington.

Monarthrum semitruncatum
Wood, n. sp.

Monarthrum semitruncatum Wood: Holotype ♂; 4 mi. W Tepic, Nayarit, Mexico; USNM, Washington, designated below

Diagnosis: Allied to *proximum* Wood, distinguished by the absence of a mesal flare at the end of the male ventrolateral declivital costa; by the male declivity having a distinct sulcus between the suture and spines 2 and 3; and by the ventrolateral declivital costa on crest extending half distance from level of spine 3 toward spine 2.

Male: Length 1.9 mm, about 2.7 times as long as wide; color reddish brown. Frons strongly convex, a very weak, transverse impression above epistoma; rugose-reticulate on lower third of area below upper level of eyes, continued on lateral thirds dorsad to well above upper level of eyes and joining on vertex, central half mostly smooth, shining, with minute obscure punctures; sparse, short setae on epistoma; antennal club obovate, 1.5 times as long as wide. Pronotum 1.3 times as long as wide; sides almost straight and parallel on almost basal two-thirds of elytra length, rather broadly rounded in front; anterior margin armed by 8 coarse serrations; summit indefinite, on anterior third of pronotum length; anterior slope steep, asperities coarse, close, confused; posterior areas reticulate, punctures minute to obsolete, sparse, short setae on anterior margin. Elytra (spread, lower half of right declivity missing) about 1.4 times as long as wide, about 1.12 times as long as pronotum; disc occupying basal 80 percent of elytra length; disc reticulate,

punctures very small, partly in obscure rows. Declivity very steep, median half shallowly sulcate, somewhat flattened laterally; ventrolateral costa subacutely elevated from apical emargination to a level closer to spine 2 than to spine 3; spine 2 small, conical, on mesal margin of crest near base; spine 3 positioned about equal distance between spine 2 and apical margin and displaced mesad from lateral crest half distance toward suture; face of declivity mostly smooth, shining, a row of small punctures on striae 1, sparse, obscure, very small punctures in lateral areas. Glabrous.

Distribution: Mexico (Nayarit).

Type material: The male holotype was taken 4 mi. W Tepic, Nayarit, Mexico, 13-VII-1965, 1000 m, No. 240, S.L. Wood. The holotype is in the U.S. National Museum, Washington.

Monarthrum diligens Wood, n. sp.

Monarthrum diligens Wood: Holotype ♂; 3.6 km NE Tezuitlan, Puebla, Mexico; USNM, Washington, designated below

Diagnosis: Distinguished from *granosum* Wood by the slightly larger size; by having spine 3 two or three times larger than spine 2; and by the face of the declivity being without many small tubercles.

Male: Length 2.2 mm, about 3.0 times as long as wide (elytra spread on type); color reddish brown. Frons broadly convex, a feeble, transverse impression above epistoma; surface of lower third of area below upper level of eyes rugose-reticulate, upper areas smooth, shining, with many impressed points, punctures moderately large, deep; sparse, short setae on epistoma; antennal club obovate, 1.6 times as long as wide. Pronotum 1.26 times as long as wide; sides almost straight and parallel on basal two-thirds, rather broadly rounded in front; anterior margin armed by 8 rather coarse serrations; summit on anterior third of pronotum length; anterior slope steep, asperities rather coarse, close, confused; posterior areas reticulate, punctures minute to obsolete; sparse, short setae on asperate area. Elytra (spread) about 1.7 times as long as wide, about 1.4 times as long as pronotum; disc occupying 76 percent of elytra length; disc reticulate on basal two-thirds, almost smooth, shining behind, with a few impressed lines, punctures small, confused on basal third, mostly in obscure striae rows behind; ventrolateral margin acutely elevated from emargination to spine 2, median half weakly sulcate, flattened laterally; spine 2 small, conical, on crest; spine 3 much larger, subcylindrical, positioned closer to apical margin than to spine 2, displaced from lateral crest almost half distance toward suture; face of declivity smooth, shining, punctures very small, confused. Vestiture on face of declivity of moderately numerous minute setae, a few longer setae on lateral crests and on sides of elytra near declivity.

Distribution: Mexico (Puebla).

Type material: The male holotype was taken 3.6 km NE Tezuitlan, Puebla, Mexico, 2-VII-1967, 1600 m,

No. 154, tree limb, S.L. Wood. The holotype is in the U.S. National Museum, Washington.

Monarthrum granosum Wood, sp. n.

Monarthrum granosum Wood: Holotype ♀; Carton de Colombia forest 8 km S Colonia (near Buenaventura), Valle de Cauca, Colombia; USNM, Washington, designated below

Diagnosis: Distinguished from *corculum* Wood by the smaller size; by the less distinctly impressed declivity; by the larger, shallow punctures on the face of the declivity, with the anterior margin of each puncture elevated into a small tubercle; and by the female frons as described below. The unique type is severely crushed, but the uniqueness of certain characters justifies its description from a damaged specimen.

Female: Length about 1.4 mm, about 2.8 times as long as wide; color reddish brown. Frons broadly convex from transverse, epistomal groove to vertex; a strongly impressed, epistomal groove extending mandible to mandible on lower fourth of area below upper level of eyes, groove rugose-reticulate, area above groove to vertex mostly rugose-reticulate except much of median fourth mostly smooth and impunctate, punctures in lateral areas rather small, poorly defined; epistomal groove with fine, long hair, glabrous above; antennal club obscurely obovate, sutures moderately procurved, posterior face with a large tuft of hair; some setae equal in length to length of club. Pronotum crushed, apparently similar to female *corculum*. Elytra much as in *corculum*, disc strongly reticulate, punctures small, most in striae rows. Declivity very steep, weakly convex on lower half, a shallow impression on interstriae 2 from level of spine 1 to level of spine 2, its upper end extended laterad below spine 1; surface between punctures brightly shining, punctures moderately large, distinctly impressed, those near margin and on all of upper half with upper margin of each puncture elevated into a small tubercle, above spine 1 punctures entirely replaced by tubercles; spine 1 positioned midway between lateral margin and suture about one-fourth declivity length below upper margin, obscurely pointed, spine 2 much closer to apical margin than to spine 1, positioned midway between lateral margin and suture; ventrolateral margin with an abrupt angle where margin turns dorsad. Vestiture of rather abundant short setae on face of declivity; a few setae on sides near declivity.

Distribution: Colombia (Valle del Cauca).

Type material: The badly crushed female holotype was taken at the Carton de Colombia forest 8 km S Colonia (near Buenaventura), Valle del Cauca, Colombia, 9-VII-1970, 30 m, No. 615, *Lecythis*, S.L. Wood. The holotype is in the U.S. National Museum, Washington.

Monarthrum terminalis Wood, n. sp.

Monarthrum terminalis Wood: Holotype ♂; Costa Rica: Heredia, La Selva Biological Station 3 km S Puerto Viejo; USNM, Washington, designated below

Diagnosis: Distinguished from *posticum* Wood by the smaller size; by the more strongly convex, more strongly reticulate frons, with fine granulation toward the epistoma; and by the distinctive elytral declivity, as described below.

Male: Length 1.5 mm, 2.85 times as long as wide; color brown, basal third of pronotum of lighter brown shade. Frons more strongly convex than in *posticum*; dorsal two-thirds dull, subreticulate to longitudinally etched, with shallow, small punctures of moderate abundance; lower third broadly rugose-reticulate, punctures mostly obsolete, subglabrous except for a few setae on median third of epistoma. Pronotum 1.25 times as long as wide; anterior third strongly declivous, coarsely asperate, anterior margin armed by 6 rather coarse serrations; posterior two-thirds rather finely reticulate, punctures minute to obsolete. Elytra about 1.2 times as long as wide; surface finely reticulate, subshining; striae not impressed, punctures minute, in rows; interstriae at least 6 times as wide as striae, impunctate. Declivity restricted to posterior one-sixth, abrupt, subvertical; basal margin more gradual at suture, subacutely rounded from striae 1 to about interstriae 4, a small, pointed denticle on crest at interstriae 3, lateral crest more acutely elevated, continuously elevated around ventrolateral angle then mesad to suture, suture very weakly elevated at base of declivity; face of declivity smooth, shining, with small, moderately abundant, shallow punctures, a small, acutely pointed denticle on interstriae 3 about one-third of declivity length from lower margin, distance between left and right denticles about equal for both pairs and also equal to distance from 1 to 2; punctures of interstriae 1 slightly enlarged on lower half. Glabrous on disc; declivity with moderately abundant, recumbent setae.

Distribution: Costa Rica (Heredia).

Type material: The male holotype was taken at Costa Rica, Heredia Prov., La Selva Biological Station, 3 km S Puerto Viejo, 10°26'84°01'W, bosque secundario, M/09/056. The holotype is in the U.S. National Museum, Washington.

GENUS *METACORTHYLUS* BLANDFORD

Metacorthylus Blandford, 1904:251, 263. Type-species: *Metacorthylus nigripennis* Blandford, monobasic (Synonymy and references in Wood & Bright c1992:1064–1065)

Paracorthylus Wood, 1968:7. Type-species: *Paracorthylus velutinus* Wood, original designation

Diagnosis: Distinguished from *Glochinocerus* Blandford, from Guatemala and S Mexico, by the 2-segmented antennal funicle; by the convex, subglabrous frons in both sexes; by the somewhat asymmetrical antennal club that is usually elongate in the female. The protibiae are apparently not sexually dimorphic.

Description: Length 1.8–4.2 mm, 2.2–3.0 times as long as wide; color yellowish brown to dark reddish brown. Frons basically convex, with sparse vestiture; male antennal club slightly longer than wide, with two weakly procurved sutures, female club often elongate (3 or more times as long as wide) and usually attenuate on apical half. Pronotum and elytra conservatively sculptured, asperities small, punctures minute to obsolete. Elytral declivity steep, with a partial to complete circumdeclivital costa; face of declivity reticulate to minutely granulate, most species with a few denticles or tubercles on base or on face of declivity; sexually dimorphic in most species. Protibiae not sexually dimorphic. Vestiture sparse.

Biology: Very little is known of the biology of this genus. Apparently all species are xylomycetophagous and monogynous. All specimens for which host association is known were taken from prostrate logs or from the bole of standing, dying, or dead trees. The type series of *velutinus* (Wood) was taken from logs felled four months previous to collection in hot, dry xylem tissue in what appeared to be simple, radial, unbranched tunnels about 1–2 cm deep on the barkless upper half of the log. At least 2 species were attracted to light.

Notes: Wood (1982:1247–1251) and Wood & Bright (c1992:1064–1065) list 4 species from Costa Rica to Panama, 1 of which was also recorded from Colombia. Three additional South American species are here transferred into this genus from (1) *Amphicranus* and (2) *Monarthrum*. Their habits are apparently unique in Scolytidae, and may have been overlooked for this reason.

In using the following key, it should be recognized that declivital spine 1 is not present in this genus. Spines 2 and 3 are homologous to these spines in *Monarthrum*.

Key to the Species of *Metacorthylus*

- 1. Declivital face with spines 2 and 3 closer to suture than to lateral margin; declivity moderately convex in both sexes, lateral crests rather broadly rounded; male declivity armed by 2 pair of moderately large, pointed tubercles dividing declivity length into equal thirds, female with only 1 tubercle near center of declivity length, but close to suture; Costa Rica to Colombia; in felled logs; 1.8–2.0 mm *velutinus* (Wood)
- Declivital face either without spines or with spines closer to lateral margin than to suture 2
- 2(1). Declivital face with spines positioned closer to lateral margin than to suture (minute granules on interstriae 1 not counted as tubercles) 3

—	Declivital face entirely devoid of spines; declivity more nearly truncate, face more broadly, more evenly concave	11
3(2).	Interstriae 1 on face of declivity armed in both sexes by a row of small tubercles; basal margin of declivity armed near suture by 3 or more pair of small denticles in both sexes; Venezuela (Aragua); tree bole; 3.8–4.2 mm	<i>subtruncatus</i> Schedl
—	Interstriae 1 on face of declivity sometimes with a row of punctures, never with a row of tubercles; smaller species	4
4(3).	Declivity more granular; male interstriae 3 on upper half armed by two pointed denticles directed caudad; female more strongly, broadly impressed and without a distinct impression at striae 1	5
—	Female declivity more strongly, more narrowly concave, denticles on lateral areas pointed, most directed mesad; male of one species (<i>truncatorius</i>) with only one small tubercle on lower half of interstriae 3, female scape with a tuft of short hair	10
5(4).	Basal margin of female declivity bearing on crest three or more very small pointed tubercles between suture and spine 2; female declivity broadly, strongly impressed on median two-thirds, surface rugose-reticulate, lateral margins rather high, crest narrowly rounded; female spine 2 on crest of declivity slightly above middle of declivity length, spine 3 slightly below middle, positioned on mesal margin of crest; Brazil (Sao Paulo); 2.6 mm	<i>subproprius</i> (Schedl)
—	Basal margin of female declivity either unarmed or with only one minute tubercle between suture and spine 2; spine 3 on declivity either absent or moderately to strongly displaced mesad from lateral crest toward suture	6
6(5).	Female declivity broadly, strongly impressed on mesal two-thirds, surface somewhat reticulate, surface on concave area bearing many small, rounded tubercles, lateral crests rather broadly rounded, armed slightly above middle of declivity length by a moderately large spine 2 on mesal margin of crest, spine 3 small, slightly below middle and displaced mesad from lateral crest almost one-third distance toward suture; Brazil (Santa Catarina); 2.6 mm	<i>vicinus</i> (Schedl)
—	Declivity in both sexes shallowly concave on about median three-fourths, surface minutely granular; with or without rounded tubercles	7
7(6).	Ventrolateral margin of declivity subacutely raised only near apex of suture, broadly rounded on more than dorsal three-fourths of declivity margin; spine 3 on declivital face distinctly below middle of declivity length	8
—	Ventrolateral margin of declivity with crest subacutely rounded on more than lower half of circumdeclivital crest; spine 3 on declivital face distinctly above middle of declivity length	9
8(7).	Antennal club of female 1.0 times as long as wide; elytral declivity not as steep, spine 2 on female almost as close to suture as to lateral margin; Panama; 2.7 mm	<i>nigripennis</i> Blandford
—	Antennal club of female 1.9 times as long as wide (Wood 1982:1250, fig. 218), declivity not as steep, spine 2 on female almost on lateral margin; Costa Rica; log; 2.4–2.7 mm	<i>concisus</i> (Wood)
9(7).	Declivital surface rugose-reticulate to somewhat minutely granular; declivital spine 2 on inner margin of crest at about striae 3, conical, very small, spine 3 slightly above middle of declivity length and displaced mesad from lateral margin by slightly less than half distance toward suture; marginal costa subacutely, narrowly rounded from apex of suture almost to spine 2, sutural interstriae with an indefinite row of very small tubercles; Brazil (Aracruz, Espirito Santo); 2.5 mm	<i>obscuriceps</i> Wood
—	Declivital surface rugose-reticulate and with numerous, confused, small, rounded tubercles from near base to apex; declivital spine 2 entirely absent, 3 slightly below middle of declivity and displaced mesad from lateral margin by more than one-third distance toward suture; Brazil (Aracruz, Espirito Santo); 2.5 mm	<i>granosus</i> Wood

- 10(4). Female declivital sulcus narrower, occupying about median half of declivity width; female antennal club 2.0 times as long as wide, its apical half attenuate, acutely pointed toward apex; female frons mostly convex, a weak, transverse impression at epistoma, a weak, median tubercle on epistoma; Brazil (Santa Catarina); 3.0 mm *truncatorus* (Schedl)
- Female declivital sulcus much wider, occupying median 70 percent of declivity width; female antennal club 1.6 times as long as wide, its apical half somewhat narrowly rounded; female frons shallowly, transversely impressed from upper level of eyes to epistoma, surface mostly smooth, shining, punctures minute, median tubercle and carina conspicuous; Colombia to Venezuela (Aragua); *Clusia*; 3.5 mm *volvulus* (Eichhoff)
- 11(2). Basal margin of male elytral declivity armed by 3 pair of small denticles, 3 about three times as large as 1 or 2; female tubercles very small; Panama; at light; 2.0–2.1 mm (Plate CCV, CCVI) *mutilus* (Wood)
- Basal margin of male declivity unarmed, or granules minute; larger species 12
- 12(11). Circumdeclivital costa on male not complete on basal fourth, crest obtusely rounded at base, not elevated; face of male declivity with a minute granule near lateral margin one-third declivity length from apex; Venezuela (Aragua); tree bole; 3.3–3.4 mm *subcostatulus* Wood
- Circumdeclivital costa on female complete to interstriae 1, subacutely elevated to base; male not seen, female declivity without a small granule on face; Costa Rica; *Braulio carrillo*; 3.2 mm *costatulus* Wood

Metacorthylus velutinus (Wood)
Plate CCIX

Metacorthylus velutinus Wood, 1968:7 (*Paracorthylus*). Holotype ♀; Moravia, Cartago Prov., Costa Rica, 500 m; USNM, Washington (References in Wood & Bright c1992:1065)

Diagnosis: Distinguished by having declivital spines closer to suture than to lateral margin, male with 2 pair of tubercles, female with 1 pair; by the moderately convex declivity in both sexes, marginal crests broadly rounded (female) or rather abrupt (male); and by the smaller size.

Male: Length 1.8–2.0 mm, 2.25 times as long as wide; color reddish brown. Frons broadly convex, a moderate, transverse impression on lower third of area below upper level of eyes on median two-thirds, a subcarinate, median crest from epistomal margin to upper limits of transverse impression; vertex reticulate, surface smooth, shining and coarsely, closely punctured from epistomal impression to upper level of eyes; antennal club oval, 1.4 times as long as wide, 2 procurved sutures on basal half. Pronotum 1.06 times as long as wide; sides feebly arcuate, almost parallel on basal two-thirds, broadly rounded in front; anterior margin armed by 6 serrations, median pair larger, others very small; summit on anterior third; asperities small, close, confused; posterior areas reticulate, finely, obscurely, densely punctured; vestiture fine, short, abundant on posterior half, slightly longer, less numerous on asperate area. Elytra 1.14 times as long as wide, 1.06 times as long as pronotum; disc occupying basal 65 percent of elytra length; disc strongly

reticulate, except smooth, shining on posterior fourth, small, abundant punctures clearly impressed on shining area, obscure to obsolete on anterior areas. Declivity very steep; circumdeclivital ring obtusely abrupt (not costate), broadly convex; surface dull, uniformly rugose-reticulate; sutural interstriae distinctly elevated, basal half more distinctly convex, armed on interstriae 2 by subconical pointed spines dividing length into almost equal thirds, lower half more broadly impressed. Vestiture of minute, fine, abundant setae on declivity, mostly abraded on disc and sides.

Female: Similar to male except impression on lower frons larger, deeper; antennal club elongate, apical half acutely attenuate; anterior margin of pronotum unarmed; posterior elytral disc reticulate, punctures obscure; lateral margin of declivity more broadly rounded, one tubercle on interstriae 3 slightly above middle.

Distribution: Costa Rica (Cartago) to Colombia (Valle de Cauca).

Colombia: Monte Grande, Caicedonia, Valle de Cauca, 19-VI-1959, en guamo y cafe, J. Restrepo.

Notes: The above treatment was based on the type series of 17 specimens and on 1 male and 1 female from Colombia that were compared by me to the holotype and allotype.

Metacorthylus subtruncatus
(Schedl), n. comb.
Plate CCVII

Metacorthylus subtruncatus (Schedl), 1978:303 (*Pterocyclon*). Holotype ♀; Colombia: Caucathal; NHMW, Wien (References in Wood & Bright c1992:1063)

Diagnosis: Distinguished by the large size and almost black color; by the row of small denticles on declivital interstriae 1; by the broadly concave male declivity and more narrowly concave female declivity; and by other characters described below.

Male: Length 3.8–4.2 times as long as wide; color dark reddish brown, almost black. Frons broadly convex, almost lower half of area below upper level of eyes moderately, transversely impressed almost from eye to eye, a median carina from epistomal margin to upper limits of impression, transcending into an impunctate median callus to well above upper level of eyes; upper surface shining, punctures rather small, close, deep; glabrous, except for a sparse epistomal brush of short setae; antennal club 1.6 times as long as wide, narrowly obovate, sutures very weakly procurved. Pronotum 1.1 times as long as wide; sides on basal half feebly arcuate, rather narrowly rounded in front; anterior margin armed by 4 serrations, median pair larger; summit slightly anterior to middle of pronotum length; asperities rather small, close, confused; posterior areas minutely reticulate, punctures very small, moderately close; setae restricted to lateral and anterior margins. Elytra 1.5 times as long as wide, 1.3 times as long as pronotum; disc occupying 70 percent of elytra length; disc minutely reticulate, punctures minute, rather close. Declivity very steep, shallowly concave; circumdeclivital costa obtusely, narrowly rounded on lower five-sixths, basal margin armed by 3 small tubercles, third one largest, major denticle distinctly below middle of declivity length, displaced mesad slightly from lateral margin; face of declivity finely rugose-reticulate, interstriae 1 armed by a row of small tubercles and/or rugae from base almost to apex. Vestiture on face of declivity minute to abraded, lateral crests with more numerous, slightly longer setae.

Female: Similar to male except frons with callus larger, protruding slightly; antennal club 2.1 times as long as wide, a small tuft of setae on posterior face near apex; anterior margin of pronotum unarmed; declivital sulcus restricted to median two-thirds, mesal margin of lateral margin armed by 2 pointed tubercles slightly above and below middle of declivity.

Distribution: Colombia to Venezuela.

Colombia: "Caucathal."

Venezuela: Colonia Tovar, Aragua, 4-V-1970, 1700 m, No. 477, tree bole, SLW; La Carbonera Experimental Forest 50 km NW Merida, Merida, 14-X-1969, 2500 m, No. 49, log, SLW.

Notes: The above treatment was based on the female holotype from Colombia and on 24 specimens from Venezuela; these females were compared by me directly to the holotype.

Metacorthylus subproprius
(Schedl), n. comb.

Metacorthylus subproprius (Schedl), 1976:83 (*Pterocyclon*). Holotype ♀; Salesopolis, Sao Paulo, Brazil; NHMW, Wien (References in Wood & Bright c1992:1063)

Diagnosis: Allied to *vicinus* (Schedl), distinguished by having 3 minute tubercles on basal margin of female declivity between suture and spine 2; by the strongly impressed declivity on the median two-thirds; and by the rugose-reticulate surface of the declivity.

Female: Length 2.6 mm, 2.7 times as long as wide; color dark reddish brown. Frons broadly convex; reticulate on epistoma, smooth, shining above, punctures small; frons mostly concealed by pronotum and glue on type; antennae of type missing except for right scape. Pronotum 1.1 times as long as wide; sides straight and parallel on more than basal half, broadly rounded in front; anterior margin unarmed by asperities; summit distinctly anterior to middle of pronotum length; anterior slope rather steep, asperities small, close, confused; posterior areas strongly reticulate, punctures very small; sparse, short setae on lateral and anterior margins. Elytra 1.4 times as long as wide, 1.3 times as long as pronotum; disc occupying basal 80 percent of elytra length; disc strongly reticulate, punctures minute, confused. Declivity very steep, broadly, moderately concave; ventrolateral margin subacute only near suture, narrowly rounded on lateral margins to suture at base; spine 3 positioned slightly below middle of declivity length, displaced mesad from lateral crest about one-fourth distance toward suture; spine 2 slightly above middle of declivity length on mesal margin of crest; 2 and 3 small, conical, of about equal size; crest from suture to spine 2 armed by three to five minute, pointed tubercles; face of declivity rugose-reticulate, punctures not evident; distance from spine 2 to 3 equal to one-third distance from 3 to apical margin. Minute microsetae moderately numerous on face and on lateral crests of declivity.

Distribution: Brazil: Salesopolis, Sao Paulo, 1968, T. Weinu.

Notes: The above treatment was based on the female holotype.

Metacorthylus vicinus
(Schedl), n. comb.

Metacorthylus vicinus (Schedl), 1970:100 (*Pterocyclon*). Holotype ♀; Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:1064)

Diagnosis: Distinguished from female *concisus* Wood by the much less strongly acuminate antennal club; by the strongly impressed elytral declivity, with the surface less strongly reticulate, and with many minute tubercles on the impressed area; by the much larger spine 2 on the declivity; and with spine 3 displaced mesad from lateral crest toward the suture slightly more.

Female: Length 2.6 mm, 2.6 times as long as wide; color reddish brown. Frons entirely concealed by pronotum on type; antennal club 1.6 times as long as wide, apex much less strongly acuminate than in *concisus*, without a tuft of hair at apex. Pronotum 1.2 times as long as wide; sides almost straight and parallel on basal two-thirds of pronotum length, broadly rounded in front;

anterior margin unarmed by serrations; summit indefinite, anterior to middle of pronotum length; anterior slope rather steep, asperities very small, close, confused; posterior areas reticulate, punctures very small; sparse, short setae on anterior margin. Elytra 1.4 times as long as wide, 1.3 times as long as pronotum; disc occupying 76 percent of elytra length; disc strongly reticulate, almost rugose-reticulate near base, punctures minute to obsolete, confused. Declivity very steep, subconcavely, moderately impressed on mesal two-thirds; ventrolateral margin subacute only near suture, rather narrowly rounded on lower half of crest, more broadly rounded above; spine 2 on mesal margin of lateral crest slightly above middle of declivity length, rather large, three times larger than spine 3; spine 3 very small, conical, on mesal margin of lateral crest; distance from spine 2 to 3 slightly less than one-third distance from 3 to apical margin; face of declivity minutely granular, rugose-reticulate on lateral thirds; mesal half with many small, rounded, shining tubercles from near base to near apex, punctures not evident. Face and lateral margins of declivity with many minute setae.

Distribution: Brazil: Santa Catarina, Leuderwald (female holotype).

Notes: The above treatment was based on the female holotype.

Metacorthylus obscuriceps
Wood, n. sp.

Metacorthylus obscuriceps Wood: Holotype ♂; Aracruz, Espirito Santo, Brazil; MZUSP, Sao Paulo, designated below

Diagnosis: This species is distinguished by having the ventrolateral crest on the declivity extending from the suture apex more than three-fourths of the distance toward the suture at the base; by having declivital spine 2 present; and by having spine 3 above the middle of the declivity length; the declivital face is rugose-reticulate, but lacks the definite tubercles of *granosus* Wood.

Male: Length 2.5 mm, 2.5 times as long as wide; color rather dark reddish brown. Frons (mostly concealed on type by pronotum) broadly convex, apparently rugose-reticulate, punctures above epistoma small, close, rather deep; apparently glabrous, with sparse, moderately long setae on epistoma; antennal club rather large, 1.37 times as long as wide, broadly ovate, slightly asymmetrical, sutures 1 and 2 moderately procurved, weakly septate on lateral thirds. Pronotum 1.1 times as long as wide; sides straight and parallel on basal two-thirds, broadly rounded in front; anterior margin armed by 8 weak serrations; summit indefinite, anterior to middle of pronotum length; anterior slope steep, asperities rather small, close, confused; posterior areas rugose-reticulate, punctures apparently small, obscure (largely obscured by resin on type); apparently glabrous. Elytra 1.4 times as long as wide, 1.2 times as long as pronotum; disc occupying basal 63 percent of elytra length; disc finely rugose-reticulate (largely obscured by resin on type), punctures

very small, confused. Declivity very steep, subtruncate, irregularly, shallowly concave, entire surface strongly rugose-reticulate; subacute circumdeclivital costa slightly elevated on more than lower 80 percent; spine 1 very small, conical, slightly displaced mesad from basal crest on about striae 3; spine 3 slightly above middle of declivity length and displaced mesad from crest slightly less than half distance toward suture, spine 3 somewhat conical, at least three times larger than 2; sutural interstriae weakly elevated, rugose-reticulate, with an obscure irregular row of minute granules on its crest. Vestiture of many minute setae on and near crest on both sides and within circumdeclivital crest.

Distribution: Brazil (Espirito Santo).

Type material: The male holotype was found without a label in a series composed of *M. vicinus* (Schedl) and *M. granosus* Wood all taken at Aracruz, Espirito Santo, Brazil, 13-II-1996, Nos. 7360, 7362, 7393; moth scales suggest they were taken at light; the name of the collector was not indicated. The holotype is in the Museum de Zoologia, Universidade de Sao Paulo, Sao Paulo.

Metacorthylus granosus Wood, n. sp.

Metacorthylus granosus Wood: Holotype ♂; Aracruz, Espirito Santo, Brazil; MZUSP, Sao Paulo, designated below

Diagnosis: Distinguished from *obscuriceps* Wood by the absence of declivital spine 2; and by the presence of numerous, confused tubercles on the face of the declivity.

Male: Length 2.4–2.5 mm, 2.6 times as long as wide; color dark reddish brown. Frons moderately convex, a moderate, transverse impression on lower third, median line of impression slightly elevated; surface almost smooth, shining, convex area with rather small punctures, not close; sparse, short, hairlike setae on lower half; antennal club oval, longer than scape, details obscured by resins and fungal growth (sutures 1 and 2 weakly procurved on paratype). Elytra 1.4 times as long as wide, 1.1 times as long as pronotum; disc occupying 77 percent of elytra length; disc mostly rugose-reticulate, minute punctures obscure to obsolete. Declivity very steep, subtruncate, circumdeclivital crest distinct on lower three-fourths, abruptly obtuse on upper fourth to suture; face moderately concave on lower three-fourths on slightly more than median half, more broadly impressed to crest below spine 3, weakly convex on peripheral area above spine 3; spine 3 distinctly below middle of declivity length and displaced mesad from lateral crest slightly less than half distance toward suture; surface rugose-reticulate, punctures mostly obsolete and replaced by many small, confused, rounded tubercles. Vestiture confined to declivity, consisting of numerous very small, hairlike setae, setae on interstriae 1 and 2 in rows, confused on lateral areas.

Female: A presumed female(?) as in male except spine 3 absent.

Distribution: Brazil (Espirito Santo).

Type material: The male holotype and 1 male paratype were taken at Aracruz, Espirito Santo, Brazil, 13-

II-1996, (No.) 7362 (holotype), (No.) 7360 (paratype). The holotype is in the Museum de Zoologia, Universidade de Sao Paulo, Sao Paulo; the paratype is in the U.S. National Museum, Washington.

Metacorthylus truncatorus

(Schedl), n. comb.

Plate CCVIII

Metacorthylus truncatorus (Schedl), 1950:175 (*Amphicranus*). Syntypes ♂; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:1050)

Diagnosis: Distinguished from *volvulus* (Eichhoff) by the narrower declivital sulcus; by the more slender female antennal club, its apex attenuate, acutely pointed; female frons more strongly convex, the epistomal tubercle larger, with the dorsal crest more obtuse.

Male: Length 3.0 mm, 2.7 (female 2.8) times as long as wide; color dark reddish brown. Frons broadly convex, smooth, shining, punctures rather coarse, deep; transverse impression above epistoma rather weak, median tubercle on epistoma smaller, pointed, carina on dorsal crest short, more acute; antennal club 1.7 times as long as wide, sutures moderately procurved. Pronotum 1.2 times as long as wide; sides almost straight and parallel on basal three-fifths, rather narrowly rounded in front; anterior margin armed by 6 serrations, median pair largest; summit two-fifths of pronotum length from anterior margin; asperities rather small, close, confused; posterior areas reticulate, punctures moderately small, rather close; glabrous except for sparse, short hair on anterior and lateral margins. Elytra 1.5 times as long as wide, 1.2 times as long as pronotum; disc occupying 72 percent of elytra length; surface mostly reticulate, dull, shining near base of declivity, with numerous minute punctures in that area. Declivity very steep, longitudinal axis weakly convex, transverse axis almost straight, margins obtusely abrupt, not costate; 1 pair of denticles distinctly below middle of declivity length, displaced one-third distance from lateral margin toward suture; declivity face rugose-reticulate, with obscure granulation; sutural interstriae weakly elevated; distinctly impressed between spines and apical margin. Vestiture on declivity face of minute hair of moderate abundance, mostly abraded on my specimen.

Female: Similar to male except frons with a moderate, transverse impression on lower half of area below upper level of eyes, upper area apparently with a moderately elevated callus on median third; antennal club 3.5 times as long as wide, acutely attenuate on apical half, several long setae on apical margin; anterior margin of pronotum unarmed; elytral disc without a shining area, reticulate to declivity; declivity rather deeply sulcate on more than median half, with 2 moderate spines displaced from lateral margin one-third distance toward suture, spine 1 slightly above middle of declivity length, 2 almost half distance from 1 to apical margin.

Distribution: Brazil: Nova Teutonia [Santa Catarina], 1944, F. Plaumann.

Notes: The above treatment was based on 1 male paratype and 1 female paratype, both in the U.S. National Museum, Washington.

Metacorthylus volvulus

(Eichhoff), n. comb.

Plate CCX

Metacorthylus volvulus (Eichhoff), 1869:279 (*Pterocyclon*). Holotype ♀; Colombia; IRSNB, Brussels (References in Wood & Bright c1992:1064)

Diagnosis: Distinguished from *truncatorus* (Schedl) by the broader female declivital sulcus; by the stouter female antennal club, with the apex more broadly rounded; and by the stouter, blunt epistomal tubercle, with its dorsal crest more obtusely carinate.

Female: Length 3.3–3.5 mm, 3.1 times as long as wide; color very dark reddish brown. Frons transversely impressed on more than median half from epistoma to above upper level of eyes, punctures very small; median tubercle on epistoma much larger, blunt, dorsal crest higher, more nearly obtuse; glabrous, except for sparse epistomal brush; antennal club 1.46 times as long as wide, sutures weakly procurved (antennae missing from type). Pronotum 1.2 times as long as wide (slightly crushed); sides almost straight and parallel on more than basal three-fifths, rather broadly rounded in front; anterior margin unarmed; summit two-fifths of pronotum length from anterior margin; asperities small, close, confused; posterior areas reticulate, punctures minute to obsolete; sparse setae limited to anterior and lateral margins. Elytra 1.7 times as long as wide, 1.4 times as long as pronotum; disc occupying 80 percent of elytra length; disc strongly reticulate, punctures minute to obsolete. Declivity very steep, shallowly, broadly concave; lateral margins rounded on dorsal five-sixths, subacute on apical sixth; spine 1 of moderate size, located well above middle of declivity length, displaced from lateral margin about one-fourth distance from margin toward suture or slightly less, 2 smaller, well below middle, on mesal edge of lateral margin; the holotype with three spines on lateral margin, 1 on crest, 3 very small, on crest, setae on declivital interstriae 1 longer; face of declivity weakly rugose-reticulate, punctures small, surface more finely sculptured.

Distribution: Colombia to Venezuela (Merida).

Colombia: "Colombie, Dejean" (holotype).

Venezuela: Pico Bolivar Teleferico, Merida, Merida, 3-I-1970, 2500 m, No. 217, *Clusia*, SLW.

Notes: The above treatment was based on the female holotype and on my female from Venezuela. The frons of the type is concealed by the pronotum and both antennae are missing. More specimens are needed to determine whether or not the third denticle and longer setae on the declivity of the type are significant enough to warrant separation from my Venezuela specimen. They are very closely allied, if different.

Metacorthylus subcostatulus

Wood, n. sp.

Plate CCVI

Metacorthylus subcostatulus Wood: Holotype ♂; Colonia Tovar, Aragua, Venezuela, 1700 m; USNM, Washington, designated below

Diagnosis: Distinguished from *costatulus* Wood by the incomplete circumdeclivital costa on the declivity; by the presence of a minute tubercle on the male declivity face; and by the thicker, not acute, costa of the lower circumdeclivital ring.

Male: Length 3.3–3.4 mm, 2.7 times as long as wide; color reddish brown. Frons broadly convex above eyes to vertex, a moderate, subacute median carina from epistoma to two-thirds distance to upper level of eyes; epistoma to above upper level of eyes smooth, shining, with rather coarse, close punctures; area above eyes mostly concealed, apparently reticulate; vestiture sparse, short, mostly on epistomal brush; antennal club 2.1 times as long as wide, sutures weakly procurved, apex narrowly rounded. Pronotum 1.1 times as long as wide; sides almost straight and parallel on basal three-fifths, rather narrowly rounded in front; anterior margin armed by 10 rather coarse serrations; summit two-fifths of pronotum length from anterior margin; posterior areas coarsely reticulate, punctures small, shallow; mostly glabrous, sparse hair on anterior and lateral margins. Elytra 1.7 times as long as wide, 1.5 times as long as pronotum; disc occupying 70 percent of elytra length; disc minutely reticulate, punctures minute, mostly obsolete. Declivity very steep, shallowly, broadly concave from base to apex; circumdeclivital ring more than seven-eighths complete, its crest narrowly rounded, not acutely costate, minute, obscure tubercles at base on interstriae 1, 2, and 3; declivital face rugose-reticulate, interstriae 1 weakly elevated from base to apex, obscurely armed by a row of minute tubercles/rugae on central two-thirds, a minute tubercle distinctly below middle of declivity length displaced mesad from lateral crest one-fourth distance toward suture. Minute setae on face moderately numerous, mostly abraded, a few setae on sides near declivity.

Distribution: Venezuela (Aragua).

Type material: The male holotype was taken at Colonia Tovar, Aragua, Venezuela, 4-V-1970, 1700 m, No. 482, tree bole, by S.L. Wood. One male paratype bears similar data except No. 503 from an unidentified log. The holotype and paratype are in the U.S. National Museum, Washington.

Metacorthylus costatulus Wood, n. sp.

Plate CCV

Metacorthylus costatulus Wood: Holotype ♀; Braulio Carrillo, San Jose Prov., Costa Rica; USNM, Washington, designated below

Diagnosis: Distinguished from *subcostatulus* Wood by the complete circumdeclivital subacute costa; by the smoother, weakly rugose-reticulate surface of the declivity face; by the absence of tubercles on the feebly

elevated declivital interstriae 1; and by the female declivity being without a tubercle on the lower face of the declivity.

Female: Length 2.7 mm, about 2.4 times as long as wide (estimated, elytra of type spread); color reddish brown. Frons transversely impressed from epistoma two-thirds distance to upper margin of eyes, almost from eye to eye, surface smooth and shining, mesal and lower areas with several small punctures; a moderate, subacute median carina from epistomal margin to upper limits of impression, then continued dorsad on less than median one-sixth as a wider, weakly elevated callus to upper level of eyes; vestiture of sparse hair on impressed area, longer and more numerous on epistomal margin; antennal club 2.0 times as long as wide, subacutely tapered on apical half, apex bearing several long setae. Pronotum 1.1 times as long as wide; sides feebly arcuate and subparallel on more than basal half, broadly rounded in front; anterior margin without any serrations; summit on anterior third of pronotum length; anterior slope moderately steep, asperities very small, close, confused; posterior areas strongly reticulate, punctures minute; glabrous except sparse hair on anterior and lateral margins. Elytra 1.4 times as long as wide, 1.2 times as long as pronotum (estimated, elytra spread); disc occupying basal 80 percent of elytra length; disc reticulate, minute punctures mostly obsolete. Declivity very steep, moderately, broadly concave; circumdeclivital ring complete from suture at apex to striae 1 or interstriae 1 at base, costa abruptly rounded (not acute), with no tubercles on crest; face of declivity rather weakly rugose-reticulate, sutural interstriae weakly elevated, unarmed; one minute tubercle (on position of interstriae 3) one-fourth declivity length from base, positioned equal distance from suture and lateral margin. Minute hair on face and margin of concave area of declivity; a few setae on sides from declivity to base.

Distribution: Costa Rica (San Jose Prov.).

Type material: The female holotype was taken at Braulio Carrillo, San Jose Prov., Costa Rica, 1981, G. Stevens. The holotype is in the U.S. National Museum, Washington.

GENUS *MICROCORTHYLUS* FERRARI

Microcorthylus Ferrari, 1867:58. Type-species: *Microcorthylus parvulus* Ferrari, monobasic (References in Wood & Bright c1992: 1065–1067)

Diagnosis: Distinguished from previous genera by the 1-segmented antennal funicle, with sutures of the antennal club less clearly marked; by the prothoracic precoxal piece being transversely straight, not extended caudad between the coxae. From *Corthyloxiphus*, *Brachyspartus*, and *Corthylocurus*, this genus is distinguished by having the lateral margins of the prothorax rounded (some *Corthyloxiphus* may share this character); by the very short, steep declivity, and usually with the elytral disc impunctate; female frons convex, pubescent.

Discription: Length 1.2–2.4 mm, 2.5–3.1 times as long as wide; color yellowish to dark brown; most body vestiture greatly reduced or absent. Frons evenly convex (slightly modified in *grandiclavatus* Eggers), subglabrous. Eye emarginate, finely to coarsely granulate. Antennal scape elongate, funicle 1-segmented; club oval to obscurely subtriangular, longer than scape, sutures 1 and 2 usually present, female with a tuft of setae on posterior face. Pronotum longer than wide; obscure summit anterior to middle of pronotum length; asperities on anterior slope low, anterior margin weakly serrate in female, rather coarsely serrate in male; posterior areas reticulate, punctures minute to obsolete. Scutellum rather large, flat. Elytra 1.4–1.8 times as long as wide, sides almost straight and parallel on basal two-thirds; disc reticulate, punctures obscure to obsolete, either in rows or confused. Declivity steep, sulcate on basal third, variously more broadly impressed below, excavated area usually reticu-

late, without punctures; lateral margin armed by spine 1 at base on interstriae 3, spine 2 slightly above middle of declivity length on crest, both spines very small, pointed. Precoxal piece on prosternum forming a simple vertical partition, procoxae contiguous. Protibiae weakly inflated, armed on posterior face by small tubercles.

Biology: All observed species are monogynous and xylomycetophagous. They infest recently cut, injured, or unthrifty stems of trees, shrubs, and lianas about 2 to 5 cm in diameter. The initial attack is by the male. The gallery usually follows a spiral pattern along a growth ring in the xylem; a small turning niche is formed just inside near the entrance hole. The eggs are deposited individually in egg niches that the larva enlarges into a cradle as it grows, similar to *Monarthrum*.

Notes: Wood & Bright (c1992:1064–1067) record 32 species from Mexico (Veracruz) to South America, 18 of which are recorded from South America.

Key to the Species of *Microcorthyus*
(Modified from Wood 1982:1252–1253)

- 1. Elytral declivity with sutural interstriae on right elytron weakly to distinctly elevated and marked by an acute, continuous, longitudinal costa on at least lower half of declivity, punctures, granules or tubercles usually absent on interstriae 1; sutures 1 and 2 on posterior face of antennal club present and more distinctly impressed, female club usually with a conspicuous tuft of long hair 2
- Elytral declivity with sutural interstriae sometimes partly elevated, never with lateral margin forming an acute costa parallel to suture; sutures on antennal club usually less strongly impressed, 2 sometimes partly to entirely obsolete, posterior face of female club without a tuft of long hair, rarely weakly developed; in some species striae 1 with two to several enlarged punctures or tubercles near middle of declivity 20
- 2(1). Ventrolateral area of declivity rounded, without a short, acutely elevated costa branching dorsad from costal margin 3
- Ventrolateral area of declivity rounded, with a short, acutely elevated costa branching from costal margin and extending laterally before curving dorsad toward lateral margin 19a
- 3(2). Elytral declivity less strongly, less broadly impressed, slope from suture to summit of lateral margins more gradual, uniform 4
- Elytral declivity more strongly, more broadly impressed, lateral convexities abruptly elevated at mesal margin of spines, particularly noticeable just below spine 2 10
- 4(3). Elytral disc mostly smooth, shining, body apparently stouter 5
- Elytral disc mostly textured, partly to entirely reticulate; body more slender 6
- 5(4). Male epistoma unarmed by a tubercle; frons strongly reticulate, becoming rugose-reticulate at epistoma and bearing a transverse row of short, erect epistomal setae; declivity dull, reticulate; Venezuela (Merida); 1.2 mm *degener* Wood
- Female epistoma armed by a median tubercle, weak reticulation only on dorsolateral areas; declivity steeper, spines 1 and 2 smaller; Venezuela (Merida); about 1.7 mm *tuberculifer* Wood
- 6(4). Punctures on frons larger, longitudinally etched (substrigose), some reticulation on lateral areas; Guatemala; 1.6–1.9 mm *debilis* Wood

CORTHYLINI

- Frons more finely punctured, partly to entirely reticulate to rugose-reticulate; smaller species . . . 7
- 7(6). Epistoma without a median tubercle (rarely minute in female); eyes greatly enlarged, coarsely faceted; body slender; elytra more strongly reticulate; Costa Rica; 1.3–1.4 mm . . . *ocularis* Wood
- Epistoma armed by a small, median tubercle (obscure in some females); male frons reticulate, female frons reticulate on margins, shining in central area; eyes of normal size; body stouter; elytra subshining, weakly reticulate 8
- 8(7). Frons dull, reticulate, punctures small on upper half; declivity not as steep, impression very shallow, tubercles very small; Colombia; *Vismia*; 1.5–1.7 mm *vietus* Wood
- Frons mostly, weakly reticulate or rugose-reticulate, shining, with punctures; declivity steeper, impression deeper, tubercles distinctly larger 9
- 9(8). Frons rugose-reticulate on lower third, mostly smooth, shining and rather coarsely to obscurely punctured above; declivity much more strongly impressed above, lateral crests armed by 3 pair of tubercles; Mexico and Jamaica to Brazil (Santa Catarina) 1.3–1.4 mm *minimus* Schedl
- Frons smooth, shining, more strongly, evenly convex from epistoma to vertex, punctures minute, obscure; declivity less strongly impressed above, usually armed on lateral crests by 2 pair of tubercles (rarely 3); Mexico (Puebla) to Costa Rica; 1.3–1.5 mm *demissus* Wood
- 10(3). Impressed area of declivity (triangular) with lateral margins almost straight from base to crest apex; anterior margin of male pronotum on anterior margin armed by 2–4 serrations 11
- Impressed area of declivity heart-shaped, with lateral margins conspicuously curved, particularly below spine 2; male pronotum usually armed by 6–8 serrations 16
- 11(10). Species larger than 2.3 mm; punctures on elytral disc minute, confused 12
- Species smaller, 1.5–2.2 mm; punctures on elytral disc small, mostly in distinct rows 14
- 12(11). Elytral declivity very weakly sulcate, lateral crests rather weakly elevated on basal half, armed by 2 pair of tubercles, lower half armed by a dozen or more small, confused granules; frons minutely rugose-reticulate from epistoma to well above upper level of eyes, upper areas longitudinally etched; Peru; 2.5 mm *obscuriceps* Wood
- Elytral declivity strongly sulcate, lateral convexities more abruptly, more strongly elevated, lateral crests much higher than suture and armed by three or more pair of tubercles, at least one pair below middle of declivity length 13
- 13(12). Bicolored, basal half of elytra pale; elytra reticulate on basal half, apical half smooth, shining; declivital sulcus narrower, crests armed by 4–5 pair of tubercles; body 2.7 times as long as wide; Bolivia; 3.2 mm *bicolor* Eggers
- Unicolorous; elytral disc reticulate from base to base of declivity; declivital sulcus wider below, crests armed by 3 or 4 pair of tubercles; body 2.4 times as long as wide; Brazil (Santa Catarina); 2.2–2.5 mm *nebulosus* Wood
- 14(11). Frons dull, strongly rugose-reticulate eye to eye from epistoma to vertex in both sexes; pronotum less strongly rugose-reticulate; impressed area of declivity more broadly triangular, sides converging above at an angle of about 45 degrees; Costa Rica to Panama and Colombia to Venezuela; 1.5–1.6 mm *parvulus* Ferrari
- Frons and pronotum reticulate; impressed area of declivity more narrowly triangular, sides converging above at an angle of about 30 degrees 15
- 15(14). Anterior slope of pronotum steeper, disc reticulate; lower declivity more broadly impressed, interstriae 1 less distinctly elevated; Mexico (Guerrero, Nayarit); 1.5–1.6 mm *invalidus* Wood

- Anterior slope of pronotum more gradual, disc weakly rugose-reticulate; lower declivity more narrowly impressed, interstriae 1 more distinctly elevated; Colombia (Antioquia); 1.5–1.6 mm *dilutus* Wood
- 16(10). Declivital spine 2 positioned well above middle of declivity, distance from apical margin to spine 2 at least twice as great as distance from spine 1 to spine 2; elytra more slender, 1.6 times as long as wide, disc shining, without any reticulation except on declivity 17
- Declivital spine 2 positioned lower on declivity, distance from apical margin to spine 2 less than twice as great as distance from spine 1 to spine 2; disc of male often partly reticulate, female usually with additional reticulation 18
- 17(16). Male frons with a conspicuous transverse impression immediately above epistoma from eye to eye, reticulate in and slightly above groove, smooth and shining above upper level of eyes, a small median carina from epistoma to groove; female epistoma with groove obsolete, entire surface smooth, shining; Venezuela; 1.6–1.7 mm *macer* Wood
- Male frons without a transverse groove, strongly reticulate from epistoma to vertex, female frons mostly smooth, shining in large central area, reticulate on all margins; a feeble, median epistomal carina at and near margin; Venezuela (Caracas); *Piper*; 1.4–1.7 mm *inops* Wood
- 18(16). Male frons rather strongly convex eye to eye and epistoma to vertex, without a transverse impression above epistoma, surface minutely subgranular, obscure punctures very small, female frons strongly reticulate, a very weak, transverse impression above epistoma; declivital impression not as deep or as wide on lower half; body 2.5 times as long as wide; Mexico (Veracruz) and Jamaica to Brazil; 1.2–1.3 mm *brevior* Wood
- Male frons strongly reticulate, a definite median tubercle on epistoma, with a short dorsal crest, female frons rugose-reticulate from epistoma to vertex, a median tubercle on epistoma; most females with 3 pair of tubercles on lateral crest of declivity; declivital impression slightly wider and deeper; body 2.9 times as long as wide; Mexico (Chiapas to Oaxaca); 1.5–2.0 mm *vicinus* Wood
- 19a(2). Declivital sulcus very narrow, not wider below pair 4 of denticles, lateral margins armed by 4 pair of denticles, space between members of pair 1 about equal to space between pair 4; costa forming ventrolateral crest very short, arising from costa very near suture apex, its lateral extent directed to or mesad to level of spine 4; Brazilian spp. 19b
- Declivital sulcus broadly triangular on lower half, lateral margins armed on basal half by 2 pair of denticles; ventrolateral crest branching from costal margin rather remote from suture apex, its dorsal end directed laterad from denticle 2; Central American spp. 19c
- 19b(19a). Smaller spp.; anterior margin of pronotum much more narrowly rounded; elytra disc mostly smooth, shining, sutural interstriae reticulate; declivital sulcus deeper on upper half, not as deep below, reticulation obscure to obsolete; frons smooth, shining, median sulcus less definite, short to obsolete; Brazil (Sao Paulo); 1.7–1.8 mm *declivis* Wood
- Larger spp.; elytral disc and declivity reticulate, sulcus uniformly, moderately impressed; frons reticulate on upper half, median sulcus longer, more definitely impressed; Brazil (Para); 2.1–2.3 mm *quadridens* Wood
- 19c(19a). Declivital spine 2 closer to spine 1 than to posterior margin of declivity (both spines sometimes obsolete); frons very broad, evenly convex; Costa Rica to Panama; 1.7–1.9 mm . . . *pumilus* Wood
- Declivital spine 2 closer to posterior margin than to spine 1; male frons with a short median carina at epistoma, an obscure median callus at upper level of eyes, female frons below upper level of eyes almost flat on lateral thirds, a rather strongly convex elevation on median third; Guatemala to Honduras; 2.0–2.4 mm *pusillus* Wood

CORTHYLINI

20(1).	Declivital interstriae 1 not armed by tubercles or by a row of punctures on striae 1	21
—	Declivity of male on interstriae 1 armed by a row of tubercles at lateral margin or by a row of punctures	27
21(20).	Punctures on declivity from suture to lateral convexities minute, obscure; frons broadly convex, rugose-reticulate; antennal club with suture 1 obsolete; Costa Rica to Panama; liana; 1.5–1.6 mm	<i>lassus</i> Wood
—	Punctures on declivity from suture to lateral convexities clearly impressed, numerous, confused	22
22(21).	Upper portion of lateral crest on declivity more broadly rounded, crest armed by 2 pair of tubercles	23
—	Upper portion of lateral crest on declivity more abruptly rounded, armed by only 1 pair of tubercles	25
23(22).	Smaller species; body slender; 2.9 times as long as wide, declivity not as steep; face of declivity less strongly depressed; Colombia (Antioquia); “Graptero”; 1.7 mm	<i>simulans</i> Wood
—	Larger species; body stouter; 2.7 times as long as wide; declivity very steep, more strongly impressed	24
24(23).	Lower declivity more narrowly impressed, reticulate, a few confused granules on lower fourth; face of declivity with many fine, short setae; punctures on pronotum disc shallow, much larger; Venezuela; <i>Nectandra</i> ; 2.6–2.7 mm	<i>diversus</i> Wood
—	Lower declivity more broadly impressed, somewhat rugose-reticulate, a few rather coarse punctures evident; face of declivity with sparse, rather short setae; punctures on pronotum disc minute; Costa Rica (San Jose); <i>Rheedia edulis</i> ; 2.2–2.3 mm	<i>absonus</i> Wood
25(22).	Basal margin of declivity less strongly elevated, sulcus not as deep, narrower, male denticle 1 obsolete, 2 greatly reduced (not acutely pointed); suture 1 on antennal club feebly septate, 2 marked only at margins (central two-thirds not at all grooved or septate); El Laurel near Caracas, Venezuela; 1.4–1.5 mm	<i>parvus</i> Wood
—	Basal margin of declivity more distinctly elevated, sulcus wider deeper, spine 1 obsolete, 2 acutely pointed; antennal segments 1 and 2 both finely septate	26
26(25).	Male declivity less strongly, less broadly concave, crest on upper third projecting moderately, its thickness slightly greater than its height, female crest more broadly rounded, not abruptly projecting, both spines clearly evident, rugose-reticulate area on frons restricted to lower half of area below upper level of eyes; Venezuela (Merida); tree seedling; 1.5–1.7 mm	<i>curtus</i> Wood
—	Male declivity more strongly, more broadly concave, projecting crest on basal half about half as high as thick, female resembling male, with crests less strongly elevated; rugose-reticulate area on frons extending to or beyond upper level of eyes; Brazil (Santa Catarina); 1.7–1.9 mm	<i>suggrandis</i> Schedl
27(20).	Male elytral declivity less strongly concave, lateral margin of interstriae 1 or striae 1 with a row of 7 to 10 small punctures or small tubercles (count only punctures or tubercles if both present)	28
—	Male elytral declivity more deeply concave, interstriae 1 or striae 1 with a row of 2 to 6 tubercles or punctures; mostly larger species	31
28(27).	Male elytral declivity with about 10 punctures/tubercles on right interstriae or on striae 1, and with many shallow, confused punctures between striae 1 and lateral crest; both male and female frons reticulate or rugose-reticulate from epistoma to above upper level of eyes; anterior margin of pronotum armed by about 6 serrations	29

- Male declivity with area between striae 1 and lateral crest reticulate, without any punctures, interstriae 1/striae 1 with about 10 punctures/tubercles; male frons rugose-reticulate from epistoma to above upper level of eyes, female frons with median third (or more) smooth, brightly shining, with punctures minute to obsolete 30
- 29(28). Frons and pronotum disc moderately to strongly reticulate; anterior margin of pronotum armed by 4 very small serrations; lateral convexities of declivity armed by 2 or 3 pair of small denticles; Brazil (Santa Catarina) to Venezuela; 2.0–2.2 mm *glabratus* (Ferrari)
- Frons rugose-reticulate from epistoma to upper level of eyes; pronotum disc rugose-reticulate; lateral convexities on declivity armed by 2 or 3 pair of small denticles; Argentina (Concepcion) to Brazil (Santa Catarina); 1.6–1.9 mm *puerulus* Schedl
- 30(28). Female frons smooth and brightly shining on median third; elytral disc strongly reticulate, punctures less numerous, more weakly impressed; declivital sulcus more shallowly impressed, tubercles on lateral crests very small; Bolivia; 1.9–2.3 mm *obscurus* Eggers
- Female frons smooth and brightly shining on median two-thirds or more; elytral disc with more numerous punctures, more distinctly impressed; declivital sulcus a bit more strongly impressed, tubercles on lateral crests distinctly larger; Venezuela (Merida); *Nectandra*; 1.9–2.2 *umbratus* Wood
- 31(27). Male right declivital striae 1 with a row of four to six moderately large punctures 32
- Male right declivital striae 1 with a row of 2 to 4 punctures 33
- 32(32). Sutural interstriae of male armed by a row of 5 or 6 tubercles; elytral disc rather strongly reticulate in both sexes, punctures small, close, distinct, confused; feeble transverse epistomal impression present, upper areas similar to male, with etching and punctures present on median area; Mexico (Puebla); tree sapling; 2.0–2.3 mm *vescus* Wood
- Sutural interstriae of male armed by a row of 4 to 6 tubercles; elytral disc mostly smooth, shining, a few impressed lines present, feeble reticulation sometimes on basal fourth, punctures minute to obsolete, not clearly impressed; female frons similar to male, except a weak, transverse impression present above epistoma, upper area mostly reticulate, punctures minute to obscure, etching obsolete (median third variable, almost smooth and shining on some Costa Rican specimens); Costa Rica to Venezuela (Caracas); *Croton gossypifolius*; 1.6–2.0 *concisus* Wood
- 33(31). Sutural interstriae of male armed by a row of 3, rarely 4 tubercles on one side, accompanying impressions, often small, obscure; male frons rugose-reticulate eye to eye from epistoma to vertex; female frons weakly, rugose-reticulate and weakly, transversely impressed on lower half of area below upper level of eyes, rugose-reticulate area extending dorsad on lateral thirds to well above eyes, median third from transverse impression to vertex smooth, shining and moderately inflated, with sparse, small punctures and some micropunctures; Costa Rica to Panama; 1.9–2.2 mm (Plate CCXII) *grandiclavatus* Eggers
- Sutural interstriae of male armed by 2 weak tubercles, accompanying cavities rather large, deep; male and female frons rugose-reticulate below upper level of eyes, longitudinally etched above, with small punctures; Brazil (Santa Catarina); 1.9–2.2 mm *rufotestaceus* Schedl

Microcorthylys degener Wood, n. sp.

Microcorthylys degener Wood: Holotype ♂; 20 km SW El Vigia, Merida, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *debilis* Wood by the almost smooth, shining elytral disc; by the smaller striae punctures; by the smaller size; and by the larger declivital tubercles.

Male: Length about 1.2 mm (elytra spread on type), 2.4 times as long as wide (estimated); color dark reddish brown. Frons broadly convex above, lower half of area below upper level of eyes weakly, transversely impressed mandible to mandible; impressed area rugose-reticulate, upper area reticulate and with small punctures; epistoma with a minute, median tubercle; epistomal brush short, sparse; antennal club oval, 1.4 times as long

as wide, sutures almost straight. Pronotum 1.2 times as long as wide; sides almost straight and parallel on basal half, rather narrowly rounded in front; anterior margin armed by 4 serrations, middle pair larger; summit slightly anterior to middle of pronotum length; asperities rather small, close, confused; posterior areas reticulate, punctures minute, sparse; mostly glabrous. Elytra spread, about 1.3 times as long as wide, about 1.2 times as long as pronotum; disc occupying about 80 percent of elytra length; disc almost smooth, shining, some obscure, irregular lines present, obscurely reticulate near base of declivity, very sparse, minute punctures partly in obscure rows. Declivity very steep, somewhat sulcate on basal third, moderately, more broadly impressed below; sutural interstriae of right elytron distinctly elevated, its lateral crest weakly costate from base to apex; lateral crest of declivity rounded, spine 1 on crest at base at interstriae 2, spine 2 at middle of declivity length on crest, both spines small, pointed; surface reticulate, without punctures or granules.

Distribution: Venezuela (Merida).

Type material: The male holotype was taken 20 km SW El Vigia, Merida, Venezuela, 10-XII-1969, 50 m, No. 184, by S.L. Wood. The holotype is in the U.S. National Museum, Washington.

Microcorthylus tuberculifer
Wood, n. sp.

Microcorthylus tuberculifer Wood: Holotype ♀; La Carbonera 50 km NW Merida, Merida, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *degener* Wood by the larger size; by the median tubercle on the female epistoma; by the smaller declivital spines 1 and 2; and by the steeper declivity.

Female: Length 1.7 mm, about 2.6 times as long as wide (elytra spread on type); color reddish brown. Frons broadly convex eye to eye from vertex to near epistoma, lower third of area below upper level of eyes shallowly, transversely impressed, a short, acute median carina from epistomal margin to dorsal margin of transverse impression; surface rather strongly reticulate at epistoma, gradually changing to obscurely, longitudinally etched toward vertex; punctures small, sparse; glabrous except epistomal brush sparse, setae short; antennal club oval, 1.2 times as long as wide, sutures obscure, weakly procurved. Pronotum about 1.1 times as long as wide; sides almost straight and parallel on slightly more than basal half, rather narrowly rounded in front; anterior margin armed by 8 low serrations; summit slightly anterior to middle; asperities small, close, confused; posterior areas strongly reticulate, punctures minute, not close; vestiture of a few short setae at or near anterior margin. Elytra (spread) about 1.5 times as long as wide; disc occupying about 67 percent of elytra length; disc mostly shining, a few obscure lines and micropunctures present, minute punctures obscure, some punctures apparently in obscure

rows. Declivity steep, basal half rather narrowly sulcate, lower half more broadly, moderately impressed, more strongly than *degener*, except tubercles smaller; sutural interstriae 1 weakly elevated, lateral crest on right elytron costate from base to apex, surface of impression finely rugose (partly rugose-reticulate), setae on lower part of impressed area minute, stout, rather numerous; a few longer setae on sides near declivity.

Distribution: Venezuela (Merida).

Type material: The female holotype was taken at La Carbonera Experimental Forest 50 km NW Merida, Merida, Venezuela, 9-XII-1969, 2500 m, in flight, by S.L. Wood. The holotype is in the U.S. National Museum, Washington.

Microcorthylus vietus Wood, n. sp.

Microcorthylus vietus Wood: Holotype ♂; Piedras Blancas 11 km W Medellin, Antioquia, Colombia; USNM, Washington, designated below

Diagnosis: Distinguished from *demissus* Wood by the slightly larger size; by the dull, rugose-reticulate frons, the punctures not evident; and by the less steep declivity, with very shallow impression and small, lateral tubercles.

Male: Length 1.5–1.7 mm, 3.0 times as long as wide; color dark reddish brown. Frons very broadly convex, a moderate, transverse impression on lower half of area below upper level of eyes; impressed area rugose-reticulate, a minute median tubercle on epistoma; upper area reticulate-subaculate from impression to vertex, punctures small, sparse; vestiture sparse, short, mostly on sparse epistomal brush; antennal club oval, 1.7 times as long as wide, suture 1 feebly procurved, 2 straight. Pronotum 1.2 times as long as wide; sides on basal half weakly arcuate, rather narrowly rounded in front; anterior margin armed by 2 coarse serrations (2 small, lateral serrations usually present, type with 3 large and 2 small serrations); summit slightly anterior to middle; asperities rather coarse, close, confused; posterior areas rugose-reticulate, minute punctures obscure; vestiture limited to sparse short setae on anterior and lateral margins. Elytra 1.7 times as long as wide, 1.5 times as long as pronotum; disc surface smooth and shining on most of basal half, mostly strongly reticulate on apical half; parts of striae 2 and 3 with small punctures weakly impressed, others mostly confused. Declivity steep, mostly convex, impression very shallow between minute spines, only slightly wider on lower half; sutural interstriae on right elytron weakly elevated, costa on its right crest distinct from base to apex; weak impressed area rugose-reticulate, lateral crests weakly elevated, spines minute, pointed; setae on lower impressed area rather numerous; a few longer setae on disc and on sides near declivity.

Distribution: Colombia (Antioquia).

Type material: The male holotype and 2 male paratypes were taken at Piedras Blancas 11 km W Medellin, Antioquia, Colombia, 17-VII-1970, 2300 m, No. 689,

Vismia, S.L. Wood. Four male paratypes were taken at the same locality, 15-VII-1970, No. 663, *Vismia*, S.L. Wood, and 1 male paratype No. 667 from *Quercus humboldti*, S.L. Wood. The holotype and paratypes are in the U.S. National Museum, Washington.

Microcorthylus minimus Schedl

Plate CCXIII

Microcorthylus minimus Schedl, 1950:160. Lectotype ♀; Nova Teutonia, Santa Catarina, Brazil; designated by Schedl 1979:154; NHMW, Wien (Synonymy and references in Wood & Bright c1992:1066)

Microcorthylus minutissimus Schedl, 1952:361. Syntypes, sex?; Jamaica; NHMW, Wien

Diagnosis: Distinguished from *demissus* Wood by the wider, more broadly convex frons; and by the more strongly impressed declivity, with lateral crests of male bearing only 2 pair of denticles.

Male: Length 1.3–1.4 mm, 2.6 times as long as wide; color yellowish brown. Frons strongly convex, median fourth smooth, shining, lateral and upper areas reticulate, punctures rather sparse, small. Pronotum 1.16 times as long as wide; sides almost straight and parallel on basal two-thirds, rather narrowly rounded in front; anterior margin armed by about 8 low serrations; summit slightly anterior to middle of pronotum length; anterior slope steep, asperities small, close, confused; posterior areas reticulate, punctures minute, obscure; sparse setae on asperate area. Elytra 1.3 times as long as wide, 1.4 times as long as pronotum; disc occupying basal 75 percent of elytra length; disc weakly reticulate, punctures very small, shallow, in strial rows. Declivity very steep, rather broadly subconcave; lateral crests rather broadly rounded, armed by 3 pair of small, pointed tubercles, 1 very minute; face of impression strongly reticulate, interstriae 1 distinctly elevated, area between interstriae 1 and lateral margins with many confused, very obscure punctures. Lower areas of declivital face and lateral areas near declivity with many minute setae, very sparse longer setae on sides near declivity.

Female: Similar to male except frons more strongly convex, with punctures larger, closer.

Distribution: Brazil: Aracruz, Espirito Santo, 11-XII-1991, No. 3578, at light; Telemaco Borba, Parana, VI-2002-2-IV-2004; ethanol trap, *Pinus taeda* stand, C.A.H. Flechtmann; Nova Teutonia, Santa Catarina, 1944 (lectotype, lectoallotype, 4 paratypes), IV-1940 (1 paratype), 1946 (1 paratype), F. Plaumann.

Notes: The above treatment was based on the female lectotype, male lectoallotype, 6 paratypes, and 3 other specimens.

Microcorthylus obscuriceps

Wood, n. sp.

Microcorthylus obscuriceps Wood: Holotype ♂; vic. Cunyabamba, Cochabamba, Bolivia; USNM, Washington, designated below

Diagnosis: Distinguished from *diversus* Wood by the smaller size; by the rugose-reticulate area on the frons

extending from the epistoma to above the upper level of the eyes, the area above the eyes longitudinally etched, the punctures smaller; and by the weaker declivital impression.

Male: Length 2.5 mm, 2.7 times as long as wide; color dark reddish brown. Frons broadly convex eye to eye from epistoma to vertex, surface rugose-reticulate from epistoma to above upper level of eyes, transcending above to longitudinal etching, punctures minute to obsolete; glabrous except for sparse, epistomal brush of short setae; antennal club broadly obovate, sutures obscure, feebly procurved. Pronotum 1.1 times as long as wide; sides weakly arcuate on more than posterior half, narrowly rounded in front; anterior margin armed by 8 low serrations, 3 median serrations larger; summit anterior to middle; asperities coarse, close, confused; posterior areas finely rugose-reticulate, punctures minute to obsolete; glabrous, except for sparse setae on or near anterior margin. Elytra 1.6 times as long as wide, 1.4 times as long as pronotum; disc occupying 95 percent of elytra length; disc rugose-reticulate on basal half, becoming reticulate toward declivity. Declivity steep, shallowly impressed between weak lateral crests; sutural interstriae weakly elevated, right sutural interstriae with its lateral margin only partly costate on middle half of declivity length; impressed area subtriangular on slightly more than basal half, lateral crests rather weak, armed by about four weak, poorly formed tubercles; surface of impressed area finely rugose-reticulate. Lower declivity and adjacent lateral areas with numerous short, hairlike setae, a few longer setae intermixed.

Distribution: Peru (Cochabamba).

Type material: The male holotype was taken in the vicinity of Cunyabamba, Peru, 4-VIII-1986, 1300 m, F. Woytkowski. The holotype is in the U.S. National Museum, Washington.

Microcorthylus bicolor Eggers

Microcorthylus bicolor Eggers, 1935:154. Holotype ♂?; Cochabamba, Bolivia; NHMW, Wien (References in Wood & Bright c1992:1065)

Diagnosis: Distinguished by the large size; by the bicolored pattern; by the reticulate basal half of the elytra, the apical half is smooth and shining; and by the narrower declivital sulcus, with the lateral crests armed by 4 to 5 pair of tubercles.

Male(?): Length 3.2 mm, 2.7 times as long as wide; bicolored, dark reddish brown, basal half of elytral disc pale. Frons concealed on type by pronotum. Pronotum 1.1 times as long as wide; widest near middle, sides moderately arcuate on more than basal half, rather narrowly rounded in front; anterior margin armed by 8–10 weak serrations; summit slightly anterior to middle of pronotum length; anterior slope steep, asperities coarse, close, confused; posterior areas strongly reticulate, punctures very small, obscure; sparse setae on asperate area. Elytra 1.6 times as long as wide, 1.4 times as long as pronotum; disc occupying 75 percent of elytra length; disc weakly

reticulate on less than basal half, smooth, shining on posterior half, punctures rather numerous, small, shallow, confused. Declivity steep, moderately sulcate on less than median half; lateral crests moderately high, somewhat narrowly rounded, armed on upper two-thirds by 4 to 5 pair of rather small, blunt tubercles; face reticulate; sutural interstriae distinctly elevated, about four minute tubercles on lower third. A few very sparse setae on sides near declivity.

Distribution: Bolivia: Cochabamba (holotype).

Notes: The above treatment was based on the holotype, apparently a male.

Microcorthylus nebulosus Wood, n. sp.

Microcorthylus nebulosus Wood: Holotype ♂; Nova Teutonia, Santa Catarina, Brazil; USNM, Washington, designated below

Diagnosis: Distinguished from *obscurus* Eggers by the smoother, reticulate frons; with many punctures; by the more deeply impressed declivital sulcus, with 3 tubercles on lateral crests larger, pointed; and by the smaller body size.

Male: Length 2.2–2.5 mm, 2.5 times as long as wide; color dark reddish brown. Frons broadly convex, surface reticulate from epistoma almost to upper level of eyes, upper area irregular (not longitudinally etched), punctures much larger; glabrous except for sparse epistomal brush; antennal club 1.3 times as long as wide, obscurely obovate, sutures weakly procurved. Pronotum 1.07 times as long as wide; sides straight and parallel on more than basal half, broadly rounded in front; anterior margin armed by about 12 low serrations; summit slightly in front of middle of pronotum length; asperities coarse, close, confused; posterior areas minutely rugose-reticulate, punctures minute to obsolete; glabrous. Elytra 1.4 times as long as wide, 1.3 times as long as pronotum; disc occupying 75 percent of elytra length; disc finely rugose-reticulate, punctures rather small, numerous confused. Declivity very steep, rather deeply, broadly impressed; lateral margins with 3 pair of pointed denticles; face of impressed area minutely rugose-reticulate; lateral crests rather high; lower face and sides with sparse setae.

Female: Similar to male except antennal club broadly obovate, suture 1 obscure, 2 almost obsolete; anterior margin of pronotum with obscure serrations.

Distribution: Brazil (Santa Catarina).

Type material: The male holotype and female allotype were taken at Nova Teutonia, Santa Catarina, Brazil, XI-1956, F. Plaumann. The holotype and allotype are in the U.S. National Museum, Washington.

Brazil (non-types): Telemaco Borba, Parana, 22-XI-1999-28-III-202, Klabin e Cellulose forest, ethanol trap, *Pinus taeda* stand, C.A.H. Flechtmann (5 specimens).

Microcorthylus parvulus Ferrari

Plate CCXIV

Microcorthylus parvulus Ferrari, 1867:53, 58. Holotype ♂; Venezuela: apparently Colonia Tovar; NHMW, Wien (Synonymy and references in Wood & Bright c1992:1066–1067)

Pterocyclon exile Eichhoff, 1878:451. Holotype ♀; America meridionalis (Nova Granada [probably Colonia Tovar]); IRSNB, Brussels
Microcorthylus inermis Wood, 1973:267. Holotype ♀; 15 km SE Cartago, Cartago, Costa Rica; USNM, Washington (References in Wood & Bright c1992:1066). *New synonymy*

Diagnosis: Distinguished from *invalidis* Wood by the rugose-reticulate frons and pronotum; by the more broadly impressed declivity; and by other characters cited below.

Male: Length 1.5–1.6 mm, 3.0 times as long as wide; color dark reddish brown. Frons broadly convex, rugose-reticulate from epistoma to vertex, a weak, transverse impression above epistoma, a weak, very short median carina in impression; antennal club 1.5 times as long as wide, sutures almost straight, weakly septate. Pronotum 1.17 times as long as wide; sides weakly arcuate on basal two-thirds, rather narrowly rounded in front; anterior margin armed by 4 to 6 coarse serrations; summit anterior to middle of pronotum length; anterior slope steep, asperities rather small, close, confused; posterior areas rugose-reticulate, punctures obscure, minute to obsolete; sparse setae on or near anterior margin. Elytra 1.4 times as long as wide, 1.7 times as long as pronotum; disc occupying basal 67 percent of elytra length; disc weakly reticulate, punctures small, minute to obsolete near declivity, mostly in rows. Declivity very steep; sulcus rather narrow on basal third, very broad below; lateral crests narrowly rounded on basal half, spines 1 and 2 small, acutely pointed; face of impressed area finely rugose-reticulate, sutural interstriae slightly elevated, its lateral crest subacute, lateral areas with numerous, obscure, very small, confused punctures. A few minute setae on lower half of lateral crest of declivity, sparse, longer setae on sides near declivity.

Female: Similar to male except upper frons more reticulate, punctures more distinct, median elevation obscure to absent; serrations on anterior margin of pronotum smaller.

Distribution: Costa Rica to Panama and Colombia to Venezuela.

Colombia: Piedras Blancas 11 km W Medellin, Antioquia, 17-VII-1970, 2300 m, No. 689, *Vismia*, SLW.

Venezuela: Colonia Tovar, Aragua, 1758, Moritz (holotype); Colonia Tovar, Aragua, 4-V-1970, 1700 m, No. 494 (*Melastomaceae* sp.), No. 497 (tree seedlings), SLW; Merida, Merida, 18-X-1969, 1700 m, No. 71, liana, also No. 7, tree twig, SLW; La Carbonera Experimental Forest 50 km NW Merida, Merida, 10-XI-1969, 2500 m, No. 125, *Nectandra*, SLW.

Notes: The above treatment was based on the male holotype and 43 other specimens of *parvulus* from Colombia, on the female holotype of *Pterocyclon exile* Eichhoff, and on the holotype, allotype, and 40 paratypes of *inermis* Wood. The name *inermis* is clearly a junior synonym. The 2 holotypes were compared by me directly to one another.

Microcorthylus dilutus Wood

Microcorthylus dilutus Wood, 1973:271. Holotype ♂; Piedras Blancas 10 km E Medellin, Antioquia, Colombia, 2500 m; USNM, Washington (References in Wood & Bright c1992:1065)

Diagnosis: Distinguished from *invalidus* Wood by the more gradual slope of the pronotum; by the weakly rugose-reticulate pronotum disc; and by the more narrowly impressed declivity, the sutural interstriae is more distinctly elevated.

Male: Length 1.5–1.6 mm, 2.7 times as long as wide; color yellowish brown. Frons broadly convex from vertex to near epistoma, lower half of area below upper level of eyes distinctly, transversely impressed; surface reticulate, punctures small, not close; vestiture very sparse on lower half, epistomal brush sparse, setae short; eyes large, coarsely faceted; antennal club oval, 1.25 times as long as wide, sutures obscure, almost straight. Pronotum 1.17 times as long as wide; sides on basal half almost straight, converging cephalad slightly, rather narrowly rounded in front; anterior margin feebly serrate, serrations not clearly defined; summit anterior to middle of pronotum length; asperities small, close, confused; posterior areas minutely rugose-reticulate, punctures sparse, minute to obsolete; glabrous, except a few setae near anterior margin. Elytra 1.9 times as long as wide, 1.7 times as long as pronotum; disc occupying 78 percent of elytra length; disc smooth, brightly shining on basal three-fourths, reticulate near declivity, minute strial punctures in rows. Declivity steep, broadly convex; moderately sulcate on basal half between small, pointed spines 1 and 2, more broadly impressed below, rounded lateral crests extending almost to level of suture apex; surface reticulate; sutural interstriae distinctly elevated, its lateral costa on right elytron clearly marked from base to apex; a few confused, minute punctures in impressed area. Lower half of impressed area and sides near declivity with many short, hairlike setae.

Female: Similar to male, except antennal club larger, wider; sutures 1 and 2 almost obsolete.

Distribution: Colombia: Piedras Blancas 10 km E Medellin, Antioquia, 15-VII-1970, 2500 m, No. 658, Graptero, SLW.

Notes: The above treatment was based on the holotype, allotype, and 1 paratype.

Microcorthylus macer Wood, n. sp.

Microcorthylus macer Wood: Holotype ♂; Colonia Tovar, Aragua, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *inops* Wood by the larger size; by the conspicuous transverse impression above the male epistoma, the groove and area above the groove reticulate, shining above; groove not present in female; and by the small median carina on the male epistoma.

Male: Length 1.6–1.7 mm, 2.7 times as long as wide; color yellowish brown, with posterior half of elytra reddish brown to dark reddish brown. Frons broadly convex, lower fourth occupied by a moderately impressed,

transverse groove, a short median carina at groove; surface reticulate from epistoma half distance to upper level of eyes, with small, distinct punctures from groove to vertex, usually with many impressed micropunctures; sparse vestiture at groove and epistomal brush; antennal club asymmetrically oval, 1.3 times as long as wide; sutures weakly procurved. Pronotum 1.15 times as long as wide; sides almost straight and parallel on more than basal half, rather narrowly rounded in front; anterior margin armed by 10 moderate serrations; summit at middle; anterior slope with coarse, close, confused asperities; posterior areas strongly reticulate, punctures small, obscure; almost glabrous, a few setae on or near anterior margin. Elytra 1.5 times as long as wide, 1.2 times as long as pronotum; disc occupying basal 84 percent of elytra length; disc smooth, brightly shining, strial punctures very small, mostly in rows, with many confused, impressed points on interstriae. Declivity very steep, broadly, shallowly impressed on an inverted, heart-shaped pattern; spines 1 and 2 small, sharply pointed, both on basal half, lower half more broadly impressed; surface of impressed area minutely rugose-reticulate; sutural interstriae distinctly elevated, its lateral crest costate on right elytron; punctures not evident. Glabrous.

Female: Similar to male except epistomal groove reduced, almost obsolete, reticulation evident only on lateral areas; antennal club with a tuft of long hair on posterior face.

Distribution: Colombia (Antioquia) to Venezuela (Aragua to Merida).

Colombia: Piedras Blancas 11 km W Medellin, Antioquia, Venezuela, 17-VII-1970, 2300 m, No. 689, *Vismia*, SLW.

Type material: The male holotype, female allotype, and 12 paratypes were taken at Colonia Tovar, Aragua, Venezuela, 4-V-1970, 1700 m, No. 499, tree seedling, S.L. Wood; 12 paratypes bear the same locality data except No. 494 (4), 496 (6), 505 (2). Other paratypes include the following: 2 from El Laurel Experimental Farm 12 km SW Caracas, Venezuela, 1-V-1970, 1300 m, Nos. 469 (*Piper*), 476 (tree branch); Merida, Merida, Venezuela, 22-IX-1969, No. 6 *Vismia* (7), same data, No. 7 tree twig (8), same No. 8 *Ficus* (1), same data No. 11, tree limb (3), same data No. 12 *Vismia* (2), same data, No. 13 (1), same locality, 7-X-1969, No. 41, *Vismia* (10), same locality, 18-X-1969, No. 71, liana (13), same locality, 29-XII-1969, No. 211, shrub (1), No. 213, *Vismia* (1), No. 214, *Miconia* (4); La Carbonera Experimental Forest 50 km NW Merida, Merida, 27-X-1969, No. 90, liana (1), same locality 10-X-1969, No. 122 (1), same data No. 125, *Nectandra* (15), same locality 14-XI-1969, *Rubus* (2); all were taken by S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Microcorthylus inops Wood, n. sp.

Microcorthylus inops Wood: Holotype ♂; El Laurel Experimental Farm 12 km SW Caracas, Aragua, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *parvulus* Ferrari by

the greatly reduced (almost obsolete) male transverse epistomal groove; by the strong reticulation from epistoma to vertex, female frons mostly smooth and shining above upper level of eyes; anterior half of elytral disc dull, smooth.

Male: Length 1.4–1.7 mm, 3.0 times as long as wide; color reddish brown. Frons broadly convex; surface rugose-reticulate from epistoma to vertex; transverse epistomal groove shallow, obscure, median carina small, short, acute; glabrous except sparse setae on epistomal brush; antennal club oval, 1.4 times as long as wide, sutures feebly procurved. Pronotum 1.13 times as long as wide; sides almost straight and parallel on basal half, rather narrowly rounded in front; anterior margin armed by 10 obscure serrations, median pair larger; summit slightly anterior to middle of pronotum length; asperities small, close, confused; posterior areas rugose-reticulate, punctures small obscure. Elytra (spread) 1.5 times as long as wide, 1.3 times as long as pronotum; disc occupying basal 90 percent of elytra length; disc near suture reticulate, stria punctures small, in distinct rows, interstriae with many confused, impressed points. Declivity very steep, narrower than in *parvulus* on both upper and lower areas; lower area appearing more nearly granular than rugose-reticulate. Vestiture on lower third of declivity and on sides near declivity of many minute setae.

Female: Similar to male except median epistomal carina obsolete; frons smooth, shining, obscure reticulation on lateral areas above; antennal club 1.2 times as long as wide, suture 2 obscure, a tuft of long hair on posterior face; serrations on anterior margin of pronotum greatly reduced, about 6 visible.

Distribution: Venezuela (Aragua to Caracas).

Type material: The Male holotype, female allotype, and 5 paratypes were taken at El Laurel Experimental Farm 12 km SW Caracas, Venezuela, 1-V-1970, 1300 m, No. 469, *Piper*; by S.L. Wood. Two male paratypes are from Rancho Grande, Pittier National Park, Aragua, Venezuela, 9-IV-1970, 1100 m, No. 431, *Nectandra*, S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Microcorthylus brevior Wood, n. sp.

Microcorthylus brevior Wood: Holotype ♂; 5 km W El Pino, Zulia, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *diversus* Wood by the smaller size; by the minute, median epistomal tubercle; by the lower position of spine 2 on the declivity; and by the reticulate elytral disc.

Male: Length 1.2–1.3 mm, 2.5 times as long as wide; color yellowish brown to reddish brown. Frons strongly, broadly convex from vertex to transverse epistomal groove, epistomal groove moderately impressed on lower third of area below upper level of eyes; groove to near upper level of eyes rugose-reticulate, turning reticulate, then smooth, shining above; punctures small, sparse; median tubercle on epistoma minute at lower margin of

reticulate area (not bisecting transverse groove); antennal club 1.5 times as long as wide, oval, suture 1 feebly procurved, 2 mostly to entirely obsolete. Pronotum 1.13 times as long as wide; sides feebly arcuate, subparallel on basal half, narrowly rounded in front; anterior margin armed by 4 to 6 small serrations of equal size; summit at middle of pronotum length; anterior slope with asperities coarse, close, confused; posterior areas reticulate, punctures minute to obsolete; glabrous, a few minute setae at anterior margin. Elytra 1.4 times as long as wide, 1.2 times as long as pronotum; disc occupying basal 75 percent of elytra length; disc smooth, shining on basal third, posterior areas mostly to entirely reticulate; stria punctures very small, mostly in definite rows on basal third, obsolete behind. Declivity very steep, broadly, shallowly concave; impressed area an inverted heartshape, lateral crests narrowly rounded, crest curving mesad on lower fourth, spine 2 positioned below middle of declivity length; spines 1 and 2 small, sharply pointed; impressed area minutely granular; sutural interstriae weakly elevated, its lateral crest on right elytron costate from base to apex, with no punctures indicated. Vestiture of minute setae on lower fourth of declivital impression and on lateral areas near declivity, a few longer setae on lateral areas.

Female: Similar to male except median tubercle on epistoma absent; antennal club with a small tuft of long hair on posterior face.

Distribution: Mexico to Brazil.

Type material: The male holotype, female allotype, and 23 paratypes were taken 5 km W El Pino, Zulia, Venezuela, 20-X-1969, 10 m, No. 139, *Inga*, S.L. Wood. Other paratypes include the following: 8 from 20 km SW El Vigia, Zulia, Venezuela, 21-XI-1969, 50 m, No. 150-B, *Bauhinia*, S.L. Wood; 12 from 30 km E Merida, Merida, 8-I-1970, 2500 m, No. 222, tree branch, 15 with same data except No. 213, *Vismia*; 3 from Merida, Merida, Venezuela: 29-XII-1969, 1700 m, No. 211, shrub, S.L. Wood; 1 from Campamento Rio Grande 30 km E Palmar, Bolivar, Venezuela, 12-VI-1970, 200 m, No. 566, Suipo, S.L. Wood; 4 from 10 km SE Miri, Barinas, Venezuela, 8-II-1970, 150 m, No. 305, *Serjania*, S.L. Wood; 2 from 9 km S Barrancas, Barinas, Venezuela, 5-XI-1969, No. 108, *Protium*, S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Non-type specimens include: Mexico (Veracruz), Honduras (La Ceiba), Costa Rica (Limon, Puntarenas), Panama (Canal Zone).

Brazil: Nova Teutonia, Santa Catarina, X-1955, F. Plaumann.

Notes: The above treatment was based on the type series of *brevior* and on 20 other specimens from Mexico (Veracruz), 34 from Central America (Honduras, Costa Rica), and 3 from Brazil.

Microcorthylus declivis Wood, n. sp.

Microcorthylus declivis Wood: Holotype ♂; Agudos, Sao Paulo, Brazil; MZUSP, Sao Paulo, designated below

Diagnosis: Distinguished from *quadridens* Wood by

the smaller size; by the more narrowly rounded anterior margin of the pronotum; by the near absence of reticulation on the frons and elytra; by the different configuration of the declivital sulcus; and by the reduction or absence of the median sulcus on the frons.

Male: Length 1.7–1.8 mm, 2.3 times as long as wide; color reddish brown, pronotum yellowish brown. Frons moderately convex eye to eye from epistoma to vertex; surface weakly reticulate above, almost smooth below, punctures rather small, close, median sulcus short, weak to obsolete; glabrous except sparse, short setae on epistoma; antennal club 1.3 times as long as wide, slightly asymmetrically obovate, sutures 1 and 2 almost straight, feebly septate. Pronotum 1.1 times as long as wide; sides on basal half straight and parallel, feebly septate. Pronotum 1.1 times as long as wide; sides on basal half straight and parallel, then arcuately converging to narrowly rounded anterior margin; anterior margin armed by 4 serrations, median pair much larger; summit at middle of pronotum length; anterior slope steep, asperities coarse, close, confused; posterior areas rugose-reticulate, punctures very small, obscure; almost glabrous. Elytra 1.3 times as long as wide, 1.2 times as long as pronotum; surface mostly smooth, shining except reticulate on sutural interstriae on posterior half from suture to striae 3 on basal half, punctures rather small, confused except mostly in rows toward declivity. Declivity basically convex, steep, moderately sulcate on slightly less than median third; sulcus deeper above, weak on lower half, lateral convexities armed by 3 or 4 pair of denticles (1 or 4 sometimes obsolete); surface mostly smooth, shining; ventrolateral costa short, as in *quadridens*. Sparse, short setae on sides near declivity.

Distribution: Brazil (Sao Paulo).

Type material: The male holotype and 1 male paratype were taken at Agudos, Sao Paulo, Brazil, 17-IV-1984 (type), 8-IV-1984 (paratype), Duraflores, S.A., ethanol trap, *Pinus caribaea durenensis* stand, C.A.H. Flechtmann, 1 male paratype is from the same locality, 11-IX-1984, ethanol trap in *Pinus oocarpa* stand, Flechtmann; 1 male paratype is from Ibate, Sao Paulo, Brazil, 24-X-1984, Ripasa, ethanol trap in *Eucalyptus* stand, C.O. Santos. The holotype and 2 paratypes are in the Museum de Zoologia, Universidade de Sao Paulo, Sao Paulo; 1 paratype is in the U.S. National Museum, Washington.

Microcorthylus quadridens
Wood, n. sp.

Microcorthylus quadridens Wood: Holotype ♂; Telemaco Borba, Parana, Brazil; MZUSP, Sao Paulo, designated below

Diagnosis: Distinguished from *pumilus* Wood and *pusillus* Wood by having the ventrolateral costa of the declivity branching from the elytral costa much closer to the suture apex; by the very narrow declivital sulcus; and by the margins of the declivity being armed by 4 pair of small denticles.

Male: Length 2.1–2.3 mm, 2.8 times as long as wide;

color pale reddish brown. Frons moderately convex, a shallow, transverse impression above epistoma; surface strongly reticulate, punctures small, not sharply impressed, moderately numerous; median line on lower half of area below upper level of eyes with a short, narrowly impressed groove, margins of groove smooth, shining; vestiture limited to a sparse epistomal brush; antennal club large, 1.25 times as long as wide, somewhat broadly obovate, suture 1 almost straight, finely septate, feebly marked on mesal half, obsolete on lateral half, minute setae on peripheral margin of club. Pronotum 1.08 times as long as wide; sides on basal half almost straight and parallel, rather narrowly rounded in front; anterior margin armed by 2 pair of serrations, median pair much larger; summit indefinite, at about middle of pronotum length; anterior slope steep, asperities moderately numerous, coarse, confused; posterior areas finely reticulate, punctures minute, obscure, not close; a few short setae on or near anterior margin. Elytra 1.5 times as long as wide, 1.37 times as long as pronotum; disc occupying basal 65 percent of elytra length; disc finely reticulate, striae not clearly evident, punctures on posterior half minute to almost obsolete, many in striae rows, punctures slightly larger on anterior half and moderately confused; interstriae 2 narrowed toward base of declivity. Declivity moderately, narrowly sulcate on median third; lateral margins of sulcus abruptly to broadly rounded, margins armed by 4 pair of small denticles about equally spaced on upper three-fourths of declivity length; ventrolateral costa acutely elevated and diverging from costa near suture to about middle of width of area where interstriae 3 should be. Glabrous.

Female: Similar to male except median groove on epistoma almost obsolete; declivital sulcus not as deep, tubercles slightly smaller. Antennal club without a tuft of hair on posterior face.

Distribution: Brazil (Parana).

Type material: The male holotype, female allotype, and 4 paratypes were taken at Telemaco Borba, Parana, Brazil, ethanol trap in *Pinus taeda* stand, C.A.H. Flechtmann, 23-XI-2001 (holotype), 28-XI-2002 (allotype), 22-XI-1999, 15, XII-2000, 28-III-2002 (paratypes). The holotype, allotype and most paratypes are in Museum de Zoologie, Universidade de Sao Paulo, Sao Paulo.

Microcorthylus simulans Wood, n. sp.

Microcorthylus simulans Wood: Holotype ♀; Piedras Blancas 11 km E Medellin, Antioquia, Colombia; USNM, Washington, designated below

Diagnosis: Distinguished from *diversus* Wood by the broader antennal club, suture 1 poorly marked, 2 mostly obsolete; by the less smooth lower frons (reticulate from upper level of eyes to vertex); by the rugose-reticulate pronotum disc; by the smaller declivital spines, with the declivital surface rugose-reticulate.

Female: Length 1.6 mm, 3.0 times as long as wide; color yellowish brown (not mature). Frons very broadly convex, lower fourth shallowly, transversely impressed,

without a median tubercle (? or very minute), surface from epistoma to upper level of eyes weakly reticulate, strongly reticulate above eyes to vertex; punctures small, shallow, sparse hair on lower third to weak epistomal brush; eyes rather large, coarsely faceted; antennal club large, longer than scape, 1.2 times as long as wide, suture 1 distinct, feebly procurved, 2 obsolete. Pronotum 1.1 times as long as wide; widest at base, sides straight and almost parallel on basal half, rather narrowly rounded in front; anterior margin armed by 4 very weak serrations; summit indefinite, on anterior third of pronotum length; asperities small, close, confused; posterior areas rugose-reticulate; glabrous, except sparse setae near anterior margin. Elytra 1.7 times as long as wide, 1.7 times as long as pronotum; disc occupying 74 percent of elytra length; disc mostly smooth, shining on anterior two-thirds, reticulate near declivity, stria punctures small, shallow, in rows. Declivity steep, convex, shallowly impressed between spines; sutural interstriae weakly elevated, lateral crest on right elytron distinctly costate from base to apex; impressed shallowly triangular; lateral crests weak to moderate, rounded, tubercles small, pointed; surface of impressed area reticulate, punctures minute, confused; rather numerous short hair on impressed area and on sides near declivity below striae 5, a few long setae intermixed on sides.

Distribution: Colombia (Antioquia).

Type material: The female holotype was taken at Piedras Blancas 10 km E Medellin, Antioquia, Colombia, 15-VII-1970, 2500 m, No. 658, Graptero, S.L. Wood. The holotype is in the U.S. National Museum, Washington.

Microcorthylus diversus Wood

Plate CCXII

Microcorthylus diversus Wood, 1973:272. Holotype ♂; La Carbonera Experimental Forest 50 km NW Merida, Merida, Venezuela; USNM, Washington (References in Wood & Bright c1992:1065)

Microcorthylus hostilis Wood, 1973:272. Holotype ♀; 30 km N Merida, Merida, Venezuela; USNM, Washington (References in Wood & Bright c1992:1066). *New synonymy*

Diagnosis: Distinguished from *obscurus* Eggers by the smaller rugose-reticulate area of the frons, with the upper area toward the vertex smooth, shining, not longitudinally etched, the punctures larger; and by the deeper declivital impression, with higher lateral convexities and longer setae.

Male: Length 2.6–2.7 mm, 2.5 times as long as wide; color dark reddish brown. Frons broadly convex, rugose-reticulate from epistoma to upper level of eyes, areas above eyes mostly smooth, shining, punctures larger, not longitudinally etched, a weak, rounded, median epistomal callus; antennal club subcircular in outline, sutures 1 and 2 moderately procurved. Pronotum 1.2 times as long as wide; sides almost straight and parallel on more than basal half, rather narrowly rounded in front; anterior margin armed by 10 low serrations, median pair distinctly larger; summit slightly in front of middle of pronotum length; asperities rather coarse, close, confused; poste-

rior areas strongly reticulate, punctures very small, close; glabrous, sparse, short hair on anterior and lateral margins. Elytra 1.5 times as long as wide, 1.2 times as long as pronotum; disc occupying basal 82 percent of elytra length; disc strongly reticulate, several irregular lines near suture on basal half. Declivity steep; moderately sulcate on basal third, more broadly impressed below on about a 30-degree triangular area; impressed area moderate, reticulate, punctures small, obscure, confused; lateral crests moderately, gradually elevated, armed by about 4 to 7 small tubercles of irregular size on each side; lateral crests not evident on lower fourth. Vestiture of small, fine, numerous setae on impressed area and sides, an occasional longer seta also present.

Female: Similar to male except rugose-reticulate area on frons slightly smaller, shining area above more conspicuous.

Distribution: Venezuela: Colonia Tovar, Aragua, 4-V-1970, 1700 m, No. 485, *Nectandra*, SLW; La Carbonera Experimental Forest 50 km NW Merida, Merida, 10-IX-1969, 2500 m, No. 126, *Nectandra*, SLW; 30 km N Merida, Merida, 8-I-1970, 2200 m, No. 226, tree branch, SLW.

Notes: The above treatment was based on the type series of 68 specimens of *diversus* Wood and on the type series of 14 specimens of *hostilis* Wood.

Microcorthylus absonus Wood, n. sp.

Microcorthylus absonus Wood: Holotype ♂; Santa Ana, San Jose, Costa Rica; USNM, Washington, designated below

Diagnosis: Distinguished from *diversus* Wood by the smaller size; by the more broadly impressed rugose-reticulate lower declivity, with a few rather coarse punctures and sparse, short setae.

Male: Length 2.2–2.3 mm, 2.5 times as long as wide; color very dark brown, basal two-thirds of pronotum much lighter. Frons broadly convex above, lower third shallowly, transversely impressed to epistoma, surface reticulate, closely, rather coarsely, shallowly punctured; median one-fifth of epistoma occupied by a smooth, shining, slightly elevated callus; antennal club 1.4 times as long as wide, sutures almost straight. Pronotum 1.2 times as long as wide; sides on basal two-thirds weakly arcuate, broadly rounded in front; anterior margin feebly subserrate; summit slightly anterior to middle of pronotum length; anterior slope steep, asperities small, close, confused; posterior areas reticulate, punctures rather coarse, close, moderately impressed; sparse setae on anterior and lateral margins. Elytra 1.3 times as long as wide, 1.1 times as long as pronotum; disc occupying 72 percent of elytra length; disc mostly smooth and shining, some reticulation on basal fourth, many impressed lines, punctures rather small, confused. Declivity very steep, sulcus rather narrow on basal third, occupying slightly less than median half below; lateral crests moderately high, broadly rounded, spines 1 and 2 on basal half, 1 very small, blunt, 2 small, pointed; face of impression rugose-reticulate, some areas more rugose, punctures

mostly obscure; sutural interstriae weakly elevated. Areas on lower half of lateral crests with several minute setae, sparse, longer setae on sides near declivity.

Distribution: Costa Rica (San Jose).

Type material: The male holotype and 1 male paratype were taken at Santa Ana, San Jose, Costa Rica, 8-XI-1963, 1300 m, No. 254, *Rheedia edulis*, S.L. Wood. The holotype and paratype are in the U.S. National Museum, Washington.

Microcorthylus parvus Wood, n. sp.

Microcorthylus parvus Wood: Holotype ♂; El Laurel Experimental Farm 12 km SW Caracas, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *puerulus* Schedl by the much smaller to obsolete spines 1 and 2; and by the middle third of antennal club sutures 1 and 2 being obsolete, the surface of the club with abundant microsetae. Declivital interstriae 1 is not armed by a tubercle in some specimens.

Male: Length 1.4–1.5 mm, 2.8 times as long as wide; color dark reddish brown. Frons strongly convex, a feeble, transverse impression above epistoma, without a median tubercle on epistoma; surface finely rugose-reticulate from epistoma almost to upper level of eyes on median third, continued on lateral thirds to vertex, central area obscurely etched and finely punctured above; a very sparse epistomal brush; antennal club 1.3 times as long as wide, broadly oval, with numerous microsetae, sutures 1 and 2 obsolete on middle third. Pronotum 1.1 times as long as wide; sides weakly procurved, subparallel on basal half, rather narrowly rounded in front; anterior margin armed by 3 (type) or 4 (paratype) serrations; summit at middle of pronotum length; asperities on anterior slope rather coarse, close, confused; posterior areas minutely rugose-reticulate; glabrous, except sparse, short setae at anterior margin. Elytra 1.6 times as long as wide, 1.4 times as long as pronotum; disc occupying 80 percent of elytra length; disc strongly reticulate, punctures very small, shallow, in obscure rows. Declivity very steep, broadly, shallowly subconcave; impressed area on declivity an inverted heartshape; interstriae 1 not elevated, without a carina on lateral margin on right elytron; spines 1 and 2 minute, on lateral crest on upper half; surface on apical third of declivity slightly granular to rugose-reticulate, more nearly reticulate above; lower third with numerous short setae, these setae extend laterally to sides near declivity.

Distribution: Venezuela (Caracas).

Type material: The male holotype and male paratype were taken at El Laurel Experimental Farm 12 km SW Caracas, 1-V-1970, 1300 m, No. 476, tree limb, S.L. Wood. The holotype and paratype are in the U.S. National Museum, Washington.

Microcorthylus curtus Wood

Plate CCXI

Microcorthylus curtus Wood, 1973:274. Holotype ♂; 20 km SW El Vigia, Merida, Venezuela, 200 m; USNM, Washington

Diagnosis: Distinguished from *suggrandis* Schedl by the slightly smaller size; by the less strongly, less broadly concave declivity, the male crest on the upper third projecting moderately, the female crest more rounded, not projecting; and by the rugose-reticulate area on the frons restricted to the area below the upper level of the eyes.

Male: Length 1.5–1.7 mm, 2.7 times as long as wide; color dark reddish brown. Frons broadly convex, transverse impression above epistoma very weak, surface from epistoma half distance to upper level of eyes rugose-reticulate on median third, continuing on lateral thirds to vertex, median third above shining, with sparse punctures and numerous impressed points; glabrous except for very sparse setae on epistomal margin; antennal club 1.15 times as long as wide, subcircular in outline, apical margin broadly rounded, sutures weakly procurved. Pronotum 1.1 times as long as wide; sides almost straight and parallel on basal half, rather narrowly rounded in front; anterior margin armed by 2 serrations; summit slightly anterior to middle of pronotum length; posterior areas strongly reticulate, punctures minute to obsolete; glabrous except for a few setae on anterior and lateral margins. Elytra 1.4 times as long as wide, 1.4 times as long as pronotum; disc occupying 82 percent of elytra length; disc strongly reticulate, punctures very small, some in obscure rows. Declivity very steep, abruptly, shallowly concave; lateral crest on upper half abrupt, extending to suture; impressed area shallowly concave on an inverted heartshape, this area finely, densely punctured; sutural interstriae not elevated or carinate on right elytron; lateral crest on upper half abrupt, spines 1 and 2 on crest, very small, 1 obscure. Vestiture on impressed area and on sides near declivity of abundant, minute, hairlike setae.

Female: Similar to male except more finely sculptured, rugose-reticulate area much smaller; antennal club slightly larger, outline more irregular; anterior margin of pronotum unarmed by serrations; lateral crests on basal half of declivity not as high, more evenly convex, spines 1 and 2 of equal size, punctures on impressed area obscure to obsolete, not dense, shallow.

Distribution: Venezuela: 20 km SW El Vigia, Merida, 10-XII-1969, 50 m, No. 190, tree seedling, SLW.

Notes: The above treatment was based on the type series of 13 specimens.

Microcorthylus suggrandis Schedl

Plate CCXV

Microcorthylus suggrandis Schedl, 1939:574. Lectotype, sex[?]; Nova Teutonia, Santa Catarina, Brazil, designated by Schedl 1979:245; NHMW, Wien (References in Wood & Bright c1992:1067)

Diagnosis: Distinguished from *curtus* Wood by the

larger size; by the more abrupt, more strongly projecting lateral crest on the upper half of the male declivity; and by the rugose-reticulate area on the frons extending well above the upper level of the eyes.

Male: Length 1.7–1.9 mm, 2.6 times as long as wide; color dark reddish brown. Frons broadly convex, without a transverse impression above epistoma; surface rugose-reticulate from epistoma to well above upper level of eyes, especially on lateral thirds; glabrous except for very sparse epistomal brush; antennal club 1.2 times as long as wide, obovate, sutures weakly procurved. Pronotum 1.2 times as long as wide; sides on basal half weakly arcuate, subparallel, rather narrowly rounded in front; anterior margin armed by 1 to 3 serrations; summit slightly anterior to middle of pronotum; asperities on anterior slope coarse, close, confused; posterior areas dull, rugose-reticulate, punctures minute, obscure to obsolete; glabrous, except sparse setae on anterior and lateral margins. Elytra 1.4 times as long as wide, 1.2 times as long as pronotum; disc occupying 92 percent of elytra length; disc strongly reticulate, some areas almost rugose-reticulate, punctures minute, most obscure to obsolete. Declivity very steep, subvertical, broadly, shallowly concave; concave area of an obscure, inverted heart-shape, margins on upper two-thirds abruptly elevated, crest projection about equal to its thickness; surface of concave area finely, densely punctured; spine 1 obsolete, 2 slightly above middle of declivity length, very small. Vestiture on concave area of abundant, minute hair, a few similar setae on sides near declivity.

Female: Similar to male except median subshining area above eyes on frons more conspicuous; anterior margin of pronotum unarmed by serrations; concave area on declivity reticulate, punctures small, less abundant, lateral crests less strongly elevated, rounded; vestiture less conspicuous.

Distribution: Brazil: Nova Teutonia, Santa Catarina, X-XI-1956, 300–500 m, F. Plaumann.

Notes: The above treatment was based on 11 males and 1 female from Brazil, identified by Schedl.

Microcorthylus glabratus (Ferrari)

Microcorthylus glabratus (Ferrari), 1867:60 (*Corthylus*). Holotype ♂; Venezuela [presumably Colonia Tovar, Aragua]; NHMW, Wien (Synonymy and references in Wood & Bright c1992:1065)

Microcorthylus pallidus Schedl, 1939:571. Lectotype ♂; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien, designated by Schedl 1979:182 (References in Wood & Bright c1992:1066). *New synonymy*

Microcorthylus subopacus Schedl, 1939:573. Lectotype ♂; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien, designated by Schedl 1979:243

Diagnosis: Distinguished from *puerulus* Schedl by the slightly larger size; by the reticulate frons; and by the lateral convexities on the declivity rising more abruptly from the sulcus.

Male: Length 2.0–2.2 mm, 2.6 times as long as wide; color reddish brown. Frons strongly reticulate from epistoma almost to upper level of eyes, becoming less retic-

ulate and obscurely, longitudinally etched above eyes; a feeble, median crest at epistoma. Pronotum 1.1 times as long as wide; sides weakly arcuate and subparallel on almost basal two-thirds, rather broadly rounded in front; anterior margin armed by 8 weak serrations; anterior slope steep, asperities small, close, confused; posterior areas strongly reticulate, punctures minute, obscure; sparse, short setae on asperate area. Elytra 1.5 times as long as wide, 1.3 times as long as pronotum; disc occupying basal 82 percent of elytra length; disc strongly reticulate, punctures minute to obsolete, in obscure stria rows. Declivity very steep, moderately sulcate, sulcus rather narrow on basal half, more broadly impressed below; lateral crests rather narrowly rounded on basal half, armed by 2 pair of small, pointed tubercles; impressed face reticulate; interstriae 1 on right elytron weakly elevated, its lateral crest subacute only on apical half of declivity length, impression between interstriae 1 and lateral crest stronger than in *puerulus*, with many confused, small, shallow punctures, striae 1 with a row of small punctures deeper than those on lateral area. Face of declivity and lateral crests with many short setae, sparse, longer setae on apical fourth and on lateral crests.

Female: Similar to male except posterior face of antenna near apex with longer setae; serrations on anterior margin of pronotum almost obsolete; sulcus on lower declivity not as deep, tubercles smaller.

Distribution: Brazil: Nova Teutonia, Santa Catarina, II-III-IV-1937 (paratypes), IV-1937 (lectotype).

Notes: The above treatment was based on the male lectotype and 4 female paratypes of *pallidus* Schedl, on the male lectotype of *subopacus* Schedl, and on the male holotype of *Corthylus glabratus* Ferrari.

Microcorthylus puerulus Schedl

Plates CCXI, CCXIV

Microcorthylus puerulus Schedl, 1939:571. Lectotype ♀; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien, designated by Schedl 1979:203 (References in Wood & Bright c1992:1067)

Microcorthylus castaneus Schedl, 1939:572. Holotype ♀; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:1065). *New synonymy*

Microcorthylus porrectus Schedl, 1951:292. Lectotype ♀; Santa Maria, Dep. Concepcion, Argentina; NHMW, Wien, designated by Schedl 1979:197 (References in Wood & Bright c1992:1067). *New synonymy*

Microcorthylus contractus Wood, 1973:274. Holotype ♂; 7 km NW Socopo, Barinas, Venezuela, 200 m; USNM, Washington (References in Wood & Bright c1992:1065). *New synonymy*

Diagnosis: Distinguished from *parvus* Wood by the larger, pointed declivital tubercles; by the clearly marked complete sutures on the antennal club, with microsetae on the club less abundant and less regular; and by the apex of the antennal club being subacutely pointed.

Male: Length 1.4–1.6 mm, 2.2 times as long as wide; color dark reddish brown. Frons broadly convex, epistoma without a longitudinal carina, transverse epistomal groove very weak, rugose-reticulate on lower third of area from epistoma to upper level of eyes; rugose-reticulate area extending dorsad on lateral thirds to vertex, central third

longitudinally etched, several small punctures intermixed; antennal club 1.5 times as long as wide, segment 3 triangular in outline, apex subacutely pointed, sutures feebly procurved. Pronotum 1.2 times as long as wide; sides on basal half almost straight and parallel, rather narrowly rounded in front; anterior margin armed by about 6 weak serrations, median pair larger; summit slightly anterior to middle; asperities rather coarse, close, confused; posterior areas minutely rugose-reticulate, punctures minute to obsolete; glabrous, except sparse setae on anterior and lateral margins. Elytra 1.5 times as long as wide, 1.4 times as long as pronotum; disc occupying 82 percent of elytral length; disc mostly rugose-reticulate, punctures minute, in obscure rows. Declivity very steep, shallowly subconcave on median half on an inverted, heart-shaped pattern, spines 1 and 2 small, pointed, positioned on basal half, lateral crests rounded; sutural interstriae on right elytron not elevated or armed, a row of minute punctures present; sparse setae on lower fourth of declivity and on sides near declivity.

Distribution: Argentina to Venezuela (Barinas).

Argentina: Santa Maria, Dep. Concepcion, X-1946, M.J. Viana; NHMW, Wien.

Brazil: Nova Teutonia, Santa Catarina, 20-V-1935, III-1937, F. Plaumann.

Venezuela: 7 km NW Socopo, Barinas, 13-II-1970, 200 m, No. 322, *Nectandra*, SLW.

Notes: The above treatment was based on the female lectotype, male lectoallotype, and 4 lectoparatypes of *puerulus* Schedl, on the female holotype and 1 paratype of *castaneus* Schedl, on the female lectotype of *porrectus* Schedl, and on the type series of *contractus* Wood.

Microcorthylus obscurus Eggers

Plate CCXIII

Microcorthylus obscurus Eggers, 1935:155. Holotype ♂; Cochabamba, Bolivia; USNM, Washington (References in Wood & Bright c1992:1066)

Diagnosis: Closely allied to *umbratus* Wood, distinguished by the less strongly impressed basal third of the male declivity, with the lateral convexities more strongly convex; by the reticulate male frons with smaller punctures; female frons with a rather weak, transverse impression on lower fourth, median two-thirds smooth, brilliantly shining from impression to vertex.

Male: Length 1.9–2.3 mm, 2.6 times as long as wide; color yellowish brown. Frons broadly convex, surface strongly reticulate, punctures very shallow, rather numerous. Pronotum 1.1 times as long as wide; sides on slightly more than basal half almost straight and parallel, rather broadly rounded in front; anterior margin armed by 4 serrations, median pair larger; summit slightly anterior to middle of pronotum length; asperities small, close, confused; posterior areas strongly reticulate, punctures minute, very shallow; sparse setae on and near anterior margin. Elytra 1.7 times as long as wide, 1.5 times as long as pronotum; disc occupying basal 80 percent of elytra

length; disc strongly reticulate, punctures very minute, shallow, confused. Declivity very steep, shallowly sulcate on basal half, lateral convexities rather broadly rounded; sutural interstriae not elevated, bearing a row of 10 to 12 minute tubercles from level of spine 1 near base to near apex; spine 1 on basal sixth near suture, spine 2 at middle of declivity length, apparently on interstriae 3. Glabrous, except for short, sparse setae on lateral margins of declivity.

Female: Similar to male except frons shallowly impressed on lower fourth of area below upper level of eyes, reticulate from epistoma to upper level of impression, at least median two-thirds smooth, brilliantly shining, with sparse, minute punctures (left half of head and pronotum missing on only female at hand); declivital interstriae 1 without a row of minute tubercles.

Distribution: Bolivia: Cochabamba (Germain; holotype, 4 paratypes).

Notes: The above treatment was based on the male holotype and on 1 damaged female and 3 male paratypes.

Microcorthylus umbratus Wood

Plate CCXV

Microcorthylus umbratus Wood, 1973:273. Holotype ♂; La Carbonera Experimental Forest 50 km NW Merida, Merida, Venezuela, 2500 m; USNM, Washington (References in Wood & Bright c1992:1067)

Diagnosis: Lateral margin of male sutural interstriae on declivity armed by a row of 7 small, rounded tubercles; male frons rugose-reticulate from epistoma to vertex, central half of female frons smooth, shining.

Male: Length 1.9–2.2 mm, 2.6 times as long as wide; color dark reddish brown. Frons broadly convex, surface rugose-reticulate from epistoma to vertex, minute punctures obscure to obsolete; vestiture minute, sparse from upper level of eyes to epistoma, epistomal brush sparse, setae short; antennal club 1.2 times as long as wide, outline broadly oval, sutures 1 and 2 weakly procurved. Pronotum 1.1 times as long as wide; sides moderately arcuate, subparallel on basal half, rather narrowly rounded in front; anterior margin armed by 6 low serrations; summit at middle; asperities on anterior slope coarse, close, confused, spaces between asperities reticulate; posterior areas minutely rugose-reticulate, punctures minute to obsolete; glabrous, sparse, short setae on anterior and lateral margins. Elytra 1.4 times as long as wide, 1.3 times as long as pronotum; disc occupying 86 percent of elytra length; disc strongly reticulate, punctures minute to obsolete. Declivity very steep, narrowly, shallowly impressed on median half on a V-shaped triangular pattern of about 30 degrees; crests of lateral margins rounded, spines 1 and 2 both on basal half; impressed area moderately deep, surface reticulate; sutural interstriae feebly elevated, its lateral margin armed by a row of 7 small, rounded tubercles from base to apex. Vestiture of numerous minute setae on impressed area, a few longer setae intermixed on lateral areas.

Female: Similar to male except central half of upper

frons smooth, shining, with very sparse micropunctures; serrations on anterior margin of pronotum smaller; antennal club subcircular, distinctly larger; tubercles on declivital interstriae 1 present, minute.

Distribution: Venezuela: La Carbonera Experimental Forest 50 km NW Merida, Merida, 14-X-1969, 2500 m, No. 53, also 21-X-1969, No. 41-A, 10-XI-1969, Nos. 125–126, all from *Nectandra*, SLW.

Notes: The above treatment was based on the type series of 33 specimens.

Microcorthylus concisus Wood

Plate CCX

Microcorthylus concisus Wood, 1973:572. Holotype ♀; Volcan, Puntarenas, Costa Rica; USNM, Washington (References in Wood & Bright c1992:1065)

Diagnosis: Distinguished from *vescus* Wood by the smaller size; by the male sutural interstriae on the declivity being armed by a row of 4 or 5 tubercles; by the smooth, shining disc on the posterior part of the elytra; and by the mostly reticulate upper frons with punctures minute, longitudinal etching obsolete.

Male: Length 1.6–2.0 mm, 2.4 times as long as wide; color very dark reddish brown. Frons broadly convex eye to eye from epistoma to vertex, surface rugose-reticulate, punctures small, obscure, median area above eyes smoother, punctures small; a minute, median subtuberculate crest at epistoma; glabrous except epistomal brush weak, antennal club 1.2 times as long as wide; suture 1 weakly procurved, distinct, 2 mostly obsolete, segment 3 triangular, apex obtusely pointed. Pronotum 1.07 times as long as wide; sides almost straight and parallel on basal half, narrowly rounded in front; anterior margin armed by 4 to 6 serrations, median pair larger; summit slightly in front of middle of pronotum length; anterior slope with asperities coarse, close, confused; posterior areas finely rugose-reticulate, punctures minute, obscure; glabrous, except sparse setae on anterior margin. Elytra 1.6 times as long as wide, 1.3 times as long as pronotum; disc occupying 80 percent of elytra length; disc almost smooth, limited weak reticulation near suture, mostly smooth, shining, impressed lines in some areas; declivity very steep, rather narrowly impressed on an inverted, heartshaped pattern; spines 1 and 2 on crest of basal half, 1 rather near suture; surface rugose-reticulate at base and on apical fourth, somewhat smooth, shining between; sutural interstriae weakly elevated, lateral margin of sutural interstriae bearing a row of 6 or 7 rather small rounded tubercles. Impressed area on declivity and sides near impression bearing rather abundant, short hair.

Female: Similar to male except frons with median, epistomal crest longer; median shining area above eyes larger; expanding to include most of vertex; anterior margin of pronotum unarmed; elytra reticulate; sutural interstriae on declivity unarmed by tubercles.

Distribution: Costa Rica to Venezuela (Aragua,

Caracas).

Venezuela: El Laurel Experimental Farm 12 km SW Caracas, 1-V-1970, 1300 m, No. 478-179, tree branch, SLW; Rancho Grande, Pittier National Park, 9-IV-1970 No. 406, *Nectandra*, SLW.

Notes: The above treatment was based on the type series of 16 specimens from Costa Rica and 78 from Venezuela.

Microcorthylus rufotestaceus Schedl

Microcorthylus rufotestaceus Schedl, 1939:572. Lectotype ♂; Nova Teutonia [Santa Catarina], Brazil; NHMW, Wien, designated by Schedl 1979:215 (References in Wood & Bright c1992:1067).

Diagnosis: Distinguished from *grandiclavatus* Eggers by having only 2 small tubercles on the male sutural interstriae, these accompanied on lower margin of each tubercle by a large, deep cavity; and male and female frons rugose-reticulate from epistoma to distinctly below upper level of eyes, upper area with small punctures and longitudinal etching.

Male: Length 1.9–2.2 mm, 2.6 times as long as wide; color dark reddish brown. Frons broadly convex, epistoma with a small median tubercle; epistoma to upper level of eyes rugose-reticulate, area above eyes longitudinally etched; antennal club 1.13 times as long as wide, apical margin evenly rounded. Pronotum 1.2 times as long as wide; sides on basal half weakly arcuate, subparallel, narrowly rounded in front; anterior margin armed by about 8 serrations; summit slightly anterior to middle of pronotum length; anterior slope with asperities coarse, close, confused; posterior areas rugose-reticulate, punctures minute to obsolete; glabrous except sparse setae on anterior margin. Elytra 1.4 times as long as wide, 1.2 times as long as pronotum; disc occupying 85 percent of elytra length, surface reticulate or rugose-reticulate on basal third and near suture, mostly smooth, shining elsewhere, punctures small, mostly in rows. Declivity very steep, shallowly impressed on median half; spines 1 and 2 on lateral crest on basal half, lateral crests obsolete on lower half; sutural interstriae weakly elevated, bearing 2 weak tubercles, their lower or lateral margin expanded into a moderately large cavity. Vestiture consisting of abundant short hair on impressed area and sides near declivity.

Female: Similar to male except transverse, epistomal impression almost obsolete, median tubercle smaller; antennal club subcircular in outline, 1.9 times as long as wide, with many rather long setae near apex on posterior face; serrations on anterior margin very small; elytral disc strongly reticulate from base to apex; lateral crests on basal margin of declivity more broadly rounded, spines 1 and 2 smaller, usually blunt.

Distribution: Brazil: Nova Teutonia, Santa Catarina, 15-VII-1937 (lectotype, 1 paratype), III-1937 (1 paratype, 1 other), X-1956, XI-1956, 300–500 m, F. Plaumann.

Notes: The above treatment was based on the male

lectotype, 2 paratypes, and 31 other specimens all from the type locality.

GENUS *CORTHYLOXIPHUS* WOOD,
n. gen.

Corthyloxiphus Wood. Type-species: *Corthylus aztecus* Bright (1972: 1374), present designation, a replacement name for *Corthyrcyclon* Schedl (1951:128) when the type-species, *Corthyrcyclon ustum* Schedl, was transferred to *Corthylus* (see *Corthyrcyclon* in Wood & Bright c1992:1067–1068 for references to included species)

Diagnosis: Distinguished from *Corthylus* by the club-shaped antennal scape; by the almost complete absence of sutures on the female antennal club; by the absence of an inflated, tuberculate posterior face of the female protibia; and by the apical fringe of hair on the antennal club, not a cirrus (1 exception).

Description: Length 1.3–2.4 mm, 2.1–2.6 times as long as wide; color dark brown or bicolored. Frons sexually dimorphic, male convex, subglabrous, female broadly concave from epistoma to vertex, sculpture and orna-

mentation of setae simple. Eye emarginate, finely granulate. Antennal scape slender, club-shaped; funicle 1-segmented, club aseptate, sutures not indicated (a partial septum in 3 species); female club larger and ornamented on apical margin by a row long setae. Scutellum large, flat. Elytra elongate, disc with punctures either confused or in definite rows; declivity convex, very conservatively sculptured. Female protibia not inflated and tuberculate on posterior face.

Biology: These monogynous, xylomycetophagous species breed in unthrifty or recently cut or broken small stems of trees, shrubs, or lianas about 1–4 cm in diameter. Most collections were obtained at elevations of 1500–3000 m in cloud forests. The gallery patterns resemble those of *Corthylus*.

Notes: Wood & Bright (c1992:1067–1068) list 7 species under the name *Corthyrcyclon*, 6 from southern Mexico to Panama, and 1 from South America. The following treatment greatly expands this genus.

Key to the Species of *Corthyloxiphus*

- 1. Elytral declivity reticulate (male *truncatus* reticulate only on basal and apical fourths, dense micro-punctures on middle half) 2
- Elytral declivity smooth, shining between punctures or tubercles 4
- 2(1). Female antennal club apically truncate (outline triangular); female frons shallowly concave and coarsely, uniformly punctured, ornamented by a dense brush of incurved, long hair; declivital interstriae 1 weakly elevated, crest bearing a sparse row of minute tubercles; male frons broadly convex, reticulate and sparsely, minutely punctured below, rugose-reticulate on vertex; declivital interstriae 1 rather weakly elevated; Venezuela (Merida); liana; 1.8–2.1 mm ***truncatus* Wood**
- Female antennal club with apical margin rounded or obtusely pointed; female frons finely to minutely punctured, vestiture shorter and less abundant; declivital interstriae 1 rather strongly elevated on a continuous costa 3
- 3(2). Female frons more strongly concave, surface rugose-reticulate, ornamented by somewhat numerous, uniformly distributed, rather long setae; male frons more strongly convex, reticulate; Costa Rica; liana; 1.3–1.6 mm ***furvus* (Wood), n. comb.**
- Female frons rather shallowly concave, surface smooth below, rugose-reticulate at lateral and dorsal margins, vestiture much finer, rather sparse; male frons less strongly convex, rugose-reticulate except reticulate on small median area below; Costa Rica; liana; 2.0–2.1 mm ***caliginis* (Wood), n. comb.**
- 4(1). Ventrolateral area of declivity without a subacutely elevated crest branching dorsad from lateral margin of elytra 5
- Ventrolateral area of declivity with a subacutely elevated crest branching from lateral margin of elytra near apex 19
- 5(4). Sutural interstriae on declivity subacutely elevated on a continuous costa from near base to near apex, costa (except in *morulus*) about as high as wide; declivital striae 1 and 2 clearly punctured 6
- Sutural interstriae on declivity feebly or not at all elevated, with no indication of a smooth, shining costa 9

CORTHYLINI

- 6(5). Sutural interstriae with a row of small punctures between suture and elevated crest, interstriae 2 not impressed, with a row of minute tubercles, punctures of declivital striae 1 and 2 smaller, less strongly impressed; declivital vestiture longer; Costa Rica; 2.0 mm *willei* Wood
- Sutural interstriae never with a row of punctures between suture and longitudinal crest; declivital interstriae 2 weakly impressed, impunctate 7
- 7(6). Anterior margin of pronotum armed by 4 serrations, median pair larger; sutural interstriae on declivity only slightly elevated, crest broadly rounded; declivity not as steep, more narrowly rounded from dorsal aspect; Costa Rica; *Conostegia oerstediana*; 2.1 mm
 *morulus* (Wood), n. comb.
- Anterior margin of pronotum armed by 8 serrations of about equal size; crest of sutural interstriae subacutely more strongly elevated; declivity steeper, more broadly rounded behind 8
- 8(7). Female frons rather coarsely granulate, vestiture minute, mostly absent; declivital interstriae 3 with about six serrations on a definite crest; Venezuela (Aragua); 2.2 mm *araguensis* Wood
- Female frons not granulate, much smoother, small punctures present, vestiture of rather sparse, moderately long setae; declivital interstriae 3 very weakly convex, with a row of about six punctures, one or two of these punctures feebly granulate; Venezuela (Merida); 2.2–2.4 mm
 *punctatus* Wood
- 9(5). Elytral declivity with interstriae 1 and 3 armed by a row of small tubercles; declivital interstriae marked by rows of long setae, ground setae sparse, short to absent; female antennal club stout, less than twice as long as wide 10
- Elytral declivity with setae more abundant, confused, ground setae much larger; female antennal club slender, more than three times as long as wide 14
- 10(9). Punctures on concave area of female frons larger, closer, mostly spaced by less than diameter of a puncture; female antennal club stouter, 1.3–1.5 times as long as wide; punctures on elytral disc rather small, much more distinct; larger species 11
- Punctures on concave area of female frons very small, mostly spaced by 1 to 3 diameters of a puncture; female antennal club 1.6–2.3 times as long as wide; punctures on elytral disc minute to very small, less distinct, smaller species 12
- 11(10). Larger species; female antennal club 1.5 times as long as wide; anterior slope of pronotum steeper; longest setae on declivital interstriae 1 and 3 twice as long as distance from row 1 to row 3; Venezuela (Merida); *Vismia*; 1.9–2.1 mm *frontalis* Wood
- Smaller species; female antennal club stouter, 1.3 times as long as wide; anterior slope of pronotum more gradual; longest setae on declivital interstriae 1 and 3 about equal in length to distance from row 1 to row 3; Venezuela (Merida); *Nectandra*; 1.6–1.8 mm *apicalis* Wood
- 12(10). Female antennal club more slender, 2.4 times as long as wide; body stouter, about 2.3 times as long as wide; elytral disc with numerous impressed irregular lines and impressed points; Colombia (Antioquia); *Vismia*; 2.0– 2.1 mm *colombiae* Wood
- Female antennal club 1.6 times as long as wide; body more slender, 2.6 times as long as wide; elytral disc smoother, with few impressed lines, sparse, impressed points minute 13
- 13(12). Female antennal club slender, 2.4 times as long as wide; punctures on discal striae very small, impressed, in definite striae rows; concave area of female frons mostly reticulate, punctures minute, most spaced by about three diameters of a puncture; Colombia (Antioquia); *Mariana*; 1.9 mm . . .
 *antennatus* Wood

SCOLYTIDAE OF SOUTH AMERICA

- Female antennal club stouter, 1.6 times as long as wide; punctures on discal striae minute to obsolete, not in clearly defined rows, concave area of female frons without any reticulation, punctures slightly larger, very close, spaced by about diameter of a puncture; Venezuela (Merida); *Nectandra*; 2.2–2.4 mm **usticus** **Wood**
- 14(9). Elytral declivity smooth, with punctures usually in rows, no tubercles 15
- Elytral declivity with numerous, confused tubercles 18
- 15(14). Elytral declivity and part of disc near suture reticulate, pronotum and vertex rugose-reticulate; female frons shallowly concave eye to eye from epistoma to well above upper level of eyes; antennal club 1.3 times as long as wide, broadly obovate, densely pubescent, without a tuft of long hair on posterior face; longest setae on declivity less than twice as long as ground setae; Venezuela (Merida); tree twig; 1.8 mm **reticulatus** **Wood**
- Elytra smooth, shining between punctures, setae longer 16
- 16(15). Punctures of declivity on striae 1 and 2 small, strongly impressed on upper half, reduced in size and mostly obsolete below; female frons moderately concave, reticulate, mostly glabrous; Venezuela (Merida); *Nectandra*; 2.2–2.4 mm **simplicis** **Wood**
- Punctures on entire declivity minute to obsolete 17
- 17(16). All setae on elytral declivity short, each about equal in length to width of one interstriae; most strial punctures in definite rows; body color uniformly reddish brown; Venezuela (Merida); liana; 2.1 mm **declivis** **Wood**
- All setae on elytral declivity long, longest equal in length to combined width of three interstriae; punctures on basal half of elytral disc confused; pronotum and posterior half of elytra very dark reddish brown, basal half of elytra pale reddish brown; Venezuela (Merida); liana; 2.3 mm **carbonerae** **Wood**
- 18(14). Most punctures on declivity replaced by a tubercle, confused; most punctures on elytral disc confused; bicolored, anterior slope of pronotum and elytral declivity dark reddish brown, posterior half of pronotum and anterior half of elytra yellowish brown; Mexico (Puebla) to Costa Rica; many hosts; 1.8–2.4 mm **aztecus** (**Bright**), n. comb.
- Most punctures on elytral declivity small, distinct, about one-fifth of them replaced by a small tubercle; most punctures on elytral disc in strial rows; pronotum and elytra dark reddish brown; Costa Rica to Panama; *Siparuna nicaraguensis*; 1.5–1.7 mm **tardus** (**Wood**), n. comb.
- 19(4). Ventrolateral costa on declivity subacute, much longer, combined span at least one-third of a complete circle; interstriae 2 and lower third of declivity strongly impressed (easily confused with allies of *Corthylus abbreviatus*, except antennal club entirely different); Venezuela (Merida); liana; 2.7–2.8 mm **obesus** **Wood**
- Subacute ventrolateral costa of declivity branching from costal margin short, encompassing less than one-fourth of a complete circle (including span of both elytra); elytral declivity convex, weakly or not impressed 20
- 20(19). Suture entire; sutural interstriae on declivity subacutely elevated, half as high as wide, its crest rather finely serrate from base to apex, remaining face of declivity smooth, shining, with numerous confused, rounded tubercles from base to near apex and from sutural costa to lateral margin; Panama; 2.5–3.0 mm **ebeninus** (**Blandford**)
- Declivital suture distinctly emarginate at apex; declivity evenly convex, sutural interstriae not elevated; elytral disc and declivital surfaces smooth, shining, punctures small, confused; Peru; 2.2 mm **emarginatus** (**Eggers**)

Corthyloxiphus truncatus Wood, n. sp.

Plate CXVII

Corthyloxiphus truncatus Wood: Holotype ♀; 12 km SW El Vigia, Merida, Venezuela; USNM, Washington, designated below

Diagnosis: Female antennal club apically truncate, triangular in outline, a small tuft of long setae on posterior face near lateral apical angle; setae of female frons abundant, rather long, uniformly distributed.

Male: Similar to female except frons broadly convex, a weak, transverse impression above epistoma, surface reticulate, sparse, minute punctures above; sparse, epistomal setae present; antennal club broadly oval, apex outline rounded, not truncate, suture 2 aseptate, indicated by a weak groove; anterior margin armed by a median pair of large serrations; surface of declivity with many micropunctures.

Female: Length 1.8–2.1 mm, 3.0 times as long as wide; color very dark reddish brown. Frons moderately concave eye to eye from epistoma to vertex; surface apparently densely, finely punctured, mostly concealed by setae on type; vestiture uniformly abundant, rather long, setae on central three-fourths recumbent, radiating out from center then curved upward at margin; antennal club large, triangular, apical margin truncate, 1.1 times as long as wide, sutures not indicated, posterior face with a small tuft of setae at lateral apical angle. Pronotum 1.02 times as long as wide; widest behind middle, sides weakly arcuate on posterior two-thirds, rather narrowly rounded in front; anterior margin armed by 4 small serrations; summit indifinite, on anterior third of pronotum length; anterior slope rather steep, asperities small, close, confused on anterior fourth, scalelike rugae continue to middle of pronotum length; posterior areas strongly reticulate, punctures minute to obsolete; sparse setae on asperate area and lateral margins. Elytra 1.1 times as long as wide, 1.45 times as long as pronotum; disc occupying basal 80 percent of elytra length; disc almost smooth, shining, with many weakly impressed lines, minute stria punctures mostly in rows. Declivity shallowly bisulcate, suture weakly elevated, sutural interstriae and interstriae 3 each with about four minute granules; surface weakly reticulate, minute punctures weakly impressed on interstriae 2. Vestiture of short setae on declivital interstriae 1 and 3; lateral crests with many minute, confused setae on lateral crests, a few longer setae on sides near declivity.

Distribution: Venezuela (Merida).

Type material: The female holotype, male allotype, and 11 paratypes were taken at 12 km SW El Vigia, Merida, Venezuela, 22-X-1969, 100 m, liana, S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Corthyloxiphus willei Wood, n. sp.

Corthyloxiphus willei Wood: Holotype ♂; SE of Cartago, Cartago, Costa Rica; USNM, Washington, designated below

Diagnosis: Allied to *morulus* (Wood), distinguished by having declivital striae 1 and 2 with very small, distinct punctures, sutural interstriae acutely costate from base to apex, a row of minute punctures between suture and costa, tubercles on declivital interstriae 2 and 3 small, distinct; and by the longer declivital vestiture.

Male: Length 1.9 mm, about 2.5 times as long as wide; color of pronotum very dark, elytra reddish brown. Frons strongly convex, a moderate, transverse impression above epistoma; surface reticulate, punctures small, distinct; area below upper level of eyes with sparse, short setae; antennal club oval, 1.3 times as long as wide, aseptate suture 2 indicated by a groove. Pronotum 0.82 times as long as wide; widest on basal half, sides weakly arcuate, narrowly rounded in front; anterior margin armed by 6 serrations, median pair twice as large; summit slightly behind middle of pronotum length; anterior slope rather steep, asperities large, very broad; posterior areas weakly reticulate, punctures minute to obsolete; vestiture on asperate area of many fine, rather long setae. Elytra (spread on type) about 1.3 times as long as wide, 1.4 times as long as pronotum; disc occupying about 72 percent of elytra length; disc smooth, shining, punctures very small, confused on basal third, in stria rows behind. Declivity steep, weakly sulcate on median third; sutural interstriae narrowly costate from base to apex, a row of small punctures between suture and costa bearing a row of long setae; punctures of striae 1 and 2 very small, distinctly impressed, tubercles on interstriae 2 and 3 very small. Vestiture confined to declivity, of moderately abundant, fine hair.

Distribution: Costa Rica (Cartago).

Type material: The holotype was taken SE of Cartago, Cartago, Costa Rica, 24-IX-1963, 1500 m, No. 195, tree seedling, S.L. Wood. The holotype is in the U.S. National Museum, Washington. This species is named for Dr. Alvaro Wille, my host and companion in Costa Rica from 1963 to 1964.

Corthyloxiphus araguensis

Wood, n. sp.

Corthyloxiphus araguensis Wood: Holotype ♀; Colonia Tovar, Aragua, Venezuela; USNM, Washington, designated below

Diagnosis: Allied to *willei* Wood, distinguished by the less strongly costate declivital interstriae 1, with interstriae 2 more strongly indicated, punctures small, distinct on striae 1 and 2; by the female frons being shallowly concave eye to eye from epistoma to vertex, the surface minutely rugose; and by the female costa on declivital interstriae 1 as in the male of *willei*.

Male: Similar to female except frons convex, reticulate; antennal club smaller; anterior margin of pronotum more coarsely serrate; sutural costa on declivity less strongly elevated, present on basal half only.

Female: Length 2.2 mm, about 2.5 times as long as wide (elytra spread on type); color reddish brown, pronotum darker. Frons shallowly concave eye to eye from

epistoma to vertex, surface finely rugose, concave area glabrous; setae on epistomal margin sparse, short; antennal club large, subcircular, 1.1 times longer than wide, a small cirrus at apex. Pronotum 1.2 times as long as wide; widest on basal half; as in male *willei*, except anterior margin more broadly rounded and armed by 8 equal serrations. Elytral disc as in *willei*, except punctures confused from base to base of declivity. Declivity steep; sutural costa narrowly convex from base to apex as in male *willei*; interstriae 2 weakly impressed, punctures on striae 1 and 2 small, distinct, surface almost smooth, shining, crest on interstriae 3 with four or more minute tubercles. Sparse setae on lower half of declivity.

Distribution: Venezuela (Aragua).

Type material: The female holotype and male allotype were taken near the home of Dr. Moritz at Colonia Tovar, Aragua, Venezuela, 4-V-1970, 1700 m (holotype), No. 489 (allotype) from tree branches, S.L. Wood. The holotype and allotype are in the U.S. National Museum, Washington.

Corthyloxiphus punctatus Wood, n. sp.

Plate CCXVI

Corthyloxiphus punctatus Wood: Holotype ♀; La Carbonera Experimental Forest 50 km NW Merida, Merida, Venezuela; USNM, Washington, designated below

Diagnosis: Closely allied to *araguensis* Wood, distinguished by the smoother concave area of the female frons, small punctures clearly present, with rather numerous long setae uniformly distributed; and by the weakly convex declivital interstriae 3 with a row of about six punctures on its crest, one or two of these punctures feebly granulate.

Male: Similar to female except frons broadly convex, reticulate, sparse, small punctures present; antennal club without a cirrus.

Female: Length 2.2–2.4 mm, about 2.3 times as long as wide; color reddish brown. Frons strongly concave eye to eye from epistoma to vertex, reticulate on lower third, many impressed points above, many small punctures clearly impressed; vestiture of long setae moderately abundant, uniformly distributed; antennal club 1.2 times as long as wide, a small cirrus at apex, suture 1 partly septate on lateral half (more extensive in male). Pronotum 0.98 times as long as wide; sides on basal half weakly arcuate and converging cephalad; anterior margin rather broadly rounded, armed by about 8 weak serrations; summit at middle of pronotum length; asperities rather large, sparse; posterior half reticulate, punctures minute; sparse setae on anterior and lateral margins. Elytra 1.3 times as long as wide, 1.5 times as long as pronotum; disc occupying basal 70 percent of elytral length; disc smooth, shining, punctures small, confused on basal half, in definite rows behind. Declivity steep, weakly bisulcate; striae 1 to 3 clearly indicated by small punctures; interstriae 2 weakly costate on upper two-thirds, lateral crests feebly elevated, interstriae 3 with

about six small punctures, two or three of them feebly granulate. Vestiture of very sparse setae on lower half of declivity.

Distribution: Venezuela (Merida).

Type material: The female holotype and male allotype were taken at La Carbonera Experimental Forest 50 km NW Merida, Merida, Venezuela, 27-X-1969, 2500 m, No. 90, liana, S.L. Wood. Four paratypes bear data of the type except taken 4-XI-1969, No. 135. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Corthyloxiphus frontalis Wood, n. sp.

Corthyloxiphus frontalis Wood: Holotype ♀; Merida, Merida, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *apicalis* Wood by the larger size; by the more slender female antennal club; and by the much longer declivital setae on interstriae 1 and 3.

Male: Similar to female except frons broadly convex, surface rugose-reticulate from epistoma to vertex, punctures rather coarse; anterior margin of pronotum armed by 2 large median serrations.

Female: Length 1.9–2.1 mm, 2.7 times as long as wide; color dark reddish brown. Frons strongly concave eye to eye from epistoma to vertex, surface smooth below, reticulate above eyes, entire concave area densely covered by small punctures, central area with sparse, short hair, peripheral margin with a row of long setae; epistoma with a conspicuous median callus; antennal club 1.5 times as long as wide, apical margin with a row of several long setae. Pronotum 1.0 times as long as wide; sides almost straight and subparallel on basal half, rather broadly rounded in front; anterior margin armed by about 10 low serrations of equal size; summit at middle of pronotum length; anterior slope moderately steep, asperities small, close, confused; posterior areas reticulate, punctures very small; setae on asperate area and lateral margins rather long and abundant. Elytra 1.6 times as long as wide, 1.6 times as long as pronotum; disc occupying basal 80 percent of elytra length; disc smooth, shining, punctures small, confused on basal half, minute to obsolete and in rows behind. Declivity steep, broadly convex, obscurely reticulate, punctures on striae 1 and 2 minute; interstriae 2 feebly impressed, 1 and 3 each armed by rows of six or more minute tubercles. Vestiture of moderately numerous, rather long setae on declivity.

Distribution: Venezuela (Merida).

Type material: The female holotype and male allotype were taken at Merida, Merida, Venezuela, between stops 3 and 4 on the Pico Bolivar Teleferico, 27-II-1970, 2500 m, No. 332, *Nectandra*, S.L. Wood; 4 paratypes are from 20 km N Merida, Merida, Venezuela, 8-I-1970, 2200 m, No. 225, *Nectandra*, S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Corthyloxiphus apicalis Wood, n. sp.

Corthyloxiphus apicalis Wood: Holotype ♀; Merida, Merida, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *frontalis* Wood by the smaller size; by the stouter female antennal club; and by the shorter declivital setae on interstriae 1 and 3.

Male: Similar to female except frons broadly convex from epistoma to vertex, surface reticulate, punctures rather coarse; anterior margin of pronotum armed by 2 coarse, median serrations; antennal club smaller, oval, without long setae at apex.

Female: Length 1.6–1.8 mm, 2.5 times as long as wide; color dark reddish brown. Frons as in *frontalis*, except less strongly concave, reticulation not evident, setae on concave area shorter, less numerous, setae on periphery shorter, less numerous; antennal club larger, somewhat triangular in outline, apical margin with a row of long setae. Pronotum about as in *frontalis*, except most of basal third smooth, shining, punctures slightly larger. Elytra about as in *frontalis*, except disc with many impressed lines, stria punctures small, in definite rows from base to base of declivity; declivity with less reticulation.

Distribution: Venezuela (Aragua to Merida).

Type material: The female holotype, male allotype, and 3 paratypes were taken at Merida, Merida, Venezuela, 22-IX-1969, 1700 m, No. 12, *Vismia*, S.L. Wood; 1 paratype is from the same locality and date, No. 7, tree branch; 1 paratype is from the same locality taken 7-X-1969, No. 14, *Vismia*, S.L. Wood; 6 paratypes are from Rancho Grande, Aragua, Venezuela, 9-IV-1970, 1100 m, No. 412, tree branch, S.L. Wood; 1 paratype is from Colonia Tovar, Aragua, Venezuela, 4-V-1970, 1700 m, No. 493, tree branch, S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Corthyloxiphus colombiae Wood, n. sp.

Corthyloxiphus colombiae Wood: Holotype ♀; Piedras Blancas 11 km W Medellin, Antioquia, Colombia; USNM, Washington, designated below

Diagnosis: Closely allied to *frontalis* Wood, distinguished by the long, slender female antennal club; and by the very minute punctures on the elytral disc, punctures on declivital striae 1 and 2 obsolete.

Male: Similar to female except frons broadly convex, a weak, transverse impression above epistoma, surface rugose-reticulate, punctures rather coarse; antennal club small, less slender; anterior margin of pronotum armed by 2 large, median serrations.

Female: Length 2.0–2.1 mm, 2.6 times as long as wide; color very dark reddish brown. Frons moderately concave eye to eye from epistoma to vertex, surface of concave area smooth, shining, with dense minute punctures uniformly distributed, vestiture in central area small, sparse, a peripheral row of long setae present; antennal club slender, 2.3 times as long as wide, apical margin with a row of long setae. Pronotum 0.95 times as long as wide;

sides subparallel and weakly arcuate on basal two-thirds of pronotum length, rather narrowly rounded in front; anterior margin armed by 2 small, median serrations; summit indefinite, at middle of pronotum length; anterior slope moderately steep, asperities low, close, confused; posterior areas reticulate, punctures very small; vestiture of many long setae on asperate area and lateral margins. Elytra (spread on type) about 1.4 times as long as wide, 1.5 times as long as pronotum; disc occupying basal 70 percent of elytra length; disc smooth, shining, with many impressed lines, punctures minute, confused on basal half, mostly in stria rows behind. Declivity steep, feebly bisulcate; interstriae 2 feebly impressed, 1 weakly elevated, 1 and 3 each armed by a row of six or more small, pointed tubercles; punctures on striae 1 and 2 minute to obsolete; surface weakly reticulate. Minute setae on declivity; declivital interstriae 1 and 3 and lateral areas with sparse, long setae.

Distribution: Colombia (Antioquia).

Type material: The female holotype and 3 paratypes were taken at Piedras Blancas 11 km W Medellin, Antioquia, Colombia, 17-VII-1970, 2300 m, No. 689, *Vismia*, S.L. Wood. The male allotype bears similar data except No. 680, *Baccharis* (?), 1 paratype bears similar data except No. 693, *Croton guianensis*; 1 paratype is from the same locality, No. 657, *Mariana*. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Corthyloxiphus usticus Wood, n. sp.

Plate CCXVII

Corthyloxiphus usticus Schedl, 1951:128. Holotype ♀; Merida, Merida, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *colombiae* Wood by the stouter female antennal club; by the more broadly serrate anterior margin of the pronotum; by the smoother, more brightly shining elytral disc; and by the slightly larger size.

Male: Similar to female except antennal club stouter, frons convex, reticulate and punctured; anterior margin of pronotum armed by 2 large, median serrations.

Female: Length 2.2–2.4 mm, 2.6 times as long as wide; color reddish brown. Frons strongly concave eye to eye from epistoma to vertex; surface of concave area smooth, shining, with small, dense punctures uniformly distributed; concave area with sparse, short setae, peripheral margin with a row of long setae; antennal club elongate, 2.67 times as long as wide. Pronotum 0.92 times as long as wide, sides on basal half weakly arcuate, converging slightly cephalad, rather narrowly rounded in front; anterior margin armed by 8 low serrations, median pair twice as large; summit at middle of pronotum length; asperities rather large, close, confused; posterior areas reticulate, punctures small; vestiture confined to asperate area and lateral margins. Elytra 1.5 times as long as wide, 1.8 times as long as pronotum; disc occupying 80 percent of elytra length; disc smooth, shining, with many impressed lines, punctures small, in stria rows, becoming

obsolete near declivity. Declivity steep, broadly convex; punctures on striae 1 and 2 minute to obsolete; interstriae 2 feebly impressed, unarmed by tubercles, 1 and 3 each armed by six or more small tubercles; surface reticulate. Vestiture on lower half of declivity with minute ground setae, sparse, long interstitial setae on lower half and on sides near declivity.

Distribution: Venezuela. (Merida).

Type material: The female holotype, male allotype, and 26 paratypes were taken at La Carbonera Experimental Forest 50 km NW Merida, Merida, Venezuela, 9-XII-1969, 2500 m, *Nectandra* tree seedlings, SLW; 4 paratypes with same data except 27-X-1969, 3 paratypes same data except 10-XI-1969; 6 paratypes are from 30 km N Merida, Merida, Venezuela, 8-I-1970 (*Nectandra*); 1 paratype is from La Mucuy (near Merida), Merida, Venezuela, 29-X-1969, and 2 paratypes from same locality taken 12-XI-1969 (tree seedlings). The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Corthyloxiphus antennatus

Wood, n. sp.

Corthyloxiphus antennatus Wood: Holotype ♀; Piedras Blancas 11 km E Medellin, Antioquia, Colombia; USNM, Washington, designated below

Diagnosis: Distinguished from *usticus* Wood by the long, slender female antennal club; by the small punctures on the disc striae; and by the female frons as described below.

Female: Length 1.9 mm, 2.6 times as long as wide; color dark reddish brown. Frons moderately concave eye to eye from epistoma to vertex; surface reticulate, punctures minute, spaced by more than three diameters of a puncture; vestiture minute in concave area, peripheral row of setae sparse, mostly rather short; antennal club slender 2.4 times as long as wide. Pronotum 1.0 times as long as wide; sides on basal half weakly arcuate, broadly rounded in front; anterior margin armed by 4 small serrations; summit at middle of pronotum length; anterior slope rather steep, asperities rather coarse, close, confused; posterior areas reticulate, punctures small; vestiture sparse on asperate area and lateral margins. Elytra 1.7 times as long as wide, 1.7 times as long as pronotum; disc occupying 70 percent of elytra length; disc almost smooth, shining, several impressed lines present, striae punctures small, mostly in definite rows. Declivity steep, broadly convex; surface smooth, shining; striae 1 and 2 with punctures minute to obsolete; interstriae 2 feebly impressed, with a few impressed points, 1 and 3 feebly elevated, each armed by a row of six or more small tubercles. Vestiture of very short ground setae from base to apex, and rather numerous long, erect setae on interstriae and sides near declivity from base to declivity to apex.

Distribution: Colombia (Antioquia).

Type material: The female holotype was taken at Piedras Blancas 10 km E Medellin, Antioquia, Colombia,

15-VII-1970, 2500 m, No. 657, *Meriana*, S.L. Wood. The holotype is in the U.S. National Museum, Washington.

Corthyloxiphus reticulatus

Wood, n. sp.

Corthyloxiphus reticulatus Wood: Holotype ♀; La Carbonera Experimental Forest 50 km NW Merida, Merida, Venezuela; USNM, Washington, designated below

Diagnosis: Remotely allied to *usticus* Wood. Female pronotum, declivity, and most of elytral disc reticulate; female frons rather shallowly concave, setae in concave area rather short, without a distinctly longer peripheral row; all declivital setae short.

Female: Length 1.8 mm, 2.6 times as long as wide; color very dark reddish brown. Frons shallowly concave eye to eye from epistoma to well above upper level of eyes; surface reticulate, punctures rather small, spaced by about one to three diameters of a puncture, setae moderately long, without a distinctive peripheral row; antennal club broadly oval, 1.3 times as long as wide. Pronotum 1.0 times as long as wide; sides almost straight and parallel on basal half, rather broadly rounded in front; anterior margin armed by 4 small serrations; summit at middle of pronotum length; anterior slope rather steep, asperities rather small, close, confused; posterior areas strongly reticulate, dull, punctures minute, obscure; sparse setae on asperate area and lateral margins. Elytra 1.6 times as long as wide, 1.6 times as long as pronotum; disc occupying basal 80 percent of elytra length; disc reticulate except mostly smooth on interstriae 2 and 3 from near base to near declivity, with numerous impressed lines, punctures small, shallow, mostly in rows except moderately confused on middle third. Declivity steep, broadly convex; suture feebly elevated, surface reticulate, small, confused punctures feebly granulate. Vestiture very minute face and on sides to base of elytra, short and moderately numerous on declivity.

Distribution: Venezuela (Merida).

Type material: The female holotype was taken at La Carbonera Experimental Forest 50 km NW Merida, Merida, Venezuela, 14-XI-1969, 2500 m, No. 135 from a tree twig, S.L. Wood. The holotype is in the U.S. National Museum, Washington.

Corthyloxiphus simplicis Wood, n. sp.

Corthyloxiphus simplicis Wood: Holotype ♀; Pico Bolivar Teleferico, Merida, Merida, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *reticulatus* Wood by the larger size; by the smooth, shining elytra; by the almost glabrous female frons; and by the much longer declivital setae.

Male: Similar to female except frons convex, reticulate; suture 1 of antennal club partly septate near mesal margin; anterior margin of pronotum armed by 2 coarse, mesal serrations; sutural interstriae on lower fourth of declivity weakly subcostate.

Female: Length 2.2–2.4 mm, 2.5 times as long as wide; color pale reddish brown (mature?). Frons moderately concave eye to eye from epistoma to well above upper level of eyes; concave area strongly reticulate, punctures minute, obscure, mostly glabrous except median fourth above eyes with minute setae; antennal club 1.4 times as long as wide, suture 1 marked by a weak groove, septate on lateral fifth, without long setae on apical margin. Pronotum 1.0 times as long as wide; sides on basal half moderately arcuate, slightly converging cephalad, rather narrowly rounded in front; anterior margin armed by 6 weak serrations, median pair larger; summit at middle of pronotum length; anterior slope steep, asperities rather coarse, close, confused; posterior areas rather strongly reticulate, punctures minute to obscure; vestiture sparse on asperate area and lateral margins. Elytra 1.5 times as long as wide, 1.5 times as long as pronotum; disc occupying 74 percent of elytra length; disc almost smooth, shining, with many impressed lines, punctures very small, confused on basal third, in definite striae rows behind. Declivity steep, broadly convex; surface smooth, shining, punctures small, distinct, striae 1 and 2 distinguishable near base, all punctures confused below; sutural interstriae weakly elevated, obscurely subcostate on lower fourth. Declivital setae from base to apex mostly very long, longest equal in length to width of two discal interstriae, sparse, short setae on sides from declivity base to middle of declivity length.

Distribution: Venezuela (Merida).

Type material: The female holotype, male allotype, and 6 paratypes were taken between stops 3 and 4 on the Pico Bolivar Teleferico, Merida, Merida, Venezuela, 27-II-1970, 2500 m, No. 330, *Nectandra*, S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Corthyloxiphus declivis Wood, n. sp.

Corthyloxiphus declivis Wood: Holotype ♂; La Carbonera Experimental Forest 50 km NW Merida, Merida, Venezuela; USNM, Washington, designated below

Diagnosis: Closely allied to *simplicus* Wood, male distinguished by having all declivital setae short, of about equal length; and by having almost all discal punctures in definite rows.

Male: Length 2.1 mm, about 2.5 times as long as wide; color reddish brown. Frons broadly convex, strongly reticulate, punctures very small; sparse setae on epistoma; antennal club as in male *simplicus*. Pronotum as in *simplicus*. Elytra with almost all discal punctures in striae rows. Declivity similar to *simplicus*, except most punctures obsolete on lower half or replaced by minute tubercles, with many impressed points. Vestiture on declivity of moderately abundant, short setae of about uniform length, similar setae continued on sides to base of declivity, a few setae and microsetae continued cephalad to middle of declivity length.

Distribution: Venezuela (Merida).

Type material: The male holotype was taken at La Carbonera Experimental Forest 50 km NW Merida, Merida, Venezuela, 27-X-1969, 2500 m, No. 90, liana, S.L. Wood. The holotype is in the U.S. National Museum, Washington.

Corthyloxiphus carbonerae

Wood, n. sp.

Corthyloxiphus carbonerae Wood: Holotype ♀; La Carbonera Experimental Forest 50 km NW Merida, Merida, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from female *simplicus* Wood by the more strongly impressed frons, with a peripheral row of long setae; by the confused punctures on the basal half of the elytral disc; and by the elytral declivity as described below.

Female: Length 2.3 mm, almost 2.4 times as long as wide (elytra spread on type); somewhat bicolored, dark reddish brown, with pale basal half of elytra. Frons rather strongly concave eye to eye from epistoma to vertex; concave area reticulate, punctures very small, spaced by three or more diameters of a puncture, with sparse, short hair; peripheral margin with a row of rather long hair; antennal club 1.16 times as long as wide, large, widest on apical third, apical margin broadly rounded, bearing many long setae, suture 1 weakly septate on lateral fourth. Pronotum 1.0 times as long as wide; sides on basal half arcuate converging cephalad, rather narrowly rounded in front; anterior margin armed by 2 moderate serrations; summit at middle of pronotum length; anterior slope steep, asperities rather coarse, close, confused; posterior areas strongly reticulate, punctures minute. Elytra about 1.5 times as long as wide, 1.6 times as long as pronotum; disc occupying 70 percent of elytra length; disc smooth, shining, with many impressed lines, punctures small, mostly in striae rows. Declivity steep, broadly convex; mostly smooth, shining, most minute punctures replaced by minute granules. Vestiture confined to declivity, of many moderately long to very long setae.

Distribution: Venezuela (Merida).

Type material: The female holotype was taken at La Carbonera Experimental Forest 50 km NW Merida, Merida, Venezuela, 28-IV-1970, 2500 m, No. 452, liana, S.L. Wood. The holotype is in the U.S. National Museum, Washington.

Corthyloxiphus obesus Wood, n. sp.

Corthyloxiphus obesus Wood: Holotype ♀; La Carbonera Experimental Forest 50 km NW Merida, Merida, Venezuela; USNM, Washington, designated below

Diagnosis: Remotely allied to *ebeninus* (Blandford) of Panama, distinguished by the acutely elevated, longer ventrolateral costa on the declivity; by the strongly costate and serrate sutural interstriae on the declivity; and by the moderately impressed declivity, with interstriae 3 armed by about four to six moderately large, pointed tubercles.

Male: Similar to female except frons convex, reticulate, very finely punctured, sparse, short setae from epistoma to upper level of eyes; antennal club smaller, oval, 1.4 times as long as wide, apex narrowly rounded; anterior margin armed by about 6 serrations, median pair much larger; declivity more strongly impressed.

Female: Length 2.7–2.8 mm, 2.2 times as long as wide; color dark reddish brown. Frons moderately concave eye to eye from epistoma to vertex; surface smooth, shining, densely, rather finely punctured, ornamented by a dense brush of rather long hair; setae within peripheral row semirecumbent, radiating from central point; antennal club larger, elongate, 1.8 times as long as wide; apical two-thirds tapered to narrowly rounded apex, margin of tapered portion ornamented by a row of long setae. Pronotum 0.81 times as long as wide; widest near base, sides moderately arcuate, then constricted before rather narrowly rounded anterior margin; anterior margin armed by 6 very weak serrations, median pair larger; summit at middle of pronotum length; anterior slope steep, asperities coarse, close, confused; posterior areas finely rugose-reticulate, with small, low, transverse rugae continuing on median fourth to base; sparse, short setae on anterior half. Elytra 1.25 times as long as wide, 1.3 times as long as pronotum; disc occupying basal 62 percent of elytra length; disc smooth, shining, with a few impressed lines; punctures rather small, strongly confused. Declivity very steep, rather strongly impressed, subconcave on basal half; sutural interstriae strongly elevated, costate from base to near apex, crest armed by about 6, moderately coarse, subacutely pointed tubercles; ventrolateral costa moderately elevated from suture to one-third declivity length from apex; face of declivity weakly reticulate on basal half, smooth below; area from sutural interstriae to interstriae 3 impressed, small punctures confused; interstriae 3 armed by about six rather coarse tubercles; lateral areas on basal half weakly elevated and armed by about eight or more small tubercles. Vestiture of sparse short setae on basal half, a few longer setae on lower half on interstriae 1, 3, and lateral margin.

Distribution: Venezuela (Merida).

Type material: The female holotype and 3 paratypes were taken at La Carbonera Experimental Forest 50 km NW Merida, Merida, Venezuela, 27-X-1969, 2500 m, No. 90, liana, S.L. Wood. The male allotype and 2 paratypes bear similar data except 10-X-1969, No. 122, liana; 2 paratypes bear the type data except No. 125, *Nectandra* branch; 1 paratype is labeled 13 km SW El Vigia, Merida, Venezuela, 22-X-1969, 100 m, No. 95, liana, S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Corthyloxiphus emarginatus
(Eggers), n. comb.

Plate CCXVI

Corthyloxiphus emarginatus (Eggers), 1943:380 (*Corthylyus*). Lectotype ♂; Cochabamba, Bolivia; USNM, Washington, designated by Anderson & Anderson 1971:12 (References in Wood & Bright c1992:1073)

Diagnosis: Male distinguished by the small, deep emargination at the apex of the elytral suture; by the smooth, shining, evenly convex declivity, with small confused punctures; frons weakly, transversely impressed on lower half of area below upper level of eyes.

Male: Length 2.2 mm, 2.6 times as long as wide; color of pronotum yellowish brown, elytra reddish brown. Frons apparently convex above (concealed by pronotum on type), shallowly, transversely impressed on lower half of area below upper level of eyes, lateral crests of impressed area subacute; surface of impressed area mostly smooth, shining, punctures minute; glabrous, except sparse, minute setae on epistoma; antennal club 1.5 times as long as wide, tapered on apical fourth to an obtuse point. Pronotum 1.2 times as long as wide; sides almost straight and parallel on basal two-thirds, narrowly rounded in front; anterior margin armed by 2 median, rather large serrations; summit slightly anterior to middle of pronotum length; anterior slope steep, asperities coarse, broad, close, confused; posterior areas reticulate, punctures very small; sparse setae on asperate area and lateral margins. Elytra 1.4 times as long as wide, 1.2 times as long as pronotum; disc occupying 60 percent of elytra length; surface smooth, shining, punctures small, confused. Declivity steep, evenly convex, a small emargination at apex of suture; surface smooth, shining, confused; ventrolateral margin acutely elevated on mesal half of elytra width. About 10 scattered interstitial setae on declivity.

Distribution: Bolivia to Peru.

Bolivia: Cochabamba (holotype).

Peru: Tingo Maria, Monson Valley, 23-X-1954, E.I. Schlinger & E.S. Ross.

Notes: The above treatment was based on the male holotype and on 1 other male. Because the holotype of *Corthylyus emarginatus* (Eggers) clearly belongs to this genus, this species is here transferred from *Corthylyus* to *Corthyloxiphus*, as indicated above.

GENUS *BRACHYSPARTUS* FERRARI

Brachyspartus Ferrari, 1867:65. Type-species: *Brachyspartus moritzi* Ferrari, monobasic (Synonymy and references in Wood & Bright c1992:1068)

Thylurcos Schedl, 1939:567. Type-species: *Brachyspartus moritzi* Ferrari, by subsequent monotypy

Diagnosis: Distinguished from *Corthyloxiphus* by the septate suture 1 on the asymmetrical antennal club, apical half of club tapered to the strongly acuminate apex; by the elytral apex being strongly, obtusely divaricate; and by the very slender protibiae.

Description: Length 2.5 mm, 2.6 times as long as wide; color dark brown. Frons of female moderately concave; eye strongly emarginate; antennal funicle 1-segmented, club with suture 1 straight, narrowly septate, apex of female acutely acuminate, several long setae at and near apex on posterior face. Elytra strongly divaricate. Protibia very slender. Only 1 species is known. The male frons is convex as was noted by Blandford (1904:264).

Brachyspartus moritzi Ferrari

Plate CCXVIII

Brachyspartus moritzi Ferrari, 1867:68. Holotype ♀; Venezuela; NHMW, Wien (Synonymy and references in Wood & Bright c1992:1068)
Corthylus obtusus Schedl, 1966:122. Holotype ♀; Venezuela; NHMW, Wien

Male: Similar to female except: antennal club subacutely pointed at apex, not narrowly attenuate; frons apparently convex (not clearly visible on specimen at hand); anterior margin of pronotum with median pair of serrations larger; more slender; ventrolateral margin of declivity with mesal slope more strongly impressed to a more dorsal position.

Female: Length 2.6–2.7 mm, 2.6 times as long as wide; color reddish brown, declivity darker. Frons moderately concave almost eye to eye from epistoma to vertex (areas above and below upper level of eyes about equal); surface from epistoma to vertex rugose-reticulate, with many, small punctures; vestiture of fine, long hair on peripheral areas, slightly shorter in concave area, uniformly distributed; scape slightly flattened, distinctly shorter than club; funicle 1-segmented, club 1.5 times as long as wide, strongly tapered on apical two-thirds to a sharply acuminate point, suture 1 straight, finely septate, 2 partly marked by a weak, non-septate groove, several long setae on mesal margin from base to apex. Pronotum 1.1 times as long as wide; sides on basal half almost straight and parallel, rather broadly rounded in front; anterior margin irregularly armed by about 8 serrations; summit slightly in front of middle of pronotum length; asperities coarse, close, confused on anterior fourth, more finely asperate from that point to summit; posterior areas rugose-reticulate and with many short, low, transverse rugae to base; almost glabrous except many long setae on anterior and lateral margins. Elytra 1.3 times as long as wide, 1.2 times as long as pronotum; disc occupying basal 77 percent of elytra length; surface smooth, shining, confused punctures very small to almost obsolete. Declivity very steep, broadly convex, margin somewhat abrupt (not sharply angled except near apex); apex of suture deeply, rather broadly emarginate; surface weakly reticulate; basal and lateral areas on basal fourth with numerous, confused, small, rounded tubercles; these tubercles decrease in number and become sparse on central and lower areas. Sparse, long setae on and near declivity.

Distribution: Venezuela: Rancho Grande, Aragua, 22-23-II-1971, at light, H. & A. Howden; "Venezuela," labeled as a male (actually a female; type); Venezuela, 1858, Moritz (male); "Colombia, Fahraeus" (male).

Biology: All known specimens were attracted to light in Venezuela.

Notes: Wood & Bright (c1992:1068) record only 1 species from Venezuela. This species was named from specimens collected in Venezuela by Dr. Moritz. These specimens almost certainly came from Colonia Tovar, Aragua, at or near his home. Although the Fahraeus

specimen is labeled "Colombia," it is very old and apparently came from Venezuela before Venezuela was separated from Colombia. The female holotype was compared by me directly to my female that is now in the USNM, Washington.

GENUS *CORTHYLOCURUS* WOOD

Corthylocurus Wood, 1966:18. Type-species: *Brachyspartus barbatus* Blandford, original designation (References in Wood & Bright c1992:1068–1069)

Diagnosis: Distinguished from *Corthylus* by the distinctive female frons; by the antennal club having 2 almost straight sutures and a different style to the tuft of hair on the posterior face of the female club; by the inflated, tuberculate female protibiae; and by the somewhat different elytral declivity.

Description: Length 1.5–2.8 mm, 2.1–2.5 times as long as wide; color yellowish brown to light brown. Frons sexually dimorphic, male convex, female longitudinally bi- or trisulcate to deeply concave and with a pair of conspicuous longitudinal carinae. Eye emarginate, rather coarsely faceted. Scape slender, club-shaped; funicle 1-segmented; club large, flat, symmetrically oval with two straight or weakly procurved sutures, posterior face of female with a tuft of hair arising from at least one-third of surface near apex. Pronotum and scutellum as in *Corthylus*. Elytra with punctures in rows or variously confused; declivity weakly to rather strongly sulcate. Female protibia moderately inflated on posterior face and armed by several confused tubercles.

Biology: All species are xylomycetophagous and monogynous. They breed in small stems about 2–5 cm in diameter of trees, shrubs, and lianas that are unthrifty, cut, broken, or injured. The galleries are similar to those of *Corthylus*, although the spiral tunnel predominates. Wood (1982:1264) reports domicile parasitism by *Corthylocurus barbatus* (Blandford) of *Corthylus concisus* Wood. The *concisus* tunnel, consisting of an entrance tunnel that branched left and right, about 1 cm below the branch surface, into 2 egg galleries that followed growth rings in the xylem and joined one another on the opposite side of the branch, thus forming a complete ring with only 1 entrance. The *barbatus* entrance tunnel was placed 5–10 mm above or below the *concisus* entry. When both gallery systems were complete, but before oviposition commenced, the *barbatus* female bored into the *concisus* gallery, evicted or killed the *concisus* pair, plugged their entrance hole with frass, cleaned the gallery, and proceeded to produce brood in both gallery systems. Dozens of examples in all stages of development were observed at several localities. It is possible that similar behavior exists in allied *Corthylocurus* species.

Notes: Wood & Bright (c1992:1068–1069) list 10 species from Mexico (Puebla) to Brazil (Santa Catarina). Of these, 4 were reported from South America.

SCOLYTIDAE OF SOUTH AMERICA

Key to the Species of *Corthylocurus*
(Modified from Wood 1982:1265–1266)

1. Female frons shallowly impressed from epistoma to upper level of frons or longitudinally bi- or trisulcate to well above upper level of eyes; female vertex not ornamented by a dense brush of long setae; male declivity without an acutely elevated posterolateral crest diverging from costal margin 2
- Female frons rather deeply concave eye to eye from epistoma to vertex, epistoma usually bearing (1 exception) a pair of curls of long setae, vertex ornamented by a dense brush of long, sub-plumose setae; male declivity with an acutely elevated posterolateral crest extending from costal margin near suture toward interstriae 8 9
- 2(1). Smaller species; elytral disc shining, striae punctures minute, mostly in distinct rows; female frons rather shallowly impressed from epistoma to upper level of eyes or less, median sulci or carinae obscurely developed, vestiture mostly very short and more generally distributed 3
- Larger species; elytral disc with punctures larger, strongly confused at least on basal half; female frons with sulci strongly to very strongly impressed to upper level of eyes or higher, carinae strongly, subacutely elevated; female vestiture on frons in approximate rows or greatly reduced in distribution 5
- 3(2). Female frons on median third more abruptly, more strongly impressed, a pair of minute tubercles above upper level of eyes near upper limits of sulcus; Mexico (Nayarit to Morelos); *Serjania*, *Inga*, 1.8–1.9 mm *aguacatensis* Wood
- Female frons shallowly concave almost eye to eye, with no tubercles evident, median line weakly elevated 4a
- 4a(3). Impression on female frons extending almost eye to eye from epistoma to slightly below upper level of eyes, a weak, median elevation divided longitudinally by a minute sulcus into parallel, subacute carinae from epistoma almost to upper limit of impression, vestiture in impressed area of numerous, very minute setae, sparse, longer setae on sides and epistoma; male frons moderately convex, without a median elevation, sparse moderately large punctures uniformly distributed; Costa Rica to Panama; *Serjania*, *Inga*; 1.5–1.9 mm *debilis* Wood
- Impression on female frons extending slightly above upper of eyes, a weak median carina from epistoma one-third distance to upper level of eyes 4b
- 4b(4a) Median crest on female frons acute, without a groove, short, restricted to lower third of area below upper level of eyes, without a pair of pointed tubercles at upper level of eyes; setae on female frons minute; Venezuela (Aragua); Melastomaceae twig; 1.7–1.8 mm *moritzi* Wood
- Median crest on female frons with a minute, median groove, lateral areas broadly, shallowly impressed from epistoma to upper level of eyes, a pair of small, pointed tubercles at upper level of impressed areas; setae on female frons rather abundant, moderately long, on lateral two-thirds of impressed areas; Brazil (Bahia); 1.4–1.5 mm *pristinus* Wood
- 5(2). Declivity in both sexes less strongly impressed, lateral crests not as high, usually armed by 2 pair of denticles; lateral sulci on female frons narrower, each occupying half of space between eye and median line and extending dorsad slightly above upper level of eyes 6
- Larger, more slender species (2.3 or more times as long as wide); lateral crests on declivity armed by 3 or more pair of denticles; lateral sulci on female frons much wider, each occupying two-thirds of distance from eye to median line and extending dorsad to vertex 7
- 6(5). Median carinae on female frons contiguous, median sulcus between them very narrow from epistoma to vertex; body stout, 2.15 times as long as wide, punctures on declivity confused; declivital impression moderately strong, lateral tubercles distinctly larger; Costa Rica; liana; 1.7–1.9 mm *costaricensis* (Schedl)

CORTHYLINI

- Crests of median carinae on female frons parallel, widely separated by distance equal to one-third width of frons; body more slender, 2.6 times as long as wide; striae punctures on declivity in rows, small to obsolete; declivital impression weak, rather narrow, lateral tubercles much smaller; Mexico (Puebla) to Panama; *Inga*, *Rhus*, etc.; 1.5–2.0 mm **mexicanus** (Schedl)
- 7(5). Female epistomal margin bearing a pair of long, curled, red or reddish tufts of hair sometimes capable of extending well above upper level of eyes, upper third of median elevation and median part of vertex bearing tufts of long, yellow setae, median elevations with a small tubercle near lower end; male frons broadly convex, reticulate, with small, sparse punctures, a small, median tubercle on epistoma; Venezuela (Merida); *Miconia*, *Nectandra*, etc.; 1.9–2.5 mm **protuberans** Wood
- Female epistomal margin bearing short, straight setae, none curling dorsad, median elevation not armed by a tubercle below, or long setae above 8
- 8(7). Female frons on median third from epistoma to vertex bearing a pair of strongly elevated, parallel, subcarinate crests, a very narrow, deep sulcus between them, lateral face of each with moderately abundant micropile; male frons broadly convex, reticulate, rather coarsely, sparsely punctured, a very narrow, median sulcus from epistoma almost to upper level of eyes; Brazil (Santa Catarina); 2.0–2.3 mm **vernaculus** (Schedl)
- Median elevation on female frons occupying less than one-third of width below, gradually expanding toward vertex to more than half width of frons, median sulcus minute below, expanding to width equal to median crests above; median crests bearing many small setae; male frons dull, rugose-reticulate, without a tubercle; Venezuela (Merida); *Nectandra*; 2.2–2.5 mm **medialis** Wood
- 9(1). Female frons deeply concave eye to eye from epistoma to vertex; female epistoma without a pair of long, curled setae, upper margin at vertex ornamented by a row of very long setae (capable of attaining epistomal margin); Venezuela (Aragua to Merida); 2.1–2.5 mm **tuberculifer** (Eggers)
- Female frons variously impressed, with a pair of tufts of long, curled setae arising on median third of epistoma 10
- 10(9). Female frons with lateral areas strongly impressed, weakly concave, with conspicuous, longitudinal wrinkles, median area immediately above epistomal curls of setae, moderately elevated, a double-crested, weak elevation continuing to vertex; epistomal curls with few long setae, these setae much longer, forming a complete loop (or if straight, capable of attaining vertex), color of curls deep red; impression on elytral declivity weak, about half as wide as declivity; male impression on lower half of frons distinct, rather shallow; Venezuela (Merida), 2500 m; 2.3–2.7 mm **signatifrons** (Schedl)
- Female frons moderately to strongly concave eye to eye from epistoma to vertex 11
- 11(10). Female frons deeply concave eye to eye from epistoma to vertex, with a pair of weakly elevated median crests extending from epistoma to vertex; epistomal curl dense, broad, arising from full width of epistoma (except small median area), long, reddish setae forming a complete loop; declivity weakly impressed, disc and declivity reticulate; Costa Rica; 2.0–2.3 mm **cinnatus** Bright
- Female frons deeply concave eye to eye from epistoma to vertex, without a median elevation, epistomal curls rather small 12
- 12(11). Setae on female vertex much longer, their tips capable of attaining epistomal margin, spread over much wider area (almost 100 percent of width of concave area); elytral declivity feebly impressed, tubercles on lateral crests very near suture (falsely appearing as though on interstriae 2); elytral disc and declivity smooth, shining; Brazil (Bahia); 2.2–2.4 mm **setifer** Wood

- Setae on female vertex shorter, capable of attaining upper level of eyes, spread over narrow area, less than two-thirds width of concave area; tubercles on lateral convexities more remote from suture, clearly associated with interstriae 3 13
- 13(12). Concave area on female frons smooth, shining, with no reticulation in impressed area, spongy area on lateral margins greatly reduced to absent; elytral declivity mostly smooth, shining in male, disc smooth, shining in both sexes, punctures distinct; declivity in both sexes more strongly impressed; Costa Rica to Panama; 2.0–2.4 mm (Plate CCXVIII) *barbatus* (Blandford)
- Concave area on central third of female frons strongly reticulate, spongy areas on lateral thirds much larger; extending to central reticulate area and very near vertex; female elytral disc strongly reticulate, punctures obscure; declivity in both sexes weakly impressed, lateral tubercles smaller, usually not pointed; Costa Rica; 2.3–2.5 mm *reticulatus* Wood

Corthylocurus moritzi Wood, n. sp.

Plate CCXIX

Corthylocurus moritzi Wood: Holotype ♀; Colonia Tovar, Aragua, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *debilis* Wood by having the impression on the female frons extending slightly above the upper level of the eyes, with a subacute, weak median carina extending from the epistoma one-third the distance to the upper level of the eyes.

Male: Similar to female except frons convex, without an impression or median elevation; anterior margin with about 4 to 8 serrations, median pair larger.

Female: Length 1.7–1.8 mm, 2.6 times as long as wide; color yellowish brown. Frons shallowly concave almost eye to eye from epistoma to slightly above upper level of eyes; surface reticulate, a few small punctures on lateral areas and above; a weak, median carina from epistoma one-third distance toward upper level of eyes; concave area with rather numerous short setae, those on peripheral areas slightly longer; antennal club broadly obovate, 1.1 times as long as wide, sutures 1 and 2 weakly septate on lateral thirds. Pronotum 1.16 times as long as wide; sides subparallel and feebly arcuate on basal half, rather broadly rounded in front; anterior margin very feebly serrate; summit at middle of pronotum length; anterior slope steep, asperities rather large, close, confused; posterior areas reticulate, punctures minute to obsolete; almost glabrous. Elytra 1.4 times as long as wide, 1.3 times as long as pronotum; disc occupying 70 percent of elytra length; disc almost smooth, shining, punctures minute, confused on basal half, in striae rows behind, some minute, impressed points present. Declivity steep, broadly convex; suture feebly elevated on lower half; punctures minute, confused. Sparse, short setae on lower half of declivity.

Distribution: Venezuela (Aragua).

Type material: The female holotype, male allotype, and 16 paratypes were taken at Colonia Tovar, Aragua, Venezuela, 4-V-1970, 1700 m, No. 494, Melastomaceae sp., S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Corthylocurus pristinus Wood, n. sp.

Corthylocurus pristinus Wood: Holotype ♀; Nova Vicosas, Bahia, Brazil; MZUSP, Sao Paulo, designated below

Diagnosis: Distinguished from *moritzi* Wood by the smaller size; by the more extensive impressed and pubescent areas on the female frons; and by the presence of a pair of pointed tubercles on the female frons at the upper level of the eyes.

Male: Similar to female except frons rather strongly, evenly convex eye to eye from vertex to shallow, transverse impression above epistoma; surface finely reticulate, sparse punctures very small; setae on epistomal brush sparse, moderately long; antennal club distinctly smaller.

Female: Length 1.4–1.5 mm, 2.3 times as long as wide; color yellowish brown. Frons shallowly, subconcavely impressed eye to eye from epistoma to upper level of eyes, a feeble, median groove on lower half to two-thirds of area below upper level of eyes, lateral margins of groove feebly elevated, lateral areas almost smooth, punctures very small, numerous, surface almost smooth, shining, vertex minutely rugose-reticulate to upper level of eyes; a transverse pair of small, pointed tubercles at upper level of eyes, tubercles spaced by three-eighths width of frons; antennal club very large, 1.45 times as long as wide, its width equal in length to scape, sutures 1 and 2 feebly procurved, finely septate. Pronotum 1.04 times as long as wide; sides feebly arcuate on basal half, rather broadly rounded in front; anterior margin armed by 6 very low serrations; summit at middle of pronotum length; anterior slope steep, asperities rather small, close, confused; posterior areas minutely reticulate, punctures minute, not close; glabrous. Elytra (spread on type) about 1.4 times as long as pronotum (estimated from paratype); disc occupying basal 60 percent of elytra length; disc smooth, shining, striae not impressed, punctures very small, shallowly impressed, mostly in rows, except confused on basal fourth of disc. Declivity very steep, rather broadly convex; striae 1 shallowly impressed (much less than on *moritzi*), striae 2 obsolete on lower two-thirds, 3 obscure, punctures very small, crest on interstriae 3 very weak, tubercles not evident. Almost glabrous, a few

moderate hairlike setae near base of declivity on interstriae 7 and 9.

Distribution: Brazil (Bahia)

Type material: The female holotype (1-X-1997), male allotype (26-XI-1997), and 3 paratypes were taken at Nova Vicosá, Bahia, Brazil, on the dates specified, from an ethanol trap in a *Eucalyptus grandis* stand, by C.A.H. Flechtmann. The holotype, allotype, and 1 paratype are in Museum de Zoologia, Universidade de São Paulo, São Paulo. Two paratypes are in the U.S. National Museum, Washington.

Corthylocurus protuberans

Wood, n. sp.

Corthylocurus protuberans Wood: Holotype ♀; Merida, Merida, Venezuela; USNM, Washington, designated below

Diagnosis: distinguished from *vernaculus* (Schedl) by the higher median elevation on the female frons, with most or all of the median groove on this elevation absent; by the long curl of reddish setae on epistoma; and by the male epistoma with a median tubercle and without a median groove.

Male: Similar to female except broadly convex, subglabrous, with a small median tubercle and without a median groove; serrations on anterior margin of pronotum larger; antennal club without long setae on posterior face.

Female: Length 1.9–2.5 mm, 2.7 times as long as wide; color reddish brown. Frons with lateral thirds strongly impressed from vertex to slightly below upper level of eyes, not impressed below; median third moderately elevated at vertex, elevation increasing at half distance from epistoma to upper level of eyes, its crest usually with a median groove on lower half or less (variable), lower end of crest often with a pair of small tubercles, crest glabrous above, pubescent below, median third of epistoma with a pair of long curls of reddish setae, these setae capable of extending well above upper level of eyes, sparse shorter setae on lateral areas below; antennal club broadly obovate, 1.15 times as long as wide, apical margin broadly rounded, sutures 1 and 2 weakly septate on marginal thirds, a small tuft of long hair on posterior face. Pronotum 1.2 times as long as wide; sides feebly arcuate and parallel on basal half, rather narrowly rounded in front; anterior margin armed by a median pair of small serrations; summit at middle of pronotum length; anterior slope steep, asperities coarse, close, confused; posterior areas strongly reticulate, punctures minute to obsolete; almost glabrous. Elytra 1.5 times as long as wide, 1.2 times as long as pronotum; disc occupying basal 70 percent of elytra length; surface strongly reticulate, punctures very small, mostly confused on basal half, in obscure rows near declivity. Declivity moderately sulcate on basal third, more broadly impressed below; lateral convexities moderate, crests rounded and armed on crest by three or four pair of pointed tubercles; face of impressed area strongly reticulate, without punctures, suture weakly elevated. Glabrous.

Distribution: Venezuela (Merida).

Type material: The female holotype, male allotype, and 29 paratypes were taken at Merida, Merida, Venezuela, 22-IX-1969, No. 7 (9 paratypes), 18-X-1969, No. 79, unknown liana (holotype, allotype, 12 paratypes), 29-XII-1969, No. 214, *Miconia* (8 paratypes), all by S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Corthylocurus vernaculus (Schedl)

Plate CCXX

Corthylocurus vernaculus (Schedl), 1939:569 (*Brachyspartus*). Syntypes ♀ ♀; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:1069)

Diagnosis: Distinguished from *protuberans* Wood by the longitudinally etched thirds of the female frons, with the elevation on the median third more uniformly elevated and its median groove extending the full length of the elevation, all frontal setae short; and by the convex male frons with a median groove on the lower half.

Male: Similar to female except frons broadly convex, mostly reticulate and punctured, a narrow, median groove on lower half, mostly glabrous.

Female: Length 2.0–2.3 mm, 2.7 times as long as wide; color yellowish brown, anterior half of pronotum darker. Frons with lateral thirds strongly, subconvexly impressed and longitudinally etched from epistoma to vertex, median third moderately elevated from vertex then slightly higher above epistoma, a median groove between subcarinate crests of this elevation; lateral slopes of elevation bearing minute hair; epistomal area bearing numerous moderately long setae; antennal club 1.3 times as long as wide, apical margin obtusely subangulate, a tuft of long setae on posterior face. Pronotum 1.1 times as long as wide; about as in *protuberans*. Elytra 1.5 times as long as wide, 1.2 times as long as pronotum; disc occupying basal 75 percent of elytra length; disc reticulate, punctures very minute to obsolete, confused on basal half, in obscure rows near declivity. Declivity moderately sulcate on median third, lateral crests moderately elevated and rounded on basal half, crests armed by three or four small pointed tubercles; face of declivity reticulate, punctures not evident, suture slightly elevated. Sparse, short setae on lateral crests and on sides near declivity.

Distribution: Brazil: Nova Teutonia, Santa Catarina, VIII-1961, 300–500 m, F. Plaumann.

Notes: The above treatment was based on 1 male and on 2 females from the original series of Schedl. They were compared to the syntypes of *Brachyspartus vernaculus* Schedl by me.

Corthylocurus medialis Wood, n. sp.

Corthylocurus medialis Wood: Holotype ♀; La Carbonera Experimental Forest 50 km NW Merida, Merida, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *vernaculus* (Schedl) by the much wider median elevation of the female frons on

its dorsal half, the lateral crests, consequently, shorter and not etched longitudinally; and by the convex male frons that lacks both a groove and a tubercle.

Male: Similar to female except frons strongly convex, dull, reticulate, and glabrous; anterior margin of pronotum armed by 6 serrations, median pair larger; antennal club without a tuft of long setae on posterior face.

Female: Length 2.2–2.5 mm, 2.6 times as long as wide; color mostly yellowish brown. Frons with lateral thirds strongly, subconcavely impressed to near vertex, impressed areas not longitudinally etched, median elevation rather high, narrow from epistoma to upper level of eyes, becoming three times as wide at vertex, a median groove on elevation from epistoma to vertex, mostly glabrous, minute setae on part of elevated area especially near epistoma; antennal club 1.16 times as long as wide, posterior face with a large tuft of long setae. Pronotum 1.2 times as long as wide; sides almost straight and parallel on basal half, rather narrowly rounded in front; anterior margin armed by 6 weak serrations; summit at middle; anterior slope steep, asperities coarse, close, confused; posterior areas strongly reticulate; punctures obscure, very minute; glabrous. Elytra 1.3 times as long as wide, 1.2 times as long as pronotum; disc occupying basal 64 percent of elytra length; disc reticulate, punctures small, confused. Declivity moderately, rather narrowly sulcate on basal half, more broadly impressed below; lateral crests moderately elevated on basal half, crest rather narrowly convex, armed by 3 pair of small, pointed denticles; face of declivity strongly reticulate, punctures not evident, suture weakly elevated. Many minute setae on lateral crests of declivity and a few longer setae on and near lateral crests.

Distribution: Venezuela (Merida).

Type material: The female holotype, male allotype, and 35 paratypes were taken at La Carbonera Experimental Forest 50 km NW Merida, Merida, Venezuela, 10-XI-1969, 2500 m, Nos. 125 (allotype) and 126 (holotype), *Nectandra*, S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Corthylocurus tuberculifer (Eggers)

Corthylocurus tuberculifer (Eggers), 1937:86 (*Brachyspartus*). Lectotype ♀; Bahia, Brazil; USNM, Washington, designated by Anderson & Anderson 1971:135 (References in Wood & Bright c1992:1068)

Diagnosis: Female frons moderately concave eye to eye from epistoma to vertex, a tuft of long hair on dorsal margin of concave area, very sparse, short hair below; male frons convex, a small median tubercle on epistoma; declivity very weakly sulcate.

Male: Similar to female except frons convex, glabrous, reticulate, weakly impressed below, with a small median tubercle on epistoma; median pair of serrations on anterior margin of pronotum larger.

Female: Length 2.1–2.5 mm, 2.3 times as long as wide; color reddish brown. Frons moderately concave eye to eye from epistoma to vertex; concave area reticulate, a

large spongy area on each side occupying more than central half, spongy areas separated by median line; vestiture restricted to a tuft of very long hair on dorsal margin of concave area, tips of these setae capable of attaining epistomal margin; antennal club 1.5 times as long as wide, apical third tapered to a blunt point, two or three long setae on posterior face. Pronotum 1.1 times as long as wide; sides on basal half almost straight and parallel, rather narrowly rounded in front; anterior margin weakly subserrate on median third; summit slightly anterior to middle of pronotum length; asperities rather coarse, close, confused; posterior areas reticulate, punctures minute to absent; sparse, short setae on anterior margin. Elytra 1.5 times as long as wide, 1.3 times as long as pronotum; disc occupying 66 percent of declivity length; disc strongly reticulate, punctures small, shallow, mostly confused. Declivity moderately sulcate on median third of basal half, more broadly impressed below; lateral crests on more than basal half broadly rounded, armed by four pair of small, pointed tubercles; face reticulate, punctures obscure, minute, mostly on striae 1, sutural interstriae feebly elevated. Lateral thirds of declivity with many minute, hairlike setae; a few longer setae on sides near declivity at about interstriae 7 and 9.

Distribution: Brazil (Bahia) to Venezuela.

Brazil: Bahia, 1935, *Theobroma cacao*, A.F. Bellairs (male and female cotypes).

Venezuela: Colonia Tovar, Aragua, 6-V-1970, 1700 m, No. 490, tree limb, SLW; Rancho Grande, Aragua, 9-IV-1970, 1100 m, No. 413, tree branch, No. 433, *Guttiferae* sp., SLW; La Carbonera Experimental Forest 50 km NW Merida, Merida, 10-XI-1969, 2500 m, No. 158, tree seedling, SLW.

Notes: The above treatment was based on the male and female cotypes in the NHMW, Wien, and on 37 specimens from Venezuela. In the original description Eggers described the female, not the male as stated.

Corthylocurus signatifrons (Schedl)

Corthylocurus signatifrons (Schedl), 1950:162 (*Brachyspartus*). Holotype ♀; Tibagi, Parana, Brazil; NHMW (Wood & Bright c1992:1069)

Diagnosis: This is the only known species in this genus with the female having (1) an epistomal curl of long, red setae, (2) a brush of long hair on the vertex, and (3) a median bicarinate elevation on the upper two-thirds of the frons.

Male: Similar to female except frons convex above, a weak, transverse impression above epistoma, a small median tubercle on epistoma; anterior margin of pronotum armed by 6 serrations, median pair much larger; a very weak carina branching from costal margin at position of striae 2 and extending a short distance as a ventrolateral costa (also in male *Corthyloxiphus emarginatus*, and below in *Corthylocurus*).

Female: Length 2.3–2.7 mm, 2.6 times as long as wide; color dark reddish brown. Frons with lateral thirds

strongly impressed from slightly above epistoma to vertex, this impressed area longitudinally wrinkled, median fourth with a bicarinate moderate elevation; with a short, transverse row of long setae, their tips capable of attaining more than half distance toward epistoma; bearing a small, dark red curl of long setae their tips capable of attaining vertex; antennal club 1.3 times as long as wide, posterior face with several long setae. Pronotum 1.1 times as long as wide; sides on basal half almost straight and parallel, narrowly rounded in front; anterior margin armed by 6 very weak serrations, median pair larger; summit slightly anterior to middle of pronotum length; anterior slope steep, asperities coarse, close, confused; posterior areas strongly reticulate, punctures minute to obsolete; sparse setae on asperate area and lateral margins. Elytra 1.5 times as long as wide, 1.3 times as long as pronotum; disc occupying 68 percent of elytra length; disc reticulate, punctures rather small, confused. Declivity moderately, narrowly sulcate on basal half; lateral crests rounded, armed by 3 to 5 pair of small tubercles, at least three of them pointed; small punctures obscure, some feebly granulate; suture feebly elevated; ventrolateral crest absent. Lateral areas on lower half of declivity with many minute setae, longer setae present on declivital interstriae 7 and 9 on crests and on sides near declivity.

Distribution: Brazil (Parana) to Venezuela (Merida).

Brazil: Tibagi, Parana (holotype).

Venezuela: La Carbonera Experimental Forest 50 km NW Merida, Merida, Venezuela, 2500 m, 10-XI-1969, No. 128, tree seedling, also same locality No. 174, *Nectandra*, all by S.L. Wood.

Notes: The above treatment was based on the female holotype and on 20 specimens from Venezuela.

Corthylocurus setifer Wood, n. sp.

Corthylocurus setifer Wood: Holotype ♀; Ibicarai, Bahia, Brazil; USNM, Washington, designated below

Diagnosis: Allied to *barbatus* (Blandford), distinguished by the weaker declivital sulcus; by the less strongly concave female frons, with the epistomal curl of hair shorter and with many more yellow setae in the curl, brush of setae on vertex with more numerous, longer setae, these capable of attaining epistomal margin.

Male: Similar to female except frons convex (without an epistomal tubercle); antennal club with a few long setae on posterior face; anterior margin of pronotum armed by 4 larger serrations; declivity with a short ventrolateral costa.

Female: Length 2.2–2.4 mm, 2.5 times as long as wide; color reddish brown. Frons moderately concave eye to eye from epistoma to vertex, surface apparently reticulate; epistoma with a pair of tufts of hair on epistoma, shorter, but with more setae than in *barbatus*, setae on vertex much more abundant, very long, capable of attaining epistomal margin; antennal club 1.4 times as long as wide, apical third obliquely subtruncate, apex obtusely

rounded, several long setae on posterior face. Pronotum 1.16 times as long as wide; sides weakly arcuate and subparallel on basal half, rather narrowly rounded in front; anterior margin armed by 4 weak serrations; summit slightly anterior to middle of pronotum length; anterior slope steep, asperities small, close, confused; posterior areas reticulate, punctures minute to obsolete; sparse setae on anterior margin. Elytra 1.1 times as long as wide, 1.1 times as long as pronotum; disc occupying basal 72 percent of elytra length; disc strongly reticulate, punctures rather small, confused. Declivity feebly sulcate on basal half; lateral crests weakly elevated, armed by 4 pair of very small, pointed denticles; surface reticulate; punctures small, obscure, confused. Sparse, minute setae on lower half of declivity, a few longer setae on lateral areas near declivity.

Distribution: Brazil (Bahia).

Type material: The female holotype, male allotype, and 4 paratypes were taken at Ibicarai, Bahia, 1930, *Theobroma cacao*, S. Leonardo. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Corthylocurus reticulatus Wood, n. sp.

Plate CCXIX

Corthylocurus reticulatus Wood: Holotype ♀; Escasu, San Jose, Costa Rica; USNM, Washington, designated below

Diagnosis: Distinguished from *barbatus* (Blandford) by the slightly larger size; by the strongly reticulate, concave area on the female frons, with the lateral, spongy areas much larger; by the strongly reticulate female elytral disc; and by the weakly impressed elytral declivity, with the lateral tubercles smaller and usually not pointed.

Male: Similar to female except frons convex, reticulate, median tubercle on epistoma weak; anterior margin of pronotum armed by 8 serrations, median pair much larger; elytral disc mostly smooth, shining, some reticulation; lateral crest from declivital tubercle 2 to 3 not as high, tubercles smaller.

Female: Length 2.3–2.5 mm, 2.5 times as long as wide; color yellowish brown. Frons rather deeply concave eye to eye from epistoma to vertex, central and upper parts of concave area strongly reticulate, lateral spongy areas much larger than in *barbatus*, broad, median line apparently weakly elevated; epistomal curls of long hair slightly thicker than in *barbatus*; brush of setae on vertex longer, tips capable of extending two-thirds distance toward epistoma; antennal club 1.6 times as long as wide, posterior face with several long setae. Pronotum 1.1 times as long as wide; sides on basal half feebly arcuate, rather broadly rounded in front; anterior margin with feeble serrations; summit slightly anterior to middle of pronotum length; anterior slope steep, asperities rather coarse, close, confused; posterior areas strongly reticulate, minute punctures mostly obsolete; sparse setae on anterior margin. Elytra 1.3 times as long as wide, 1.2 times as long as pronotum; disc occupying 75 percent of elytra length; disc strongly reticulate, punctures minute,

obscure, confused. Declivity steep, weakly sulcate on basal half; lateral convexities weakly elevated, armed by 4 pair of denticles, 1 and 4 very small and usually not pointed, 2 and 3 usually blunt; surface reticulate, small punctures obscure, mostly obsolete. Minute setae present on lower half of declivity and on sides near declivity, a few longer setae on sides near declivity.

Distribution: Costa Rica (San Jose).

Type material: The female holotype, male allotype, and 5 paratypes were taken at Escazu, San Jose, Costa Rica, 2-X-1963, 1300 m, No. 218, tree seedlings, S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

GENUS *CORTHYLUS* ERICHSON

Corthylus Erichson, 1836:64. Type-species: *Bostrichus compressicornis* Fabricius, by subsequent monotypy by Ferrari 1867:49, lectotype for type-species designated by Wood 1974:202 (Synonymy and references in Wood & Bright c1992:1069)

Morizus Ferrari 1867:69. Type-species: *Morizus excisus* Ferrari, monobasic

Pseudocorthylus Ferrari, 1867:59. Type-species: *Pseudocorthylus letzneri* Ferrari, subsequent designation by Hopkins 1914:128

Corthycyclon Schedl, 1951:128. Type-species: *Corthycyclon ustum* Schedl, monobasic (References in Wood & Bright c1992:1067–1068).

New synonymy

Corthylomimus Schedl, 1972:73. Type-species: *Corthylomimus gracilis* Schedl, original designation, preoccupied by Ferrari 1867:48

Diagnosis: This large, diverse, and difficult genus is distinguished by the 1-segmented antennal funicle; by the distinctive, usually asymmetrical antennal club that may have one, two, or no sutures; a few have a false third suture; by the entire elytra at the apex of the suture; by the simple, transverse, prothoracic precoxal piece; by the quadrate or triangular antennal scape; and by the distinctive combination of characters on the protibia and elytral declivity.

Description: Length 1.0–4.5 mm, 2.0–3.1 times as long as wide; color yellowish brown to black, several species are bicolored. Frons usually sexually dimorphic, male convex, subglabrous, female flat to strongly, broadly concave and subglabrous to elaborately ornamented by setae and/or spongy areas. Eye emarginate, finely to coarsely faceted. Antennal club sexually dimorphic, male rather large, slightly symmetrical, and without specialized tufts of setae, female club moderately to very large, strongly flattened, strongly to very strongly asymmetrical, lateral or apical margin of posterior face usually ornamented by a penicellate tuft (cirrus) of hair; one to three sutures usually present, several exceptions have no sutures, 1 often partly to entirely septate. Pronotum

almost as long or longer than wide, lateral margins usually marked by a fine raised line (several exceptions); anterior margin usually armed by several serrations, or rarely a continuous costa, in female, male usually with one median pair of serrations much larger; several serrations in a few species. Scutellum large, flat. Elytra disc finely sculptured, punctures almost always confused except in primitive species; declivity convex, sulcate, or truncate, small denticles present on many species, entirely absent on others. Vestiture mostly confined to head and elytral declivity, a few species with abundant pubescence. Female protibia with posterior face flat and smooth or inflated and variously tuberculate.

Biology: All species are monogynous and xylomycetophagous. Recently cut or broken limbs or boles are usually selected for attack, although a few species breed in the bole of living trees or in the base of vigorous shrubs, usually without killing them. The male forms the entrance tunnel and at least part of both egg galleries. The female then joins him and completes the 2 egg galleries that extend in opposite directions along a growth ring about 5 to 10 mm below the wood surface in xylem tissue. These egg galleries usually follow growth rings of the host and often may meet on the opposite side of the branch, thus forming a continuous circular ring with only one entrance. In smaller stems the egg galleries follow opposite spiral courses upward and downward from the inner end of the entrance tunnel. Both types of galleries may occur in the same species and depend on the diameter of the host stem. In tropical species observed by me, the female parent may complete the larval cradles before eggs are present. The cradle was then inoculated with spores of the ambrosial fungus on which the egg was deposited near the open end of the cradle. The mycelial growth then sealed the opening, apparently with the aid of mycelial material and/or frass placed at the opening by the parent beetle. After hatching, the larva assumed a C-shape and fed largely near the cradle opening and passed excrement and frass into the parent gallery. The larva was apparently free to feed throughout the larval cradle, not just at the partly open end. Pupae always formed with the head at the open end of the cradle. Emergence was through the parent entrance hole. (Modified from Wood 1982:1270–1271.)

Notes: Wood & Bright (c1992:1069–1081) record 118 species (from USA 3, Mexico 16, Antilles Islands 5, Central America 40, South America 53). The following key includes all known species except those from the Antilles Islands.

Key to the Species of *Corthylus*
(Modified from Wood 1982:1271–1278)

- 1. Ventrolateral margin of declivity broadly rounded, without any indication of an abrupt ventrolateral crest diverging dorsad from costal margin at or near base of declivity 2

CORTHYLINI

—	Ventrolateral margin of declivity with an abrupt (obtuse to acute) crest branching from costal margin and continued dorsad at least briefly	36
2(1).	Antennal club entirely without sutures or with suture 1 almost straight and sometimes at least partly septate, suture 2 never septate (a broad non-septate groove rare)	3
—	Antennal club conspicuously marked by grooves, suture 1 septate, 2 often septate	25
3(2).	Antennal club entirely devoid of any indication of sutures 1 and 2; basal margin of pronotum sub-acutely elevated, a transverse impression anterior to this crest; anterior slope of female pronotum gradual, unarmed by asperities (minute granules sometimes present); in <i>Cecropia</i> leaf petioles . . .	4
—	Basal margin of pronotum normal, with neither an elevated crest at margin nor a transverse groove; female pronotum declivous and with asperities on anterior slope	5
4(3).	Elytral disc reticulate, many small, confused punctures clearly evident, small punctures on elytral declivity mostly in rows, declivital interstriae 1 and 3 each with about four small tubercles; Venezuela (Caracas); <i>Cecropia</i> petioles; 2.2–2.5 mm <i>cecropicolens</i> Wood	
—	Elytral disc reticulate, punctures sparse, minute to obsolete on declivity, declivital interstriae 1 and 3 either unarmed or with tubercles much smaller to almost obsolete; Costa Rica; <i>Cecropia</i> petioles; 2.0–2.6 mm (Plate CCXXII) <i>cecropii</i> Wood	
5(3).	Declivital striae 1 and 2 with punctures in distinct rows, sparse interstitial punctures or tubercles usually present at least on interstriae 3, declivital vestiture rather sparse, mostly in rows	6
—	Declivital punctures dense, confused, vestiture abundant, not in rows	21
6(5).	Declivital interstriae 2 and 3 each with a row of tubercles of about equal height	7
—	Declivital interstriae 2 usually slightly impressed and without tubercles and usually without setae	12
7(6).	Tubercles on declivital interstriae 2 and 3 feeble to minute; carina on declivital suture (interstriae 1) higher than lateral crest; upper two-thirds of female frons shining, punctures minute (female <i>granulifer</i> not seen)	8
—	Tubercles on declivital interstriae 2 and 3 conspicuously larger, each with eight or more tubercles; lateral crest on declivity as high or higher than sutural interstriae; female frons more coarsely punctured, at least on lateral thirds	9
8(7).	Female frons rather coarsely punctured and with many short setae equally distributed; punctures on declivital striae 1 and 2 slightly larger; Costa Rica (Cartago); 1.7 mm <i>garai</i> Wood	
—	Female frons rugose-reticulate on lower third, rather finely punctured and glabrous above; punctures on declivital striae slightly smaller; Costa Rica (Cartago); <i>Cecropia</i> branch, <i>Phoebe mexicana</i> ; 1.7–2.0 mm <i>retusifera</i> Wood	
9(7).	Sutural interstriae on declivity more strongly, acutely elevated, its crest smooth and with a few punctures; female frons more deeply concave, median area above without a callus or elevation; smaller species	10
—	Male and female antennal club suture 2 weakly impressed (not at all septate); body 2.4 times as long as wide; sutural interstriae on declivity less strongly, less acutely elevated, its crest armed by a row of about six to eight small tubercles, tubercles on 2 and 3 small; median third of area on female frons above upper level of eyes forming a distinctly elevated callus	11
10(9).	Declivital interstriae 2 not impressed, with a row of minute granulate setiferous punctures, striae punctures small; interstriae 2 with a few punctures on declivity, punctures on disc smaller, confused; Costa Rica; tree branches; 2.0 mm <i>granulifer</i> Wood	

- Declivital interstriae 2 distinctly impressed, tubercles much larger, striae punctures larger; declivity steeper; Costa Rica (Cartago); several hosts; 2.2–2.4 mm *retusus* Wood
- 11a(9). Body color dark reddish brown; female frons rather strongly concave on lower half, much less strongly impressed on upper half, callus on median third broader and longer, extending from vertex to upper level of eyes; punctures on elytral disc distinctly larger, more numerous; tubercles on elytral declivity larger, more numerous, declivity not as steep, less strongly convex; Mexico (Puebla, Veracruz) to Guatemala; 2.5–2.8 mm *consimilis* Wood
- Body color black; female frons rather strongly impressed from epistoma to vertex, median callus narrower and shorter and ending above upper level of eyes; punctures on elytral disc much smaller, less numerous; tubercles on elytral declivity smaller, less numerous, declivity steeper; more strongly convex 11b
- 11b(11a). Smaller species; elytral declivity more strongly, evenly convex; striae punctures on posterior two-thirds of disc in rows, smaller and less strongly confused near base; pronotum disc on median area minutely reticulate; anterior margin of pronotum mostly costate, median pair small; male frons almost smooth, shining, reticulation very weak, transverse impression above epistoma more distinctly impressed on lower half of area below upper level of eyes; Costa Rica to Panama; 2.8–3.0 mm (Plate CCXXVII) *panamensis* Blandford
- Larger species; elytral declivity feebly impressed between striae 1 and interstriae 3; median area of pronotum disc more coarsely, more strongly reticulate; anterior margin of pronotum armed by 8 serrations, median pair three times larger than lateral serrations (not at all costate); transverse impression above epistoma weak, restricted to lower fourth; Venezuela (Bolivar); *Alexa imperitrica*; 3.7 mm *pinguis* Wood
- 12(6). Declivity broadly convex, sutural interstriae obscurely, feebly elevated, armed by a row of about six very small, subacute tubercles, interstriae 2 feebly impressed and without punctures or tubercles, 3 with about six small tubercles; female frons rather strongly concave eye to eye from epistoma to vertex, a sparse marginal fringe of long setae present; female antennal club aseptate; Brazil (Santa Catarina); 1.3–1.4 mm *ustus* (Schedl)
- Declivity less broadly convex, sutural interstriae feebly to moderately elevated, some species costate, 2 somewhat impressed 13
- 13(12). Female frons less strongly concave, concave area extending little if any above upper level of eyes, its upper margin rounded, punctures in concave area minute; small to minute species 14
- Female frons more strongly concave, concave area extending to vertex, upper margin of concave area more abrupt to costate, punctures larger, more abundant; slightly larger species 18a
- 14(13). Sutural interstriae on declivity very feebly elevated, wider than high, not at all costate, tubercles on 3 small to moderate in size; declivity smooth, shining, punctures between suture and lateral crest small, distinctly impressed, tubercles on lateral crest minute; female frons shallowly impressed, punctures rather coarse; Costa Rica (Heredia); Malaise trap; 1.3 mm *minulus* Wood
- Sutural interstriae on declivity distinctly, weakly costate, tubercles on 3 minute 15
- 15(14). Declivity reticulate, punctures of striae 1 and 2 very small, obscure, costa on interstriae 1 less strongly elevated; female frons less strongly concave, impression ending slightly above upper level of eyes 16
- Declivity smooth, shining, punctures of striae 1 and 2 much larger and more strongly impressed, crest of interstriae 1 higher and more acutely costate; female frons more strongly concave, extending to vertex 17
- 16(15). Punctures on declivital striae 1 and 2 very minute, most obsolete, interstriae 3 with denticles obsolete (an obscure callus may reflect light); elytral disc mostly smooth, shining, many punctures

CORTHYLINI

- of moderate size on basal third; female not seen; Bolivia (Cochabamba); 1.75 mm *pusillus* Eggers
- Punctures on declivital striae 1 and 2 minute, shallow, distinct, interstriae 3 with one or two minute denticles; elytral disc reticulate, striae punctures minute, most obsolete; female with facets of eye enlarged; Costa Rica (Limon); tree branches; 1.0–1.2 mm *oculatus* Wood
- 17(15). Female frons wider, more broadly, slightly more strongly concave, especially on upper third, reticulation on lower half; punctures on elytral disc slightly larger, deeper; crest on declivital interstriae 1 narrowly rounded; Venezuela (Merida); Rubiaceae; 1.8–1.9 mm *discoideus* Blandford
- Female frons more narrowly, less strongly concave especially on upper third, reticulation on more than lower half; punctures on elytral disc minute, very shallow, crest of carina on declivital interstriae 1 more narrowly acute; Colombia (Valle del Cauca); *Coffea* branches; 1.6–1.7 mm *coffae* Wood
- 18a(13). Punctures on posterior half of elytral disc minute to obsolete, surface smooth, brightly shining; female frons with upper margin more abruptly, acutely subcostate, lower area without reticulation 18b
- Punctures on elytral disc larger, distinctly impressed to base of declivity; female frons with concave area reticulate or rugose-reticulate on lower third 20
- 18b(18a). Smaller species, ≤ 2.1 mm female frons with one or two large spongy areas in concave area of frons; sutural interstriae on declivity moderately elevated and narrowly costate, costa as high or higher than interstriae 3 18c
- Larger species, 2.2–2.6 mm; female frons without spongy areas 19
- 18c(18b). Female frons with a large spongy area on lower third of concave area extending from median margin of one eye to other eye on a procurved course somewhat parallel to epistomal margin, upper concave area smooth, shining, with many very small punctures (upper crest missing on type); sutural interstriae on declivity moderately elevated and narrowly costate, as high as 3; Brazil (Sao Paulo); 1.8 mm *theobromae* Nunberg
- Female frons with median half smooth, brightly shining, punctures not evident, lateral areas with abundant pubescence from vertex (upper area concealed by pronotum on type) to upper level of eye, a lateral, yellow spongy area from upper margin of eye to a small, shining glabrous area at epistoma, a similar spongy area continuing on opposite side; sutural interstriae on declivity more strongly elevated, much higher than 3, crest of sutural costa with a row of small punctures on summit; Brazil (Parana); 2.0–2.1 mm *costulatus* Wood
- 19(18). Concave area of female frons smoother, punctures smaller, spaced by about two diameters of a puncture; cirrus on female antennal club very small, not projecting beyond apex of club; Mexico (Puebla); 2.2–2.5 mm *equihuai* Wood
- Concave area of female frons more irregular, punctures larger, closer, spaced by one diameter of a puncture or less; cirrus on female antennal club larger, projecting well beyond apex of club; Brazil (Guanabara); 2.4–2.6 mm *suturalis* Eggers
- 20(18). Punctures on elytral disc rather small; female frons with a small, median callus on epistomal margin, area above callus flat and reticulate; Costa Rica; 1.6–1.9 mm *pseudovillus* Wood
- Punctures on elytral disc distinctly larger; female frons without a median callus on epistomal margin, a smooth, shining crest (without reticulation) extending dorsad from margin one-fifth length of concave area; Guatemala; *Celtis iguanae*; 2.0–2.2 mm *villus* Bright
- 21(5). Elytral declivity shallowly, rather broadly impressed; declivital setae very short, abundant; Costa Rica to Panama; liana; 1.4–1.7 mm *villifer* Wood

SCOLYTIDAE OF SOUTH AMERICA

- Elytral declivity strongly convex, suture not elevated; declivital setae rather abundant, long; larger species 22
- 22(21). Epistomal area below eye (lower third of concave area) on female frons not spongy, yellowish brown, more finely punctured or rugulose; punctures on elytral disc slightly smaller; punctures on elytral declivity smaller, closer, without a granule, setae more abundant, uniformly longer 23
- Lower fifth of concave area on female frons spongy, yellowish brown, its surface dull, minutely reticulate, punctures minute, setae distinctly larger, much longer on peripheral margin above upper level of eyes; punctures on elytral declivity slightly larger, not as close, often with a minute granule; setae on declivity less abundant, length less regular on female frons 24
- 23(22). Setae on concave area of female frons short, sparse; elytral declivity much steeper on lower half, more broadly convex; punctures on declivity clearly impressed, spaces between punctures smooth, brightly shining; Costa Rica; *Piper*; 2.5–2.8 mm *comosus* Wood
- Setae on concave area of female frons much more abundant and on upper half much longer; elytral declivity not as steep on lower half, more narrowly convex; punctures on declivity less clearly defined, less numerous, spaces between punctures obscurely reticulate to minutely etched (not smooth); Brazil (Sao Paulo); 2.6 mm *pilifer* Wood
- 24(22). Smaller species; pronotum disc finely reticulate, punctures distinctly larger; declivital setae fine, two to three times longer, more numerous below and laterally; punctures on upper female frons minute, peripheral setae on upper margin very long, more numerous; Venezuela (Merida) to Bolivia; *Piper*; 2.0–2.5 mm *villosus* Eggers
- Larger species; pronotum disc strongly, finely rugose-reticulate, punctures minute to obsolete; declivital setae much shorter, less numerous (particularly on ventrolateral area); punctures on upper female frons at least twice as large, setae in peripheral row on upper margin shorter, less numerous; Argentina (Tucuman) to Peru (Pasco); 2.8 mm *alienus* Schedl
- 25(2). Antennal club comparatively small in both sexes, almost symmetrical, about 1.5 times as long as scape, sutures straight; rather small species, 1.6–2.6 mm 26
- Antennal club large to very large in female, usually smaller in male, moderately to strongly asymmetrical, 1.5–2.0 or more times as long as scape, mostly larger species, 1.8–3.0 mm 27
- 26(25). Declivity moderately sulcate at striae 1, sutural interstriae weakly elevated and narrowly carinate on upper two-thirds, 3 distinctly higher than suture, crest rounded and with punctures, striae 1 and 2 marked by rows of small distinct punctures on lower two-thirds of declivity; female frons rather shallowly concave from epistoma almost to vertex, upper crest rounded, concave area finely, closely punctured, with fine, rather abundant hair of moderate length; elytra brightly shining, small punctures confused; Costa Rica; 1.6 mm *simplicis* Wood
- Declivital sulcus as wide as interstriae 2, moderately impressed, lateral crest on upper half with about two or three minute granules; sutural interstriae more strongly elevated; elytral disc smooth, shining, punctures confused on more than basal half, in striae rows near and on declivity; Costa Rica (Cerro de la Muerte); 2.4–2.6 mm *montanus* Wood
- 27(25). Declivital interstriae 2 armed by a row of small tubercles equal in size to those on 3; bicolored (pale and dark brown); declivity not as steep, less strongly convex, tubercles on interstriae 2 and 3 minute; female frons reticulate; female antennal club with a cirrus; Costa Rica (Cerro de la Muerte); native bamboo; 2.5–2.9 mm *calamarius* Wood
- Declivital interstriae 3 with a row of small tubercles, 2 entirely unarmed by tubercles 28
- 28(27). Declivital sulcus narrower on basal half, striae 1 more deeply impressed, its punctures larger, interstriae 2 ascending laterad, its punctures minute to obsolete, lateral crest broadly rounded and armed by about three minute granules; Guatemala to Costa Rica; many hosts; 1.8–2.1 mm *collaris* Blandford

CORTHYLINI

—	Declivital sulcus wider, striae 1 and 2 more equally impressed, interstriae 2 more nearly flat; larger species	29
29(28).	Body color uniformly dark brown; female antennal club clearly longer than wide	30
—	Bicolored (obscure in <i>micacirrus</i>); female antennal club conspicuously wider than long	34
30(29).	Declivital punctures rather numerous and strongly confused, including interstriae 2; female frons narrowly, shallowly concave, epistoma with a median callus at margin, a pair of calluses on lateral thirds at middle of length of concave area; elytral disc shining, punctures confused; Costa Rica; 2.3–2.9 mm	<i>confusus</i> Wood
—	Declivital punctures on striae 1 and 2 in rows, interstriae 2 mostly impunctate	31
31(30).	Lateral convexities at declivital interstriae 3 as high as suture and entirely devoid of tubercles; elytral disc with punctures minute; female not seen; Costa Rica; liana; 3.0 mm . . .	<i>electinus</i> Wood
—	Lateral convexities on declivital interstriae 3 armed by a row of small tubercles; punctures on elytral disc much larger, deeper	32
32(31).	Body stout, 2.0 times as long as wide; pronotal asperities very broad, profile of suture on disc distinctly convex; French Guyane; 2.3 mm	<i>crassus</i> Wood
—	Body at least 2.5 times as long as wide; pronotal asperities of normal width; profile of suture on disc almost straight	33
33(32).	Body color medium reddish brown; female frons shallowly concave to slightly above eyes, surface smooth, shining, sparsely punctured, almost glabrous; declivital interstriae 1 and 2 without tubercles, feeble on 3; Colombia to Venezuela; 2.7–2.8 mm	<i>redtenbacheri</i> Ferrari
—	Body color very dark reddish brown; female frons more deeply, more extensively concave, punctures much more abundant, vestiture short, rather abundant except impunctate and glabrous on median fourth; tubercles on declivital interstriae 1 and 3 small, distinct; Costa Rica; <i>Podocarpus oleifolius</i> ; 2.7–3.0 mm	<i>simplex</i> Wood
34(29).	Obscurely bicolored; Elytral declivity more uniformly convex, interstriae 2 feebly impressed and with a few punctures similar in size to those of striae, suture and lateral convexities without tubercles; female frons rather densely punctured and with abundant, short vestiture; Mexico (Guerrero); <i>Ardesia</i> ; 2.3 mm	<i>micracirrus</i> Wood
—	Declivity not as steep, interstriae 2 more broadly, more deeply impressed	35
35(34).	Color pale yellowish brown, with anterior half of pronotum and elytral declivity dark brown; elytral disc reticulate, punctures on disc and declivity mostly obscure, minute to obsolete, with many micropunctures on declivity, lateral crests with a row of very small punctures; Costa Rica (Cerro de la Muerte); native bamboo; 2.5–2.9 mm	<i>cannularius</i> Wood
—	Pronotum reddish brown, elytra almost black; punctures on elytra larger, distinctly impressed; declivital interstriae 1 to 3 punctured, without tubercles (3 rarely with two or three minute tubercles on lower third); female frons with punctures much less abundant, spaces between punctures irregular but averaging more than twice diameter of a puncture, vestiture very fine, less abundant, shorter; apex of female antennal club broadly rounded, minutely sinuate, cirrus short, ending remote from apex of club; Costa Rica to Panama; 2.5–3.0 mm	<i>rubricollis</i> Blandford
36(1).	Posterolateral margin of elytra near base of declivity with an abrupt (obtuse), short, weakly elevated crest branching dorsad from costal margin (crest not higher than crest on costal margin); mesal slope of crest feebly concave to feebly convex	37

—	Posterolateral margin of declivity moderately to rather strongly elevated and usually diverging a greater distance from costal margin, this crest usually more strongly elevated than crest on costal margin, mesal slope of this crest weakly to strongly impressed (usually transversely concave) . . .	68
37(36).	Elytral declivity convex, striae and interstriae punctures slightly confused or at least with part of interstriae 2 punctured, punctures on 3 rarely granulate; mostly larger than 2.7 mm	38a
—	Declivital interstriae 2 impressed and impunctate, punctures on striae 1 and 2 in rows, interstriae 3 sometimes with granules; doubtful species smaller than 3.0 mm in length	53
38a(37).	Very small species; declivital interstriae 2 with an obscure row of minute punctures, punctures on striae 1 and 2 minute; female antennal club almost symmetrical, 1.3 times as long as wide, suture 1 straight, feebly septate, 2 not indicated; Costa Rica (Heredia); palm frond; 1.8 mm	<i>annexus</i> Wood
—	Striae and interstriae punctures on declivity slightly confused; punctures on discal interstriae 3 rarely granulate; mostly species larger than 2.8 mm	38b
38b(37).	Declivity entirely reticulate, strongly convex, sutural interstriae rather weakly elevated (twice as wide as high), higher than 3, without any tubercles; frons strongly reticulate, a moderate, transverse impression on lower fourth of area below upper level of eyes; Brazil (Santa Catarina); 1.7 mm	<i>venustus</i> (Schedl)
—	Declivity mostly smooth and shining, often with tubercles on interstriae 3; conspicuously larger than 2.0 mm	39
39(38).	Female antennal club moderately asymmetrical, sutures 1 and 2 almost straight, 1 and sometimes 2 finely septate; unicolorous, in various hosts	40
—	Female antennal club strongly asymmetrical, suture 1 moderately, 2 rather strongly procurved, both aseptate; bicolored brown and dark brown	48
40(39).	Elytral punctures on disc and declivity very small to minute, only slightly larger than those on pronotum disc; Mexico (Michoacan to Chiapas); 4.0–4.3 mm	<i>nudus</i> Schedl
—	Elytral punctures rather large, much larger than on pronotum disc; smaller species	41
41(40).	Body stouter, 2.1 times as long as wide; female frons with margin of concave area very narrowly separated from mesal margin of eye, its lateral margin without a tuberculate callus slightly above level of antennal insertion; Costa Rica; 2.6–3.1 mm	<i>granulatus</i> Schedl
—	Body more slender, 2.2 or more times longer than wide	42a
42a(41).	Female frons without a conspicuous subtuberculate callus on lateral margin of concave area slightly above level of antennal insertion; female antennal club with a short cirrus attaining apex or less; Panama (Chiriqui); 3.3–3.5 mm	42b
—	Female frons bearing a conspicuous subtuberculate callus on lateral margin of concave area, slightly above level of antennal insertion, club without a cirrus	43
42b(42a).	Body 2.6 times as long as wide; female cirrus on antenna attaining apex of club; declivital interstriae half as wide as 2 and conspicuously lower than 3; upper half of concave area on female frons uniformly pubescent, without a conspicuous, glabrous callus on median third; color brown; Panama (Chiriqui); 3.3–3.5 mm	<i>chiriquensis</i> Wood
—	Body 2.2 times as long as wide; female cirrus not attaining apex of club; declivital interstriae 1 twice as wide as 2 and equal in height to 3; upper half of female frons with a conspicuous, glabrous callus on median third; color black; Brazil (Parana, Rio Grande do Sul, Santa Catarina); 2.8–3.0 mm	<i>nigrescens</i> Wood

CORTHYLINI

- 43(42). Declivital interstriae 2 not impressed, 1 to 3 unarmed by tubercles 44
- Declivital interstriae 2 weakly impressed, 1 to 3 armed by small tubercles 45
- 44(43). Elytral declivity less strongly convex; declivital punctures smaller, not as deep, interstriae 2 at least six times as wide as a puncture; Mexico (DF) to El Salvador; 3.3–3.6 mm *fuscus* Blandford
- Elytral declivity more strongly convex; declivital punctures much larger, deeper, interstriae 2 about three times as wide as a puncture; North America (Colorado and Ontario to Arkansas and North Carolina); 3.0–3.3 mm *punctatissimus* (Zimmermann)
- 45(43). Female frons with an epistomal callus and with a shining, low median area or carina extending from epistoma half distance toward upper level of eyes; body more slender, 2.3–2.4 times as long as wide, punctures on declivity more strongly confused; <3 mm 46
- Female frons with a transverse, epistomal callus, without a median shining area or carina; body 2.2–2.3 times as long as wide; punctures on declivity less strongly confused; >3 mm 47
- 46(45). Median area above female epistomal callus narrowly glabrous, not elevated; sutural interstriae on declivity uniformly costate, not armed by small tubercles, 2 less abruptly impressed; Brazil (Sao Paulo); 2.3–2.6 mm *convexicauda* Eggers
- Median area above female epistomal callus wider, subcarinate; sutural interstriae on declivity with summit armed by a row of about five small tubercles, 2 more abruptly impressed; Mexico (Veracruz); *Cnidoscolus*; 2.5–2.7 mm *noguerai* Wood
- 47(45). Punctures on pronotum disc small, distinctly impressed, punctures on elytral disc larger than those on pronotum, distinctly impressed, declivital punctures rather coarse; vestiture on concave area of female frons short, fine, dense, peripheral setae very slightly longer; E USA; many hosts in live trees; 3.6–3.8 mm *columbianus* Hopkins
- Punctures on pronotum minute to obsolete; punctures on elytral disc very small to minute, less strongly impressed, declivital punctures minute; vestiture on concave area of female frons dense, rather short in central area, twice as long on peripheral fringe; Mexico (Puebla to Oaxaca); 3.4–3.9 mm *concaevus* Bright
- 48(39). Female frons rather narrow (eyes enlarged, coarsely faceted), glabrous; female antennal club with cirrus very small, short, tips of setae not attaining apex; elytral setae anterior to declivity very sparse, only on or near costal margin; Colombia to Bolivia; *Coffea*; 3.0–3.3 mm *bolivianus* Eggers
- Concave area of female frons densely pubescent; female antennal club with cirrus attaining apex of club 49
- 49(48). Elytral setae anterior to declivity on costal margin short, in a uniseriate row of a few setae on posterior third of interstriae 9 50
- Elytral setae on and near costal margin confused, longer, much more numerous; in bamboo 51
- 50(49). Mature color of pronotum bright reddish brown, elytra black; declivital interstriae 1 and 3 unarmed by a row of tubercles, interstriae 2 less strongly impressed; Costa Rica to Colombia; *Coffea*; 2.6–3.1 mm *sanguineus* Schedl
- Color of pronotum and elytra mostly dark reddish brown, about half of series at hand with posterior half of elytra very dark reddish brown, anterior half of elytra and pronotum medium reddish brown; declivital interstriae 2 more strongly impressed, 1 and 3 armed by a row of tubercles; Venezuela (Aragua to Merida); liana, *Croton*; 3.4–3.8 mm *castaneus* Ferrari

SCOLYTIDAE OF SOUTH AMERICA

- 51(49). Anterior margin of pronotum coarsely serrate, median pair larger in male; setae on interstriae 8 and 9 sparse and shorter on basal half of elytra; Costa Rica (Heredia); bamboo; 3.0–3.3 mm *brunnescens* Wood
- Anterior margin of pronotum weakly serrate, except median pair coarse in male; basal half of elytra with rather abundant setae on interstriae 8–10 52
- 52(51). Apical angle of female antennal club rounded; declivital sulcus feebly impressed, punctures very small, confused, tubercles on interstriae 1 and 3 sparse, minute, no tubercles on 2; obscurely bicolored; Costa Rica (Heredia); bamboo; 3.7–4.0 mm *calamicolens* Wood
- Apical angle of female antennal club subacute; declivital sulcus much more strongly impressed, punctures larger, deeper, confused, tubercles on interstriae 1 and 3 much larger, 2 with minute tubercles; color more uniformly reddish brown; Ecuador (Tulcan) to Colombia; probably from endemic bamboo; 4.0–4.1 mm *tulcanus* Hagedorn
- 53(37). Sutural interstriae on declivity slightly or not at all elevated, its crest not higher than crest of interstriae 3; mostly larger species, 2.3–3.5 mm 54
- Sutural interstriae on declivity rather strongly elevated, carinate; mostly smaller species, 1.2–4.5 mm 67a
- 54(53). Female antennal club with cirrus shorter, its apex not exceeding apex of club; vestiture on concave area of female frons less abundant to sparse, short 55
- Cirrus on female antennal club distinctly exceeding apex of antennal club; vestiture on concave area of female frons much more abundant 61
- 55(54). Cirrus on female antennal club with few setae, very slender, extending more than half distance toward apex of club; punctures on declivital striae 1 and 2 larger, interstriae 1 less strongly elevated, its crest more broadly rounded 56
- Cirrus on female antennal club composed of many setae, tips of longest setae almost attaining apex of club; punctures on declivital striae 1 and 2 smaller, crest on interstriae 1 more subacutely rounded; color very dark brown; larger species 59
- 56(55). Body 2.1–2.4 times as long as wide; color dark reddish brown; declivity weakly, more narrowly impressed, suture as high as interstriae 3; female frons more narrowly impressed to upper level of eyes, surface finely, less densely punctured, setae fine, slightly longer, median line mostly glabrous 57a
- Body 2.4–2.6 times as long as wide; declivital interstriae 2 more strongly impressed, interstriae 3 higher than 1; female frons with at least upper third of impressed area above upper level of eyes, punctures in concave area slightly smaller 58
- 57a(56). Body 2.4 times as long as wide; concave area on female frons pubescent, almost extending to median line, setae longer, more numerous; declivital sulcus not as deep, punctures smaller; Venezuela (Aragua); 2.7–2.8 mm *coronatus* Eggers
- Body 2.1–2.3 times as long as wide; concave area on female frons with median half or less glabrous, setae on lateral areas rather sparse, shorter; declivital sulcus deeper, punctures on striae 1 and 3 larger, deeper 57b
- 57b(57a). Body 2.3 times as long as wide; concave area on female frons with median half glabrous, setae on lateral areas rather sparse, shorter; declivital sulcus slightly deeper, most punctures on interstriae 2 and 3 confused, tubercles on 1 and 3 rather coarse, 2 with two or three weak tubercles Colombia to Ecuador; 2.8 mm *subsulcatus* Schedl
- Body 2.1 times as long as wide; concave area on female frons with median glabrous area about one-fourth as wide as frons above, tapering to one-eighth frons width near epistoma; declivital interstriae 1 absent, 3 with five minute granules Brazil (Parana); 2.3–2.6 mm *nigricans* Wood

CORTHYLINI

- 58(56). Declivital interstriae 3 slightly higher than suture; female frons with a large impunctate area on median third, setae less numerous, longer; Venezuela (Merida); *Croton, Ficus*; 2.8–3.5 mm **simillimus** Schedl
- Declivital interstriae 3 distinctly higher than suture; female without a median impunctate area, setae much shorter, more numerous; Guatemala; *Alnus, Clusia, Ficus*; 2.5–2.6 mm **diligens** Wood
- 59(55). Declivital sulcus shallow, crest of interstriae 3 conspicuously higher than 1, punctures on striae 2 smaller, confused; concave area on female frons more coarsely punctured, setae longer, more numerous; Costa Rica; *Brunnellia costaricensis*; 3.4–3.5 mm **zelus** Wood
- Declivital sulcus deeper, crest of interstriae 1 and 3 of about equal height, punctures of striae 1 and 2 larger, deeper, in definite rows 60
- 60(59). Body larger, more slender, 2.4 times as long as wide; female frons with sparse, fine pubescence of moderate length; Costa Rica; *Phoebe mexicana*; 2.9–3.1 mm **strigilis** Wood
- Body smaller, stouter, about 2.2 times as long as wide; female frons with pubescence dense, moderately long on central area, longer on peripheral fringe; Venezuela (Bolivar); *Alexa imperitricia*; 2.7–2.8 mm **confertus** Wood
- 61(54). Cirrus of female antennal club exceeding apex by less than one-fifth width of club; punctures on concave area of female frons close, rather coarse, setae in concave area rather short, upper third not glabrous on median third 62
- Cirrus on female antennal club greatly exceeding apex; punctures on female frons smaller (surface glabrous in *splendidulus*) 64
- 62(61). Body 2.3 times as long as wide; peripheral setae on female frons two or more times longer than those in central area; punctures on elytral disc smaller, not as deep; declivital interstriae 3 with about five distinctly larger tubercles; sutural interstriae on declivity much wider, less strongly arched; Colombia; 2.7 mm **ater** Schedl
- Body 2.4–2.5 times as long as wide; setae on female frons uniformly short, only slightly longer on peripheral margin; punctures on elytral disc slightly larger, deeper; declivital interstriae 3 with about three feeble tubercles; sutural interstriae on declivity very narrow, crest flat to weakly rounded 63
- 63(62). Body slightly stouter, 2.4 times as long as wide; sides on posterior half of pronotum distinctly arcuate; punctures on elytral disc minute, weakly impressed; peripheral setae on male frons distinctly longer; apical margin of antennal club mostly straight, weakly arched near mesal apex; 2.7 mm; Venezuela (Aragua) **coronatus** Eggers
- Body slightly more slender, 2.5 times as long as wide; sides on posterior half of pronotum almost straight; punctures on elytral disc slightly larger, distinctly impressed, peripheral setae on frons only slightly longer; apical margin of female antennal club uniformly more strongly arched; Mexico (Puebla) to Panama; 2.3–3.4 mm **comatus** Blandford
- 64(61). Declivity steeper, punctures smaller; female antennal club more strongly asymmetrical 65
- Declivity not as steep, punctures larger; vestiture on female frons short, rather numerous, except median third on upper third glabrous and impunctate 66
- 65(64). Body slender, 2.7 times as long as wide; bicolored; punctures on elytral disc minute; female frons with setae shorter, less abundant, particularly on vertex, antennal club with apex rounded, cirrus longer; setae on female frons less numerous, much shorter; Colombia (Caldas); *Alnus*; 2.7–3.0 mm **zulmae** Wood

- Body rather stout, 2.4 times as long as wide; color uniformly dark; punctures on elytral disc rather small, distinctly impressed; female frons with dorsal row of very long, dense, golden setae, longest setae capable of attaining half distance toward epistomal margin; apex of female antennal club acute; Venezuela (Aragua); 2.5–2.7 mm *letzneri* (Ferrari)
- 66(64). Body stouter, 2.3 times as long as wide; anterior slope of pronotum more gradual; declivital interstriae 2 wider, striae 1 much more deeply impressed than 2; transverse impression on male frons above epistoma smaller, not as deep, median crest more narrowly subacute; Peru; 3.3 mm *peruanus* Schedl
- Body more slender, 2.5 times as long as wide; anterior slope of pronotum steeper; declivital interstriae 2 narrower, striae 1 and 2 equally, less strongly impressed; transverse impression above impression above epistoma on male frons more extensive, median crest more broadly obtuse; Venezuela (Caracas); tree branch; 3.0–3.3 mm *araguensis* Wood
- 67a(53). Punctures on declivital striae 1 and 2 small, distinctly, shallowly impressed, interstriae 1 more strongly elevated, higher than 3, lateral crest more broadly rounded (female not seen); Colombia to Brazil and Peru; Melastomaceae sp.; 2.0 mm *punctatus* Eggers
- Punctures on declivital striae 1 and 2 larger, much deeper, interstriae 1 less strongly elevated, about equal in height to 3; female frons either glabrous or pubescent; 2.3–2.7 mm 67b
- 67b(67a). Female frons with a large procurved spongy area from inner margin of eye on one side to other, at median line occupying one-fourth of area below upper level of eyes; median third of concave area above spongy to vertex smooth, shining, impunctate, lateral thirds above spongy area deeply rather finely punctured and bearing sparse, erect setae of moderate length, upper margin above eyes with longer, more numerous setae; Brazil (Bahia); 1.6 mm *epistomalis* Wood
- Female frons with a large spongy area above epistoma, vestiture uniformly distributed; length 2.2–2.4 mm 67c
- 67c(67b). Female frons on concave area smooth, shining, punctures and setae absent; body form 2.6 times as long as wide; declivital sulcus not as deep, sutural interstriae less strongly elevated; Panama (Chiriqui); 2.3–2.4 mm *splendidulus* Wood
- Female frons on concave area densely punctured, with fine, short pubescence uniformly distributed; body form 2.3–2.6 times as long as wide; declivital sulcus slightly deeper and sutural interstriae more strongly elevated 67d
- 67d(67c). Body more slender, 2.6 times as long as wide; female cirrus much shorter, extending about half distance toward apex; female cirrus much shorter, extending about half distance toward apex; female frons with a very small median carina at epistomal margin, sharp crest on upper margin on median half only; male frons rugose-reticulate; Brazil (Parana); 2.2–2.3 mm *parvicirrus* Wood
- Body stouter, 2.3 times as long as wide; female cirrus much longer, extending beyond apex of antennal club a distance equal to about half length of club; female frons without a median carina on epistoma, subacute costa on upper margin extending to inner margins of eye; male frons minutely, weakly reticulate; Brazil (Parana); 2.4–2.7 mm *comitabilis* Wood
- 68(36). Elytral declivity convex, combined left and right ventrolateral costae forming an arc distinctly less than half of a complete circle, lateral crest on upper half rounded 69
- Elytral declivity largely truncate, face often flat or concave within circumdeclivital costa of more than half to a complete circle, this costa subacutely elevated 110
- 69(68). Declivital structure rather simple except in *trunculus*, striae 1 and 2 with punctures in rows to base, interstriae 1 sometimes elevated, 2 as wide as 1 and either with or without tubercles; suture 1 on antennal club septate (if doubtful, *trunculus*, female frons planoconvex; mostly small species 1.2–1.8 mm 70a

CORTHYLINI

- Mostly species larger than 2.3 mm (a few as small as 1.6 mm), punctures on basal third of declivity either confused or very obscure; declivital interstriae 2 unarmed, strongly constricted to entirely eliminated by constriction, tubercles on 3 often falsely appearing to be on interstriae 2 79
- 70a(69). Elytral declivity truncate, face shallowly concave, lateral crest narrowly rounded (margin acutely costate only on lower third), a small denticle on basal margin at interstriae 3; sutures on female antennal club moderately to strongly procurved; female frons weakly convex above, feebly impressed on lower third, ornamented by abundant long hair uniformly distributed; cirrus absent 70b
- Elytral declivity convex, lateral margin rounded on upper three-fourths; sutures on female antennal club weakly procurved; female frons concave 71
- 70b(70a). Female antennal club with sutures 1 and 2 weakly impressed, rather weakly procurved; frons very weakly concave, mostly glabrous, with sparse setae on lateral areas above eyes and on and near epistoma; spine on basal crest of declivity at position of interstriae 3 smaller; male frons without a transverse impression above epistoma, and median pair of male serrations on anterior margin of pronotum distinctly larger; Brazil (Sao Paulo); 1.3–1.5 mm *truncatiformus* Wood
- Female antennal club with sutures 1 and 2 more strongly impressed and rather strongly procurved, frons weakly convex, a distinct, transverse impression above epistoma, vestiture long and rather abundant from epistoma to upper level of eyes, continued dorsad on lateral areas almost to vertex (median third on crest at vertex glabrous); spine at base of declivity on interstriae 3 slightly larger; male frons with a distinct, transverse impression above epistoma; anterior margin of pronotum armed by about 6 serrations of equal size; Panama; 1.3–1.4 mm *trunculus* Wood
- 71(70a). Body slender, 2.6 times as long as wide; elytral declivity reticulate, very steep, broadly impressed (planoconvex) on lower two-thirds, lateral margin acute on lower fourth, interstriae 1 strongly elevated, acutely costate, with two or three minute granules on interstriae 2 and 3; Mexico (Veracruz to Oaxaca); 1.4–1.5 mm *suturifer* Schedl
- Body usually less slender, 2.2–2.7 times as long as wide; declivity more gradual, more strongly convex, interstriae 1 less strongly elevated, wider than high 72
- 72(71). Declivity evenly convex, interstriae 1 feebly elevated, wider than high, rounded, crest with minute tubercles, 2 either not impressed or feebly impressed 73
- Declivity shallowly bisulcate, interstriae 1 acutely costate, usually higher than wide, crest unarmed by minute tubercles 77a
- 73(72). Declivital interstriae 2 as wide as 1 or 3, feebly impressed, punctures on 1 and 3 feebly granulate; female antennal club very slightly asymmetrical, sutures weakly procurved, cirrus absent; female frons less strongly, less broadly concave, impression extending only slightly above upper level of eyes 74
- Declivital interstriae 1 not elevated, its crest armed by minute tubercles, 2 not impressed, 1 and 3 armed by small tubercles; female antennal club strongly asymmetrical, cirrus conspicuous; female frons more strongly, more broadly impressed, punctures minute to obsolete, setae absent to rather sparse and shorter 75
- 74(73). Body less slender, 2.3 times as long as wide; female frons reticulate, punctures minute to obsolete, glabrous except sparse setae on epistoma; Brazil (Santa Catarina); 1.6–1.7 mm *niger* (Schedl)
- Body more slender, 2.7 times as long as wide; female frons smooth, shining, punctures coarse, close, deep, setae rather abundant, fine, rather long, uniformly distributed; Venezuela (Merida); *Vochysia duquei*; 1.6–1.8 mm *vochysiae* Wood
- 75(73). Declivity reticulate, interstriae 1 to 3 each armed by minute tubercles; female frons with concave area glabrous, lateral crest at mesal margin of eye with a small sulcus between crest and concave area; Mexico (Oaxaca) to Honduras; *Swietenia*; 1.2–1.4 mm *minutissimus* Schedl

- Declivity mostly subshining, interstriae 2 unarmed by tubercles, 1 and 3 with small tubercles; lateral crest of female frons at mesal margin of eye without a small sulcus, concave area pubescent 76
- 76(75). Body less slender, 2.2 times as long as wide; declivity steeper, interstriae 1 less distinctly elevated, 2 feebly impressed, 1 and 3 with minute tubercles; female frons moderately pubescent; Panama; tree limb; 1.5–1.8 mm *pumilus* Wood
- Body more slender, 2.4 times as long as wide; declivity more gradual, interstriae 1 weakly elevated on middle half, 2 wider and not impressed, punctures more distinctly impressed, 1 and 3 with minute granules; Costa Rica (Limon); at light; 1.7 mm *nevermanni* Schedl
- 77a(72). Larger species; female frons more broadly, deeply concave, concave area much more coarsely punctured, many or most punctures replaced by small rugae or rounded tubercles, vestiture moderately abundant, uniformly short; sutures on antennal club not impressed, 1 weakly septate on lateral half, 2 not septate, feebly impressed on lateral half, cirrus exceeding apex by about half length of club; declivital striae 1 and 2 with punctures in rows on basal two-thirds, interstriae 2 narrower than 1 and weakly impressed, sutural interstriae moderately elevated, subcostate on upper two-thirds, crest with a row of small punctures, slightly higher than 3, with 3 having very minute tubercles; Brazil (Espitito Santo, Parana, Rio Grande do Sul); 2.4–2.6 mm *punctifrons* Wood
- Smaller species, 1.2–1.5 mm; female frons more narrowly, less strongly impressed, punctures in concave area minute 77b
- 77b(77a). Elytral disc smooth, shining, striae punctures minute to almost obsolete, with very few irregular lines; declivital interstriae 1 subcostate, less strongly elevated; female eyes enlarged, frons narrower, shallowly concave from epistoma to upper level of eyes; surface partly reticulate; Honduras; 1.3–1.4 mm *minimus* Wood
- Elytral disc shining, with many impressed lines, some reticulation near declivity, especially on sutural interstriae; declivital interstriae 1 more strongly elevated, costate, surface brightly shining; female eyes not enlarged, frons more broadly, more deeply concave at least on lower half 78
- 78(77). Female frons rather strongly concave eye to eye from epistoma to vertex, concave area smooth, shining, mostly without punctures, mostly glabrous; declivital interstriae 2 moderately deep, lateral convexities not as high, tubercles rather small, punctures on interstriae 2 distinctly larger; Mexico (Guerrero); *Ardesia*; 1.4–1.5 mm *exiguus* Wood
- Female frons moderately concave on lower half of area below upper level of eyes, upper half to vertex planoconcave and with abundant setae of moderate length, both upper and lower areas finely punctured; punctures on declivital interstriae 2 much smaller, tubercles on lateral convexities larger; Panama; at light; 1.2 mm *atomus* Wood
- 79(69). Female frons strongly convex from epistoma to vertex, strongly reticulate, impunctate, glabrous; antennal club obovate, with two sutures, female cirrus about as long as antennal club; basal half of declivity moderately sulcate, suture not elevated, lateral crests rounded and armed by two to four tubercles; declivital ventrolateral costa low, its inner slope distinctly concave; Venezuela (Merida); tree branch; 3.0–3.6 mm *convexifrons* Wood
- Female frons variously concave, concave area usually pubescent 80
- 80(79). Posterior face of protibia unarmed by tubercles, tubercles present on lateral margin; female antennal club with three strongly procurved sutures, its anterior face entirely pubescent; posterolateral margin of declivity finely, acutely elevated on lower fourth, margin rounded above; declivity broadly convex, interstriae 1–3 equally, rather finely, not closely armed by a row of small tubercles (2 sometimes unarmed or only partly armed by tubercles); female frons broadly concave from epistoma to vertex, concave area densely, finely punctured, finely pubescent, hair of uniform length except median line mostly impunctate and glabrous 81

CORTHYLINI

—	Female antennal club with sutures more broadly procurved, suture 3 obscure; posterior face of protibia inflated and/or tuberculate; declivital interstriae 2 never with a row of tubercles (except small in <i>detrimentosus</i> , <i>luridus</i>)	87
81(78).	Smaller 1.6–2.1 mm; declivital interstriae 2 usually unarmed, 1 and 3 each with about two widely spaced granules	82
—	Larger 2.3–2.7 mm; declivital interstriae 2 armed by a few to many tubercles, 1 and 3 each armed by six or more tubercles	83
82(81).	Discs of pronotum and elytra smoother, punctures minute to obsolete; declivital setae stouter; Guatemala, 1000 m; 1.6 mm <i>parvulus</i> Blandford	
—	Pronotum disc reticulate, punctures very small, half with part of margin feebly elevated and shining; elytral disc with many impressed lines; declivital setae very slender; Mexico (Morelos); 1.8–2.1 mm (a separate species?)	<i>uniceps</i> Schedl
83(81).	Margin of female frons above upper level of eyes rounded, median line usually glabrous, sculpture not modified	84
—	Margin of female frons above eyes abrupt to acute, median line either weakly elevated or abruptly, strongly impressed	85
84(83).	Declivital tubercles rather small; transverse spongy area on posterior female antennal club occupying middle third of club length almost from mesal to lateral margin; body 2.3 times as long as wide; Costa Rica to Panama; 2.9–3.1 mm	<i>trucis</i> Wood
—	Declivital tubercles larger; transverse spongy area on female antennal club a slender band occupying only a small part of a much larger impressed area; body 2.1 times as long as wide; Guatemala to Panama; 2.3 mm	<i>luridus</i> Blandford
85(83).	Lateral margin of female frons acutely carinate from upper margin of eye dorsad two-thirds distance to upper margin, upper margin subacutely abrupt; median line of female frons impunctate and weakly elevated, setae on lateral areas short, rather abundant; bicolored; Costa Rica to Panama; 2.3–2.4 mm	<i>tuberculifer</i> Wood
—	Lateral margin of female frons from margin of eye dorsad rather narrowly rounded, dorsal margin acute, median fifth of concave area on upper three-fourths abruptly, moderately impressed and glabrous, median third of this groove a weakly elevated, rounded median carina, lateral areas densely micropunctate, setae very short, dense	86
86(85).	Epistomal crest on lower female frons rounded, micropunctures in concave area very dense, smaller, their setae coarser, uniformly very short, setae on peripheral crest above eye distinctly longer than those on concave area; shining area distad from suture 1 on female antennal club almost obsolete, much larger at suture 2; impressed area of declivital suture 2 with a row of small tubercles from base almost to apex equal in size to those on 3; Venezuela (Aragua); Guttiferae sp.; 3.4–3.7 mm	<i>tuberosus</i> Wood
—	Epistomal crest on lower female frons partly subcarinate, micropunctures in concave area rather dense, larger, setae finer, slightly longer, setae on peripheral crest above eye about equal in length to those in concave area; shining area distad from sutures 1 and 2 on female antennal club about equal in size and prominence; impressed area of declivital interstriae 2 smooth, entirely unarmed by tubercles; Colombia; 2.9–3.0 mm	<i>transversus</i> Eichhoff
87(80).	Elytral declivity with sutural interstriae armed by a series of granules	88
—	Declivital interstriae 1 entirely unarmed by granules or tubercles; female frons rather shallowly concave; lower declivity more broadly flattened, sulcus on basal half more strongly impressed	92

SCOLYTIDAE OF SOUTH AMERICA

- 88(87). Declivity more strongly, evenly convex, interstriae 1–3 each armed by a row of very small granules, 2 equal in height, width, and convexity to 3 89
- Declivity variously impressed, not evenly convex, interstriae 2 unarmed, weakly impressed (occasional specimens of *nolena* with a few granules at base); yellowish spongy area on female frons smaller, not extending above lower inner margin of eye (female of *spinosus* not seen) 90
- 89(88). Female frons moderately concave eye to eye from epistoma to vertex, setae on concave area very small, rather sparse, surface reticulate, punctures very small; declivity strongly convex, striae 1 and 2 weakly impressed, punctures very small to obsolete, interstriae 1 to 3 each with about three to five small tubercles, setae finer, shorter, less abundant; Mexico (Morelos); 2.2–2.3 mm *lustratus* Wood
- Female frons more strongly, more deeply concave, lower fourth of concave area with a broad, yellow, spongy area, upper areas more coarsely, closely, deeply punctured, setae distinctly longer and more numerous; declivity less broadly convex, punctures on striae 1 and 2 small, distinct, interstriae 1 to 3 each with a row of 10 or more small tubercles, setae coarser, longer, more numerous; Mexico (Durango to Guerrero); 2.5–2.7 mm *detrimentosus* Schedl
- 90(88). Declivital interstriae 2 feebly or not impressed, granules on 1 and 3 very small, striae punctures coarse, deep; male frons coarsely, sparsely punctured, smooth in lower half; female frons with a median carina on upper two-thirds of concave area, spongy area reniform; elytra black, pronotum reddish brown; Mexico (Oaxaca); *Nolena* fruiting stalk; 2.0–2.3 mm *nolena* Wood
- Declivital interstriae 2 distinctly impressed, tubercles on 1 and 3 rather coarse, sharply pointed, striae punctures very small, shallow; male frons more finely punctured, reticulate from epistoma to vertex 91
- 91(90). Pronotum disc smooth, reticulate, punctures minute; male frons strongly reticulate, punctures minute; lower declivity more broadly flattened; declivital setae very slender, shorter; Costa Rica (Puntarenas); 1500 m; 2.4 mm *spinipennis* Wood
- Pronotum reticulate, with acute, transverse rugae from summit to base; male frons rugose-reticulate, punctures small, lower declivity more convex; declivital setae stouter, slightly longer; Mexico (Veracruz), 2500–3000 m; 2.0 mm *spinosus* Wood
- 92(87). Declivital interstriae 2 very narrow, mostly obsolete, 3 very close to 1, often falsely appearing as 2, with a series of about two to five weak to rather coarse, pointed denticles; declivital sulcus rather deep; female frons with a pair of large, spongy areas on lower area, concave area almost glabrous, upper margin bearing a brush of long hair; smaller species, 1.6–2.4 mm 93
- Punctures on basal fourth of elytral declivity near suture usually strongly confused, interstriae 2 strongly constricted on middle third of declivity length, lateral areas somewhat diverse 98
- 93(92). Punctures on declivital striae 1 and 2 obsolete, not evident on basal half, interstriae 1 and 3 slightly elevated, 3 very slightly higher; crest of interstriae 3 narrowly elevated on middle third of declivity length; male frons convex, female not at hand; pronotum disc reticulate 94
- Punctures on declivital striae 1 and/or 2 evident, interstriae 1 not elevated, 3 with two or more minute granules or denticles; larger species 95
- 94(93). Smaller species; declivity steeper; punctures on elytral disc smaller, not as deep; lateral crests of declivity with about five small punctures; Costa Rica; 1.2 mm *nanus* Wood
- Larger species; declivity more gradual; punctures on elytral disc larger, deeper; lateral crest of declivity more broadly rounded, armed by about three small tubercles; Brazil (Bahia); at light; 1.8 mm *dubiosus* (Schedl)

CORTHYLINI

- 95(93). Spongy areas on each half of female frons subcircular; extending slightly more than half distance from epistoma to upper level of eyes, margins of spongy areas marked by a row of fine, long hair; Mexico (Chiapas); *Quercus*; 1.6 mm **minutus** **Bright**
- Spongy areas on each half of female frons elongate, almost attaining upper level of eyes, their margins usually without long setae 96
- 96(95). Area between spongy areas on female frons with a strongly elevated, median elevation on lower half of concave area, its upper end descending abruptly; pronotum disc reticulate; Mexico (Veracruz); *Psittacanthus deanus*; 1.6–1.8 mm **senticosus** **Wood**
- Area between spongy areas on female frons flat, smooth, shining 97
- 97(96). Spongy areas on female frons broader; very narrowly separated at median line, a minute median carina from epistoma to upper level of spongy areas, tips of setae on dorsal margin of concave area longer; capable of attaining epistomal margin; Guatemala to Costa Rica; 2.0–2.4 mm **sentus** **Wood**
- Spongy areas on female frons more widely separated (one-eighth width of frons), space flat on lower one-eighth of concave area, then a low acute carina extending to vertex, tips of setae on dorsal margin capable of extending about half distance toward epistomal margin; Mexico (Michoacan); *Psittacanthus*; 2.0–2.1 mm **sentosus** **Wood**
- 98(92). Elytral declivity more broadly flattened on more than lower half, with several tubercles laterad from interstriae 2; more slender species 99
- Elytral declivity with median area on upper half somewhat sulcate, one or two denticles positioned on interstriae 3 near middle of declivity, a weak (convex) elevation extending from denticles to lateral margin on basal half, lower half of declivity below denticles rather broadly flattened, punctures confused; stouter species; cirrus on female antennal club as long or longer than club 102
- 99(98). Declivity rather broadly flattened, smooth, shining, interstriae 1, 3, and lateral areas with many small confused tubercles intermixed with punctures; female frons moderately concave, a transverse, subcarinate elevation on median third slightly above epistoma, area from epistoma to vertex finely punctured and with abundant long setae, setae on peripheral margin significantly longer; female antennal club without a cirrus; Brazil (Santa Catarina); 2.3–2.5 mm (see also *mirabilis* Nunberg) **rufopilosus** **Eggers**
- Declivity rather broadly flattened on lower half, interstriae 3 on at least upper two-thirds armed by a row of four or more coarse tubercles, sutural interstriae weakly elevated, its crest with a row of minute tubercles or small spines; female frons rather strongly concave, with a low elevation on median fifth extending from upper level of eyes to vertex, long setae mostly on peripheral areas and on median elevation 100
- 100(99). Male declivity not as steep, smooth, shining, with numerous micropunctures, more strongly, broadly impressed, elevated, and with interstriae 1 elevated, as high as wide, spines on 3 small, acutely pointed; Colombia (Antioquia); 2.3 mm **pseudoandinus** **Wood**
- Declivity much steeper, more narrowly impressed above; striae 1 and 2 only partly, obscurely discernible on declivity, surfaces rather dull, partly subreticulate, micropunctures not clearly evident 101a
- 101a(100). Female antennal club shorter, stouter, its apical margin almost straight, sutures 1 and 2 narrowly, weakly impressed, entire surface of club densely micropunctate, with no smooth shining areas on anterior face; lateral crests of declivity on basal half more narrowly convex, more broadly impressed below; somewhat bicolored; Colombia (Antioquia to Caldes); 2.3–2.7 mm **andinus** **Wood**

- Female antennal club slightly longer, its apical margin weakly procurved, sutures more broadly impressed, impressed areas densely micropunctate, large spaces between sutures and near apex smooth, brightly shining and impunctate; basal half of elytral declivity with lateral crests more broadly rounded, less strongly impressed below 101b
- 101b(101a). Female frons with setae on upper margin slightly longer, those on lower half more abundant and longer; median third of pronotum disc from base to summit strongly rugose-reticulate, transverse rugae distinctly smaller and less numerous; tubercles on declivital interstriae 2 less numerous (about 4) and basally isolated from one another; Venezuela to Colombia; 2.5–2.8 mm *excisus* Ferrari
- Female frons with setae on upper margin slightly shorter, those on lower half less abundant and slightly shorter; median third slightly shorter, those on lower half less abundant and slightly shorter; median third of pronotum disc more strongly rugose-reticulate, transverse rugae distinctly larger, more numerous; tubercles on declivital interstriae 3 smaller and basally contiguous (formed from about 6 to 8 tubercles); Peru (Pasco); 2.7 mm *pseudoexcisus* Wood
- 102(98). Body smaller, 1.5–2.7 mm; declivital impression on interstriae 2 rather weak, less extensive, 1 as high as 3, except *callidus*, lower area subconcave only near costal margin, lateral areas never with a tubercle or denticle below middle of declivity length; female frons less strongly concave 103
- Body larger, 2.5–4.5 mm; declivital impression deeper, much more extensive, interstriae 3 conspicuously higher than 1, lower fifth of declivity subconcave, at least one denticle on face below middle of declivity length; female frons more strongly concave 105
- 103(102). Body more slender, 2.5 times as long as wide; punctures on pronotum disc small; sulcus on basal half of declivity deeper; cirrus on female antennal club as long as club; Brazil (Guanabara); 2.3 mm *callidus* Schedl
- Body less slender, 2.0–2.4 times as long as wide; punctures on pronotum disc very small to obsolete; sulcus on basal half of declivity very shallow; cirrus on female antennal club conspicuously longer than club 104a
- 104a(103). Body 2.0 times as long as wide; punctures on elytral disc slightly smaller, surface partly or entirely reticulate; female frons very shallowly concave; Costa Rica; 1.5–1.8 mm *pygmaeus* Wood
- Body 2.4 times as long as wide; punctures on elytral disc slightly larger, surface smooth, shining; female frons more strongly concave, particularly on lower half 104b
- 104b(104a). Pronotum disc, lower declivity, and male frons rugose-reticulate; female frons less strongly concave, with upper setae much longer; punctures on elytral disc smaller; female cirrus smaller; penicillate; USA (Florida) and Mexico to Brazil; 2.0–2.4 mm *papulans* Eichhoff
- Pronotum disc, lower declivity, and male frons weakly reticulate; female frons more strongly concave, setae not longer above; punctures on elytral disc larger; female cirrus larger, with setae more widely spread, comblike; Brazil (Parana, Sao Paulo); 2.3–2.7 mm *papuellus* Wood
- 105(102). Apical margin of female antennal club arcuately rounded 106
- Apical margin of female antennal club straight to shallowly emarginate 109
- 106(105). Body more slender, 2.7 times as long as wide; female antennal club with sutures 2 and 3 more extensively impressed, more strongly procurved, impressed area densely micropunctate and micropucescent, base of segment 2, base of segment 3 and subapical margin smooth, shining and less extensive than pubescent areas; pronotum with several small, transverse rugae on disc from summit to basal margin; Colombia to Ecuador; 3.8–4.1 mm *macrocerus* Eichhoff

- Body less slender, 2.2–2.3 times as long as wide; pronotum without any transverse rugae on disc behind summit; antennal club uniformly micropubescent 107
- 107(106). Declivity more extensively impressed, punctures slightly larger, confused; female frons with setae much shorter, median fourth subglabrous from epistoma to vertex, much less strongly concave; Venezuela (Aragua); 4.1–4.5 mm *cirrifer* Wood
- Declivity much less broadly impressed, especially on basal half, punctures on striae 1 and part of 2 smaller, in rows; female frons more strongly, extensively impressed, setae much longer . . . 108
- 108(107). Female frons above upper level of eyes less strongly concave, almost flat, setae at upper margin of concave area longer, their tips capable of extending half distance toward epistomal margin; male frons more finely, sparsely punctured; Mexico (Nayarit to Veracruz) to Guatemala; many hosts; 2.5–3.0 mm *flagellifer* Blandford
- Female frons above eyes conspicuously concave, setae at upper margin shorter, equal in length to less than one-third distance toward epistomal margin; male frons rather coarsely, closely punctured; Costa Rica; many hosts; 3.0–3.4 mm *sobrinus* Wood
- 109(105). Apical margin of female antennal club straight; setae on female frons more abundant, much shorter on concave area, peripheral row much longer, longest setae on vertex capable of extending five-sixths distance toward epistomal margin; punctures on elytral declivity larger, deeper, sutural interstriae weakly elevated, its crest with several small punctures, one or two tubercles on 3 slightly below middle of declivity length; Colombia to Venezuela (Merida); *Alnus*, *Croton*, *Ficus*, *Vismia*; 3.2–3.5 mm *abbreviatus* Eichhoff
- Apical margin of female antennal club shallowly emarginate; setae on female frons much less abundant, setae on peripheral row at vertex much shorter, capable of attaining half distance toward epistomal margin; punctures on elytral declivity smaller, not as deep, sutural interstriae distinctly higher, its crest bearing about five small tubercles, lower half of declivity without tubercles; Brazil (Santa Catarina); 3.0–3.3 mm *antennarius* Schedl
- 110(68). Circumdeclivital ring extending from suture apex more than half to about two-thirds distance toward suture at base of declivity, crest rounded on basal area; crest of sutural interstriae on declivity very weakly to strongly serrate; declivital interstriae 3 with several tubercles 111
- Circumdeclivital ring subacute from suture apex to suture at base of declivity (except subacute on only lower half in *ingae*), crest of sutural interstriae on declivity either serrate or uniformly elevated and devoid of tubercles or serrations 117
- 111(110). Elytral declivity reticulate 112
- Elytral declivity with all surfaces smooth, shining 113
- 112(111). Female frons without a spongy area; female antennal club radically asymmetrical, apex strongly acuminate and forming a long blunt spine, mesal margin of segment 1 at suture extended into a remarkable process bearing a spine; striae 1 and 2 on declivity mostly obscure; declivital suture rather weakly elevated, half as wide as high, crest with a row of small granules, 3 strongly elevated on central two-thirds, higher than wide, crest armed by about five blunt tubercles, lateral areas with three or more similar tubercles either in a row or confused; Venezuela (Merida); large liana; 3.5–4.0 *antennatus* Wood
- Smaller species; female frons with a large, yellow, spongy area eye to eye from epistomal margin, covering lower third of concave area; brush of hair on vertex dense, long, tips of longest setae capable of extending almost to epistoma; sutural interstriae on declivity rather strongly serrate, crest bearing about 4 weak serrations; declivital interstriae 3 with a row of about four minute tubercles; Costa Rica (Volcan Poas); tree branch; 2.4–2.7 mm *subserratus* Wood

- 113(111). Female frons strongly, evenly concave eye to eye from epistoma to vertex, a conspicuous, yellow, spongy area on median fourth of lower fourth of concave area length, sparse setae on concave area, upper margin at vertex with a dense row of very long setae, tips of longest setae capable of attaining epistomal margin; Mexico (Puebla) to Honduras; 2.3–2.5 mm *mexicanus* Schedl
- Female frons strongly, unevenly concave, with a pair of yellow, spongy areas occupying lateral thirds 114
- 114(113). Face of declivity moderately convex, interstriae 2 more distinctly impressed, punctures larger; deeper; female frons with median third abruptly impressed from vertex to lower fourth, lateral thirds partly spongy, with sparse setae, dorsal fringe dense, setae very long; Costa Rica to Panama; *Inga*, *Miconia*, *Siparuna nicaraguensis*; 2.0–2.3 mm *serratus* Wood
- Face of declivity weakly convex at least on lower half, interstriae 2 weakly or not impressed, punctures smaller, shallow; female frons with lateral areas above upper level of eyes inflated, yellow, apparently spongy, peripheral fringe above eyes with setae rather short, lateral areas below with sparse setae 115
- 115(114). Female frons more evenly concave, lateral spongy areas extending from lower inner margin of eye to well above upper level of eyes, each equal in width to about one-sixth distance between eyes; declivity less strongly flattened, interstriae 2 obscurely impressed; Argentina (Tucuman) to Peru; 2.2–2.5 mm *serrulatus* Eggers
- Lateral spongy areas on female frons extending from upper level of eyes dorsad to vertex, mesal area on upper half more abruptly, distinctly impressed; declivity more nearly flattened, interstriae 2 more distinctly impressed; Venezuela (Aragua); *Alnus*, *Melastomaceae* sp., etc.; 2.2–2.6 mm 116
- 116(115). Spongy area on female frons narrower, elongate, extending from slightly below upper margin of eye to vertex, marginal setae much shorter; extending from mesal margin of eye to near vertex, setae on floor of concave area much shorter, less numerous, restricted to lateral areas; cirrus on female antennal club shorter, less than twice as long as club; punctures on elytra smaller; base of declivital interstriae 2 weakly impressed, interstriae 1 not as high, denticles on crest larger; Venezuela (Aragua); *Alnus*; 2.2–2.6 mm *donaticus* Wood
- Spongy area on lateral area of female frons entirely above upper level of eye, short and oval in outline, dorsal crest of concave area bearing a marginal row of long, yellow setae from upper margin of eye to vertex near median line, floor of concave area bearing several long setae; cirrus on female antennal club about three times as long as club; punctures on elytral declivity smaller; base of interstriae 2 more distinctly impressed, interstriae 1 higher; Brazil (Santa Catarina); 2.8 mm *abrupteclivis* Schedl
- 117(110). Elytral declivity with sutural interstriae tuberculate to serrate, face of declivity mostly smooth, shining (weak reticulation on *brevior*, *gracilior*) 118
- Elytral declivity with crest on sutural interstriae uniformly elevated, devoid of tubercles 123
- 118(117). Elytral declivity weakly reticulate, sutural interstriae weakly elevated, weakly serrate; female frons rather deeply concave, with a transverse carina on lower third, antennal club with sutures partly septate grooves for 2 and 3 strongly impressed; acutely elevated epistomal margin bearing a pair of spongy areas, very small 119a
- Elytral declivity with crest on sutural interstriae more strongly elevated, serrations much larger; face of declivity smooth, shining 120
- 119a(118). Female antennal club rather strongly asymmetrical, about equal in length and width, apex outline rounded, cirrus slightly longer than club; spongy area on epistoma a narrow band on margin of acutely elevated costa; Guatemala to Costa Rica and Peru to (?) Brazil; *Pentaclethra macroloba* branches; 1.5–1.8 mm *praeustus* Schedl

CORTHYLINI

- Female antennal club very strongly asymmetrical, conspicuously wider than long, apex outline subacutely pointed, cirrus much shorter 119b
- 119b(119a). Larger species; punctures on pronotum and elytra disc smaller, less strongly impressed; female frons with spongy areas larger, concave area almost smooth, with many short setae; Venezuela (Merida); 1.8–1.9 mm *gracilior* Wood
- Smaller species; punctures on pronotum and elytra disc larger, deeper; female frons with a row of very long setae curling downward from upper margin, median line of tuft with about six setae half as long as others; Brazil (Parana); 1.3–1.4 mm *gracilens* Wood
- 120(118). Concave area on female frons uniformly impressed, without yellowish spongy areas on lateral thirds, setae on lower half fine, of moderate length, dorsal fringe on vertex much shorter (not clearly visible on type); lower end of crest on sutural interstriae diverging slightly from suture; female antennal club with suture 1 finely septate, groove for 2 weak, 3 not evident; Colombia (Antioquia); *Vismia*; 2.3–2.4 mm *bellus* Wood
- Concave area on female frons deeper in central area, lateral thirds weakly to distinctly elevated into yellowish spongy areas, setae on dorsal fringe much longer, dense; grooves for segments 2 and 3 on female antennal club clearly impressed 121
- 121(120). Spongy areas on lateral thirds of female frons extending from lower level of eyes to well above upper level of eyes; dorsal fringe on female vertex longer, longest setae extending two-thirds distance toward epistoma, dense fringe extending to level of antennal insertions; Venezuela (Aragua); tree branches, bole; 1.9–2.5 mm *cirritus* Wood
- Spongy areas on lateral thirds of female frons extending from level of antennal insertions to upper level of eyes; dorsal fringe on female vertex shorter, longest setae capable of extending almost half distance toward epistoma, setae on fringe much shorter, less numerous below upper level of eyes 122
- 122(121). Spongy areas on female frons transversely convex, darker in color, setae on margins of spongy area confused, not in a uniseriate row, floor of concave area without a median carina; declivity with tubercles on interstriae 3 and also near lateral margin; Venezuela (Merida); *Nectandra*; 2.4–2.7 mm *additus* Wood
- Spongy areas on female frons larger, almost flat, bright yellow, a uniseriate row of long setae on margins, floor of concave area with a definite median carina; tubercles on face of declivity minute, confined to interstriae 3; Venezuela (Aragua); *Nectandra*; 1.9 mm *frontalis* Wood
- 123(117). Declivity more strongly convex, ventrolateral crest on declivity subacute on apical half, rounded on basal half; female frons broadly concave, median fourth of concave area smooth, impunctate, lateral areas below forming small, spongy areas, setae in lateral areas rather sparse, shorter; dorsal fringe dense, rather long, tips of longest setae capable of extending half distance toward epistoma; Venezuela (Aragua); tree branches; 1.7–1.8 mm *ingaensis* (Schedl)
- Ventrolateral crest forming a complete circumdeclivital ring (except *schantzi*), face of declivity more broadly impressed 124
- 124(123). Body very slender, 2.5–3.1 times as long as wide; declivity face more strongly concave, brightly shining, punctures rather coarse, deep, tubercles on interstriae 3 entirely obsolete; female frons broadly, strongly concave lower one-fourth of concave area forming a yellow, spongy area, upper margin of spongy area and lateral and dorsal margins of frons with a continuous peripheral fringe of moderately long hair; female of *praealtus* not seen 125
- Body less slender, 1.9–2.4 times as long as wide; declivity surface reticulate (except *robustus* species group) 126

- 125(124). Body 2.5 times as long as wide; anterior margin of male pronotum more narrowly rounded; punctures on pronotum disc minute; sutural interstriae on declivity narrower, not as high, punctures on face slightly smaller; Brazil (Rio Negro); 3.6 mm *praealtus* Schedl
- Body 3.0–3.1 times as long as wide; anterior margin of pronotum broadly rounded; punctures on pronotum disc small; sutural interstriae on declivity slightly wider, higher; punctures on face slightly larger, deeper; USA (Arizona) to Mexico (Durango); *Quercus*; 1.9–2.1 mm *petilus* Wood
- 126(124). Elytral declivity smooth, shining; female frons with a brush of long hair on vertex, one or two spongy areas below 127
- Surface of elytral declivity reticulate, dull 128
- 127(126) Larger species; ventrolateral crest on declivity forming a complete circumdeclivital ring; female frons with a pair of spongy areas on lateral thirds; costa on sutural interstriae on declivity not as high; color black; Brazil (Santa Catarina); 2.6–2.9 mm *robustus* Schedl
- Smaller species; ventrolateral crest on declivity incomplete, forming about three-fourths of a complete circumdeclivital ring; female frons with a median, spongy area occupying lower fourth of concave area; pronotum disc smooth, reticulate, without rugae; punctures on declivity very small; costa on sutural interstriae of declivity higher; setae on declivity more numerous and two to three times longer; color reddish brown; Suriname; at light; 1.6 mm *schulzi* Wood
- 128(126). Body very large, stout, 1.9 times as long as wide; female antennal club very large, as long as wide, cirrus exceedingly long, longer than elytra; declivital punctures very small, crest on interstriae 1 low, of uniform height on basal seven-eighths; Peru; 4.2 mm *truncatus* Wood
- Body more slender, 2.1 or more times as long as wide; cirrus on female antennal club absent to half as long as elytra 129
- 129(128). Dense dorsal fringe on female frons entirely dorsad from upper level of eyes, lateral setae on lower areas sparse, scattered, most not on lateral margins 130
- Dorsal fringe on female frons with setae long, dense fringe continued below eye, sometimes attaining median line on epistoma 133
- 130(129). Declivital face more nearly flat, without tubercles or granules on interstriae 3; female frons with a yellow, spongy area on epistomal margin mandible to mandible, a weak procurved groove eye to eye between spongy area and dark, concave area; female *gracilis* not seen 131
- Declivital face slightly convex, somewhat irregular, either with or without granules or tubercles on interstriae 3; female frons either without spongy areas or with two spongy areas 132a
- 131(130). A minute species, 2.4 times as long as wide; declivity feebly convex, circumdeclivital costa abrupt, rather weakly elevated; female not seen; Brazil (Guanabara); 1.5 mm *gracilis* (Schedl)
- A larger, stouter species, 2.2 times as long as wide; declivity obscurely concave, circumdeclivital costa acutely, more strongly elevated; female antennal club more strongly asymmetrical, apex acute; Costa Rica; 2.4 mm *eichhoffi* Schedl
- 132a(130). Female antennal club longer than wide, only slightly asymmetrical, cirrus exceeding apical margin a distance equal to length of club; female frons with dorsal fringe short, with a separate row of setae from lower margin of eye to slightly above eye, its upper two-thirds slightly mesad from lateral margin of frons and not continuous with dorsal fringe, tips of longest setae on dorsal fringe capable of of attaining half distance toward epistoma; Costa Rica to Panama; tree sapling; 1.7–1.9 mm *procerus* Bright

- Female antennal club strongly asymmetrical, 1.4 times wider than long, cirrus more than twice as long as antennal club; dorsal fringe on vertex much longer, tips of longest setae capable of attaining two-thirds distance toward epistoma; setae on lower half of female frons sparse, not organized into rows or clusters 132b
- 132b(132a). Pronotum base of disc with transverse rugae larger; punctures on the elytral disc smaller less distinctly impressed; elytral declivity more nearly flattened, with surface less regularly reticulate; Peru (Pasco); 2.6 mm *merkli* Wood
- Pronotum base of disc with transverse rugae smaller; punctures on the elytral disc larger more distinctly impressed; elytral declivity less strongly flattened, with surface uniformly reticulate; Mexico (Chapuis) to Panama; liana, tree branch, *Guazuma ulmifolia*; 2.0–2.3 mm *concisus* Wood
- 133(129). Declivity with interstriae 2 not impressed, 3 not elevated, with one or two minute tubercles (sometimes pointed), punctures more distinctly, more uniformly impressed, slightly smaller; long setae on sides of female frons continued to and along epistomal margin; Colombia; *Inga*, etc.; 1.8–2.0 mm *insignis* Wood
- Declivity with interstriae 2 weakly, distinctly impressed, 3 weakly elevated on upper half and armed by about two or three small, pointed denticles, punctures mostly obscure, slightly larger; long golden setae on lateral margins of female frons and continued below to level of antennal insertion, epistomal margin without long, golden setae 134
- 134(133). Female frons shallowly concave, lower half without setae except on epistomal margin, upper half with rather sparse, long, dorsal fringe (not clearly visible on female at hand), apparently moderately long, a pair of large, oval, sharply margined spongy areas on lower half; Venezuela (Bolivar); *Alexa imparitricia*, guamo negro; 2.1–2.2 mm *compressicornis* (Fabricius)
- Female frons broadly, shallowly concave, without spongy areas, dorsal fringe of long, golden setae continued ventrad below inner margin of eye 135
- 135(134). Basal margin of declivity abruptly rounded from suture at apex of declivity to striae 3 at base of declivity, crest not projecting, punctures on both upper and lower half clearly impressed; female frons with dorsal fringe on vertex dense, setae as long or longer than on lateral areas; Brazil (Bahia, Parana); *Theobroma cacao*, etc.; 2.0–2.3 mm *pharax* Schedl
- Basal margin of declivity acutely costate, crest projecting slightly, punctures on upper half of declivity obscure to obsolete; female frons with dorsal fringe sparse to partly obsolete, setae mostly shorter; Brazil (Santa Catarina); 2.5–2.8 mm *schaufussi* Eichhoff

Corthylus cecropicolens Wood, n. sp.

Corthylus cecropicolens Wood: Holotype ♀; El Laurel Experimental Farm 12 km SW Caracas, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *cecropii* Wood (Plate CCXXII) by the presence of many clearly evident confluent punctures on the elytral disc, punctures on the declivity mostly in rows; and by declivital interstriae 1 and 3 each with about four small tubercles.

Male: Similar to female except frons convex, smooth, shining, with sparse punctures; antennal club slightly smaller, without a cirrus; anterior slope of pronotum rather coarsely asperate, anterior margin armed by a median pair of large serrations.

Female: Length 2.2–2.5 mm, about 2.4 times as long as wide (estimated, elytra spread on type); color rather dark brown. Frons weakly, broadly concave eye to eye from epistoma to vertex; floor of concave area minutely, densely punctured, with uniformly distributed rather abundant, very short hair; lateral and dorsal margins above middle of type with a dense row of very long setae, a few shorter setae from epistoma to middle of eye; antennal club 1.5 times as long as wide, slightly obovate, entirely devoid of sutures, with short abundant microsetae. Pronotum 1.03 times as long as wide, anterior slope without asperities, anterior margin smooth, unarmed; surface weakly reticulate on anterior half, punctures minute, not close, a few feebly subtuberculate granules on anterior slope (no asperities); glabrous except two or

three short setae on lateral margins. Elytra spread, estimated at 1.2 times as long as wide, 1.15 times as long as pronotum; disc occupying about 60 percent of elytra length, surface obscurely reticulate, punctures distinctly impressed and confused on basal two-thirds of disc, in striae rows on 1 and 3 near and on declivity. Declivity rather steep, convex, strongly reticulate; small punctures on striae 1–3, mostly in rows, interstriae 1 and 3 each with about four small tubercles. Sparse setae on odd-numbered interstriae.

Distribution: Venezuela (Caracas).

Type material: The female holotype, male allotype, and 1 male paratype were taken at El Laurel Experimental Farm 12 km SW Caracas, Venezuela, 1-V-1970, 1300 m, No. 475, *Cecropia* leaf petiole, S.L. Wood. The holotype, allotype, and paratype are in the U.S. National Museum, Washington.

Corthylus garai Wood, n. sp.

Corthylus garai Wood: Holotype ♀; Turrialba, Cartago, Costa Rica; USNM, Washington, designated below

Diagnosis: Distinguished from *retusifera* Wood by the smooth, shining and closely punctured female frons on the upper three-fourths of the concave area, an acutely elevated median carina on the lower fourth; and by the more coarsely punctured striae 1 and 2 on the declivity.

Female: Length 1.7 mm, 2.3 times as long as wide; color very dark reddish brown. Frons rather strongly concave eye to eye from epistoma to vertex, an acute median carina on lower fourth of concave area, a lateral carina on lower half of inner margin of eye; concave area smooth, shining and coarsely, closely punctured on upper three-fourths, rugose-reticulate below; moderately abundant short hair on concave area; antennal club 1.4 times as long as wide, obscurely quadrate in outline, lateral half of suture 1 obscurely septate. Pronotum 0.92 times as long as wide; sides on basal half weakly arcuate, rather narrowly rounded in front; anterior margin armed by about 12 low serrations; summit at middle of pronotum length; anterior slope rather steep, asperities coarse, sparse, confused; posterior areas mostly smooth, shining, some areas of obscure reticulation present, punctures minute to obsolete; glabrous except for short setae on anterior margin. Elytra 1.4 times as long as wide, 1.3 times as long as pronotum; disc occupying 70 percent of elytra length; disc smooth, shining, small distinct punctures confused, except mostly in striae rows on 1 to 3 near declivity. Declivity steep, convex; interstriae 2 feebly impressed on upper half; sutural interstriae narrowly carinate from base to near apex, as wide as high, this crest higher than interstriae 3; striae 1 to 3 marked by rows of small punctures. Declivital interstriae each bearing a row of long, slender setae.

Distribution: Costa Rica.

Type material: The female holotype and 1 female paratype were taken at Turrialba, Cartago, Costa Rica, R.I. Gara. The holotype and paratype are in the U.S. National Museum.

Corthylus pinguis Wood, n. sp.

Plate CCXXVIII

Corthylus pinguis Wood: Holotype ♂; Campamento Rio Grande 30 km E Palmar, Bolivar, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *panamensis* Blandford (Plate CCXXVII) by the larger size; by the much weaker, less extensive impression above the male epistoma; by the more strongly reticulate median area of the pronotum disc; and by characters on the elytra described below.

Male: Length 3.7 mm, 2.1 times as long as wide; color black. Frons moderately convex eye to eye from vertex two-thirds distance toward epistoma, lower fourth with a shallow transverse impression above epistoma, surface reticulate, punctures rather small, close; vestiture very sparse on impressed area, rather short; antennal club as in *panamensis*, suture 1 straight and septate, 2 impressed, not septate. Pronotum 1.12 times as long as wide; sides on basal half rather weakly arcuate and subparallel, narrowly rounded in front; anterior margin armed by 8 serrations, median pair about three times larger than others; summit at middle of pronotum length; asperities on anterior slope coarse but rather low, ending before summit, with many close transverse rugae on summit area; disc strongly, minutely reticulate, punctures obsolete; sparse setae on lateral margins. Elytra 1.2 times as long as wide, 1.3 times as long as pronotum; disc occupying 68 percent of elytra length; disc moderately shining, surface mostly smooth, several weakly impressed lines on basal third; striae not impressed, punctures minute, in rows on posterior half, mostly confused on anterior half, interstitial punctures mostly obsolete, smaller than those of striae. Declivity strongly convex, very steep; striae punctures on 1 to 3 very small, many obscure, most obsolete on lower half; surface with many micropunctures; sutural interstriae on middle third of declivity length moderately elevated, almost as high as wide at highest area, crest very narrowly rounded and armed by about four to five small punctures, their anterior margin weakly elevated into a minute tubercle; interstriae 2 to 4 (and lateral areas) each with a row of about four rather small, pointed tubercles. Vestiture of sparse rows of moderately long, hairlike, interstitial setae on 1 to 4, a few setae on 7 and 9.

Distribution: Venezuela (Bolivar).

Type material: The male holotype was taken at Campamento Rio Grande 30 km E Palmar, Bolivar, Venezuela, 12-VI-1970, 200 m, *Alexa imperitricia*, S.L. Wood. The holotype is in the U.S. National Museum, Washington.

Corthylus ustus (Schedl), n. comb.

Corthylus ustus (Schedl), 1951:128 (*Corthycyclon*). Holotype ♀; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:1068)

Diagnosis: Remotely allied to *oculatus* Wood, distinguished by the more broadly, evenly convex declivity,

with interstriae 1 not elevated, 1 and 3 each armed by rows of about six small tubercles; by the much more deeply, broadly concave female frons; and by the aseptate female antennal club.

Male: Similar to female except frons broadly convex, a moderate, transverse impression above epistoma, surface strongly reticulate, punctures rather small, shallow, widely spaced, mostly glabrous; antennal club smaller; aseptate; anterior margin of pronotum armed by 2 rather large serrations.

Female: Length 1.3–1.4 mm, 2.4 times as long as wide; color rather pale brown. Frons rather strongly concave eye to eye from epistoma to vertex, surface mostly smooth, shining, punctures small, shallow, rather close, lateral and dorsal margins with a rather sparse row of long setae, concave area glabrous; antennal club 1.3 times as long as wide, aseptate, apical margin very broadly rounded, surface minutely, densely punctured, with abundant, dense, short, confused setae. Pronotum 0.95 times as long as wide; sides widest at base, weakly arcuate, rather narrowly rounded in front; anterior margin armed by 6 weak serrations, median pair largest; summit obscure, anterior to middle of pronotum length; anterior slope rather steep, asperities rather coarse, close, confused; posterior areas mostly reticulate, punctures small, distinct, not close; sparse setae on asperate area and anterior half of lateral margins. Elytra 1.8 times as long as wide, 1.6 times as long as pronotum; disc occupying 70 percent of elytra length; disc smooth, shining, with a few impressed lines; punctures very small, in somewhat obscure striae rows. Declivity broadly convex, steep; punctures of striae 1 and 2 in rather obscure rows; interstriae very feebly impressed, 1 and 3 feebly elevated and each armed by about six small, pointed tubercles; surface almost smooth (obscurely reticulate). Setae mostly restricted to declivity or sides near declivity, rather long, in rows on odd-numbered interstriae.

Distribution: Brazil: Nova Teutonia, Santa Catarina, III-1941, F. Plaumann (holotype, allotype, 1 male paratype, 1 female non-type).

Notes: The above treatment was based on the female holotype, male allotype, 1 male paratype, and 1 female non-type all from the type locality.

Corthylus minus Wood, n. sp.

Corthylus minus Wood: Holotype ♀; La Selva Biological Station 3 km S Puerto Viejo, Heredia, Costa Rica; USNM, Washington, designated below

Diagnosis: Distinguished from *brunneus* Nunberg by the smooth, shining declivity; by the distinct declivital punctures between the suture and the lateral crest; and by the very shallowly impressed female frons.

Male: Similar to female except frons distinctly convex; antennal club slightly smaller; anterior margin of pronotum armed by a median pair of rather large serrations.

Female: Length 1.3 mm, 2.5 times as long as wide; color reddish brown. Eyes very large, coarsely faceted;

frons narrow, very shallowly concave, surface mostly smooth, shining, punctures moderately coarse, close, setae fine, short, sparse; antennal club 1.1 times as long as wide, broadly obovate, sutures 1 and 2 feebly procurved, visible only on lateral and mesal thirds, cirrus not evident. Pronotum 1.1 times as long as wide; sides almost straight and parallel on basal half, rather narrowly rounded in front; anterior margin armed by about 4 very weak serrations; summit at middle of pronotum length; anterior slope rather steep, asperities small, close, confused; posterior areas reticulate, punctures small, distinct, moderately close; sparse short setae on asperate area. Elytra 1.4 times as long as wide, 1.3 times as long as pronotum; disc occupying 70 percent of elytra length; disc smooth, shining, punctures moderately large, mostly in striae rows. Declivity steep, strongly convex; interstriae 2 very narrow, feebly impressed, punctures on striae 1 to 3 small, in obscure striae rows, suture feebly elevated, lateral crest slightly higher than suture; crest on interstriae 3 with three minute denticles, punctures on lateral areas confused. Very sparse, short setae on declivity, apparently on odd-numbered interstriae.

Distribution: Costa Rica (Heredia).

Type material: The female holotype and male allotype were taken at La Selva Biological Station 3 km S Puerto Viejo, Heredia, Costa Rica, II-1993, Malaise trap, P. Hanson. The holotype and allotype are in the U.S. National Museum, Washington.

Corthylus theobromae Nunberg

Corthylus theobromae Nunberg, 1971:59. Holotype ♂; Ilheus, Bahia, Brazil; MZUSP, Sao Paulo (References in Wood & Bright c1992: 1080)

Diagnosis: The Nunberg female paratype has a detached and damaged head, without antennae, which made placement of this species difficult. It appears to be allied to *suturalis* Eggers, but may not be closely related. It is distinguished from *suturalis* by the smaller size; and by the absence of a pair of large conspicuous spongy areas on the female frons. I have used the Nunberg paratype to fix the identity of this species, although it is a territological composite, because the male holotype lacks the diagnostic characters needed to fix the identity.

Female: Length 1.8 mm, 2.7 times as long as wide; color dark reddish brown, pronotum not as dark (Female head detached from Nunberg paratype and glued beside specimen, dorsal area of frons detached from lower area and immersed in glue beside lower areas). Frons rather strongly concave eye to eye from epistoma to vertex; upper area smooth, shining, impunctate on median third, with many very small punctures on lateral thirds; lower third forming a large crescent-shaped spongy area from mesal margin of eyes to epistoma, upper margin of spongy area procurved and somewhat parallel to lower margin; a modest number of rather long setae on upper area, upper margin of concave area with row of long setae except narrowly divided at median line; upper margin

of concave area apparently abrupt, but not carinate; antennae lost. Pronotum 1.1 times as long as wide; sides on basal half feebly arcuate and subparallel, broadly rounded in front; anterior margin broadly rounded and armed by a row of 10 weak serrations; summit indefinite, anterior to middle of pronotum length; anterior slope gradual, asperities larger near anterior margin, decreasing in size and becoming transverse rugae at summit; posterior areas strongly reticulate, punctures mostly minute, slightly larger near base of pronotum. (**Notice:** The detached head and pronotum represent a slightly larger species; the meso- and metathoracic segments and abdomen belong to another slightly smaller species quite unrelated to the head and prothorax. Elytra narrower than prothorax [an impossible natural union]. The posterior areas were taken from other specimens not like the Nunberg paratype). Elytra 1.4 times as long as wide; disc occupying basal 70 percent of elytra length; disc smooth, shining, punctures very small, shallow, moderately numerous, confused, several impressed lines present. Declivity very steep, broadly convex; striae 1 and 2 with small punctures in rows; sutural interstriae moderately elevated, crest subcostate, shining, no punctures or granules, about as high as wide; 2 shallowly impressed, smooth, shining, impunctate; 3 weakly elevated, not as high as 1, crest rounded, with a sparse row of minute granules, ventrolateral crest not elevated or costate. Vestiture restricted to declivity, consisting of sparse setae on odd-numbered interstriae.

Distribution: Brazil: Ilheus, Bahia (male holotype, female allotype, 1 female paratype); Nova Vicosa, Bahia, Brazil, 5-XI-1997, ethanol trap in *Eucalyptus grandis* stand, C.A.H. Flechtmann (No. AR 15), (same locality) ESALQ-84, ethanol trap in *Eucalyptus* stand; Arazruz, Espirito Santo, 22-V-1995, No. 6785.

Notes: Following fruitless four-year attempts to obtain a loan of the male holotype of *Corthylus theobromae*, the female allotype and 1 female paratype were obtained (IZW, Warsaw). However, this allotype was found to be a territological composite of 2 unrelated species. The male is the name bearer for this species. The allotype head and prothorax, though different, cannot be named because territological composite specimens are excluded from Zoological Nomenclature.

Corthylus costulatus Wood, n. sp.

Corthylus costulatus Wood: Holotype ♀; Telemaco Borba forest, Parana, Brazil; MZUSP, Sao Paulo, designated below

Diagnosis: Distinguished from *theobromae* Nunberg by the slightly longer size; by the distinctly higher costa on declivital interstriae 1, but with lower lateral area (interstriae 3); and by the very different female frons, as indicated below.

Male: Similar to female except frons moderately convex, reticulate, with small, rather sparse punctures, without spongy areas, glabrous except for epistomal brush; anterior margin of pronotum armed by 4 serrations.

Female: Length 2.0–2.1 mm, 2.8 times as long as wide; color almost black. Frons deeply concave eye to eye from epistoma to vertex, median half smooth, shining, glabrous; lateral areas from upper level of eye to vertex with rather abundant, fine, long, hairlike setae, then continuing down mesad from spongy area half distance to epistoma; a large, yellowish spongy area extending from upper level of eye almost to median line on epistoma, a small, glabrous, shining callus at epistomal margin; antennal club 1.3 times as long as wide, moderately asymmetrical, sutures 1 and 2 weakly impressed, with little or no septum, cirrus very slender, its tip attaining apex of club. Pronotum 1.16 times as long as wide; sides almost straight and parallel on slightly more than basal half, rather broadly rounded in front; anterior margin armed by 8 weak serrations; summit at middle of pronotum length; anterior slope moderately steep, asperities rather coarse, close, confused; posterior areas rugose-reticulate, with many minute, transverse rugae from summit to basal margin; sparse setae on anterior and lateral margins. Elytra 1.6 times as long as wide, 1.48 times as long as pronotum; disc occupying 66 percent of elytra length; disc smooth, brightly shining, with several weakly impressed irregular lines; striae not impressed, punctures very small and confused on basal third, becoming obsolete on posterior area and in striae rows. Declivity very steep, broadly convex, smooth, shining; striae 1 and 2 indicated by rows of very small punctures, 3 less definite; sutural interstriae strongly elevated on upper three-fourths of declivity length, highest on lower third, crest subacute and with a row of about six subtuberculate punctures on summit; 3 feebly elevated, much lower than 1 and bearing three or four minute tubercles; lateral areas with a few confused punctures and two or three tubercles; ventrolateral area with no indication of a costa. Vestiture mostly confined to declivity, on interstriae 1 and 3 to 9, consisting of fine rather long, hairlike setae.

Distribution: Brazil (Parana).

Type material: The female holotype (8-VIII-2001), male allotype (8-XI-2002), and 2 female paratypes (20-IX-2002, 8-XI-2002) were taken at Telemaco Borba, Parana, Brazil, in the Klabin Papel e Cellulose forest, in an ethanol intercept trap in a *Pinus taeda* stand, C.A.H. Flechtmann. The holotype, allotype, and 1 paratype are in the Museo de Zoologia, Universidad de Sao Paulo, Sao Paulo.

Corthylus pusillus Eggers

Corthylus pusillus Eggers, 1943:380. Holotype ♂; Cochabamba, Bolivia; USNM, Washington

Diagnosis: Distinguished from *oculatus* Wood by the larger size; by the mostly smooth, shining elytral disc, with punctures of moderate size, numerous on basal third; declivity with punctures on striae 1 and 2 and tubercles on interstriae 3 obsolete.

Male: Length 1.75 mm, 2.3 times as long as wide; dark reddish brown. Frons of type visible only on lower

third, apparently convex, smooth, shining, punctures very small, obscure; almost glabrous, sparse, short setae on epistoma; antennal club with suture 1 almost straight, obscurely septate, suture 2 apparently impressed, not septate. Pronotum 0.95 times as long as wide; sides moderately arcuate and subparallel on basal half, rather narrowly rounded in front; anterior margin armed by a median pair of rather large slender serrations; summit at middle of pronotum length; asperities on anterior slope rather coarse, close, confused; posterior areas strongly reticulate, punctures very small, moderately close; one or two rows of low, transverse rugae on median area anterior to basal margin; vestiture of short, sparse, hair-like setae over most areas except summit. Elytra 1.2 times as long as wide, 1.0 times as long as pronotum; disc occupying 68 percent of elytra length; disc mostly smooth, shining, some reticulation near suture, punctures of moderate size and depth on basal third, not attaining declivity on posterior half, interstriae 3 with row of minute punctures extending to near base of declivity. Declivity rather broadly convex, steep; entire surface reticulate; moderately elevated, acutely costate; interstriae 2 shallowly impressed; striae 1 and 2 and tubercles on interstriae 3 obsolete.

Distribution: Bolivia: Cochabamba.

Notes: The above treatment was based on the holotype.

Corthylus discoideus Blandford

Corthylus discoideus Blandford, 1904:262. Holotype ♂; Venezuela; BMNH, London (References in Wood & Bright c1992:1073)

Diagnosis: Distinguished from *coffae* Wood by the slightly larger size; by the more broadly, more deeply concave female frons, reticulation restricted to lower half; punctures on elytral disc slightly larger, deeper; crest on declivital interstriae 1 more narrowly rounded.

Male: Similar to female except frons convex, lower third of area below upper level of eyes moderately, transversely impressed, surface reticulate, punctures small distinct; antennal club smaller, suture 1 straight, more distinct; serrations on anterior margin of pronotum distinctly larger; tubercles on declivital interstriae 3 distinctly larger.

Female: Length 1.8–1.9 mm, 2.4 times as long as wide; color reddish brown, anterior slope of pronotum and elytral declivity darker. Frons moderately concave eye to eye from epistoma to vertex, lower half of concave area strongly reticulate, upper half mostly smooth, small punctures mostly obscure, glabrous except for epistomal margin; antennal club 1.2 times as long as wide, moderately large, slightly inflated, suture 1 very obscurely present, 2 entirely obsolete, face with abundant rather short hair; a small cirrus present. Pronotum 0.86 times as long as wide; sides on basal half weakly arcuate, subparallel, anterior margin rather narrowly rounded, a distinct lateral constriction on anterior third; anterior margin with 8 weak serrations; summit at middle of pronotum length;

asperities large, close, confused; sparse setae on lateral margins. Elytra 1.3 times as long as wide, 1.4 times as long as pronotum; disc occupying 72 percent of elytra length; disc smooth, shining, a few weakly impressed irregular lines, punctures on basal two-thirds mostly confused, in rows on striae 1 and 2 on and near declivity. Declivity steep, strongly convex; interstriae 2 feebly impressed on basal half, sutural interstriae narrowly carinate from base to near apex, distinctly wider than high; lateral crests on interstriae 3 broadly rounded, summit with a sparse row of small punctures, one or two of these punctures sometimes with a minute tubercle.

Distribution: Colombia (Antioquia) to Venezuela (Merida).

Colombia: Piedras Blancas 10 km E Medellin, Antioquia, 15-VII-1970, 2500 m, No. 669, Rubiaceae, SLW.

Venezuela: La Carbonera Experimental Forest 50 km NW Merida, Merida, 14-XI-1969, No. 135, 28-IV-1970, 2500 m, No. 453, liana, SLW.

Notes: The above treatment was based on the male holotype and on 10 other specimens from Venezuela and on 3 from Colombia.

Corthylus coffae Wood, n. sp.

Corthylus coffae Wood: Holotype ♀; Los Totumos, Caicedonia, Valle del Cauca, Colombia; USNM, Washington, designated below

Diagnosis: Distinguished from *discoideus* Blandford by the slightly smaller size; by the more narrowly, less strongly concave female frons, the reticulation on more than the lower half; by the slightly smaller, less deeply impressed elytral punctures; and by the carina on declivital interstriae 1 being higher and more acutely elevated.

Male: Similar to female except frons convex, reticulate, punctured; antennal club smaller, suture 1 straight, weakly septate, 2 partly indicated by a weak groove; serrations on anterior margin of pronotum larger; minute tubercles on declivital interstriae 3 slightly larger.

Female: Length 1.6–1.7 mm, about 1.3 times as long as wide (elytra spread); color very dark reddish brown. Frons moderately concave eye to eye from epistoma to vertex, surface reticulate from epistoma to upper level of eyes, mostly smooth, shining above, punctures very small, not close, very sparse setae on upper two-thirds; mesal margin of eye weakly, acutely elevated; antennal club large, broadly obovate, unmarked by sutures except 1 very obscure. Pronotum 1.0 times as long as wide; sides feebly arcuate on basal half, broadly rounded in front; anterior margin armed by 10–12 low serrations; summit at middle of pronotum length; anterior slope rather steep, asperities rather large, close, confused; posterior areas weakly reticulate, punctures very small, not close. Elytra about 1.4 times as long as wide (elytra spread on type series), 1.5 times as long as pronotum; disc occupying 67 percent of elytra length; disc smooth, shining, punctures very small, mostly confused, striae 1 and 3 near declivity mostly in rows. Declivity steep, convex,

interstriae 2 very narrow, shallowly impressed on upper half; striae 1 to 3 with small punctures in rows, sutural interstriae narrowly, acutely costate from base to apex and as high as wide, interstriae 3 broadly rounded, as high as 1 and armed on upper half by four minute tubercles.

Distribution: Colombia (Valle del Cauca).

Type material: The female holotype, male allotype, and 3 paratypes were taken at Los Totumos, Caicedonia, Valle del Cauca, Colombia, 25-V-1959, rama de café, J. Jimenez. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Corthylus equihuai Wood, n. sp.

Corthylus equihuai Wood: Holotype ♀; Apulco (entre Zacapoaxtla y Cuetzalan), Puebla, Mexico; USNM, Washington, designated below

Diagnosis: Distinguished from *discoideus* Blandford by the larger size; by the more broadly, more deeply concave female frons, the more abrupt upper margin attaining the vertex, the punctures on the concave area much larger.

Male: Similar to female except frons convex, reticulate, punctures sparse and smaller; antennal club smaller, almost symmetrical; anterior margin of pronotum armed by 8 rather coarse serrations.

Female: Length 2.2–2.5 mm, 2.6 times as long as wide; color dark reddish brown. Frons broadly, rather strongly concave from epistoma to vertex, upper margin abrupt; concave area smooth, shining, punctures moderately coarse, close, spaced by one or two diameters of a puncture, setae sparse short; antennal club large asymmetrical, 1.3 times as long as wide, suture 1 aseptate, represented by a groove, 2 obsolete, a small cirrus present. Pronotum 0.94 times as long as wide; sides weakly arcuate and subparallel on more than basal half, rather narrowly rounded in front; anterior margin armed by 8 low, weak serrations; summit at middle of pronotum length; anterior slope steep, asperities coarse, close, confused; posterior areas weakly reticulate, punctures very small, distinct, not close; sparse setae on anterior and lateral margins. Elytra 1.7 times as long as wide, 1.7 times as long as pronotum; disc occupying basal 72 percent of elytra length; disc smooth, shining, with many irregular lines, punctures rather small, confused on basal half of disc, in obscure striae rows near declivity. Declivity steep, strongly convex; interstriae 1 rather strongly elevated, almost costate, almost as high as wide, its crest with sparse minute punctures; striae 1 to 3 in semidefinite rows, punctures distinctly impressed; interstriae 1 obscurely impressed, with many micropunctures, 3 feebly elevated, with several micropunctures and about six small punctures, most of these with their anterior margin feebly granulate. Sparse moderately long setae on odd-numbered interstriae on declivity.

Distribution: Mexico (Puebla).

Type material: The female holotype and male allotype were taken at Apulco (entre Zacapoaxtla y Cuetzalan),

Puebla, Mexico, 4-V-1981, 1400 m, s-218, A.T. Atkinson y A. Equihua. The holotype and allotype are in the U.S. National Museum, Washington.

Corthylus suturalis Eggers

Corthylus suturalis Eggers, 1931:41. Lectotype ♂; Espirito Santo, [Espirito Santo], Brazil; USNM, Washington, designated by Anderson & Anderson 1971:33 (References in Wood & Bright c1992: 1080)

Corthylus obliquus Schedl, 1976:79. Holotype ♀; Repressa Rio Grande, Guanabara, Brazil; NHMW, Wien (References in Wood & Bright c1992:1076). *New synonymy*

Diagnosis: Distinguished from *equihuai* Wood by the much longer cirrus on the female antennal club; by the more irregular surface of the concave area on the female frons, with the punctures slightly larger and much more closely spaced; and by the slightly larger punctures on the male frons.

Male: Similar to female except frons rather strongly convex, minutely reticulate (punctures slightly larger and deeper than male of *equihuai*); antennal club without a cirrus; anterior margin of pronotum much more coarsely serrate.

Female: Length 2.4–2.6 mm, 2.5 times as long as wide; color almost black. Frons strongly concave eye to eye from epistoma to vertex, upper margin subacutely carinate, carina continuous with carina extending dorsad from mesal margin of eye; surface of concave area slightly irregular, shining, punctures slightly larger than in *equihuai*, spaced by less than diameter of a puncture; a shining, acute median carina on lower fifth as in *equihuai*; vestiture of short, rather abundant hair uniformly distributed; antennal club 1.3 times as long as wide, large, asymmetrical, suture 1 not grooved, finely septate on lateral third, 2 not indicated, cirrus on posterior apical margin long, exceeding apex by about half length of club. Pronotum 1.0 times as long as wide; sides on basal half almost straight and parallel, rather narrowly rounded in front; anterior margin almost costate, with about fourteen basally connected low serrations; summit at middle of pronotum length; anterior slope moderately steep, asperities coarse, close, confused; posterior areas reticulate, sparse punctures minute to obsolete; sparse short setae on and near anterior margin. Elytra 1.3 times as long as wide, 1.3 times as long as pronotum; disc occupying basal 72 percent of elytra length; disc smooth, brightly shining, punctures very small, shallow, confused, much smaller to almost obsolete near declivity. Declivity steep, basically convex; punctures of striae 1 and 2 small, shallow, mostly in rows; sutural interstriae subacutely, narrowly elevated, almost as high as wide, crest with about five minute punctures, 2 feebly sulcate, as wide as 1, 3 with two or three minute tubercles on crest; striae 3 and lateral areas with punctures confused; entire declivity with many impressed points; ventrolateral crest slightly more strongly elevated than in allied species. Sparse, moderately long setae confined to declivity, mostly on odd-numbered interstriae.

Distribution: Bolivia to Brazil.

Bolivia: Cochabamba (cotype of *suturalis*).

Brazil: Repressa Rio Grande, Guanabara, 1-IX-1969 (paratype of *obliquus*), III-1972 (allotype, 1 paratype of *obliquus*), V-1972 (holotype of *obliquus*); Espirito Santo in Espirito Santo (allotype of *suturalis*); Nova Teutonia, Santa Catarina, III-1941, VIII-1944, VI-1966, F. Plau-mann.

Notes: The above treatment was based on the female holotype, male allotype and 2 female paratypes of *obliquus*; and on 2 cotypes and 4 non-types of *suturalis*. All of these specimens were compared to one another by me, and they clearly represent the same species.

Corthylus pseudovillus Wood, n. sp.

Corthylus pseudovillus Wood: Holotype ♀; San Jose, San Jose, Costa Rica; USNM, Washington, designated below

Diagnosis: Distinguished from *villus* Bright by the smaller size; by the smaller punctures on the elytral disc; by the small callus on the epistomal margin of the female frons, this callus flat and reticulate above; and by other characters cited below.

Male: Similar to female except frons strongly convex, without a callus on the margin of the epistoma; antennal club smaller, more nearly symmetrical; anterior margin of pronotum armed by 6 larger serrations.

Female: Length 1.6–1.9 mm, 2.3 times as long as wide; color dark reddish brown. Frons strongly concave eye to eye from epistoma to vertex; lower half of concave area strongly reticulate, rather coarsely, closely punctured on upper two-thirds, punctures small to obsolete on lower third, concave area glabrous; epistomal margin with a distinct, shining callus on median half, area above callus almost flat and entirely reticulate; antennal club asymmetrically oval, without sutures (feeble groove at position of suture 1 in some specimens). Pronotum 0.90 times as long as wide; sides on basal half weakly arcuate, rather narrowly rounded in front; anterior margin armed by about 6 weak serrations; summit at middle of pronotum length; anterior slope steep, asperities rather coarse, close, confused; posterior areas reticulate, punctures very small, shallow, not close; sparse setae on anterior and lateral margins. Elytra 1.4 times as long as wide; 1.5 times as long as pronotum; disc occupying 73 percent of elytra length; disc smooth, shining, punctures small to very small, those on posterior half mostly in striae rows. Declivity steep, essentially convex; punctures on striae 1 to 3 rather small, in definite rows; sutural interstriae narrowly carinate on central two-thirds, about as high as wide, crest unmarked by punctures, 2 without punctures, very narrow, weakly impressed on upper half, 3 very weakly elevated, about three times as wide as 2, its crest armed by about six minute tubercles. Sparse setae restricted to declivity on odd-numbered interstriae.

Distribution: Costa Rica.

Type material: The female holotype, male allotype, and 12 paratypes were taken at San Jose, San Jose, Costa

Rica, 12-IX-1963, 4000 ft., No. 164, *Spondias purpurea*, S.L. Wood; 6 paratypes are from the same locality and host, 22-X-1963, S.L. Wood; 2 paratypes bear the same data except No. 166; and 1 paratype each from the following localities in Costa Rica: Santa Ana, San Jose, 17-VIII-1963, No. 96, Legumonosae tree, SLW; Rio Damitas, San Jose, 18-II-1964, in flight, SLW; Tapanti, Cartago, 17-VIII-1963, No. 107, liana, SLW; Volcan Poas, Heredia, 19-XI-1963, No. 262, broken tree branch, SLW. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Corthylus pilifer Wood, n. sp.

Corthylus pilifer Wood: Holotype ♀; Pindamonhangaba, Sao Paulo, Brazil; NHMW, Wien, designated below

Diagnosis: Closely allied to *comosus* Wood, distinguished by the lower frons being minutely rugose, punctures mostly not as clearly defined, setae on upper three-fourths of concave area much more numerous and much longer (peripheral fringe on upper margin concealed by pronotum on type); elytral declivity not as steep, more narrowly convex, punctures on declivity less clearly defined, less numerous.

Female: Length 2.6 mm, 2.5 times as long as wide; color reddish brown, bases of elytra somewhat yellowish brown. Frons similar to *comosus*, except setae on upper half of concave area with setae much more abundant and conspicuously longer than on *comosus* (dorsal fringe possibly shorter, concealed on type by pronotum); both antennae missing on type. Pronotum as on *comosus*. Elytral disc with several more impressed lines than on *comosus*. Declivity not as steep, more narrowly convex, more uniformly arched to apex (steeper and less strongly arched on lower half of *comosus*); punctures confused, smaller, less clearly defined, not as close, surface between punctures obscurely subreticulate to minutely etched, not smooth and shining as in *comosus*; vestiture confined to declivity, less numerous and shorter than on *comosus*.

Distribution: Brazil (Sao Paulo).

Type material: The female holotype was taken at Pindamonhangaba, Sao Paulo, Brazil, 21-II-1963, Exp. Dep. Zool., Eutenio Lefevre. The holotype is in the NHMW, Wien.

Corthylus villosus Eggers

Plate CCXXX

Corthylus villosus Eggers, 1943:381. Holotype ♂; Cochabamba, Bolivia; Eggers Collection, in NHMW, Wien (References in Wood & Bright c1992:1081)

Diagnosis: Distinguished from *comosus* Wood by the slightly smaller size; by the presence of a yellow, dull, reticulate spongy area on the lower fifth of the concave area on the female frons, with the peripheral row of setae above the eyes larger and longer; and by other characters given in the above key.

Male: Similar to female except frons convex, reticulate, punctures small, abundant; antennal club much smaller and much less asymmetrical; anterior margin of pronotum with two or more coarse serrations.

Female: Length 2.0–2.5 mm, 2.4 times as long as wide; color dark reddish brown. Frons strongly concave eye to eye from epistoma to vertex, upper margin abruptly rounded; lower fourth yellowish, spongy, upper area dark brown, reticulate, with many small obscure punctures uniformly distributed, short, fine setae rather abundant, peripheral margin above eyes with a row of longer hair; longest setae capable of extending one-fourth distance toward epistoma; antennal club very large, very strongly asymmetrical, conspicuously wider than long, suture 1 sinuate, septate near both margins. Pronotum 0.94 times as long as wide; sides on basal two-thirds weakly arcuate, broadly rounded in front; anterior margin armed by 8 weak serrations; summit indefinite, anterior to middle of pronotum length; anterior slope gradual, restricted to anterior fourth on median half, asperities coarse, close, confused; posterior areas with subasperate rugae continuing to middle of pronotum length, reticulate on basal half, punctures minute, shallow; many setae on anterior and lateral margins. Elytra 1.4 times as long as wide, 1.5 times as long as pronotum; disc occupying basal 70 percent of elytra length; disc smooth, shining, punctures numerous, strongly confused, small on basal half, becoming minute toward base of declivity. Declivity strongly convex, steep; striae not evident, punctures replaced by numerous confused punctures. Vestiture mostly confined to declivity, consisting of rather abundant moderately long hair.

Distribution: Venezuela (Merida) to Bolivia.

Bolivia: Cochabamba.

Colombia: 24 km E Barbosa, Antioquia, 18-VII-1970, No. 700, *Piper*, SLW.

Venezuela: El Laurel Experimental Farm 12 km SW Caracas, 1-V-1970, 1200 m, No. 473, *Piper*, SLW; Merida, Merida, 11-IX-1969, 1300, No. 2, *Piper*, SLW.

Notes: The above treatment was based on the male holotype and on 11 other specimens from Colombia and 52 from Venezuela.

Corthylus alienus Schedl

Corthylus alienus Schedl, 1966:119. Holotype ♀; Tucuman, Argentina; NHMW, Wien (References in Wood & Bright c1992:1070)

Diagnosis: Distinguished from *villosus* Eggers by the larger size; by the much shorter declivital setae; and by the larger punctures and shorter peripheral setae on the female frons.

Female: Length 2.8 mm, 2.3 times as long as wide; color medium brown. Frons strongly concave eye to eye from epistoma to vertex; lower half of area below upper level of eyes yellowish and spongy, without setae; upper areas reticulate, punctures very small (about twice as large as in *villosus*), rather dense, setae rather abundant, short below, longer toward upper margin; peripheral

setae above moderately long, shorter and less numerous than in *villosus*; both antennal clubs missing from holotype. Pronotum 0.90 times as long as wide; sides on basal half weakly arcuate, rather broadly rounded in front; anterior margin feebly serrate, about 8 weak serrations; summit indefinite, at middle of pronotum length; anterior slope moderately steep, asperities rather coarse, close, confused; posterior areas finely rugose-reticulate, punctures minute; sparse, short setae on anterior and lateral margins. Elytra 1.4 times as long as wide, 1.5 times as long as pronotum; disc occupying 68 percent of elytra length; disc smooth, shining, punctures very small, mostly confused. Declivity very steep, broadly convex, reticulate; punctures of striae origin small, shallow, many confused minute granules at base of setae. Vestiture of fine, confused setae, those on basal half of declivity short, about one-fourth as long as in *villosus*, those on apical third and lateral areas longer, up to half as long as in *villosus*; setae less numerous than in *villosus*.

Distribution: Argentina to Peru.

Argentina: Tucuman, 1949, M.J. Viana.

Peru: Yanachaga Chemillen N.P., Iрана Refugio, El Cedro 10°32.717'S, 75°21.482'W, 30-I-2003, 2460 m, A. Kun & B. Benedick.

Notes: The above treatment was based on the female holotype.

Corthylus simplicis Wood, n. sp.

Corthylus simplicis Wood: Holotype ♀; Estacion Biologica La Selva, Heredia, Costa Rica; USNM, Washington, designated below

Diagnosis: Distinguished from *ustus* (Schedl) by the more broadly convex declivity with the sulcus more deeply impressed, the suture margin weakly elevated; female frons shallowly concave, moderately pubescent.

Female: Length 1.6 mm, 3.0 times as long as wide; color dark reddish brown. Frons shallowly concave on median three-fourths; impressed area closely, finely punctured and with rather abundant, fine, moderately long hair; uniformly distributed; antennal club 1.1 times as long as wide, asymmetrically oval, sutures 1 and 2 indicated by straight grooves, 1 feebly septate, a small cirrus at apex. Pronotum 1.04 times as long as wide; sides weakly arcuate on basal half, rather narrowly rounded in front, anterior margin armed by 10 weak serrations; summit at middle of pronotum length, asperities on anterior slope coarse, close, confused; posterior areas reticulate, punctures sparse, minute to obsolete; sparse setae on lateral margins. Elytra 1.3 times as long as wide, 1.23 times as long as pronotum; disc occupying 64 percent of elytra length; disc smooth, shining, punctures small, confused. Declivity steep, rather strongly sulcate on median 40 percent; suture weakly, uniformly elevated; lateral convexities much higher than suture, broadly rounded; punctures on striae 1 and 2 mostly in rows; lateral crests not armed by tubercles. Very sparse setae on interstriae 1, 3, and 9.

Distribution: Costa Rica (Heredia).

Type material: The female holotype was taken at Estacion Biologico La Selva, 50–150 m, 10°26'N, 84°1'W, Heredia Province, Costa Rica, XII-1992, Malaise trap, P. Hanson. The holotype is in the U.S. National Museum, Washington.

Corthylus montanus Wood, n. sp.

Corthylus montanus Wood: Holotype ♂; Cerro de la Muerte 16 km S Empalme, San Jose, Costa Rica; USNM, Washington, designated below

Diagnosis: Distinguished from *simplicis* Wood by the larger size; by the declivital sulcus being as wide as interstriae 2; by the lateral crest on declivital interstriae 3 being as high as the suture; and by other characters indicated in the above key.

Male: Length 2.4–2.6 mm, 2.5 times as long as wide; color very dark reddish brown, almost black. Frons broadly, rather weakly convex, a shallow, transverse impression on lower third; surface rather weakly reticulate on lower half, mostly smooth and shining above, punctures rather small, deep, not close; antennal club 1.15 times as long as wide, broadly oval, sutures 1 and 2 almost straight and indicated by grooves, 1 also finely septate. Pronotum 1.0 times as long as wide; sides on basal two-thirds weakly arcuate, rather narrowly rounded in front; anterior margin armed by 6 coarse serrations, median pair larger; summit at middle of pronotum length, asperities coarse, close, confused; posterior areas reticulate, punctures minute to obsolete; sparse setae on anterior and lateral margins. Elytra 1.5 times as long as wide, 1.5 times as long as pronotum; disc occupying basal 66 percent of elytra length; disc summit smooth, shining, punctures very small, confused except in striae rows on and near declivity. Declivity convex, with sutural interstriae narrowly costate on basal two-thirds, about 5 punctures on crest; interstriae 2 shallowly sulcate on upper two-thirds, with many impressed points (punctures on striae 2 obscure to obsolete); 3 as high as 1, broadly rounded, crest with about 4 minute granules. Sparse setae confined to declivity on odd-numbered interstriae.

Distribution: Costa Rica.

Type material: The male holotype and 1 male paratype were taken at Cerro de la Muerte 16 km S Empalme, San Jose, Costa Rica, III-IV-1989, 2600 m, Malaise trap, P. Hanson. One male paratype bears similar data, taken 20 km S Empalme, 2800 m, Malaise trap. The holotype and paratypes are in the U.S. National Museum, Washington. All 3 specimens have a few moth scales clinging to them, suggesting that they were taken at light.

Corthylus confusus Wood, n. sp.

Corthylus confusus Wood: Holotype ♀; Zurqui de Moravia, San Jose, Costa Rica; USNM, Washington, designated below

Diagnosis: Distinguished from *collaris* Blandford by the wider declivital sulcus, with punctures conspicuously larger and mostly confused; by the less broadly

impressed concave area on the female frons, with a pair of calluses on the lateral thirds slightly below the middle of the concave area; and by the shining elytral disc with the punctures confused.

Male: Similar to female except frons rather strongly convex, lower third with a shallow transverse impression, surface reticulate, with small deep, sparse punctures; epistomal margin with a moderate callus on median half; antennal club smaller, less asymmetrical; anterior margin of pronotum armed by a subserrate costa.

Female: Length 2.3–2.9 mm, 2.4 times as long as wide; color very dark reddish brown. Frons moderately concave on median three-fourths from epistoma almost to vertex, a conspicuous pair of calluses on lateral thirds near middle of length of concave area; surface smooth, shining, small punctures moderately close, setae short, sparse, fine; antennal club 2.13 times as long as wide, moderately asymmetrical, sutures 1 and 2 almost straight, indicated by narrow grooves, 1 also septate. Pronotum 1.0 times as long as wide; sides on basal half straight, parallel, rather narrowly rounded in front; anterior margin armed by a subserrate costa; summit at middle of pronotum length; anterior slope steep, asperities coarse, close, confused; posterior areas reticulate, punctures very small; sparse short setae on anterior and lateral margins. Elytra 1.5 times as long as wide, 1.5 times as long as pronotum; disc occupying 72 percent of elytra length; disc smooth, shining, punctures small, numerous, confused from base to base of declivity. Declivity basically convex, narrowly, shallowly sulcate on interstriae 2; interstriae 1 rather weakly costate, crest wider than high and with several minute punctures; sulcus shallow, smooth, shining, moderately large punctures mostly confused, lateral crests as high as suture, punctures confused, without tubercles or granules. Sparse, short setae confined to declivity, apparently on odd-numbered interstriae.

Distribution: Costa Rica.

Type material: The female holotype, male allotype, and 3 paratypes were taken at Zurqui de Moravia, San Jose, Costa Rica on various dates in Malaise traps, 1600 m, P. Hanson. The holotype was taken on X-1993, the allotype II-1994, the paratypes III and IV in 1994. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Corthylus electinus Wood, n. sp.

Corthylus electinus Wood: Holotype ♂; Tapanti, Cartago, Costa Rica; USNM, Washington, designated below

Diagnosis: Distinguished from *crassus* Wood by the slightly smaller size; by the lateral convexities on the declivity being as high as the suture and unarmed by tubercles; and by the minute punctures on the elytral declivity.

Male: Length 3.0 mm, 2.4 times as long as wide; color dark reddish brown. Frons broadly convex, reticulate, with rather small, sparse punctures; epistomal margin

forming a smooth, shining, slightly elevated callus, this callus extending dorsad at median line almost half distance toward upper level of eyes; antennal club 1.15 times as long as wide, moderately asymmetrical, sutures 1 and 2 weakly procurved and marked by definite grooves, both with a partial septum on median third, 1 also with a partial septum on lateral sixth. Pronotum 1.07 times as long as wide; sides distinctly arcuate on more than basal half, narrowly rounded in front; anterior margin armed by 8 serrations, median pair much larger; summit at middle of pronotum length; anterior slope steep, asperities rather coarse, close, confused; posterior areas reticulate, punctures minute to obsolete; sparse, short setae on asperate area. Elytra 1.5 times as long as wide; disc occupying 70 percent of elytra length; disc smooth, shining, punctures very small, confused, many almost obsolete. Declivity steep, essentially convex, with interstriae 2 shallowly sulcate on upper two-thirds, striae 1 and 2 marked by small punctures in rows, 3 not evident, interstriae 2 smooth, shining and with about 0 to 5 punctures on lower half; lateral crests slightly higher than suture, broadly rounded, with several minute, confused punctures (no granules). Glabrous.

Distribution: Costa Rica (Cartago).

Type material: The male holotype was taken at Tapanti, Cartago, Costa Rica, 24-X-1963, liana, S.L. Wood. The holotype is in the U.S. National Museum, Washington.

Corthylus crassus Wood, n. sp.

Corthylus crassus Wood: Holotype ♀; Petit-Saut, French Guyane, 20; USNM, Washington, designated below

Diagnosis: Distinguished from *electinus* Wood by the smaller size; by the presence of small tubercles on declivital interstriae 3; by the larger, deeper punctures on the elytral disc; and by the distinctly convex profile of the elytral suture.

Female: Length 2.3 mm, 2.18 times as long as wide; color black. Frons shallowly concave eye to eye from epistoma to well above upper level of eyes; surface smooth, shining, punctures rather coarse, deep, spaced by about diameter of a puncture; setae on concave area fine, rather abundant, long; vertex reticulate; antennal club as wide as long, moderately asymmetrical, sutures 1 and 2 weakly procurved, 1 finely septate and grooved, 2 aseptate and gooved, a small cirrus present. Pronotum 0.90 times as long as wide; sides distinctly arcuate on less than basal half, anterior margin narrowly rounded, finely costate, no serrations; summit indefinite, at middle of pronotum length; anterior slope steep, asperities very broad, less numerous, close, confused; posterior areas reticulate, sparse punctures minute, mostly obsolete. Elytra 1.2 times as long as wide, 1.3 times as long as pronotum; disc occupying 70 percent of elytra length; profile of suture on disc distinctly convex; disc smooth, shining, a few impressed lines, punctures rather small, those on basal half confused, mostly in strial rows on and near declivity. Declivity essentially narrowly convex, a feeble

sulcus on upper half of interstriae 2; punctures on striae 1 and 2 rather small, in rows; sutural interstriae narrowly convex, almost subcarinate on lower half, wider than high, about six small punctures on crest; 2 flat, almost as wide as 1, several micropunctures on basal half, no punctures, 3 broadly rounded, its crest as high as suture and armed by about four small tubercles. Sparse long setae confined to declivity on odd-numbered interstriae.

Distribution: French Guyane.

Type material: The female holotype was taken at Petit-Saut, French Guyane, 20-X-1989, piege a vin en sous bois (foret primaire), H.P. Aberlenc. The holotype is in the U.S. National Museum, Washington.

Corthylus redtenbacheri Ferrari

Corthylus redtenbacheri Ferrari, 1867:55, 60, 70. Syntypes ♂; Venezuela [probably Colonia Tovar]; NHMW, Wien (References in Wood & Bright c1992:1078)

Diagnosis: Distinguished from *simplex* Wood by the medium brown body color; by the more strongly concave female frons, with the surface sparsely punctured, and almost glabrous; by the declivital interstriae 1 being without tubercles, 3 as high as 1 and with minute tubercles.

Male: Similar to female except frons moderately convex, a weak, transverse impression on lower third, surface reticulate and mostly glabrous; antennal club smaller, less strongly asymmetrical, cirrus absent.

Female: Length 2.7–2.8 mm, 2.5 times as long as wide; color medium reddish brown. Frons shallowly concave eye to eye from epistoma to slightly above upper level of eyes; surface of concave area smooth, shining, punctures small, sparse, with many micropunctures, almost glabrous; antennal club 1.4 times as long as wide, rather strongly asymmetrical, sutures 1 and 2 grooved, weakly procurved, 1 finely septate, 2 aseptate, cirrus absent. Pronotum 0.94 times as long as wide; sides weakly arcuate and subparallel on basal half, rather narrowly rounded in front; anterior margin armed by about 8 serrations, median four larger; summit at middle of pronotum length; anterior slope steep, asperities rather broad, close, confused; posterior areas reticulate, punctures very small, not close; sparse setae on anterior and lateral margins. Elytra 1.5 times as long as wide, 1.6 times as long as pronotum; disc occupying basal 80 percent of elytra length; disc smooth, shining, punctures small, confused to near declivity. Declivity steep, broadly convex; striae 1 and 2 with small punctures in rows, confused on lateral areas; interstriae 1 weakly elevated, its crest rounded and with about six punctures, much wider than high, 2 feebly impressed, as wide as 1, impunctate except about one or two punctures on lower fourth, 3 as high as suture, crest broadly rounded and armed by three to five minute granules. Sparse moderately long setae confined to declivity on odd-numbered interstriae and about one or two near apex of interstriae 2.

Distribution: Colombia to Venezuela.

Colombia: Piedras Blancas 10 km E Medellin, Antioquia, 15-VII-1970, 2500 m, No. 675, unidentified log, SLW (male), same except No. 683, *Clusia*, SLW.

Venezuela: Presumably Colonia Tovar, Aragua, near the Moritz home.

Corthylus annexus Wood, n. sp.

Corthylus annexus Wood: Holotype ♀; La Selva Biological Station, 3 km S Puerto Viejo, Heredia, Costa Rica; USNM, Washington, designated below

Diagnosis: A primitive *Corthylus* distinguished from other members of the genus by the almost symmetrical female antennal club; by the narrowly, moderately emarginate apex of the elytral suture; by the feebly elevated posterolateral margin of the elytral declivity; and by the absence of punctures on the elytral disc and declivity.

Male: Similar to female except frons convex, a weak, transverse impression on lower half; antennal club as in female.

Female: Length 1.8 mm (males 1.8 mm), 2.5 times as long as wide; color black, part or all of pronotum very dark brown. Frons broadly, rather strongly concave from epistoma to vertex; epistoma slightly elevated, smooth, shining at margin on more than median half; surface shining, punctures minute and rather dense on central half, much larger and not as close at margin on upper half; vestiture of abundant, fine, long hair; scape rather slender, club-shaped, club almost symmetrical, 1.3 times as long as scape, 1.3 times as long as wide, suture 1 straight, feebly septate, 2 not present (one antenna missing from type, other detached antenna fell from type during description, almost exactly as on male. Pronotum 1.1 times as long as wide; moderately declivous and rather coarsely asperate on anterior third, anterior margin armed by 8–10 moderately coarse serrations; posterior areas minutely reticulate, punctures evident, minute, obscure, not close; glabrous. Elytra 1.3 times as long as pronotum; surface smooth, shining, punctures very minute, moderately abundant, confused. Declivity confined to posterior third, convex, steep; suture narrowly, rather shallowly emarginate at apex; sutural interstriae weakly elevated, apical margin near suture distinctly elevated, a very feebly elevated crest from interstriae 9 joining apical margin. Vestiture confined to declivity, consisting of sparse, erect, interstitial hair, 1 to 4 setae in each row.

Distribution: Costa Rica (Heredia).

Type material: The female holotype, male allotype, and 2 male paratypes were taken at La Selva Biological Station, 3 km S Puerto Viejo, Heredia, Costa Rica, 9-V-1990, H.A. Hespeneide, palm leaf base (frond pinnately divided). The holotype and allotype are in the U.S. National Museum, Washington; the paratypes are in the INBIO Collection at Santo Domingo, Heredia, Costa Rica.

Corthylus venustus (Schedl)

Corthylus venustus (Schedl), 1951:127 (*Thylurcos*). Holotype ♂; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:1081)

Diagnosis: Distinguished by the weak, ventrolateral crest of the declivity in combination with the strongly convex, reticulate elytral declivity and the small size.

Male: Length 1.7 mm, 2.6 times as long as wide; color almost black. Frons strongly convex, a moderate, transverse impression on lower third; surface strongly reticulate, punctures rather sparse, minute; sparse, long setae on epistomal margin; antennal club 1.15 times as long as wide, suture 1 straight, septate, 2 obscurely indicated by an aseptate groove. Pronotum 1.0 times as long as wide; sides weakly arcuate on basal two-thirds, narrowly rounded in front; anterior margin with about 6 weak serrations, median pair much larger; summit at middle of pronotum length; anterior slope rather steep, asperities rather small, close, confused; posterior areas rugose-reticulate, punctures minute, obscure; short setae on asperate area. Elytra 1.5 times as long as wide, 1.3 times as long as pronotum; disc occupying 70 percent of elytra length; disc mostly smooth, shining, rugose-reticulate near suture, punctures very small, several impressed lines present. Declivity very steep, strongly convex, strongly reticulate; sutural interstriae distinctly, rather weakly elevated, half as high as wide, higher than 3; small punctures on striae 1 and 2 mostly in rows on more than upper half, confused on lateral areas; interstriae 2 as wide as 1, obscure punctures near base and on lower fourth; no tubercles; ventrolateral costa low, obtuse, rather short. Glabrous.

Distribution: Brazil: Nova Teutonia, Santa Catarina, III-1941, F. Plaumann (holotype).

Notes: The above treatment was based on the male holotype of *Thylurcos venustus* Schedl. It clearly belongs to the genus *Corthylus*.

Corthylus chiriquensis Wood, n. sp.

Corthylus chiriquensis Wood: Holotype ♀; Guadeloupe Arriba, Chiriqui, Panama; USNM, Washington, designated below

Distinguished from *fuscus* Blandford by the absence of a small callus on the lateral margin of the concave area on the female frons between the antennal insertion and the lower mesal margin of the eye; and by the presence of a cirrus on the apical margin of the posterior face of the female antennal club. There is a small subcarinate ventrolateral elevation branching from the costal margin near the base of the declivity.

Female: Length 3.3–3.5 mm, 2.6 times as long as wide; color medium reddish brown. Frons rather strongly concave eye to eye from epistoma to vertex; surface of concave area smooth, shining, with dense very small punctures, vestiture of abundant, fine, moderately long hair uniformly distributed; antennal club 0.90 times as long as wide, sutures 1 and 2 marked by moderately procurved

grooves and by a partial (suture 2) or a complete septum (suture 1), outline strongly asymmetrical, a small cirrus on posterior margin at apex. Pronotum 0.92 times as long as wide; sides on basal half feebly arcuate and subparallel, rather narrowly rounded in front; anterior margin armed by a subserrate continuous costa; summit at middle of pronotum length; anterior slope steep, asperities rather coarse, close, confused; posterior areas minutely subreticulate, punctures not evident; sparse, short setae on anterior and lateral margins. Elytra 1.6 times as long as wide, 1.7 times as long as pronotum; disc occupying basal 72 percent of elytra length; disc smooth, shining, punctures rather small, abundant, confused, several weakly impressed lines present. Declivity steep, broadly convex; striae 1 and 2 with very small punctures mostly in rows, distinctly impressed; interstriae 1 weakly, distinctly elevated, about twice as wide as high, its crest with a row of 10–15 minute punctures, 2 feebly sulcate, impunctate except near base and near apex, many minute micropunctures present, 3 with about five punctures on crest, anterior margin of each with a feeble granule, punctures confused laterad from crest; ventrolateral margin with a weak subcarinate crest branching dorsad from costal margin near base of declivity. Sparse, rather short setae confined to declivity on odd-numbered interstriae.

Distribution: Panama (Chiriqui).

Type material: The female holotype and female paratype were taken at Guadeloupe Arriba, Chiriqui, Panama, I-VIII-4-IX-1984, t. luz, H. Wolda. The holotype and paratype are in the U.S. National Museum, Washington.

Corthylus nigrescens Wood, n. sp.

Corthylus nigrescens Wood: Holotype ♀; Monte Alegre, Parana, Brazil; USNM, Washington, designated below

Diagnosis: Distinguished from *chiriquensis* Wood by the smaller body length; by the female antennal cirrus not attaining club apex; and by the female frons with a conspicuous, glabrous callus on median third of upper half.

Male: Similar to female except frons convex, weakly reticulate, and with rather small, moderately close punctures, vestiture very sparse on lower third, a shallow, transverse impression on lower third above epistoma, sparse setae above epistoma.

Female: Length 2.6–3.0 mm, 2.2 times as long as wide; color black. Frons moderately concave eye to eye from epistoma to vertex, upper margin rather narrowly rounded above eyes; glabrous and impunctate on median one-eighth below and expanding to three-eighths at upper margin, lateral areas with small dense punctures to near lateral margins; median crest of glabrous area weakly elevated on lower fourth; vestiture on punctured area uniformly short except distinctly longer near epistoma; antennal club slightly wider than long, strongly asymmetrical, suture 1 straight, grooved, and septate, 2 weakly arcuate, aseptate; cirrus slender, not attaining apex of

club. Pronotum 0.90 times as long as wide; sides on basal half feebly arcuate, rather narrowly rounded in front; anterior margin armed by a weakly serrate costa; summit at middle of pronotum length; anterior slope rather steep; asperities rather broad, low, close, confused; a few weak, transverse rugae at summit; disc minutely reticulate (visible at 80X), punctures very minute, sparse rather short, hairlike setae on anterior and lateral areas. Elytra 1.3 times as long as wide, 1.3 times as long as pronotum; disc occupying basal 60 percent of elytra length; disc smooth, brightly shining; striae not impressed, small punctures on 1 and 2 in recognizable rows on posterior half of disc, punctures confused on other areas. Declivity very steep, broadly convex; striae 1 and 2 with small punctures in rows on basal half, confused elsewhere; surface smooth, shining; sutural interstriae weakly, narrowly elevated on less than middle half of declivity length, crest with about 4 small punctures, 2 about half as wide as 1, very feebly impressed, impunctate on basal half, punctures confused below; 3 feebly convex, not as high as 1, crest with about two minute granules near middle of declivity length. Vestiture confined to declivity and sides near declivity, consisting of sparse rows of fine, moderately long hairlike setae on odd-numbered interstriae.

Distribution: Brazil (Parana, Rio Grande do Sul, Santa Catarina).

Type material: The female holotype, male allotype, and 1 female paratype (both antennae missing) were taken at Monte Alegre, Parana, Brazil, 28-VI-1996, ethanol trap, KL-021, C.A.H. Flechtmann, 15 paratypes bear the same data as the holotype, except they were taken on various dates from 6-X-1995-8-IX-1996, all by C.A.H. Flechtmann; 1 paratype is labeled Dom Fliciano, Rio Grande do Sul, 18-VIII-1992, ethanol trap, A. Dwulatka; 1 paratype is from Gravatei, Rio Grande do Sul, 1-VIII-1991, ethanol trap, A. Dwulatka; 1 paratype is from Porto Uniao, Santa Catarina, Brazil, 5-I-1999, Swedish Match, intercept trap, C.A.H. Flechtmann. The holotype, allotype, and 15 paratypes are in the Museum de Zoologia, Universidade de Sao Paulo, Sao Paulo; 3 paratypes are in the U.S. National Museum, Washington.

Brazil (non-type); Aracruz, Espirito Santo, No. XV, 11-XII-1991, No. 3575.

Corthylus convexicauda Eggers

Corthylus convexicauda Eggers, 1931:40. Sao Paulo, Brazil; 2 syntypes, ♂ ♀, Prague Museum; 2 syntypes NHMW, Wien (Synonymy and references in Wood & Bright c1992:1072)

Corthylus bituberculatus Nunberg, 1962:229. Holotype ♂; Barra do Tapirape, Estado de Mato Grosso, Brazil; MZUSP, Sao Paulo

Diagnosis: Distinguished from *noguerai* Wood, of Mexico, by the very narrow, median, glabrous area above the female frons being flat, not elevated; by the less strongly impressed declivital interstriae 2; and by the absence of tubercles on the crest of the sutural interstriae on the declivity.

Male: Similar to female except frons convex, smooth, shining, punctures rather small, glabrous, with sparse setae on epistoma; antennal club smaller, narrower, without a cirrus; serrations on anterior margin of pronotum larger.

Female: Length 2.3–2.6 mm, 2.3 times as long as wide; color very dark reddish brown, almost black on some areas. Frons rather strongly concave eye to eye from epistoma to vertex, setae rather abundant, moderately long, a very narrow, flat, median glabrous area above epistoma; antennal club 1.6 times as long as side, apex of cirrus exceeding apex of club by half length of club. Pronotum 1.0 times as long as wide; widest on basal half almost straight and parallel, weakly constricted on anterior half, narrowly rounded in front; anterior margin armed by 6 weak serrations; summit obscure, at middle of pronotum length; anterior slope steep, asperities coarse, close, confused; posterior areas reticulate, punctures sparse, minute, confused; sparse short setae on anterior margin. Elytra 1.3 times as long as wide, 1.3 times as long as pronotum; disc occupying 75 percent of elytra length; disc smooth, shining, a few impressed lines on basal third, punctures small, distinct, confused. Declivity very steep, convex, with a very weak sulcus on median half; punctures rather small, confused, numerous, strongly impressed from striae 1 to lateral margin; sutural interstriae moderately, uniformly carinate on basal half, wider than high, crest with a few minute punctures, no tubercles; position of interstriae 2 shallowly impressed, 3 broadly rounded, about as high as 1 and armed above middle by about three very small tubercles; ventrolateral crest subacute, extending almost to lateral margin. Almost glabrous, a few short setae on declivity on or near costal margin.

Distribution: Brazil: "Jundia" (?), Sao Paulo, XI-1972, E. Beiti; Sao Paulo, MRaz (♂ ♀ cotypes); Faz. Pau d'Alho Itu, Sao Paulo, XII-1972, U. Martins.

Notes: The above treatment was based on 1 male cotype and 1 female cotype, at NHMW, Wien, that bear data identical to the Prague specimens, and on 1 other male and 1 female from Sao Paulo.

Corthylus noguerai Wood, n. sp.

Corthylus noguerai Wood: Holotype ♀; Tlalnehuayaca, Veracruz, Mexico; USNM, Washington, designated below

Diagnosis: Distinguished from *concaucus* Bright by the smaller size; by the sinuate apical margin of the female antennal club; and by the presence of a cirrus on the female antennal club.

Male: Similar to female except frons convex, coarsely punctured, lower third with a shallow transverse impression; antennal club much smaller, longer than wide, less strongly asymmetrical, without an apical cirrus; anterior margin of pronotum more coarsely serrate.

Female: Length 2.5–2.7 mm, 2.3 times as long as wide; color very dark reddish brown. Frons strongly concave eye to eye from epistoma to vertex, surface of concave

area smooth, shining, with numerous, uniformly distributed punctures and abundant, fine hair, most of lower fifth of concave area reticulate, with median line smooth, shining and slightly elevated, epistomal margin with a conspicuous median tubercle; antennal club 0.72 times as long as wide, apical margin sinuate, length of segment 3 at mesal margin three or more times greater than lateral length of this segment. Pronotum 1.0 times as long as wide; sides straight and parallel on basal half of pronotum length, rather broadly rounded in front; anterior margin armed by 8 low serrations; summit at middle of pronotum length; anterior slope steep, asperities coarse, close, confused; posterior areas reticulate, punctures minute to obsolete; sparse setae on anterior and lateral margins. Elytra 1.3 times as long as wide, 1.3 times as long as pronotum; disc occupying basal 70 percent of elytra length; disc smooth, shining, punctures rather small, numerous, confused. Declivity steep, shallowly sulcate on upper half; striae 1 and 2 obscurely distinguishable, punctures rather small, partly confused with those of interstriae 2; sutural interstriae weakly elevated on basal two-thirds, half as wide as high, its crest armed by about six small tubercles, 2 shallowly impressed on upper two-thirds, with many micropunctures, 3 slightly higher than 1, crest broadly rounded and armed by about six small tubercles; lateral areas with sparse confused punctures. Sparse setae confined to declivity on odd-numbered interstriae, two setae at apex of interstriae 2.

Distribution: Mexico (Veracruz).

Type material: The female holotype, male allotype, and 4 paratypes were taken at Tlalnehuayacan, Veracruz, Mexico, 5-XI-1983, *Cnidocolus* (Euphorbiaceae), F.A. Noguera. Two paratypes are from Jalapa, Veracruz, 8-IX-1983, host family #52, F.A. Noguera. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Corthylus bolivianus Eggers

Corthylus bolivianus Eggers, 1943:379. Holotype ♀; Cochabamba, Bolivia; USNM, Washington (References in Wood & Bright c1992: 1070)

Diagnosis: Allied to *strigilis* Wood, distinguished by the narrower, more acutely rounded sutural interstriae on the declivity; by the weaker female impression above the epistoma; and by the larger, shining punctate area on the upper frons.

Female: Length 3.0 mm, 2.5 times as long as wide; color very dark reddish brown. Frons more broadly, more strongly impressed than in *strigilis*, moderately concave eye to eye from epistoma to vertex, median fourth smooth, shining, impunctate (a weak, median callus on upper half), lateral areas and epistomal area finely, rather densely punctured, setae fine, shorter, moderately numerous; antennal club large, about as long as wide, sutures 1 and 2 clearly marked by grooves, cirrus short, not attaining apex. Pronotum 0.94 times as long as wide; widest on basal third, rather broadly rounded in front;

anterior margin armed by about 8–10 low serrations; summit indefinite, on middle third of pronotum length; anterior slope steep, asperities large, close, confused on about anterior third, continued on middle third as weak, transverse rugae, basal third minutely reticulate or etched, punctures sparse, minute; sparse setae on asperate area. Elytra 1.5 times as long as wide, 1.5 times as long as pronotum; disc occupying basal 68 percent of elytra length; disc smooth, brightly shining, stria punctures small, 1 and 3 mostly in rows, 2 mostly confused. Declivity steep, broadly convex; vertentrolateral crest short, weakly elevated; striae 1 and 2 with moderately large punctures in rows; sutural interstriae narrow, lateral crest on middle third of declivity length, about as high as wide, crest narrowly subacute, 2 distinctly impressed, wider than 1, 3 slightly higher on upper half than 1, crest with a few punctures, one minute tubercle on lower third. Glabrous except for sparse setae on interstriae 5, 7, and 9 at sides of declivity.

Distribution: Bolivia to Colombia.

Bolivia: Cochabamba (holotype).

Colombia: Bella Vista, Loma Grande, Rosas, Valle del Cauca, 24-IV-1959, arbol cafe, J.L. Arboleda.

Notes: The above treatment was based on the female holotype and on two specimens from Colombia.

Corthylus sanguineus Schedl

Plate CCXXIX

Corthylus sanguineus Schedl, 1935:346. Holotype ♀; Costa Rica [San Isidro de] Coronado; NHMW, Wien (References in Wood & Bright c1992:1079)

Diagnosis: Distinguished from *castaneus* Ferrari by the smaller size; by the reddish brown prothorax and black elytra; and by the less strongly impressed declivital interstriae 2.

Male: Similar to female except frons convex, vestiture sparse; antennal club smaller, less strongly asymmetrical, cirrus absent; anterior margin of pronotum with median pair of serrations larger.

Female: Length 2.6–3.1 mm, 2.4 times as long as wide; bicolored, pronotum bright reddish brown, elytra very dark reddish brown to black. Frons rather strongly concave eye to eye from epistoma to vertex, upper margin rounded; concave area smooth, shining, very finely, densely punctured, vestiture of fine, dense, moderately long hair; antennal club 0.90 times as long as wide, very large, strongly asymmetrical, sutures 1 and 2 marked by weakly procurved grooves, 1 and lateral third of 2 finely septate, a cirrus present. Pronotum 0.98 times as long as wide; sides on basal half feebly arcuate, rather narrowly rounded in front; anterior margin armed by about 6 low serrations; summit indefinite, at middle of pronotum length; anterior slope steep, asperities coarse, close, confused; posterior areas reticulate, punctures very small, not close; sparse setae on and near anterior and lateral margins. Elytra 1.3 times as long as wide, 1.3 times as long as pronotum; disc occupying basal 74 per-

cent of elytra length; disc smooth, shining, punctures small, deep, strongly confused. Declivity very steep, shallowly sulcate on upper two-thirds; striae 1 and 2 with small punctures mostly in definite rows, 3 not identifiable; sutural interstriae rather weakly elevated, wider than high, almost carinate on left elytron, 2 moderately impressed on upper two-thirds, wider than 1, mostly impunctate on basal half, a few impressed points present, 3 slightly higher than 1, crest rather broadly rounded, crest with punctures (some with a feeble granule on their anterior margin). Sparse, short setae confined to declivity, apparently on odd-numbered interstriae.

Distribution: Costa Rica (San Jose) to Colombia.

Colombia: Anolaima, Caecedonia, Chrimoyo, 1895 m; Punto Tojada, Valle de Cauca, 22-VIII-1955, *Theobroma cacao*, 6881, M. Benavides.

Notes: The above treatment was based on 2 specimens from Costa Rica and on 6 from Colombia. Two of these females were compared by me directly to the holotype.

Corthylus castaneus Ferrari

Plate CCXXII

Corthylus castaneus Ferrari, 1867:55, 59, Holotype ♂; Venezuela [probably Colonia Tovar near the Moritz home]; NHMW, Wien (References in Wood & Bright 1992:1074, not a synonym of *letzneri* Ferrari 1867:55, 59)

Diagnosis: Distinguished from *sanguineus* Schedl by the larger size; by the dark reddish brown color; and by the more deeply impressed declivital interstriae 2, with 3 having a row of small tubercles.

Male: Similar to female except frons convex, reticulate, with sparse, short setae; antennal club much smaller, longer than wide, without a cirrus.

Female: Length 3.4–3.8 mm, 2.5 times as long as wide; color dark reddish brown. Frons moderately concave eye to eye from epistoma to vertex, upper margin rather narrowly rounded; concave area smooth, shining, punctures very small, dense, vestiture dense, rather short in central area, about twice as long on peripheral row; antennal club large, strongly asymmetrical, distinctly wider than long, a cirrus present. Pronotum 1.04 times as long as wide; sides on basal half subparallel and weakly arcuate, rather narrowly rounded in front; anterior margin with a feebly serrate costa; summit at middle of pronotum length; anterior slope steep, asperities rather small, close, confused; posterior areas reticulate, punctures minute to obsolete; sparse setae on anterior and lateral margins. Elytra 1.6 times as long as wide, 1.6 times as long as pronotum; disc occupying basal 0.90 percent of elytra length; disc smooth, shining, punctures very small, strongly confused. Declivity very steep, shallowly sulcate on upper two-thirds; small punctures in definite rows on striae 1 and 2; sutural interstriae rather weakly elevated, twice as wide as high, crest with a row of about five punctures, their anterior margin forming a weak granule, 2 mostly flat, as wide as 1, with one or

two punctures on lower fourth, 3 very slightly higher than 1, broadly rounded, armed by about five small tubercles; striae 3 obscurely indicated by a row of punctures, punctures confused on lateral areas. Sparse setae confined to declivity, mostly on odd-numbered interstriae.

Distribution: Venezuela: Venezuela 1858, Moritz (holotype), probably taken at Colonia Tovar, Aragua, near the Moritz home; La Mucuy 20 km W Merida, 12-20-22-X-1969, Nos. 73, 132, 207, tree seedlings and branches, SLW; La Carbonera Experimental Forest 50 km NW Merida, Merida, 14-X-9-XII-1969, 23-IV-1970, Nos. 50-A, 174, 453, *Clusia*, *Croton*, *Nectandra*, and a liana, SLW.

Notes: The above treatment was based on the male holotype, on 1 male homotype, and 23 other specimens, all from Venezuela.

Corthylus tulcanus Hagedorn

Corthylus tulcanus Hagedorn, 1910:6. Holotype ♂; Tulcan, Ecuador; MNHN, Paris (References in Wood & Bright c1992:1080)

Diagnosis: Distinguished from *calamicolens* Wood by the more uniformly reddish brown color; by the considerably larger elytral punctures on both disc and declivity; by the deeper declivital sulcus with two or three minute tubercles, and by the larger tubercles on the crests of interstriae 1 and 3, with 1 and 3 more distinctly elevated.

Female: Length 4.0–4.1 mm, 2.5 times as long as wide; color reddish brown. Frons covered by pronotum in both females at hand, setae apparently shorter and less numerous than in *calamicolens*; antennal club somewhat similar to *calamicolens*, except apical angle more abrupt and subacute, cirrus attaining apex of club. Pronotum 1.0 times as long as wide; sides on basal half weakly arcuate, rather narrowly rounded in front; anterior margin armed by about 8 low serrations; summit at middle of pronotum length; anterior slope steep, asperities coarse, close, confused; many setae on asperate area and on anterior and lateral margins. Elytra 1.6 times as long as wide, 1.5 times as long as pronotum; disc occupying basal 80 percent of elytra length; disc smooth, shining, punctures rather small, mostly confused on basal half, some rows apparent near declivity. Declivity steep, broadly convex, sulcus shallow; punctures on striae 1 and 2 small, mostly in rows, most punctures on interstriae 2 and 3 small, confused; sutural interstriae rather weakly elevated, almost subcarinate, 1 and 3 armed by rather coarse tubercles, 2 with two or three weak tubercles, 1 and 3 of about equal height. Vestiture rather long and conspicuous, in rows on interstriae 1 to 9, and on sides to base.

Distribution: Colombia to Ecuador.

Colombia: "Colombie" 1918, F. Apollinaire-Marie (2 female Schedl homotypes).

Ecuador: Tulcan, 1902, G. Rivet (male holotype, plus male det. Schedl).

Notes: The above treatment was based on 2 female homotypes from Colombia in the NHMW, Wien, and on the male holotype.

Corthylus nigricans Wood, n. sp.

Corthylus nigricans Wood: Holotype ♀; Telemaco Borba forest, Parana, Brazil; MZUSP, Sao Paulo, designated below

Diagnosis: Distinguished from *subsulcatus* Schedl by having about half of the concave area on the female frons above the upper level of the eyes, glabrous area on frons occupying one-third width of frons at vertex, gradually tapering to one-eighth width of frons near epistoma; by the slightly stouter body proportions; by having the striae rows on the posterior half of the disc in recognizable rows; crest of declivital interstriae armed by at least 2 small tubercles, and several minute punctures.

Male: Similar to female except frons strongly convex above upper level of eyes, surface minutely reticulate to epistoma; punctures small, rather widely spaced; area below upper level of eyes moderately, transversely impressed above shining epistomal margin; vestiture very sparse, fine, and long on impressed area, epistomal brush very sparse; declivital interstriae 3 armed by about 5 small tubercles.

Female: Length 2.3–2.6 mm, 2.1 times as long as wide; color black. Frons rather strongly concave eye to eye from epistoma to vertex, punctures very small, dense, uniformly distributed except impunctate and glabrous on median fourth at vertex, tapering to median one-eighth near epistoma; setae mostly short below upper level of eyes to moderately long above eyes; antennal club strongly asymmetrical, large, slightly wider than long, suture 1 straight, finely septate, 2 aseptate, weakly procurved, cirrus short, attaining half distance toward club apex. Pronotum 1.1 times as long as wide; widest at base, sides almost straight and parallel on basal half, rather narrowly rounded in front; a costa arming median half of anterior margin; indefinite summit at middle of pronotum length; anterior slope moderately steep, asperities very broad; asperities large, close, confused; posterior areas dull, minutely reticulate, impunctate; glabrous except sparse setae on anterior margin. Elytra 1.3 times as long as wide, 1.4 times as long as pronotum; disc occupying 65 percent of elytra length; disc smooth, shining; striae not impressed, punctures minute, in rows on posterior half, mostly confused on anterior half; interstriae about six times as wide as striae, punctures only at or near base of declivity. Declivity steep, strongly convex; striae 1 to 3 with punctures in definite rows; interstriae 2 as wide as striae, impunctate, sutural interstriae slightly wider than 2 and rather weakly elevated, weakly costate, about as high as wide, crest with about five minute granules; 3 almost as high as 1, almost twice as wide as 2, its crest armed by about five minute granules. Vestiture of very sparse, fine, rather short, hairlike setae, confined to odd-numbered declivital interstriae.

Distribution: Brazil (Parana).

Type material: The female holotype (19-XI-2001), male allotype (7-XI-2003), and 9 paratypes (28-VII-1992-31-X-2003) are from Telemaco Borba, Parana, Brazil, Klabin Papel e Cellulose forest, baited traps, C.A.H. Flechtmann.

The holotype, allotype, and 7 paratypes are in the Museum de Zoologia, Universidade de Sao Paulo, Sao Paulo; 2 paratypes are in the U.S. National Museum, Washington.

Corthylus subsulcatus Schedl

Corthylus subsulcatus Schedl, 1961:230. Holotype ♀; Cochabamba, Prov. Chapara, km 150, Jungas del Palmar, Bolivar; NHMW, Wien (References in Wood & Bright c1992:1080)

Diagnosis: Distinguished from *coronatus* Eggers by the stouter body form; by the median third of the female concave area on the frons being glabrous, the lateral areas sparsely pubescent with short setae; and by the deeper declivital sulcus, with punctures on striae 1 and 2 larger.

Female: Length 2.8 mm, 2.3 times as long as wide; color dark reddish brown. Frons moderately concave eye to eye from epistoma to above upper level of eyes (about one-third of concave area above upper level of eyes), upper crest broadly rounded; lateral thirds of concave area sparsely, shallowly punctured, setae fine, sparse, short; antennal club large, moderately asymmetrical, distinctly longer than wide, cirrus small, with few setae, extending half distance to apical margin. Pronotum 0.90 times as long as wide; sides on basal half moderately arcuate, rather narrowly rounded in front; anterior margin armed by about 8 low serrations; summit at middle of pronotum length; anterior slope rather steep, asperities coarse, close, confused; posterior areas minutely, obscurely reticulate, punctures sparse, very minute; sparse setae on and near anterior and lateral margins. Elytra 1.4 times as long as wide, 1.5 times as long as pronotum; disc occupying 70 percent of elytra length; disc smooth, shining, punctures very small, confused. Declivity very steep, shallowly sulcate on median half; striae 1 and 2 with small punctures in definite rows distinctly impressed; sutural interstriae rather weakly elevated, about half as high as wide, crest narrowly subcarinate, 2 as wide as 1, shallowly impressed, impunctate except for two or three punctures at extreme base and near apex, 3 higher than 1, its crest rounded and with about five small punctures; ventrolateral crest very low, obtuse, short. Vestiture sparse, restricted to declivity on odd-numbered interstriae.

Distribution: Bolivia: Dep. Cochabamba, Prov. Chapara, km 150, Jungas del Palmar, III-1953, Martinez.

Notes: The above treatment was based on the female holotype.

Corthylus coronatus Eggers

Corthylus coronatus Eggers, 1933:21. Holotype ♀; Venezuela (Colonia Tovar); MNHN, Paris (References in Wood & Bright c1992:1072)

Diagnosis: Distinguished from *similimus* Schedl by the stouter body form; by the less strongly impressed declivital interstriae 2, with interstriae 1 as high as 3; by the female frons being more narrowly impressed to the upper level of the eyes; and by the less densely punctured concave area of the female frons.

Male: Similar to female except frons convex, reticulate, sparsely, finely, irregularly punctured, almost glabrous; antennal club much smaller, longer than wide, without a cirrus; anterior margin of pronotum mostly costate, a pair of coarse serrations on median area.

Female: Length 2.7–2.8 mm, 2.4 times as long as wide; color dark reddish brown. Frons more narrowly, strongly concave eye to eye from epistoma to slightly above upper level of eyes, median third on lower half smooth, shining, impunctate, lateral and dorsal areas finely, densely punctured, with short, abundant, fine setae of about equal length; antennal club slightly wider than long, sutures 1 and 2 grooved, partly (2 specimens) or entirely (1 specimen) septate, cirrus not attaining apex of club. Pronotum 1.0 times as long as wide; sides feebly arcuate on basal half, subparallel, rather narrowly rounded in front; anterior margin armed by about 8 low serrations; summit at middle of pronotum length; anterior slope steep, asperities coarse, close, confused; posterior areas reticulate, sparse punctures minute to obsolete; sparse, short setae on or near anterior and lateral margins. Elytra (spread on type) about 1.4 times as long as wide, 1.4 times as long as pronotum; disc occupying 70 percent of elytra length; disc smooth, shining, moderately small, confused. Declivity steep, weakly sulcate; striae 1 and 2 with small punctures mostly in definite rows; sutural interstriae rather weakly elevated, wider than high, its crest with a row of about eight punctures; interstriae 2 slightly narrower than 1, almost flat, 3 as high as 1, its crest broadly rounded and with a row of about six punctures (one puncture with a feeble granule on a female at hand). Very sparse, short setae confined to odd-numbered interstriae on declivity.

Distribution: Venezuela: Colonia Tovar, Aragua, 9-IV-1970, 1100 m, No. 413, tree branch, No. 439, tree seedling, SLW.

Notes: The above treatment was based on the female holotype of *coronatus* Eggers and on 2 males and 1 female taken by me at the type locality.

Corthylus similimus Schedl

Corthylus similimus Schedl, 1966:118. Holotype ♂; Venezuela; NHMW, Wien (References in Wood & Bright c1992:1079)

Diagnosis: Distinguished from *diligens* Wood by the larger size; by having declivital interstriae 3 only slightly higher than 1; and by the female frons having a large impunctate area on the median third, the setae less numerous, the female antennal cirrus exceeding the apex.

Male: Similar to female except frons convex, transversely impressed above epistoma, punctures sparse, almost glabrous; antennal club smaller, without a cirrus; anterior margin of pronotum more nearly costate except on median area.

Female: Length 2.8–3.5 mm, 2.6 times as long as wide; color dark reddish brown. Frons rather strongly concave eye to eye from epistoma to vertex, upper margin

narrowly rounded; surface smooth, shining, median third above upper level of eyes formed into a low callus, lower area rather finely, closely punctured with area above eyes in concave areas densely, minutely punctured; vestiture of fine, short hair of about equal length; epistoma with median two-thirds forming a smooth, impunctate callus; antennal club 1.12 times as long as wide, strongly asymmetrical, sutures 1 and 2 grooved and septate, cirrus length exceeding apex of club. Pronotum 1.0 times as long as wide; sides feebly arcuate and subparallel on basal half, rather narrowly rounded in front; anterior margin armed by about 10 low serrations; summit at middle of pronotum length; anterior slope steep, asperities coarse, close, confused; posterior areas reticulate, punctures sparse, minute; sparse, short setae on anterior and lateral margins. Elytra 1.5 times as long as wide, 1.5 times as long as pronotum; disc occupying basal 70 percent of elytra length; disc smooth, shining, with several impressed lines, punctures small to very small, confused. Declivity very steep, shallowly sulcate on upper half; punctures confused above and below, in rows on middle half on striae 1 and 2, sutural interstriae rather weakly elevated, crest rounded, with a row of punctures, 2 shallowly impressed, impunctate on middle half, 3 very slightly higher than 1, crest rounded and with a few punctures and a row of about three minute tubercles. Short, sparse setae confined to declivity on odd-numbered interstriae.

Distribution: Venezuela: "Venezuela" (holotype); Colonia Tovar, Aragua, 4-V-1970, 1700 m, No. 489, tree seedling, SLW; Merida, Merida, 1300 m, 11-IX-1969, No. 3, *Croton*, X-1969, No. 49, *Vismia*, 29-XII-1969, *Ficus*, all by SLW; El Laurel Experimental Farm 12 km SW Caracas, 1-V-1970, 1300 m, No. 473, *Piper*; SLW.

Notes: The above treatment was based on the male holotype, 3 male homotypes, and on 39 other specimens, all from Venezuela.

Corthylus confertus Wood, n. sp.

Corthylus confertus Wood: Holotype ♀; Campamento Rio Grande 30 km E Palmar, Bolivar, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *strigilis* Wood by the slightly smaller size and stouter body form; and by the female frons, which has dense pubescence that is moderately long on the central area and is longer on the peripheral fringe.

Male: Similar to female except frons convex, with sparse, minute punctures, almost glabrous; antennal club smaller, less strongly asymmetrical, without a cirrus; anterior margin of pronotum more coarsely serrate.

Female: Length 2.7–2.8 mm, 2.2 times as long as wide; color dark reddish brown. Frons rather strongly concave eye to eye from epistoma to vertex, upper margin abruptly rounded; central area with rather abundant short setae, dense and about two times (below) to three (vertex) times longer; antennal club very large, strongly

asymmetrical, much wider than long, sutures 1 and 2 weakly procurved, grooved and at least partly septate, apical margin weakly serrate, cirrus attaining apex of club. Pronotum 0.93 times as long as wide; sides on basal half weakly arcuate, subparallel, rather broadly rounded in front; anterior margin armed by a low costa bearing 6 serrations, median pair larger; summit at middle of pronotum length; anterior slope steep, asperities coarse, close, confused; posterior areas reticulate, punctures sparse, minute to obsolete; sparse short setae on anterior and lateral margins. Elytra (spread on type) 1.2 times as long as wide, 1.3 times as long as pronotum; disc occupying 60 percent of elytra length; disc smooth, shining, punctures small, confused. Declivity very steep, shallowly sulcate on upper two-thirds, striae 1 and 2 with small punctures in rows on upper three-fourths of declivity length, confused on lateral areas; sutural interstriae abruptly, weakly elevated, wider than high, crest with about five small punctures, 2 shallowly impressed and impunctate on upper two-thirds, an occasional puncture near apex, middle third of length of 3 slightly higher than suture and armed by about three small tubercles on middle half. Sparse, short setae confined to declivity on odd-numbered interstriae, one seta near apex of 2.

Distribution: Venezuela (Bolivar).

Type material: The female holotype, male allotype, and 1 male paratype were taken at Campamento Rio Grande 30 km E Palmar, Bolivar, Venezuela, 12-VI-1970, 200 m, *Alexa imperatrix*, S.L. Wood. The holotype, allotype, and paratype are in the U.S. National Museum, Washington.

Corthylus ater Schedl, n. status

Corthylus ater Schedl, 1952:347. Holotype ♀; Comatan, Colombia; NHMW, Wien, not a synonym of *letzneri* Ferrari (References in Wood & Bright c1992:1074)

Corthylus columbianus Schedl, 1950:158. Holotype ♀; Comatan, Colombia; NHMW, Wien, preoccupied by Hopkins 1895:104 (References in Wood & Bright c1992:1074). *New synonymy*

Diagnosis: Distinguished from *comatus* Blandford by the stouter body form; by the dense, much longer peripheral setae on the female frons; by the smaller, less deep punctures on the elytral disc; and by the wider, more broadly rounded crest on the sutural interstriae of the declivity.

Female: Length 2.7 mm, 2.3 times as long as wide; color reddish brown. Frons rather strongly concave eye to eye from epistoma to vertex; surface rather finely, closely punctured, setae on concave area abundant, moderately long, peripheral setae from emargination of eye dorsad dense, very long, longest setae capable of attaining two-thirds distance toward epistomal margin, epistomal margin with a median callus; antennal club conspicuously wider than long, apex acute, cirrus with many setae, very slightly exceeding apex of club. Pronotum 1.0 times as long as wide; sides on basal half weakly arcuate, subparallel, rather broadly rounded in front; anterior margin armed by about 10 very low

serrations; summit anterior to middle of pronotum length; anterior slope steep, asperities coarse, close, confused; posterior areas reticulate, punctures minute to obsolete; sparse setae on and near anterior margin. Elytra 1.3 times as long as wide, 1.3 times as long as pronotum; disc occupying basal 75 percent of elytra length; disc smooth, shining, punctures small, very shallow, confused, with many impressed, irregular lines. Declivity very steep, broadly convex, shallowly sulcate on less than median half of upper half; striae 1 and 2 with small impressed punctures in definite rows from base to near apex; sutural interstriae rather weakly elevated, crest rather broadly rounded and with sparse, small punctures, about a third as high as wide, 2 as wide as 1, shallowly sulcate on upper two-thirds, smooth, shining, impunctate on upper three-fourths, 3 slightly higher than 1, crest armed by about five small tubercles (distinctly larger than in *comatus*). Very sparse setae confined to declivity on odd-numbered interstriae.

Distribution: Colombia: "Comatan" (holotype of *ater*).

Notes: The above treatment was based on the female holotypes of *columbianus* and *ater*. When the syntypes and holotypes of *letzneri* Ferrari, *castaneus* Ferrari, and *strigilatus* Eggers were compared to one another and to the holotypes of *columbianus* Schedl and *ater* Schedl and to other specimens at hand, it was found that 3 species existed within this list of names. The name *castaneus* is treated above as a separate species; *letzneri* and *strigilatus* form a second species, treated below; and *columbianus* and *ater* form a third species. Because *columbianus* Schedl, the senior name proposed for this species, is a junior homonym, the junior name *ater* Schedl must be used, as indicated above. The locality "Comatan" in Colombia could not be found in the maps and gazetteers at hand.

Corthylus zulmae Wood, n. sp.

Corthylus zulmae Wood: Holotype ♀; Manizales, Caldas, Colombia; USNM, Washington, designated below

Diagnosis: Distinguished from *letzneri* Ferrari by the more slender body form; by the bicolored color pattern; by the much smaller punctures on the elytral disc; by the shorter, less abundant setae on the female frons; and by other characters described below.

Male: Similar to female except frons convex, almost glabrous; antennal club smaller, more nearly symmetrical, without a cirrus.

Female: Length 2.7–3.0 mm, 2.7 times as long as wide; color very dark, almost black except pale yellowish brown on basal half of elytral disc from suture to about interstriae 5 to 7. Frons moderately concave eye to eye from epistoma to vertex, floor of concave area on lower half rather densely micropunctured (concealed above by pronotum), setae short, moderately abundant, peripheral fringe slightly longer; antennal club as long as wide, strongly asymmetrical, sutures 1 to 3 rather strongly procurved, 1 very finely septate, segment 1 and sutures 2

and 3 rather strongly micropunctate, cirrus about as long as club. Pronotum 1.1 times as long as wide; sides on basal two-thirds moderately arcuate, rather narrowly rounded in front; anterior margin armed by 6 low serrations, median pair slightly larger; summit indefinite, anterior to middle of pronotum length; anterior slope rather steep, asperities coarse, close, confused; posterior areas obscurely subreticulate, almost smooth, punctures replaced by rather sparse, minute granules; sparse, short setae on asperate area and on lateral margins. Elytra 1.6 times as long as wide, 1.4 times as long as pronotum; disc occupying basal 76 percent of elytra length; disc almost smooth, shining, punctures obscure to obsolete except obscure and confused on basal half of striae 1, with punctures on striae 1 small, distinct and in a stria row on 1 near declivity. Declivity obscurely impressed on median half of basal half; striae 1 and 2 with punctures small, in rows, moderately impressed; sutural interstriae weakly elevated, at least twice as wide as high, smooth, shining, crest with about five small punctures; interstriae 2 as wide as 1, distinctly impressed, 3 and lateral areas broadly rounded, very slightly higher than suture, punctures very small, confused, two or three small tubercles on crest of 3, lateral areas with two or three small granules; ventrolateral crest distinctly elevated from suture to near lateral margin. Sparse short setae on interstriae 1, 3, and on lateral areas near declivity.

Distribution: Colombia (Caldas).

Type material: The female holotype, male allotype, and 5 paratypes were taken at Manizales, Caldas, Colombia, 14-V-2002, *Alnus acuminata*, Z. Gil & A. Bustillo. The holotype is the upper specimen on a pin bearing 2 females; the allotype is the lower specimen on a pin bearing 2 males. This species is named for Zulma Gil, who originally found this species. It was causing economic damage in a plantation of native alders. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Corthylus letzneri Ferrari

Plate CCXXVI

Corthylus letzneri Ferrari, 1867:55, 59. Syntypes ♂; Venezuela (probably Colonia Tovar, Aragua, near the Moritz home); NHMW, Wien (References in Wood & Bright c1992:1074)

Corthylus strigilatus Eggers, 1933:20. Holotype ♂; Colonia Tovar, Aragua, Venezuela; MNHN, Paris (References in Wood & Bright c1992:1074). *New synonymy*

Diagnosis: Distinguished from *peruanus* Schedl by the smaller size; by the steeper declivity, with the punctures smaller; and by the peripheral margin of the female frons bearing a dense row of very long setae.

Male: Similar to female except frons convex, reticulate, rather finely punctured, a moderate transverse impression above epistoma on lower half of area below upper level of eyes, epistoma with a callus on median half at margin, surface almost glabrous; antennal club 2.1 times as long as wide, smaller, much less asymmetrical; anterior margin of pronotum more strongly serrate on median area.

Female: Length 2.5–2.7 mm, 2.3 times as long as wide; color very dark reddish brown. Frons rather deeply concave eye to eye from epistoma to vertex, upper margin abruptly rounded; floor of concave area mostly concealed by long setae, apparently with a weak, median crest at least on lower half, with a dense peripheral row of very long setae, longest setae on vertex capable of extending three-fourths distance toward epistoma; lateral margin nearest antennal insertion moderately elevated; antennal club distinctly wider than long, very large, strongly asymmetrical, apex usually subacutely pointed; sutures 1 and 2 moderately procurved, 1 and 2 grooved, 1 mostly septate, 2 septate on mesal fourth, a third groove suggests a false suture 3, apical margin on posterior face with a cirrus. Pronotum 1.1 times as long as wide; sides weakly arcuate and subparallel on basal half, rather narrowly rounded in front; anterior margin subcostate, crest weakly serrate, with 10 weak serrations; summit at middle of pronotum length; anterior slope steep, asperities coarse, close, confused; posterior areas reticulate, punctures minute to obsolete, sparse; sparse, short setae on anterior and lateral margins. Elytra 1.36 times as long as wide, 1.26 times as long as pronotum; disc occupying basal 82 percent of elytra length; disc smooth, shining, several weakly impressed lines, punctures moderately small, confused. Declivity very steep, weakly sulcate on basal half; punctures of striae 1 and 2 in definite rows on basal two-thirds, somewhat confused below; sutural interstriae slightly elevated, half as high as wide, crest rounded and with about seven small punctures; 2 shallowly impressed, as wide as 1, impunctate on basal two-thirds, a few obscure punctures below; lateral crests obscurely higher than suture, broadly rounded, punctures small, confused, with about three minute granules. Sparse, short setae confined to declivity on odd-numbered interstriae.

Distribution: Venezuela.

Venezuela: Rancho Grande, Aragua, 9-IV-1970, 1100 m, Nos. 411, 437, tree branches, SLW; Merida, Merida, 11-IX-1969, 1300 m, No. 3, *Croton*, SLW.

Notes: The above treatment was based on the syntypes of *letzneri* Ferrari and on 8 other specimens from Venezuela. The male holotype of *strigilatus* Eggers was also examined and was compared to my males of this species.

Corthylus peruanus Schedl

Plate CCXXVII

Corthylus peruanus Schedl, 1950:155. Holotype ♂; Callanga, Peru; NHMW, Wien (References in Wood & Bright c1992:1077)

Diagnosis: Male distinguished from male *araguensis* Wood by the much stouter body form; by the more gradual anterior slope of the pronotum; and by characters of the frons and declivity as described below.

Male: Length 3.3 mm, 2.3 times as long as wide; as in *araguensis*, except anterior slope of pronotum more gradual; elytral declivity with interstriae 2 twice as wide as 1, striae 1 on declivity much more deeply impressed

and ascending laterad to 2; male frons with transverse impression above epistoma not as deep, less extensive, its median crest more subacutely elevated.

Distribution: Peru: "Callanga" (holotype).

Notes: The above treatment was based on the male holotype of *peruanus* Schedl. The locality name "Callanga" could not be found in the available maps and gazetteers and is probably an error in spelling.

Corthylus araguensis Wood, n. sp.

Corthylus araguensis Wood: Holotype ♀; El Laurel Experimental Farm 12 km SW Caracas, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *letzneri* Ferrari by the larger size; by the more gradual declivity, with the punctures larger; and by the shorter, more numerous setae on the female frons (upper third on the median third impunctate and glabrous).

Male: Similar to female except frons convex, with a moderate, transverse impression above epistoma on lower half of area below upper level of eyes, surface smooth, shining, with sparse, rather small punctures, glabrous above, sparse pubescence on epistomal impression; antennal club smaller, narrow, more nearly symmetrical, without a cirrus; anterior margin of pronotum with a median pair of larger serrations.

Female: Length 3.0–3.3 mm, 2.5 times as long as wide; color dark reddish brown. Frons moderately concave eye to eye from epistoma to vertex, upper margin rather abruptly rounded; punctures on concave area rather small, deep, much smaller and more numerous above upper level of eyes; median third above upper level of eyes impunctate, glabrous, forming a low callus; antennal club large, strongly asymmetrical, apex acutely pointed, slightly wider than long, sutures 1 and 2 slightly procurved, grooved, partly septate on mesal half, cirrus slightly exceeding apex. Pronotum 1.0 times as long as wide; sides feebly arcuate and subparallel on basal half, rather narrowly rounded in front; anterior margin armed by a weakly serrate costa, about 10 weak serrations; anterior slope steep, asperities coarse, close, confused; posterior areas reticulate, punctures very small to minute, not close; sparse short setae on anterior and lateral margins. Elytra 1.3 times as long as wide, 1.3 times as long as pronotum; disc occupying basal 72 percent of elytra length; disc smooth, shining, a few impressed lines on basal half, punctures abundant, rather small, confused. Declivity very steep, shallowly sulcate; small punctures on striae 1 in a definite row, 2 with punctures slightly confused on upper half, strongly confused below; sutural interstriae distinctly elevated, half as high as wide, crest rounded and with about six small punctures, lateral crests slightly higher than suture, armed by about six very small tubercles; lateral areas with sparse, confused punctures and a few minute tubercles; ventrolateral crest rather short, conspicuous. Sparse, short setae confined to declivity, mostly on odd-numbered interstriae.

Distribution: Venezuela (Caracas).

Type material: The female holotype and male allotype were taken at El Laurel Experimental Farm 12 km SW Caracas, 1-V-1970, 1300 m, No. 458, tree branch, S.L. Wood. The holotype and allotype are in the U.S. National Museum.

Corthylus punctatus Eggers

Corthylus punctatus Eggers, 1943:382. Holotype ♀; Cochabamba, Bolivia; USNM, Washington (References in Wood & Bright c1992:1078)

Corthylus nudipennis Schedl, 1950:155. Syntypes ♀; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:1075). *New synonymy*

Corthylus oliveirai Schedl, 1976:80. Holotype ♂; Represa Rio Grande, Guanabara, Brazil; NHMW, Wien (References in Wood & Bright c1992:1076). *New synonymy*

Corthycyclon tardus Schedl, 1976:85. Holotype ♂; Caruaru, Pernambuco, Brazil; NHMW, Wien, preoccupied by Wood, 1974:149 (References in Wood & Bright c1992:1975)

Corthycyclon neotardus Schedl, 1980:120. Holotype ♂; Caruaru, Pernambuco, Brazil; NHMW, Wien (Synonymy and references in Wood & Bright c1992:1075). *New synonymy*

Corthylus tardulus Wood, 1981:122. Holotype ♂; Caruaru, Pernambuco, Brazil, replacement name; NHMW, Wien

Diagnosis: Distinguished from *splendidulus* Wood by the smaller size; by the smaller, deeper punctures on declivital interstriae 1 and 2, with interstriae 1 higher than 3, the lateral crest more broadly rounded.

Male: Length 1.6–2.2 mm, 2.7 times as long as wide; color very dark reddish brown. Frons convex, reticulate, punctures rather small; a shallow, transverse impression above epistoma on lower half of area below upper level of eyes; glabrous except for sparse setae on epistoma; antennal club 1.5 times as long as wide, rather small, slightly asymmetrical, suture 1 almost straight, septate, 2 with groove moderately procurved, partly septate on 1 specimen. Pronotum 1.12 times as long as wide; sides on basal half feebly arcuate, subparallel, rather narrowly rounded in front; anterior margin armed by 8 low serrations; summit indefinite, at middle of pronotum length; anterior slope steep, asperities coarse, close, confused; posterior areas reticulate, sparse punctures small; sparse, short setae on anterior and lateral margins. Elytra 1.3 times as long as wide, 1.2 times as long as pronotum; disc occupying basal 74 percent of elytra length; disc smooth, shining, several impressed lines present, punctures small to very small, a few almost obsolete near declivity. Declivity very steep, shallowly bisulcate; striae 1 and 2 with small punctures in rows to near apex; sutural interstriae with crest narrowly rounded, almost as high as wide, 2 as wide as 1, shallowly impressed, smooth, shining, with many impressed points, one or two punctures near apex, basal half ascending ventrad, 3 rather weakly elevated, about as high as 1, crest broadly rounded and armed by about three small tubercles; punctures on striae 3 mostly in rows. Sparse, short setae confined to declivity on odd-numbered interstriae.

Female: Similar to male except frons rather strongly concave eye to eye from epistoma to vertex, concave area

smooth, shining, punctures coarse, close, deep, vestiture fine, erect, moderately long, rather numerous; antennal club larger, moderately asymmetrical, suture 1 indicated, 2 obsolete. Other features as in male.

Distribution: Bolivia to Brazil and Colombia.

Bolivia: Cochabamba (holotype); D.C. Santa Cruz, Prov. Ichilo, Buenavista, X-1949, "Mardineza" (male).

Brazil: Represa Rio Grande, Guanabara (type of *oliveirai*); Nova Teutonia, Santa Catarina, VIII-1941, F. Plau-mann.

Colombia: Piedras Blancas 10 km E Medellin, Antioquia, 15-VII-1970, No. 653, Melastomaceae sp., SLW.

Notes: The above treatment was based on 2 males from Bolivia, both compared to the female holotype of *punctatus* Eggers, 1 male from Colombia that was compared to the female holotype of *punctatus*, and on 1 female and 3 male syntypes and 2 female non-types of *nudipennis* Schedl that were compared to the above males from Bolivia and Colombia. The female holotype and male allotype of *nudipennis*, which were subsequently labeled and cited by Schedl have no validity in nomenclature. It is evident from the above comparisons that *nudipennis* Schedl is a junior synonym of *punctatus* Eggers. The male holotype of *Corthycyclon tardus* Schedl was also compared by me to the holotype of *punctatus*. All represent the same species.

Corthylus parvicirrus Wood, n. sp.

Corthylus parvicirrus Wood: Holotype ♀; Telemaco Borba, Parana, Brazil; MZUSP, Sao Paulo, designated below

Diagnosis: Distinguished from *comitabilis* Wood by the smaller body size and more slender form; by the much shorter female antennal cirrus; by the presence of a minute median carina on the female epistoma; by the rugose-reticulate male frons; and by the upper margin of the female concave area on the frons with a short crest extending about half width of frons.

Male: Similar to female except frons moderately convex, surface rugose-reticulate; antennal club smaller, less strongly asymmetrical, cirrus absent.

Female: Length 2.2–2.3 mm, 2.6 times as long as wide; mature color black. Frons similar to *comitabilis*, except punctures in concave area less dense, setae less numerous, upper margin subacutely elevated only on median half, on lateral areas rather narrowly rounded, and a minute median carina on epistoma; antennal club similar to *comitabilis*, except cirrus very small and short, extending about half distance toward apex of club. Pronotum 1.03 times as long as wide, serrations on anterior margin slightly larger, posterior areas mostly weakly reticulate, punctures very small, distinct. Elytra 1.5 times as long as wide, 1.6 times as long as pronotum; disc similar to *comitabilis*; declivity resembling *comitabilis*, but sulcus significantly deeper, interstriae 2 as wide as striae, sutural interstriae much higher, higher than wide, 3 not as high, tubercles at summit more than twice as large, three to five tubercles present.

Distribution: Brazil (Parana, Rio Grande do Sul).

Type material: The female holotype (5-IX-2003), male allotype (22-VIII-1993), and 4 paratypes (6-VIII-1999-8-VIII-2003) were taken at Telemaco Borba, Parana, Brazil, in the Klabin Papel e Cellulose forest, ethanol traps, C.A.H. Flechtmann. One paratype is from Itara, Recanto Champagnat, Rio Grande do Sul, Brazil, 16-XI-1997, ethanol intercept trap in *Eucalyptus* stand, T.E.F. Silva. The holotype, allotype, and 3 paratypes are in the Museo de Zoologia, Universidade de Sao Paulo, Sao Paulo. Two paratypes are in the U.S. National Museum, Washington.

Brazil (non-types): Aracruz, Espirito Santo, 11-XII-1991, No. 3587 (2 specimens).

Corthylus comitabilis Wood, n. sp.

Corthylus comitabilis Wood: Holotype ♀; Telemaco Borba, Parana, Brazil; MZUSP, Sao Paulo, designated below

Diagnosis: Distinguished from *splendidulus* Wood by the slightly stouter body form; by the finely, densely punctured concave area of the female frons, and the short uniformly distributed setae; by the deeper declivital sulcus on interstriae 2 and more strongly elevated sutural interstriae; and by the more finely reticulate pronotum disc.

Male: Similar to female except frons strongly convex, a moderate, transverse impression above epistoma, surface reticulate, punctures rather small, not close; antennal club similar, less strongly asymmetrical, cirrus absent; serrations on anterior margin of pronotum much larger.

Female: Length 2.4–2.7 mm, 2.3 times as long as wide; color very dark reddish brown. Frons deeply concave eye to eye from epistoma to vertex, upper crest subacute; surface densely, deeply uniformly punctured, vestiture rather abundant, short, uniformly distributed; epistoma with a small shining bulla; antennal club 1.4 times as long as wide, strongly asymmetrical, suture 1 on basal fourth, straight, marked only on lateral three-fourths of club width, feebly septate near lateral margin, 2 marked by a weak, non-septate impression on middle third of club width, surface covered by abundant, short microsetae. Pronotum 1.0 times as long as wide; widest on slightly more than basal half, moderately arcuate, a weak constriction, then rather narrowly rounded in front; anterior margin with 10 weak serrations; summit indefinite, at middle of pronotum length; anterior slope moderately steep, asperities mostly limited to anterior third of pronotum length, rather small, close, confused; posterior areas minutely reticulate, punctures minute to obsolete; vestiture sparse, short setae on anterior and lateral margins. Elytra about 1.4 times as long as wide, 1.4 times as long as pronotum disc occupying 72 percent of elytra length; disc smooth, brightly shining, striae not impressed, punctures very small, shallow, in obscure rows on posterior third, moderately confused on basal area. Declivity very steep, broadly convex; striae 1 to 3 with punctures in definite rows; interstriae 2 shallowly

impressed, almost as wide as 1; sutural interstriae moderately elevated, half as high as wide, crest with about five small punctures; 3 almost as high as 1, with about four minute granules on upper half, about four small punctures below. Vestiture confined to declivity, very sparse, a few setae on interstriae 1, 3, 4(?), 7, and 8

Distribution: Brazil (Parana).

Type material: The female holotype (21-II-2003), male allotype (25-X-2002), and 7 paratypes were taken at Telemaco Borba, Parana, Brazil, in the Klabin Papel e Cellulose forest, from ethanol baited traps, C.A.H. Flechtmann. The holotype, allotype, and 5 paratypes are in the Museum de Zoologia, Universidade de Sao Paulo, Sao Paulo. Two paratypes are in the U.S. National Museum, Washington.

Corthylus splendidulus Wood, n. sp.

Corthylus splendidulus Wood: Holotype ♀; Guadeloupe Arriba, Chiriqui, Panama; USNM, Washington, designated below

Diagnosis: Distinguished from *punctatus* Eggers by the larger size; by the larger, deeper punctures on declivital striae 1 and 2; and by the less strongly elevated sutural interstriae on the declivity.

Female: Length 2.3–2.4 mm, 2.6 times as long as wide; color dark reddish brown. Frons rather strongly concave eye to eye from epistoma to vertex, upper margin abruptly, narrowly rounded; concave area smooth, shining, impunctate on upper three-fourths, reticulate and with a few minute punctures on lower fourth; antennal club 1.1 times as long as wide, strongly asymmetrical, club appearing devoid of sutures except 1 marked by a feeble septum at lateral margin, 2 marked by an obscure groove, a small cirrus present. Pronotum 0.92 times as long as wide; sides on basal half feebly arcuate, subparallel, rather narrowly rounded in front; anterior margin armed by a subserrate costa bearing six weak serrations; summit at middle of pronotum length; anterior slope moderately steep, asperities coarse, close, confused; posterior areas reticulate, sparse punctures minute to obsolete; sparse, short setae on anterior and lateral margins. Elytra 1.6 times as long as wide, 1.7 times as long as pronotum; disc occupying basal 70 percent of elytra length; disc smooth, shining, several impressed lines present, punctures rather small, distinctly impressed, most punctures on posterior half in striae rows, those on basal half mostly confused. Declivity very steep, shallowly sulcate; punctures on striae 1 to 3 rather small, in rows, distinctly impressed; sutural interstriae rather strongly costate, higher than wide, crest with about five small punctures, 2 as wide as 1, moderately impressed, smooth, shining, with many impressed points, 3 as wide as 1, distinctly elevated (not as high as 1), crest narrowly convex and armed by about five small tubercles, 4 also with about three minute tubercles. Sparse setae confined to declivity, mostly on odd-numbered interstriae.

Distribution: Panama (Chiriqui).

Type material: The female holotype and 1 female paratype were taken at Guadeloupe Arriba, Chiriquí, Panama, I-VIII-4-IX-1984, light trap, H. Wolda. The holotype and paratype are in the U.S. National Museum, Washington.

Corthylus epistomalis Wood, n. sp.

Corthylus epistomalis Wood: Holotype ♀; Nova Vicosa, Bahia, Brazil; MZUSP, Sao Paulo, designated below

Diagnosis: Distinguished from allied species, in the above key, by the smaller size; by the spongy area on the lower female frons and the smooth, shining, glabrous area on the upper female frons.

Male: Similar to female except frons rather strongly convex, minutely rugose-reticulate (dull), with punctures sparse, minute, epistoma smooth, shining, sparse vestiture confined to epistoma; antennal club smaller, not as broad; anterior margin of pronotum armed by 4 serrations, median pair much larger.

Female: Length 1.6 mm, male about 3.0 times as long as wide (elytra spread on type), type damaged; color very dark reddish brown. Frons strongly concave eye to eye from epistoma to vertex, a large, procurved, spongy area above epistoma from inner margin of eye to other eye, at median line occupying lower one-fourth of area below upper level of eyes, upper area with median third on concave area smooth, shining, impunctate, glabrous, lateral thirds above spongy area deeply, rather finely punctured and bearing sparse, erect setae of moderate length, upper margin above level of eyes with a row of more numerous setae; antennal club moderately asymmetrical, 1.0 times as long as wide, twice as long as scape, sutures 1 and 2 weakly procurved, finely septate, small spine on scape fitting into small, smooth indentation on club segment 1. Pronotum 1.07 times as long as wide; sides on basal half feebly arcuate, subparallel, broadly rounded in front; anterior margin armed by 8 low serrations; summit at middle of pronotum length; anterior slope rather steep; asperities small, close, confused; posterior areas reticulate at base, becoming rugose-reticulate near summit, posterior areas with punctures minute, moderately close; glabrous except anterior and lateral margins with sparse, short setae. Elytra spread on type, about 1.2 times as long as wide on allotype; about 1.4 times as long as pronotum on type; disc occupying 56 percent of elytra length; disc almost smooth, shining, with many impressed lines; striae not impressed, punctures on 1 very small, weakly impressed, 2 and 3 with punctures minute to obsolete on posterior half, small, confused on basal half, interstitial punctures not evident. Declivity very steep, strongly, broadly convex; striae 1 rather strongly impressed, punctures small, distinctly impressed, 2 not impressed, punctures on basal half very small, weakly impressed, minute to obsolete below, sutural interstriae narrow, modestly costate on lower two-thirds of declivity length, crest evenly elevated, unarmed by punctures or tubercles, narrowly rounded, half as high as wide, 3

partly almost as high as 1, with a few punctures, no tubercles. Vestiture restricted to lower declivity, very sparse, short, apparently restricted to odd-numbered interstriae.

Distribution: Brazil (Bahia).

Type material: The female holotype (5-XI-1997), male allotype (21-X-1997), and 1 male paratype were taken at Nova Vicosa, Bahia, Brazil, ethanol trap, C.A.H. Flechtmann. The holotype and allotype are in the Museum de Zoologia, Universidade de Sao Paulo, Sao Paulo. The paratype is in the U.S. National Museum, Washington.

Corthylus niger (Schedl), n. comb.

Corthylus niger (Schedl), 1954:43 (*Metacorthylus*). Lectotype ♀; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien, designated by Schedl 1979:166 (References in Wood & Bright c1992:1075)

Diagnosis: Distinguished from *vochysiae* Wood by the more broadly convex and reticulate female declivity; and by the dull, more broadly concave female frons, punctures not evident, glabrous.

Male: Similar to female except frons very broadly convex, dull, minutely rugose-reticulate, punctures minute, obscure; median pair of serrations on anterior margin of pronotum much larger.

Female: Length 1.6–1.7 mm, 2.3 times as long as wide; color dark reddish brown to black. Frons moderately concave eye to eye from epistoma to vertex; surface dull (rugose-reticulate?), punctures minute to obsolete; glabrous except for sparse setae on epistoma; antennal club 1.2 times as long as wide, somewhat oval, with apex subacutely, bluntly pointed, suture 1 mostly septate, 2 indicated by an obscure groove. Pronotum 1.0 times as long as wide; sides weakly arcuate and subparallel on basal half, rather narrowly rounded in front; anterior margin armed by about 6 low serrations, median pair slightly larger; summit at middle of pronotum length; anterior slope steep, asperities small, close, confused; posterior areas strongly reticulate (almost rugose-reticulate), punctures very small to obsolete; sparse setae on asperate area and on sides near lateral margin. Elytra 1.4 times as long as wide, 1.4 times as long as pronotum; disc occupying 76 percent of elytra length; disc almost smooth (minutely rugose?, obscured by resin on type), some reticulation near suture. Declivity very steep, broadly convex; declivity strongly reticulate, lateral crest on upper two-thirds broadly rounded; sutural interstriae distinctly elevated, a subacute crest on its lateral margin; punctures on striae 1 and 2 minute, interstriae apparently impunctate. Sparse very short setae on interstriae 1 and 3.

Distribution: Brazil: Nova Teutonia, Santa Catarina, 7°11'N, 52°23'W, 17-XI-1949, 300–500 m, pflanze 641, F. Plaumann (lectotype, allotype, paratypes).

Notes: The above treatment was based on the female lectotype, male lectoallotype, and 1 male and 1 female lectoparatypes.

Corthylus vochysiae Wood, n. sp.

Corthylus vochysiae Wood: Holotype ♀; La Carbonera Experimental Forest 50 km NW Merida, Merida, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *niger* (Schedl) by the broadly rounded and reticulate declivity; by the less strongly concave, shining, finely punctured, pubescent female frons.

Male: Similar to female except frons strongly convex, vestiture absent above, sparse and minute on and near epistoma; anterior margin of pronotum armed by about 6 serrations.

Female: Length 1.6–1.8 mm, 2.7 times as long as wide; color dark reddish brown. Frons shallowly concave eye to eye from epistoma almost to vertex; surface smooth, shining, punctures rather large, close, uniformly distributed; setae on and near peripheral fringe fine, long, shorter in central area; antennal club 1.4 times as long as wide, suture 1 straight, septate, 2 feebly indicated by a weak impression (not a definite groove), cirrus absent. Pronotum 1.1 times as long as wide; sides almost straight and parallel on more than basal half, rather broadly rounded in front; anterior margin armed by about 6 low serrations; summit at middle of pronotum length; anterior slope steep, asperities rather coarse, close, confused; posterior areas strongly reticulate, punctures sparse, minute to obsolete; sparse, short setae on asperate area and on lateral margins. Elytra 1.5 times as long as wide, 1.5 times as long as pronotum; disc occupying basal 70 percent of elytra length; disc smooth, shining, with many weakly impressed lines, punctures on striae 1 small, shallow, mostly in a definite row from base to declivity, lateral punctures much smaller, weakly impressed, confused. Declivity very steep, convex; striae 1 and 2 with very small punctures in definite rows from base to apex, lateral areas with punctures confused; sutural interstriae weakly elevated, less than half as high as wide, crest with several small punctures, 2 shallowly impressed, smooth, shining, with numerous micropunctures, 3 very slightly higher than 1, crest broadly rounded and armed by about four minute granules. Rather short, hairlike setae confined to declivity, sparse on all interstriae.

Distribution: Venezuela (Merida).

Type material: The female holotype, male allotype, and 28 paratypes were taken at La Carbonera Experimental Forest 50 km NW Merida, Merida, Venezuela, 1-XII-1969, 2500 m, No. 235-E, *Vochysia duquei*, S.L. Wood; 38 additional paratypes bear identical data to the type except they were taken 14-X-1969, No. 70, from the same host by S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Corthylus truncatiformus Wood, n. sp.

Corthylus truncatiformus Wood: Holotype ♀; Lencois Paulista, Sao Paulo, Brazil; MZUSP, Sao Paulo, designated below

Diagnosis: This species and *truncatulus* Wood, from Panama, are distinguished from *trunculus* Wood by the

less strongly impressed and less strongly arcuate antennal sutures 1 and 2; by the absence of a transverse impression above the epistoma in both sexes; and by the weakly concave female frons, with most of the frons subglabrous.

Male: Similar to female except antennal club sutures less strongly impressed and less strongly arcuate; frons more strongly convex, almost glabrous; and presence of serrations on anterior margin of pronotum.

Female: Length 1.3–1.5 mm, 2.5 times as long as wide; elytra and anterior half of pronotum dark reddish brown, basal half of pronotum pale yellowish brown. Frons very shallowly concave eye to eye from epistoma to well above upper level of eyes, most of concave area impunctate and glabrous upper half of area above upper level of eyes moderately convex, partly, weakly reticulate and with sparse punctures; middle half of upper margin of frons glabrous, lateral areas and lateral margins to near epistoma with several setae, becoming more numerous above epistoma; antennal club asymmetrically obovate, sutures rather weakly procurved, weakly, narrowly impressed, weakly septate on at least part of each suture, cirrus absent, most of apical half on posterior face forming a yellow, spongy area. Pronotum 1.0 times as long as wide; sides on posterior half feebly arcuate, subparallel, rather broadly rounded in front; anterior margin without serrations; summit at middle of pronotum length, anterior slope rather steep; asperities small, close, confused; posterior areas rugose-reticulate, punctures obsolete; glabrous. Elytra 1.3 times as long as wide, 1.4 times as long as pronotum; disc occupying basal 75 percent of elytra length, disc smooth, brightly shining, punctures very small, confused. Declivity very steep, obliquely truncate, with a complete circumdeclivital costa, a small denticle above on costa at interstriae 3; face of declivity moderately, evenly concave; surface rugose-reticulate, punctures small, shallow, obscure, numerous, confused; sutural interstriae weakly, evenly elevated, strongly rugose-reticulate, and with a few minute tubercles. Vestiture mostly abraded on type, on male consisting of abundant, uniformly short scales, each about two to three times longer than wide.

Distribution: Brazil (Sao Paulo).

Type material: The female holotype, male allotype, and 1 male paratype were taken at Lencois Paulista, Sao Paulo, Brazil, 23-IX-1991, ESALQ-84, ethanol trap in *Eucalyptus grandis* stand, K-7, A. Dwulatka; 2 male paratypes bear the same data except for 12-IX-1990 and 25-IX-1991, D-U, C.A.H. Flechtmann; 11 paratypes are from Monte Alegre, Parana, Brazil, ethanol impact trap in *Pinus taeda* stand, KL-21, C.A.H. Flechtmann. The holotype, allotype, and 11 paratypes are in the Museum de Zoologia, Universidade de Sao Paulo. Three paratypes are in the U.S. National Museum, Washington.

Corthylus atomus Wood, n. sp.

Corthylus atomus Wood: Holotype ♀; Isla Barro Colorado, Panama Canal; USNM, Washington, designated below

Diagnosis: Distinguished from *exiguus* Wood by the smaller size; by the very different female frons, as described below; and by the much smaller punctures on declivital interstriae 2 and larger tubercles on the lateral crests.

Female: Length 1.2 mm, 2.8 times as long as wide; color yellowish brown, declivity reddish brown. Frons moderately concave on less than lower half of area from epistoma to upper level of eyes, upper area to vertex somewhat elevated, rather broadly planoconcave, lower area finely, closely punctured, almost glabrous, upper area finely, closely punctured and with rather abundant, moderately long setae; antennal club 1.2 times as long as wide, strongly asymmetrical, suture 1 somewhat sinuate, mostly septate, 2 weakly procurved, obscurely, partly septate. Pronotum about 1.14 times as long as wide; sides feebly arcuate, subparallel on basal half, rather narrowly rounded in front; anterior margin unarmed by serrations; summit slightly anterior to middle of pronotum length; asperities very small, close, confused, except anterior submarginal row of about 12 asperities distinctly larger; posterior areas minutely reticulate, punctures moderately numerous, minute; sparse, short setae on and near anterior margin. Elytra 1.4 times as long as wide, 1.3 times as long as pronotum; disc occupying basal 78 percent of elytra length; disc weakly, very finely subreticulate, punctures minute, obscure, apparently somewhat confused. Declivity very steep, moderately sulcate on median half; sutural interstriae narrowly carinate, about as high as wide, crest not smooth, not as high as lateral crest; upper half of lateral crest armed by three small, pointed tubercles; interstriae 2 moderately impressed, punctures minute. Setae confined to declivity, rather short, stout, on interstriae 3 and lateral areas.

Distribution: Panama.

Type material: The female holotype and 1 female paratype were taken at Isla Barro Colorado Island (in Panama Canal), 23-28-VIII-1984, 35k 111 S.M. (T. Luz), H. Wolda. The holotype and paratype are in the U.S. National Museum, Washington.

Corthylus punctifrons Wood, n. sp.

Corthylus punctifrons Wood: Holotype ♀; Monte Alegre, Parana, Brazil; MZUSP, Sao Paulo, designated below

Diagnosis: This represents a previously unreported species-group in this genus. The female antennal club is asymmetrical with the lateral half of suture 1 represented by a weak septum, and 2 by a weak groove; cirrus well developed and rather long; female frons more coarsely, closely punctured than other known species, and with few to many of these punctures replaced by small, rounded tubercles; sutural interstriae on declivity moderately elevated and costate.

Male: Similar to female except frons convex, reticulate, with rather sparse, small, deep punctures.

Female: Length 2.4–2.6 mm, 2.3 times as long as wide; color very dark reddish brown. Frons deeply concave eye

to eye from epistoma to vertex, upper margin abruptly, narrowly rounded from eye to eye; concave area closely, rather coarsely punctured, ridges between punctures often forming small tubercles (variable within a series); vestiture on concave area fine, abundant, uniformly short from epistoma to vertex; antennal club large, strongly asymmetrical, suture 1 not grooved, marked on lateral half by a weak, short internal septum, suture 2 indicated on lateral half by a weak impression, cirrus extending from lateral base on posterior face about a third of club width beyond apex, posterior face of club on apical half forming a spongy area. Pronotum 1.0 times as long as wide; sides on basal half feebly arcuate, subparallel, rather broadly rounded in front; anterior margin armed by about 14 very low serrations of equal size; summit at middle of pronotum length; anterior slope rather steep, asperities rather broad, somewhat close, confused; posterior areas finely reticulate, sparse punctures minute to obsolete; glabrous, except small setae on anterior margin and anterior half of lateral margins. Elytra 1.4 times as long as wide, 1.4 times as long as pronotum; disc occupying basal 62 percent of elytra length; disc smooth, brightly shining, striae not impressed, punctures small, shallow, confused except 1 in a definite row on posterior half. Declivity steep, rather broadly convex, surface smooth, shining; striae 1 to 3 almost in definite rows, punctures small, shallow; sutural interstriae moderately elevated on middle half of declivity length, its summit narrowly rounded and with a sparse row of small punctures, crest slightly higher than 3, with 2 narrower than 1, weakly impressed, 3 feebly elevated, each crest with 1 to 3 feeble granules. Vestiture of sparse, moderately long, hair-like setae on odd-numbered interstriae on and near declivity.

Distribution: Brazil (Espírito Santo, Parana, Rio Grande do Sul).

Type material: The female holotype and male allotype were taken at Monte Alegre, Parana, Brazil, 27-XII-1996, ethanol trap, C.A.H. Flechtmann; 1 male and 1 female paratype are from Aracruz, Espírito Santo, Brazil, 11-XII-1991, No. 3572; 2 female paratypes are from Don Feleciano, Rio Grande do Sul, Brazil (NKL-1 and D-1). The holotype, allotype, and 4 paratypes are in the Museum de Zoologia, Universidade de Sao Paulo, Sao Paulo. One paratype is in the U.S. National Museum, Washington.

Corthylus convexifrons Wood

Plate CCXXIV

Corthylus convexifrons Wood, 1986:270. Holotype ♀; La Mucuy 20 km W Merida, Merida, Venezuela; USNM, Washington (References in Wood & Bright c1992:1072)

Diagnosis: Distinguished from all other known *Corthylus* species in having the frons convex and glabrous in both sexes; other characters are cited below.

Male: Similar to female except antennal club without a cirrus; declivity more distinctly, broadly impressed, tubercles on lateral convexities distinctly larger.

Female: Length 3.0–3.6 mm, 2.6 times as long as wide; yellowish brown to reddish brown. Frons strongly, evenly convex eye to eye from epistoma to vertex, epistomal margin normal, somewhat protuberant above margin and armed by a small median tubercle; surface reticulate, sparse punctures minute to obsolete; glabrous, occasional specimens with a few minute setae, epistomal margin with many long setae; antennal club 1.2 times as long as wide, slightly asymmetrically obovate, sutures 1 and 2 feebly obovate, 1 mostly, very finely septate, 2 obscurely septate at margins, cirrus and several other long setae present on apical margin. Pronotum 1.04 times as long as wide; sides rather weakly arcuate and subparallel on basal half, rather narrowly rounded in front; anterior margin armed by 10 low, basally contiguous serrations; summit at middle; anterior slope rather steep, asperities coarse, close, confused; posterior areas strongly reticulate, punctures sparse, obscure, very small to obsolete; almost glabrous. Elytra 1.5 times as long as wide, 1.4 times as long as pronotum; disc occupying basal 78 percent of elytra length; disc smooth, shining, punctures rather small, numerous, strongly confused. Declivity very steep, moderately sulcate on median half of more than basal half; surfaces smooth, shining, punctures on striae 1 and 2 minute, shallow, becoming obscure below; interstriae 1 feebly elevated, without punctures, 2 as wide as 1, impressed on basal half, lateral crests on basal half higher than suture and armed by 2 pair of moderately small tubercles; ventrolateral crest distinctly elevated, short, extending two-thirds distance from suture toward lateral margin. Sparse, short setae on sides near declivity.

Distribution: Venezuela: La Mucuy 20 km W Merida, Merida, 12-XI-1969, 2500 m, No. 131, tree seedlings and branches, SLW (holotype, allotypes, paratypes); La Carbonera Experimental Forest 50 km NW Merida, Merida, 8-XII-1969, 2500 m, No. 174, *Nectandra*, SLW.

Notes: The above treatment was based on the entire type series of 42 specimens.

Corthylus tuberculifer Wood, n. sp.

Corthylus tuberculifer Wood: Holotype ♀; Guadeloupe Arriba, Chiriquí, Panama; USNM, Washington, designated below

Diagnosis: Distinguished from *tuberosus* Wood by the smaller size; by the acutely carinate, lateral margin of the female frons above the upper level of the eyes; by the impunctate, slightly elevated median line on the female frons; and by the bicolored color pattern.

Male: Similar to female except frons convex, lower third moderately, transversely impressed, a short median carina in impressed area; surface reticulate, punctures very small, not close; antennal club smaller, less strongly asymmetrical, without a cirrus; anterior margin of pronotum more strongly serrate.

Female: Length 2.3–2.4 mm, 2.5 times as long as wide; bicolored, pronotum and posterior half of elytra and costal margin to base dark reddish brown, disc on basal half of elytra to interstriae 7 pale reddish brown. Frons

strongly concave eye to eye from epistoma to vertex, upper margin subacutely abrupt; surface smooth, shining, densely punctured from epistoma to vertex, except median line below and above smooth, shining, narrowly impunctate; setae in concave area fine, abundant, rather short, not longer on peripheral margin; antennal club conspicuously wider than long, strongly asymmetrical, sutures 1 and 2 moderately procurved, narrowly grooved, 1 septate on mesal half, 3 obscure, indicated by a row of micropunctures, cirrus exceeding apex almost by length of club. Pronotum 1.0 times as long as wide; sides weakly arcuate on basal half, rather narrowly rounded in front; anterior margin armed by about 12 low serrations; summit at middle of pronotum length; anterior slope rather steep, asperities coarse, close, confused; posterior areas reticulate, sparse punctures minute to obsolete; sparse setae on anterior and lateral margins. Elytra 1.4 times as long as wide, 1.4 times as long as pronotum; disc occupying basal 64 percent of elytral length; disc smooth, shining, punctures small, dense, strongly confused. Declivity steep, broadly convex; small punctures on striae 1 and 2 and part of 3 in definite rows, confused on lateral areas; interstriae 1 to 3 of equal width, each armed by a row of small tubercles from base to apex; ventrolateral crest conspicuous from suture to lateral margin. Setae mostly on and near declivity on all interstriae, fine, long.

Distribution: Panama (Chiriquí).

Type material: The female holotype and male allotype were taken at Guadeloupe Arriba, Chiriquí, Panama, I-VIII-4-IX-1984, light trap, H. Wolda; 1 male paratype bears the same data but was taken 3-30-X-1984. The holotype, allotype, and paratype are in the U.S. National Museum, Washington.

Corthylus tuberosus Wood, n. sp.

Plate CCXXX

Corthylus tuberosus Wood: Holotype ♀; Rancho Grande, Aragua, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *tuberculifer* Wood by the larger size; by the narrowly rounded lateral margin of the female frons; by the median fifth of the concave area of the female frons abruptly, moderately impressed and glabrous, median third of this groove forming a weakly elevated, rounded, median carina, lateral areas reticulate.

Male: Similar to female except frons convex, a distinct, transverse impression above epistoma, surface reticulate, punctures small, rather numerous; anterior margin of pronotum procurved, serrations larger; declivital interstriae 2 more strongly, broadly impressed.

Female: Length 3.4–3.7 mm, 2.4 times as long as wide; color dark reddish brown. Frons strongly concave eye to eye from epistoma to vertex, median fifth glabrous, abruptly, moderately impressed and a subcarinate median carina within this groove extending from vertex to near epistoma; lateral areas on frons partly reticulate, with dense micropunctures and abundant, short setae (only

slightly longer on peripheral fringe); antennal club wider than long, strongly asymmetrical, sutures moderately procurved, 1 septate, 2 and 3 widely grooved and densely micropunctate, cirrus exceeding apex by about length of club. Pronotum 1.0 times as long as wide; sides weakly arcuate on basal half, weakly constricted before feebly emarginate anterior margin; anterior margin armed by about 10 low serrations; summit at middle of pronotum length, anterior margin moderately steep; asperities coarse, close, confused; posterior areas reticulate, punctures sparse, minute to obsolete. Elytra 1.4 times as long as wide, 1.4 times as long as pronotum; disc occupying basal 65 percent of elytra length; disc smooth, shining, punctures small, abundant, confused. Declivity convex, moderately sulcate on basal half of less than median half; small punctures on striae 1 and 2 mostly in rows from base to near apex; sutural interstriae rather strongly, narrowly elevated, higher than wide, crest weakly serrate, 2 moderately impressed, wider than 1, with about eight small tubercles, 3 slightly higher than 1, crest broadly rounded and armed by about eight small tubercles, lateral areas with a dozen small, confused tubercles; ventrolateral crest rather strongly, narrowly elevated from suture to lateral margin. Rows of long setae mostly on and near declivity on all interstriae.

Distribution: Venezuela (Aragua).

Type material: The female holotype, male allotype, and 29 paratypes were taken at Rancho Grande, Aragua, Venezuela, 9-IV-1970, 1100 m, No. 433, Guttiferas sp., S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Corthylus transversus Eichhoff

Corthylus transversus Eichhoff, 1869:279. Lectotype ♀; Nova Granada (Colombia); IRSNB, Brussels, present designation (References in Wood & Bright c1992:1080)

Diagnosis: Very closely allied to *tuberosus* Wood except smaller; declivital interstriae smooth, without any tubercles; crest of epistomal margin on female frons higher, subcarinate on lateral thirds; and by the presence of a smooth shining area associated with both suture 1 and 2 on female antennal club.

Female: Length 2.9–3.0 mm, 2.3 times as long as wide; color dark reddish brown, basal half of pronotum and elytral disc lighter. Frons moderately concave eye to eye from epistoma to vertex, upper margin abrupt; concave area densely, uniformly micropunctured; median fifth of concave area glabrous, abruptly impressed from vertex to near epistoma, a longitudinal, subcarinate elevation within this groove from vertex to upper level of eye, carina dividing into two smaller, parallel carinae below upper level of eyes to apex near epistoma; lateral thirds of concave area densely micropunctate and ornamented by fine, dense, short setae of about equal length, setae of peripheral margin above eye of about equal length to those in concave area; lateral thirds of epistomal margin distinctly elevated, crest partly subcarinate; antennal club

similar to female of *tuberosus*, except shining area immediately distad from sutures 1 and 2 of equal size and extent. Pronotum 0.94 times as long as wide; sides weakly arcuate on basal half, anterior margin feebly emarginate on slightly less than median half; anterior margin armed by about 8 very weak serrations; summit slightly anterior to middle of pronotum length; anterior slope rather steep, asperities coarse, close, confused; posterior areas reticulate, sparse punctures minute; sparse short setae on or near anterior and lateral margins. Elytra 1.7 times as long as wide, 1.8 times as long as pronotum; disc occupying basal 64 percent of elytra length; disc smooth, shining, punctures rather small, numerous, confused. Declivity very steep, moderately sulcate on basal half; striae 1 and 2 with small punctures in definite rows near base, becoming confused below; sutural interstriae strongly, narrowly elevated on basal two-thirds, higher than wide, crest partly carinate and armed by about 6 small, pointed serrations, 2 smooth, shining, partly impunctate near base, confused below, without any tubercles; lateral crests on basal two-thirds of 3 partly (above) as high as 1, lower below, crest armed by about five small pointed tubercles on upper two-thirds; lateral areas with about six small, confused, very small tubercles. Sparse setae confined to declivity on odd-numbered interstriae, plus two setae near apex of interstriae 2.

Distribution: Colombia: Nova Grenada, Dej. (2 syntypes).

Notes: The above treatment was based on 2 female syntypes that were determined by Eichhoff. The first of these syntypes is in much better condition and is here designated as the lectotype of *Corthylus transversus* Eichhoff.

Corthylus spinipennis Wood, n. sp.

Corthylus spinipennis Wood: Holotype ♂; Estacion Biologico Las Alturas, Puntarenas, Costa Rica; USNM, designated below

Diagnosis: Distinguished from *spinosus* Wood by the larger size; by the absence of transverse rugae on the pronotum disc; by the shorter, slender setae on the declivity; and by the more broadly flattened declivity.

Male: Length 2.4 mm, 2.16 times as long as wide; color black, basal third of pronotum reddish brown. Frons convex, a small, shallow, transverse impression above epistoma; surface reticulate, punctures sparse, very minute, sparse setae on epistoma; antennal club 1.1 times as long as wide, sutures 1 and 2 marked by moderately procurved grooves, 1 septate. Pronotum 1.0 times as long as wide; sides weakly arcuate on posterior half, narrowly rounded in front; anterior margin armed by about 8 serrations, median pair much larger; summit at middle of pronotum length; anterior slope steep, asperities rather large, close, confused; posterior areas reticulate, punctures sparse, minute; sparse, short setae on anterior margin. Elytra 1.1 times as long as wide, 1.1 times as long as pronotum; disc occupying basal 72 percent of elytra length; disc smooth, shining, with a few

impressed lines, punctures minute, confused. Declivity very steep, broadly convex; striae 1 and 2 with very small punctures mostly in rows on upper two-thirds, confused below; sutural interstriae rather weakly elevated, as wide as 1, armed by four moderately large tubercles, 3 as high as 1 and armed by five slightly larger tubercles, lateral areas with about nine smaller, confused tubercles. Sparse, rather short setae confined to declivity on odd-numbered interstriae.

Distribution: Costa Rica.

Type material: The male holotype was taken at Estacion Biologica Las Alturas, Puntarenas, Costa Rica, III-1992, 1500 m, Malaise trap. The holotype is in the U.S. National Museum, Washington.

Corthylus dubiosus
(Schedl), n. comb.

Corthylus dubiosus (Schedl), 1976:81 (*Metacorthylus*). Holotype ♂; Encruzilhada, Bahia, Brazil; NHMW, Wien (References in Wood & Bright c1992:1073)

Diagnosis: Distinguished from *nanus* Wood by the much larger size; by the more gradual declivity; by the larger, deeper punctures on the elytral disc; and by the sutural interstriae on the right elytron on the declivity twice as wide as on the left elytron; lateral crest of the declivity much more broadly rounded, this crest is armed by about three small tubercles.

Male: Length 1.8 mm, 2.6 times as long as wide; color dark brown, elytral disc rather pale brown. Frons moderately convex, weakly flattened on median half of lower half of area from epistoma to upper level of eyes, surface of impressed area reticulate, a few sparse, small punctures; sparse setae on epistoma; antennal club 1.3 times as long as wide, sutures 1 and 2 finely septate, very weakly procurved. Pronotum 1.05 times as long as wide; sides straight and parallel on basal half, rather narrowly rounded in front; anterior margin armed by a median pair of large serrations; summit at middle of pronotum length; anterior slope steep; asperities coarse, close, confused; posterior areas minutely rugose-reticulate, punctures very minute to obsolete; a few short setae on asperate area. Elytra 1.5 times as long as wide, 1.3 times as long as pronotum; disc occupying about 76 percent of elytra length; disc smooth, shining, punctures small, mostly distinct, in striae rows except posterior half of 2 with punctures obsolete. Declivity steep, shallowly impressed at striae 1; sutural interstriae distinctly, rather weakly elevated, narrowly on left elytron, surface weakly rugose-reticulate, crest broadly rounded; striae 2 obsolete on basal half, small, weak punctures on lower half; lateral crests rather broadly rounded, higher than suture on basal three-fourths, crest armed by three small tubercles. Sparse setae on interstriae 1 and 3 stouter than in *nanus*; lateral areas near declivity with several short and a few longer setae.

Distribution: Brazil: Encruzilhada, Bahia, XI-1972, 980 m, M. Alvarenga.

Notes: The above treatment was based on the male holotype. Moth scales on the holotype suggest that it was taken at light.

Corthylus rufopilosus Eggers

Corthylus rufopilosus Eggers, 1931:39. Holotype ♀; Sao Paulo, Brazil; NMPC, Prague (References in Wood & Bright c1992:1079)

Diagnosis: Distinguished from *excisus* Ferrari by the smaller size; by the smooth, shining elytral declivity; by declivital interstriae 1, 3, and lateral areas bearing small confused tubercles intermixed with punctures; and by the presence of a short, subcarinate elevation above the female epistoma on the frons; the ventrolateral costa on the declivity is longer and subacute.

Female: Length 2.3–2.5 mm, 2.6 times as long as wide; anterior half of pronotum and posterior half of elytra dark reddish brown, pale elsewhere. Frons moderately concave eye to eye from vertex three-fourths distance toward epistoma, a transverse carina on median third distinctly above epistoma, surface smooth, shining, punctures minute, numerous, fine setae moderately abundant, rather long on concave area, much longer on upper margin; antennal club 1.6 times as long as wide, apical margin slightly procurved, sutures 1 and 2 grooved and septate on mesal half, cirrus absent. Pronotum 1.1 times as long as wide; sides feebly arcuate and subparallel on more than basal half, rather narrowly rounded in front; anterior margin feebly serrate, about eight weak serrations; summit at middle of pronotum length; anterior slope rather steep, asperities coarse, close, confused; posterior areas reticulate, punctures minute to obsolete; sparse long setae on asperate area. Elytra 1.65 times as long as wide, 1.3 times as long as pronotum; disc occupying 82 percent of elytra length; disc smooth, shining, punctures small, close, confused. Declivity very steep, broadly, moderately convex; surface smooth, shining, small confused punctures intermixed with small granules over entire surface; sutural interstriae weakly elevated, crest with small tubercles; ventrolateral crest subacutely, distinctly elevated from suture toward lateral margin. Vestiture confined to declivity and sides near coatal margin, numerous, fine, long.

Distribution: Brazil: Sao Paulo, Sammler Mraz (female holotype); Nova Teutonia, Santa Catarina, 26°11' B, 52°28' L, X-1967, 300–500 m, F. Plaumann.

Notes: The female holotype is in the Prague Museum. Schedl (1954:42) designated a male allotype from his non-type series. He (Schedl 1978:215) subsequently cites a male holotype, female allotype, and 6 paratypes from his collection. Only his male allotype has status. The female "allotype" and 6 "paratypes" have no status as types in nomenclature. The above treatment was based on the 6 specimens in the NHMW, Wien.

Corthylus mirabilis Nunberg

Corthylus mirabilis Nunberg, 1962:226. Holotype ♀; Estacao, Salesopolis, Sao Paulo, Brazil; IZW, Warszawa (References in Wood & Bright c1992:1075)

Diagnosis: This species is placed near *rufopilosus* Eggers in the above key, but it is quite unrelated. The female frons has a pair of large spongy areas on the lateral thirds of the frons from the level of the antennal insertions to the vertex and a weak median carina on the lower third of the frons length; the declivity is unique, as described below.

Female: Length 2.7 mm, 2.16 times as long as wide; color reddish brown. Frons rather strongly concave almost eye to eye from level of antennal insertions to vertex; lateral thirds forming yellowish spongy areas from level of antennal insertions approximately to vertex, lateral margin of each spongy area subacutely elevated, its face concave, its mesal margin weakly elevated; mesal third of frons almost smooth and with a weak median carina, mesal margin of spongy area weakly elevated; mesal third of frons almost smooth and with a weak median carina from near epistoma almost to vertex; almost glabrous; antennae missing from type except scape and pedicel. Pronotum 0.82 times as long as wide; sides almost straight and parallel on basal half, very broadly rounded in front; anterior margin armed by 8 very weak serrations; summit obscure, at middle of pronotum length; anterior slope rather weakly declivous, asperities very minute, not close; glabrous except for sparse, minute setae on anterior margin. Elytra 1.24 times as long as wide, 1.4 times as long as pronotum; disc occupying 54 percent of elytra length; disc minutely reticulate; punctures on disc confused, exceedingly minute, almost obsolete; a few weakly impressed lines present. Declivity very steep, rather strongly bisulcate; minutely reticulate, striae 1 and 2 each with a few minute punctures on basal half; sutural interstriae narrowly, moderately elevated on basal two-thirds of declivity length, its narrow crest minutely subrugose and armed by a row of about 10 minute sharply pointed denticles; 2 rather deeply sulcate on basal half, two minute denticles at base; 3 rather abruptly elevated on basal half, almost as high as 1, armed by a row of about three small, pointed denticles near base of declivity, two larger (moderate) pointed denticles near middle of declivity length, and one very small, pointed denticle about three-fourths distance from base of declivity; about five minute pointed denticles on basal half of 4 and about six randomly distributed granules in lateral area; ventrolateral crest moderately elevated, forming about one-third of a circumdeclivital ring; almost glabrous, a few minute setae (about 16) scattered on interstriae (abraded?).

Distribution: Brazil: Estacao Biologica de Boraceia, Salesopolis, Estado de Sao Paulo.

Notes: The above treatment was based on the female holotype.

Corthylus pseudoandinus
Wood, n. sp.

Corthylus pseudoandinus Wood: Holotype ♂; Piedras Blancas 10 km E Medellin, Antioquia, Colombia; USNM, Washington, designated below

Diagnosis: Distinguished from *andinus* Wood by the rugose-reticulate male frons, the transverse impression above the epistoma almost obsolete; by the apical half of the male antennal club being much more narrowly, subacutely tapered; by the smooth, shining, densely micropunctate declivity, with the sutural interstriae moderately elevated and armed by five to seven widely spaced pointed serrations, spines on 3 smaller, acutely pointed.

Male: Length 2.3 mm, about 2.5 times as long as wide (elytra spread); color very dark reddish brown. Frons rugose-reticulate, punctures minute, rather numerous; transverse impression above epistoma almost obsolete; sparse setae near epistoma; antennal club 1.4 times as long as wide, obovate, suture 1 almost straight, partly septate, 2 represented by a weak, nonseptate groove, apical half (area beyond suture 2) subacutely tapered to apex. Pronotum 1.02 times as long as wide; sides on basal half weakly arcuate, rather narrowly rounded in front; anterior margin armed by 6 serrations, median pair much larger; summit at middle of pronotum length; anterior slope steep, asperities coarse, close, confused; posterior area almost rugose-reticulate, with many small, transverse rugae from summit to base as in male *excisus* (Ferrari). Elytra 1.3 times as long as wide, 1.3 times as long as pronotum; disc occupying 60 percent of elytra length; disc smooth, shining, with many impressed lines and micropunctures, punctures small, confused. Declivity not as steep as in *excisus*; more strongly, broadly sulcate on basal half; striae 1 and 2 with small punctures in clearly defined rows; sutural interstriae almost as wide as 2, narrowly, moderately elevated, higher than wide, crest subcostate and armed by 5 to 7 small, pointed serrations, 3 with six acutely pointed tubercles; lateral areas with about six smaller, blunt tubercles; area from interstriae 2 and lateral areas with many micropunctures. Vestiture confined to declivity on odd-numbered interstriae.

Distribution: Colombia.

Type material: The male holotype was taken at Piedras Blancas 10 km E Medellin, Antioquia, Colombia, 15-VII-1970, 2500 m, No. 669, Rubiaceae sp., S.L. Wood, from the same stem that contained *C. andinus*, below. The holotype is in the U.S. National Museum, Washington.

Corthylus andinus Wood, n. sp.

Corthylus andinus Wood: Holotype ♀; Piedras Blancas 10 km E Medellin, Antioquia, Colombia; USNM, Washington, designated below

Diagnosis: Distinguished from the closely allied *excisus* (Ferrari) by the shorter, stouter female antennal club, with all segments densely micropunctured, without any smooth, shining areas; smooth, shining area on female frons larger; punctures on elytral disc smaller; shallow, obscure; elytral declivity more strongly impressed, the tubercles on interstriae 3 smaller.

Male: Similar to female except frons convex, with transverse, epistomal impression smaller, more abruptly impressed, deeper; antennal club smaller, narrower, without

a cirrus; anterior margin of pronotum more narrowly rounded and armed by a median pair of larger serrations; lateral crests of declivity on basal half more narrowly rounded, more broadly impressed below.

Female: Length 2.3–2.7 mm, 2.6 times as long as wide; most specimens somewhat bicolored, anterior half of pronotum and posterior half of elytra darker. Setae on frons longer, more numerous than in *excisus*; antennal club 1.04 times as long as wide, entire club densely micropunctate, with no smooth, shining areas, cirrus present. Pronotum about as in *excisus* except anterior margin more strongly procurved. Elytral disc about as in *excisus* except punctures much smaller, about half as large as in *excisus*. Declivity similar to *excisus*, with lateral crests above more broadly rounded, lower half more distinctly convex.

Distribution: Colombia.

Type material: The female holotype, male allotype, and 8 paratypes were taken at Piedras Blancas 10 km E Medellin, Colombia, 15-VII-1970, 2500 m, No. 669, Rubiaceae sp., S.L. Wood; 5 additional paratypes bear similar data except (1) No. 653, Melastomaceae sp., (2) No. 657, *Meriana*, (1) No. 659 *Salvia*, (1) No. 676, Melastomaceae sp., all by S.L. Wood. The holotype, allotype, and paratype are in the U.S. National Museum, Washington.

Corthylus excisus (Ferrari)

Plate CCXXV

Corthylus excisus (Ferrari), 1867:71 (*Morizus*). Holotype ♂; Venezuela [probably Colonia Tovar]; NHMW, Wien (References in Wood & Bright c1992:1073)

Diagnosis: Distinguished from *rufopilosus* Eggers by the larger size; by the absence of a transverse carina on the lower female frons; and by the larger, strongly asymmetrical female antennal club, with a cirrus; by the weaker, shorter ventrolateral crest on the declivity and the presence of two or more large tubercles on interstriae 2.

Male: Similar to female except frons convex and reticulate, a moderate, transverse impression above epistoma, frons almost glabrous; antennal club smaller, less strongly asymmetrical, without a cirrus; anterior margin of pronotum with a median pair of rather large serrations; tubercles on declivital interstriae 2 larger.

Female: Length 2.5–2.8 mm, 2.5 times as long as wide; color dark reddish brown, basal half of elytra usually, slightly lighter. Frons moderately concave eye to eye from epistoma to vertex, a callus on median fifth of concave area width and extending from slightly below upper level of eyes to near upper limits of concave area; surface of concave area shining, finely, obscurely punctured; vestiture of long setae on upper margin, on median callus, and on 2 tufts near epistomal margin to lower margin of eye; antennal club large, 1.17 times as long as wide, strongly asymmetrical, suture 1 finely septate on mesal half, 2 and 3 arcuate and densely micropunctate, large

areas between sutures smooth, shining, cirrus present. Pronotum 0.98 times as long as wide; sides weakly arcuate on basal half, rather narrowly rounded in front; anterior margin feebly serrate and with a median pair of much larger serrations; summit at middle of pronotum length; anterior slope steep, asperities coarse, close, confused; posterior areas reticulate, punctures minute; sparse setae on and near anterior and lateral margins. Elytra 1.5 times as long as wide, 1.4 times as long as pronotum; disc occupying basal 70 percent of elytra length; disc smooth, shining, with several impressed lines, punctures small, numerous, confused. Declivity very steep, broadly, weakly convex, a feeble sulcus on median third of basal third; striae 1 with a row of very small punctures, 2 mostly obsolete; sutural interstriae rather weakly elevated, crest with a row of minute granules, 2 mostly obsolete, very narrow, 3 armed by a row of two to four rather large conical spines on basal half; lateral areas with obscure, small punctures and several minute granules; ventrolateral crest very short, mostly broadly rounded. Many short setae on face of declivity, a few longer setae on sides near declivity.

Distribution: Venezuela: Colonia Tovar, Aragua, 4-V-1970, 1700 m, No. 289, 493, 509, SLW; Merida Teleferico, Merida 27-II-1970, 2500 m, *Nectandra*, SLW; 30 km N Merida, Merida, 8-I-1970, 2200 m, No. 206, branch, SLW; 20 km W Merida, Merida, 12-XI-1969, 2500 m, No. 132, branch, SLW; La Carbonera Experimental Forest 50 km NW Merida, Merida, 10-XI-1969, 2500 m, No. 128, tree seedling, SLW, also 9-XII-1969, 174, *Nectandra*, 12-I-1970, No. 232, *Nectandra* from the same locality.

Notes: The above treatment was based on the male holotype and 52 other specimens from Colonia Tovar, and 56 other specimens from other Venezuela localities. One Colonia Tovar male was compared by me to the male holotype.

Corthylus pseudoexcisus Wood, n. sp.

Corthylus pseudoexcisus Wood: Holotype ♀; Inreno Refugio El Cedro, Yanachaga Chemilien N.P., Pasco, Peru; NHMB, Budapest, designated below

Diagnosis: Distinguished from *excisus* Ferrari by characters treated in the following description.

Female: Length 2.7 mm, 2.55 times as long as wide; color of pronotum and elytral declivity dark brown, elytral disc and sides pale brown. Frons similar to *excisus*, except setae on vertex slightly shorter, those on lower frons less numerous and shorter; transverse rugae on pronotal disc from basal margin to summit distinctly larger and more numerous; tubercles on declivital interstriae 3 (about six to eight) basally contiguous (in *ferrari* about four in number and basally isolated); declivital setae shorter and less numerous.

Distribution: Peru (Pasco).

Type material: The female holotype was taken at Inreno Refugio El Cedro, Yanachaga Chemilien N.P., Pasco, Peru,

30-I-2003, 2460 m, A. Kun & B. Benedek, 10°32.717'S, 75°21.492'W.

Corthylus callidus Schedl

Corthylus callidus Schedl, 1973:172. Holotype ♀; Ilha do Governador, Guanabara Bay, Rio de Janeiro, Brazil; MZUSP, Sao Paulo (References in Wood & Bright c1992:1070)

Diagnosis: Allied to *pygmaeus* Wood and *papulans* Eichhoff, distinguished by having declivital interstriae 2 more distinctly impressed and punctures on declivital striae 1 and 2 in rows; by the more slender body form; by the more distinctly impressed small punctures on the pronotum disc; and by having the female antennal cirrus as long as the club.

Female: Length 2.3 mm, 2.5 times as long as wide; color dark reddish brown. Frons moderately concave eye to eye from epistoma to above upper level of eyes (concealed by pronotum above eyes in both specimens at hand); moderately long setae uniformly distributed; antennal club 2.2 times as long as wide, sutures 1 and 2 moderately procurved and septate on less than mesal third, cirrus about as long as club. Pronotum 1.1 times as long as wide; sides weakly arcuate on basal half, narrowly rounded in front; anterior margin armed by about 6 serrations, median pair larger; summit at middle of pronotum length; anterior slope rather steep, asperities coarse, close, confused; posterior areas reticulate, punctures very small, moderately close; glabrous. Elytra 1.4 times as long as wide, 1.1 times as long as pronotum; disc occupying 77 percent of elytra length; disc smooth, shining, with many impressed lines, a few micropunctures, punctures small, distinct, confused except near declivity. Declivity very steep, moderately sulcate on median half of upper half; striae 1 and 2 marked by rows of small punctures from base to apex; sutural interstriae narrowly subcostate, almost as high as wide, crest with about seven small punctures, 2 as wide as 1, impressed on basal half, smooth, shining, with many micropunctures, 3 slightly higher than 1, crest on basal half narrowly rounded and armed by about two minute granules; ventrolateral crest acutely, moderately elevated from suture to lateral margin. Very sparse, short setae confined to declivity on odd-numbered interstriae.

Distribution: Brazil: Rio de Janeiro, GB [Guanabara Bay], Ilha do Governador, X-1956, M. Alvarenga (1 female paratype, 1 female non-type).

Notes: The above treatment was based on 1 female paratype and 1 female non-type in NHMW, Wien.

Corthylus papulans Eichhoff

Corthylus papulans Eichhoff, 1869:280. Holotype ♀; Brasilia; IRSNB, Brussels (Synonymy and references in Wood & Bright c1992:1076)
Corthylus spinifer Schwarz, 1891:114 Syntypes ♀; Key West, Florida, USA; USNM, Washington
Metacorthylus affinis Fonseca, 1925:3. Syntypes, sex?; Itatiba, Sao Paulo, Brazil, not seen, probably MZUSP, Sao Paulo
Corthylus affinis Fonseca, 1927:585. Syntypes, sex?; Itatiba, Sao Paulo, Brazil, not seen, apparently in MZUSP, Sao Paulo, Brazil

Corthylus guayanensis Eggers, 1933:22. Syntypes ♂; Camopi French Guyane; MNHN, Paris
Corthylus tomentosus Schedl, 1940:350. Syntypes ♀; Mexico: Tuxtepec, Oaxaca; NHMW, Wien and Dampf Collection
Corthylus brunneus Nunberg, 1972:191. Holotype ♀; Sampaio, Itarare, Sao Paulo, Brazil; IZW, Warsaw (References in Wood & Bright c1992:1068). *New synonymy*

Diagnosis: Distinguished from *pygmaeus* Wood by the larger size; by the larger punctures on the elytral disc; and by the more strongly concave female frons, particularly on the lower half.

Male: Similar to female except frons strongly convex, a weak, transverse impression above epistoma, sparse setae on epistoma; antennal club much smaller, more nearly symmetrical, cirrus absent; anterior margin of pronotum with a median pair of larger serrations.

Female: Length 2.0–2.4 mm, 2.4 times as long as wide; color dark reddish brown. Frons moderately concave eye to eye from epistoma to vertex, concave area with rather abundant shorter setae, somewhat longer on peripheral fringe; antennal club 1.0 times as long as wide, larger, strongly asymmetrical (sutures 1 and 2 more strongly impressed than in *pygmaeus*), cirrus much longer than club. Pronotum 1.0 times as long as wide; sides weakly arcuate on basal half, rather narrowly rounded in front; anterior margin with 6 weak serrations; summit indefinite, near middle of pronotum length; asperities coarse, close, confused; posterior areas reticulate, punctures minute to obsolete; sparse setae on anterior and lateral margins. Elytra 1.3 times as long as wide, 1.2 times as long as pronotum; disc occupying basal 75 percent of elytra length; disc smooth, shining, a few impressed lines on basal half, punctures small to minute, confused. Declivity very steep, feebly sulcate; striae 1 and 2 with punctures confused; sutural interstriae weakly elevated, crest costate, not as high as wide, 2 feebly impressed on upper half, 3 as high as 1, lateral crest weakly elevated and broadly rounded on upper half, two minute granules visible on most specimens; ventrolateral crest moderately acute from suture almost to lateral margin. Declivity glabrous, a few setae on sides near declivity.

Distribution: USA (Florida), Mexico (Nayarit), and Puerto Rico to Brazil.

Brazil: Itatiba, Sao Paulo (holotype of *A. affinis* Fonseca); "Brazilia"; Sampaio, Itarare, Sao Paulo (type of *brunneus*).

French Guyane: Camopi, Cayenne.

Guiana: Cited in Wood & Bright c1992:1076.

Venezuela: Ocumare, Aragus, 1967, cacao, B. Mendoza; Finca Monosteriors, Cacauga, Miranda, 1971, *Theobroma cacao*, J.L. Saunders; 9 km S Barrancas, Barinas, 2-XII-1969, 150 m, *Spondias mombin*, SLW; 13 km SW El Vigia, Merida, 22-X-1969, *Inga*, SLW.

Notes: The holotypes of *papulans* Eichhoff, *spinifer* Schwarz, and *tomentosis* Schedl, and syntypes of *guayanensis* Eggers, *affinis* Fonseca (1925), and Fonseca (1927) were examined. Also examined were 6 specimens from Florida (USA), 1 from Puerto Rico, 1 from Mexico, 19 from Costa Rica, and 42 from Venezuela. The manuscript

name *pseudoflagellifer* Schedl (NHMW, Wien) was also studied and compared to my series. All of this material is of the same species. The female holotype of *Corthylus brunneus* Nunberg was also examined and compared to my series; the citation in *Corthylocurus* (Wood & Bright c1992:1068) is incorrect.

Corthylus papuellus Wood, n. sp.

Corthylus papuellus Wood: Holotype ♀; Brotas, Sao Paulo, Brazil; MZUSP, Sao Paulo, designated below

Diagnosis: Distinguished from *papulans* Eichhoff by the larger size; by the reticulate pronotum disc, and lower declivity, in both sexes, and male frons; by the more strongly, evenly concave female frons, with the setae more numerous and of uniformly short length near the upper margin; and by the slightly larger punctures on the elytral disc.

Male: Similar to female except frons convex, with surface reticulate (not rugose-reticulate), punctures larger, surface subglabrous; antennal club smaller, cirrus absent.

Female: Length 2.3–2.7 mm, 2.3 times as long as wide; color dark reddish brown to almost black. Frons strongly, evenly concave eye to eye from epistoma to vertex, concave area densely, finely punctured, vestiture of abundant, erect, hairlike setae uniformly distributed and of uniform length (not longer near upper margin); antennal club about as in *papulans* except cirrus arising from lateral margin of base almost to apex as a comb (not as a slender penicellate tuft); glabrous except short, sparse on lateral margins. Pronotum 1.0 times as long as wide; about as in *papulans* except disc weakly reticulate, punctures very small, but larger and deeper, surfaces smooth, brightly shining. Declivity as in *papulans* except all surfaces smooth, brightly shining, punctures slightly larger.

Distribution: Brazil (Parana, Rio Grande do Sul, Sao Paulo).

Type material: The female holotype was taken at Botucatu, Sao Paulo, Brazil, 7-III-1990, Duratex SA forest, ethanol trap in Patio de serraria, *Pinus e Eucalyptus* stand, C.A.H. Flechtmann. The male allotype bears the same data as the holotype except that it was taken on 9-I-1991. Other male paratypes from Brazil are from Sorocaba, Sao Paulo, 27-I-1993, ethanol trap, A. Dwulaka (1), Jundiai, Sao Paulo, 19-III-1991, ethanol trap in *Eucalyptus* stand, A. Dwulaka (2), Gravatai, Rio Grande do Sul, 11-VII-1991, ethanol trap in *Pinus taeda* stand, A. Dwulaka (2), Monte Alegre, Parana, 8-IX-1995 to 2-II-1996, ethanol traps in *Eucalyptus* or *Pinus* stands, C.A.H. Flechtmann (17); Telemaco Borba, Parana, 24-VII-1998, ethanol trap, C.A.H. Flechtmann. The holotype, allotype, and 21 paratypes are in the Museum de Zoologia, Universidade de Sao Paulo, Sao Paulo, 4 paratypes are in the U.S. National Museum, Washington.

Brazil (non-types): Brotas, Sao Paulo, 5-VII-2001, International Paper, ethanol trap in *Eucalyptus grandis* stand, K. Treflich; Monte Alegre, Parana, 3-XI-1995, ethanol trap in *Eucalyptus* stand, C.A.H. Flechtmann (3 specimens).

Corthylus macrocerus Eichhoff

Plate CCXXVI

Corthylus macrocerus Eichhoff, 1869:279. Holotype ♀; Colombia; IRSNB, Brussels (References in Wood & Bright c1992:1074–1075)

Diagnosis: Distinguished from *abbreviatus* Eichhoff by the larger size; by the more slender body form; and by the different declivity as described below.

Male: Similar to female except frons convex above, a weak, transverse impression on lower half; a small median tubercle on epistoma; surface mostly smooth, shining, feeble reticulation above, punctures moderately coarse, close to upper level of eyes, sparse short setae on lower half; antennal club much smaller, obovate, suture 1 septate; anterior margin of pronotum more coarsely serrate.

Female: Length 3.8–4.1 mm, 2.6 times as long as wide; color dark reddish brown, basal half of elytra distinctly lighter. Frons moderately concave eye to eye from epistoma to vertex; concave area minutely, closely punctured except on median fourth from epistoma to lower level of eyes, setae rather long, moderately abundant, slightly longer on dorsal margin; antennal club large, rather strongly asymmetrical, sutures procurved, 1 septate, 2 and 3 represented by impressed areas with dense micropunctures, transverse areas above all three sutures smooth, shining, impunctate; cirrus longer than club. Pronotum 1.0 times as long as wide; sides feebly arcuate on basal half of pronotum length, rather broadly rounded in front; anterior margin armed by about 10 serrations; summit at middle of pronotum length; anterior slope steep, asperities coarse, close, confused; posterior areas reticulate, punctures minute to obsolete; sparse setae on anterior margin. Elytra 1.7 times as long as wide, 1.7 times as long as pronotum; disc occupying basal 80 percent of elytra length; disc smooth, shining, with many impressed lines, punctures small, numerous, confused except those on striae 1 and 2 in distinct rows at base of declivity. Declivity very steep, shallowly sulcate on median half of basal half; striae 1 and 2 with small punctures in rows to middle of declivity, becoming obsolete and confused below; sutural interstriae weakly elevated, three times wider than high, crest with about seven minute granules, 2 shallowly impressed and impunctate on basal half, confused below, with many micropunctures here and on lateral areas, 3 on basal half moderately high, crest broadly rounded, unarmed, punctures confused; lower half somewhat irregularly, broadly impressed, with two small tubercles on middle fourth and displaced mesad from lateral margin half distance toward suture. Sparse setae on declivity on odd-numbered interstriae and on sides near declivity.

Distribution: Colombia to Ecuador.

Colombia: "Colombia, Dej." (holotype).

Ecuador: Cassilla 259, Quito, 14-VI-1954, H.R. Yust, 6261.

Notes: The above treatment was based on the female holotype, and on my male and female (homotypes) from Ecuador.

Corthylus cirrifer Wood, n. sp.

Plate CCXXIII

Corthylus cirrifer Wood: Holotype ♀; Rancho Grande, Aragua, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *sobrinus* Wood by the much larger size; by the more extensively impressed declivity; by the longer, more strongly confused punctures on the declivity; and by the shorter setae on the female frons.

Male: Similar to female except frons strongly convex, a weak, transverse impression above epistoma, surface densely micropunctate, punctures small, rather sparse; vestiture sparse, short on sides above, longer on epistoma; antennal club smaller, less strongly asymmetrical, cirrus absent; serrations on anterior margin of pronotum larger.

Female: Length 4.1–4.5 mm, 2.3 times as long as wide; color black. Frons shallowly concave eye to eye on lower half, a large callus on median third reducing concavity above; surface mostly reticulate, a small, smooth median area above epistoma, lateral thirds finely, obscurely punctured and bearing rather long, moderately abundant hair; median third glabrous from epistoma to vertex; upper margin bearing a row of much longer setae, tips of longest setae capable of attaining one-fifth distance toward epistoma; antennal club 1.5 times as long as wide, small, much longer than club. Pronotum 0.97 times as long as wide; sides rather strongly arcuate on basal half, weakly constricted anteriorly, then narrowly rounded in front; anterior margin armed by 6 weak serrations; summit slightly anterior to middle of pronotum length; anterior slope steep, asperities very large, close, confused; posterior areas minutely subrugose, punctures obsolete; sparse setae on anterior and lateral margins. Elytra 1.3 times as long as wide, 1.3 times as long as pronotum; disc occupying basal 80 percent of elytra length; disc minutely subrugose, punctures minute to obsolete, confused. Declivity very steep, weakly sulcate above; striae 1 with rather small punctures in a row, punctures on 2 mostly confused; sutural interstriae weakly elevated, wider than high, crest armed by 6 to 10 minute tubercles on upper two-thirds, 2 shallowly impressed, unarmed by tubercles, 3 with two to four moderate tubercles on lower half and one or two at basal margin; lateral convexities on upper half laterad from interstriae 3 as high as suture; ventrolateral crest moderately elevated from suture to lateral margin. Sparse setae on lower half of declivity, and near margins, and on sides near margins.

Distribution: Venezuela (Aragua).

Type material: The female holotype and 1 female paratype were taken at Rancho Grande, Aragua, Venezuela, 9-IV-1970, 1100 m, No. 413, tree branch, by S.L. Wood; the male allotype was taken at Colonia Tovar, Aragua, 4-V-1970, 1700 m, No. 487, Melastomaceae tree branch, S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Corthylus abbreviatus Eichhoff

Plate CCXX

Corthylus abbreviatus Eichhoff, 1869:279. Holotype ♀; Colombia; IRSNB, Brussels (References in Wood & Bright c1992:1070)
Corthylus dentatus Eggers, 1943:382. Holotype ♂; Cochabamba, Bolivia; NHMW, Wien (References in Wood & Bright c1992:1073). *New synonymy*

Diagnosis: Distinguished from *macrocerus* Eichhoff by the smaller size; by the less slender body form; and by the conical tubercle on male declivital interstriae 3. The female vertex bears a dense row of very long, golden setae; the antennal cirrus is very long.

Male: Length 3.2–3.5 mm, 2.5 times as long as wide; bicolored, pronotum, posterior half and sides of elytra dark reddish brown, anterior three-fourths of elytral disc to about interstriae 7 pale reddish brown. Frons convex, smooth, shining, with many small punctures (upper two-thirds concealed by pronotum on type); antennal club 2.4 times as long as wide, obovate, slightly asymmetrical, sutures moderately procurved, 1 finely septate. Pronotum 1.08 times as long as wide; sides weakly arcuate on basal half, narrowly rounded in front; anterior margin armed by 6 serrations, median pair much larger; summit at middle of pronotum length; anterior slope steep, asperities coarse, close, confused; posterior areas reticulate, punctures minute, most with a weak, transverse ruga, these rugae extending from summit to base; sparse setae on anterior margin. Elytra 1.4 times as long as wide, 1.25 times as long as pronotum; disc occupying basal 77 percent of elytra length; disc smooth, shining, with several impressed lines, punctures small, confused, striae 1 to 3 with punctures in rows at base of declivity. Declivity very steep, shallowly subconcave on lower half; striae 1 and 2 with small punctures in definite rows on basal half, confused below; sutural interstriae weakly, distinctly elevated, half as high as wide, crest with about eight minute tubercles, 2 as wide as 1, surface smooth, shining, impunctate on upper half, punctures confused on lower half, 3 represented by a large conical tubercle at middle of declivity length and displaced two-thirds distance from lateral crest toward suture, lateral crest on upper half higher than suture, a few small granules on lateral crest above to middle of declivity length; ventrolateral crest subacute from suture almost to lateral margin. Sparse, short setae on apical margin below and on lateral areas above middle of declivity.

Female: Distinguished from male by: Frons moderately concave eye to eye from epistoma to vertex; concave area smooth, shining, minutely punctured, a small glabrous area on median fifth on epistoma to slightly above epistoma; lateral areas with moderately abundant, rather short setae from epistomal margin to above upper level of eyes; dorsal margin of vertex with a dense row of very long golden setae, tips of longest setae capable of attaining five-sixths of distance toward epistomal margin; antennal club 1.2 times as long as wide, large, strongly asymmetrical, a smooth, shining, transverse band distad from suture 2 and another very near apex, cirrus

very slender, longer than club; anterior margin of pronotum less coarsely serrate; declivity with tubercle on interstriae 3 near middle of declivity replaced by two much smaller, closely placed tubercles (rarely one in female).

Distribution: Bolivia to Venezuela (Merida).

Bolivia: Cochabamba (holotype of *dentatus*).

Venezuela: Colonia Tovar, Aragua, 4-V-1970, 1700 m, No. 504, tree branch, SLW; 30 km E Merida, Merida, 8-I-1970, 2500 m, No. 219, *Alnus*, SLW; Merida Merida, 11-IX-1969, 1700 m, No. 4, *Croton*, 22-IX-1969, No. 12, *Vismia*, 18-X-1969, No. 71, liana, 29-XII-1969, *Ficus*, SLW.

Notes: The above treatment was based on the female holotype of *abbreviatus* Eichhoff, on the male holotype of *dentatus* Eggers, and on 29 specimens from Venezuela taken by me.

Corthylus antennarius Schedl

Corthylus antennarius Schedl, 1966:120. Holotype ♀; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien (References in Wood & Bright c1992:1070)

Diagnosis: Distinguished from *abbreviatus* Eichhoff by the shallowly emarginate apical margin of the female antennal club; by the much shorter, less abundant setae on the female vertex; by the smaller punctures on the declivity, the sutural interstriae distinctly higher, and the tubercles on interstriae 3 smaller and less strongly displaced mesad from the lateral crest.

Male: Similar to female except frons convex, with sparse setae; antennal club smaller, more nearly symmetrical, apical margin procurved, not emarginate, cirrus absent; anterior margin of pronotum more coarsely serrate.

Female: Length 3.0–3.3 mm, 2.2 times as long as wide; color dark reddish brown. Frons moderately concave eye to eye from epistoma to vertex, without a glabrous area above epistoma, setae on lower half rather long, tips of longest setae on vertex capable of attaining less than half distance toward epistomal margin; antennal club 1.26 times as long as wide, apical margin shallowly emarginate, transverse shining areas obscure to obsolete, slender cirrus twice as long as club. Pronotum 0.94 times as long as wide; sides weakly arcuate on basal half, rather narrowly rounded in front; anterior margin armed by about 6 weak serrations; summit slightly anterior to middle of pronotum length; anterior slope steep, asperities coarse, close, confused; posterior areas obscurely reticulate, punctures minute, sparse, short setae on anterior margin. Elytra 1.3 times as long as wide, 1.3 times as long as pronotum; disc occupying basal 70 percent of elytra length; disc mostly smooth, shining, punctures small, distinct, confused. Declivity very steep, moderately sulcate on basal half; striae 1 and 2 not indicated, punctures confused; sutural interstriae moderately elevated on basal two-thirds, crest subcarinate, about half as high as wide, crest with about five minute granules;

area of interstriae 2 on basal half moderately, rather broadly impressed, surface smooth, shining, punctures small, distinctly impressed on basal half, obscure to obsolete below; lateral crest on basal half rather broadly elevated, slightly higher than suture, about three very small tubercles on crest; lower area subconvexly impressed, punctures obscure; ventrolateral crest low, subacutely elevated from suture to lateral margin. Almost glabrous.

Distribution: Brazil: Urubici, Santa Catarina, 1975, apple; Nova Teutonia, Santa Catarina, IV-1941 (holotype).

Notes: The above treatment was based on the female holotype, and on 7 specimens from my collection (at USNM, Washington).

Corthylus attenuatus Wood, n. sp.

Plate CCXXI

Corthylus attenuatus Wood: Holotype ♀; La Carbonera Experimental Forest 50 km NW Merida, Merida, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *subserratus* Wood by the larger size; by the radically asymmetrical, apically acuminate and attenuate antennal club; by the female frons without a spongy area and setae on the vertex considerably longer; and by the declivity being rugose-reticulate, and interstriae 3 with a row of rather coarse serrations. It is probably more closely related to *excisus* Eichhoff, except the ventrolateral costa on the declivity forms more than half of a complete circle.

Male: Similar to female except frons convex from upper level of eyes to vertex, lower area moderately, transversely impressed, surface reticulate, punctures small, close on convex area, almost glabrous except sparse setae on epistoma; antennal club smaller, almost symmetrical, apex rounded, cirrus absent; anterior margin of pronotum armed by a median pair of large serrations.

Female: Length 3.5–4.0 mm, 2.5 times as long as wide; color reddish brown. Frons moderately concave eye to eye from epistoma to vertex, central area with moderately long, yellowish spatulate setae, setae on lateral margin from epistoma to lateral third of vertex with slightly longer spatulate setae, setae on median third of vertex golden in color, tips of longest setae capable of attaining epistomal margin, setae on epistomal margin short, slender; antennal club radically asymmetrical, sutures 1 to 3 marked on about mesal half, a small cleft on mesal margin at suture 1 creating a small lobe, basal part of this lobe projecting basad and forming a slender spine attaining base of club; apex of club acutely acuminate and projecting as a slender blunt spine (spine length equal to half length of scape), apical margin of club weakly procurved and bearing a row of long setae, lateral setae forming a long cirrus. Pronotum 1.05 times as long as wide; sides feebly arcuate on basal half, then weakly constricted, narrowly rounded in front, anterior margin armed by about 6 weak serrations; summit anterior to middle of pronotum length; anterior slope moderately

steep, asperities moderately coarse, close, confused; posterior areas rugose-reticulate to base and with many small, transverse rugae from summit to base, punctures not evident; sparse short setae on asperate area and on lateral margins. Elytra 1.4 times as long as wide, 1.3 times as long as pronotum; disc occupying basal 62 percent of elytra length; disc smooth, shining, with many impressed lines and several micropunctures. Declivity very steep, broadly, subconvexly impressed; ventrolateral crest subacutely elevated on more than apical half (almost two-thirds) of a circumdeclivital ring; sculpture resembling *excisus*; entire declivity rugose-reticulate; sutural interstriae weakly elevated, crest armed by 10 or more granules on upper two-thirds; area of interstriae 2 moderately impressed, small punctures obscure, no tubercles, 3 strongly, narrowly elevated from near base two-thirds distance toward apical margin, crest armed by about 6 rather coarse serrations, lateral areas (interstriae 5?) with about five tubercles (usually in a row). Sparse setae on ventrolateral crest, on interstriae 3 and 5, and on sides near declivity.

Distribution: Venezuela (Merida).

Type material: The female holotype, male allotype, and 45 paratypes were taken at La Carbonera Experimental Forest 50 km NW Merida, Merida, Venezuela, 12-I-1970, 2500 m, No. 233, from a dying liana about 10 cm in diameter, S.L. Wood. The holotype, allotype, and paratypes are in the U.S. National Museum, Washington.

Corthylus donaticus Wood

Plate CCXXV

Corthylus donaticus Wood, 1974:198. Holotype ♀; Colonia Tovar, Aragua, Venezuela; USNM, Washington (References in Wood & Bright c1992:1073)

Diagnosis: Distinguished from *serrulatus* Eggers by the lateral spongy areas on the female frons above eye to vertex, mesal areas of frons above more strongly impressed; and by the more nearly flattened declivity, with interstriae 2 more distinctly impressed.

Male: Similar to female except frons convex, sparsely punctured, a shallow, transverse impression above epistoma, vestiture sparse; antennal club smaller, more symmetrical, without a cirrus; anterior margin of pronotum more coarsely serrate; sutural interstriae on declivity more strongly elevated.

Female: Length 2.2–2.6 mm, 2.4 times as long as wide; color dark reddish brown. Frons rather strongly concave almost eye to eye from epistoma to vertex, upper margin rather abruptly rounded; median half minutely rugose, lateral fourths above upper level of eyes moderately elevated into yellow, spongy areas, these areas separated above by a non-elevated area equal to a third width of frons, mesal margin of spongy area with a sparse row of long setae (continued to epistoma), lateral margin above eye with a dense row of long setae to end of spongy area, longest setae on vertex equal in length to about one-fourth length of concave area; antennal club 1.3 times

as long as wide; moderately asymmetrical, apical margin rounded, sutures 1–3 moderately procurved, 1 mostly septate, 2 and 3 indicated by grooves, a long cirrus present. Pronotum 1.03 times as long as wide; sides almost straight and parallel on basal half, rather broadly rounded in front; anterior margin subcostate, about 8 feeble serrations obscurely indicated; summit obscure, anterior to middle of pronotum length; anterior slope short, moderately steep, asperities rather large, close, confused; posterior areas mostly reticulate, punctures very small, not close, with many impressed points; disc with many feeble transverse rugae seen only when under extreme anterior or posterior oblique light; sparse, short setae on anterior and lateral margins. Elytra 1.5 times as long as wide, 1.5 times as long as pronotum; disc occupying basal 82 percent of elytra length; disc almost smooth, shining, some impressed lines on mesal area, punctures minute, mostly confused except striae 1 to 3 mostly in rows near declivity. Declivity very steep, mostly, weakly convex, ventrolateral crest subacutely elevated on lower two-thirds of a circumdeclivital ring, crest on basal third rather abruptly rounded; face of declivity smooth, shining, punctures rather coarse, confused; sutural interstriae on central two-thirds strongly narrowly elevated, higher than wide at middle of declivity length, crest armed by 3 to 5 serrations. Sparse vestiture confined to declivity on lateral fourths and interstriae 1 on declivity.

Distribution: Venezuela: Colonia Tovar, Aragua, 4-V-1970, 1700 m, No. 469, tree seedling (holotype, allotype, 5 paratypes), No. 484, Melastomaceae, No. 500, tree branch, No. 479, tree bole, No. 497, tree seedlings; 30 km E Merida, Merida, 8-I-1970, 2500 m, No. 219, *Alnus*, all by SLW.

Notes: The above treatment was based on 30 specimens in the type series and on 7 non-types all from Venezuela.

Corthylus abruptedecivis Schedl

Corthylus abruptedecivis Schedl, 1966:121. Holotype ♂; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien (Wood & Bright c1992:1070)

Diagnosis: Distinguished from *donaticus* Wood by the slightly smaller size; by the short, oval spongy areas above the eyes on the lateral thirds of the concave area on the female frons, with sparse setae on the concave area much longer, more widely distributed and the setae on the dorsal crest much longer.

Female: Length 2.8 mm, 2.7 times as long as wide; color yellowish brown, part of pronotum and posterior third of elytra reddish brown (mature?). Frons rather strongly, broadly concave eye to eye from epistoma to vertex, surface almost smooth, punctures sparse, most not clearly evident; lateral fifth of frons from slightly below upper margin of eye to slightly above eye bearing a yellow, spongy area 1.5 times as long as wide, dorsal crest with a dense row of setae almost to median line on vertex, tips of longest setae capable of extending three-fifths of

distance from vertex toward epistoma; antennal club as long as wide, rather strongly asymmetrical, suture 1 septate, 2 partly represented by a nonseptate weak groove, cirrus three times longer than than club. Pronotum 1.1 times as long as wide; sides almost straight and parallel on more than basal half of pronotum length, more strongly arcuate in front and more coarsely serrate than on *donaticus*; remaining areas similar to *donaticus* except less strongly reticulate. Elytra 1.6 times as long as wide, 1.5 times as long as pronotum; disc similar to *donaticus*. Declivity resembling *donaticus* except punctures all confused (those of striae 1 in *donaticus* in a uniseriate row); base of interstriae 2 more broadly, more distinctly impressed, sutural interstriae more strongly elevated, serrations on crest less clearly defined than in *donaticus*.

Distribution: Brazil: Nova Teutonia, Santa Catarina, XI-1967, 27°11'B, 52°23'L, 300–500 m, F. Plaumann.

Notes: The above treatment was based on the female holotype.

Corthylus serrulatus Eggers

Corthylus serrulatus Eggers, 1934:82. Lectotype ♀; Cochabamba, Bolivia; NHMW, Wien, present designation (References in Wood & Bright c1992:1079)

Corthylus argentinensis Schedl, 1950:157. Holotype ♂; Verzenyi, Pr. Jujuy, Argentina; NHMW, Wien (References in Wood & Bright c1992:1070). *New synonymy*

Diagnosis: Distinguished from *donaticus* Wood by the less strongly concave female frons, the spongy areas smaller and lower in position, the setae on the vertex are much longer, and the crest on declivital interstriae 1 is not as high and is uniformly costate (not serrate), weakly serrate on male.

Male: Similar to female except frons broadly convex, a shallow, transverse impression on lower third, surface weakly reticulate, punctures sparse, moderately large, sparse setae on epistoma; antennal club more nearly symmetrical, cirrus absent; anterior margin of pronotum armed by 2 rather coarse median serrations; sutural interstriae on declivity with about 5 weak serrations.

Female: Length 2.2–2.5 mm, 2.8 times as long as wide; color dark reddish brown. Frons moderately concave eye to eye from epistoma to vertex; surface of concave area smooth, shining, lateral areas not specially elevated above, punctures on concave area sparse, minute, lateral sixth forming a yellow, spongy area from lower margin of eye to well above upper level of eyes, upper margin at vertex abrupt, bearing a dense, continuous row of long setae equal in width to distance between eyes, tips of longest setae capable of attaining about half distance toward epistoma; antennal club rather large, strongly asymmetrical, 1.3 times as long as wide, apical margin strongly procurved, cirrus very long. Pronotum 1.03 times as long as wide; sides feebly arcuate on more than basal half, rather broadly rounded in front; anterior margin armed by about eight weak serrations; summit anterior to middle of pronotum length; anterior slope moderate, short, asperities coarse, close, confused; posterior areas reticulate, punctures minute, sparse, most associated with a weak, transverse ruga; sparse setae on anterior and lateral margins. Elytra 1.4 times as long as wide, 1.4 times as long as pronotum; disc occupying basal 77 percent of elytra length; disc smooth, shining, with a few weakly impressed lines, punctures small to minute, confused. Declivity very steep, weakly convex; ventrolateral costa abruptly, subacutely elevated on two-thirds of a circumdeclivital ring, upper margin abruptly rounded; face of declivity weakly convex above, weakly concave below, surface smooth, shining, punctures rather small, numerous, confused; sutural interstriae narrowly, rather strongly elevated on central two-thirds of declivity length, crest uniformly costate, not serrate. Setae restricted to declivity, sparse on interstriae 1 and lateral areas.

Distribution: Argentina to Bolivia and Peru. Argentina: Germain, 1907, H. Donckier (male and female cotypes); Horco Molle near Tucuman, 12-25-VI-1966, L. Strange, and same data except I-VIII-1966; Vezenyi, Prov. Jujuy, Ledesma (holotype of *argentinensis*). Bolivia: Cochabamba (Germain), 1907, H. Donckier (female lectotype, male cotype of *serrulatus*).

Peru: Dep. San Martin, Almirante, 12-XII-1936, 1900 m, tropical forest, F. Woytkowski.

Notes: This species was based on a “male type” and a “female type” that were designated in the original description by Eggers. Schedl (1979:225) referred to the female type as the allotype of *Corthylus serrulatus* without making a formal designation. The male and female types must be considered as syntypes. Because this species is almost unrecognizable in the male sex, and is without a formal designation of a type, I here designate the second female syntype of *Corthylus serrulatus* Eggers as the lectotype of this species. A male in MNHN, Paris, bears Eggers’s 1932 label of male type, from Cochabamba, Bolivia, 1907, H. Donckier. Because conspecific male and female “types” were designated in the original description of this species, these “types” become syntypes. This male “type,” in MNHN, Paris, is here designated as the allotype of this species. The male holotype of *Corthylus argentinensis* Schedl was examined and compared by me directly to the male and 4 females (including 2 cotypes) of *serrulatus* and are considered to be the same species. The allotype and paratypes of *argentinensis* actually belong to *Corthylus pharax* Schedl, treated below.

The above treatment was based on the female lectotype, on a female cotype bearing type data (NHMW, Wien) from Bolivia, 1 male and 1 female, both non-types, from Argentina, and 1 female non-type from Peru.

Corthylus praeustus Schedl

Corthylus praeustus Schedl, 1950:153. Lectotype ♂; Guatamala; NHMW, Wien, designated by Wood 1982:308 (Wood & Bright c1992:1077)

Diagnosis: Distinguished from *gracilior* Wood by the less strongly asymmetrical female antennal club, with

segment 1 wider; sutures 1 and 2 more strongly procurved; and by the yellow spongy area on the epistoma represented by a narrow band on the margin of the acutely elevated margin.

Male: Similar to female except frons broadly convex, strongly reticulate; antennal club smaller, more nearly symmetrical, without a cirrus; anterior margin of pronotum more coarsely serrate; declivity with sutural interstriae higher, more coarsely serrate.

Female: Length 1.5–1.8 mm, 2.6 times as long as wide; color yellowish brown, some specimens with anterior fourth of pronotum and posterior third of declivity very dark reddish brown (bicolored). Frons strongly concave eye to eye from epistoma to vertex, concave area smooth, shining, glabrous, an acutely elevated, procurved transverse carina eye to eye at and slightly below lower mesal edge of eye; epistomal margin strongly, acutely elevated; apical margin of epistoma narrowly spongy at crest; upper margin at vertex and continuing to mesal margin of eye bearing a peripheral row of long hair, tips of longest setae capable of extending half distance toward epistoma; antennal club 1.4 times as long as wide, rather strongly asymmetrical, suture 1 partly septate, 2 and 3 represented by densely micropunctate grooves, a long cirrus present. Pronotum 1.06 times as long as wide; sides on basal half feebly arcuate, narrowly rounded in front; anterior margin armed by about 8 low serrations; summit anterior to middle of pronotum length; anterior slope moderately steep, short, asperities rather coarse, close, confused; posterior areas reticulate, punctures sparse, minute; almost glabrous. Elytra 1.4 times as long as wide, 1.2 times as long as pronotum; disc occupying basal 80 percent of elytra length; disc smooth, shining, punctures minute, confused, very shallow to obsolete. Declivity very steep; ventrolateral crest forming more than two-thirds of a circumdeclivital ring, crest on upper fourth abruptly rounded; face of declivity almost flat, reticulate; sutural interstriae moderately elevated on upper five-sixths of declivity length, crest almost as high as wide, crest on middle half weakly serrate, about 5 small serrations present. Almost glabrous.

Distribution: Guatemala and Costa Rica to Peru and Brazil.

Guatemala: "Guatemala, 1915, M. Hagedorn" (holotype and 5 paratypes of *Corthylus praeustus* Eggers).

Costa Rica: La Selva 3 km S Puerto Viejo, Heredia, 10-IV-1984, H.A. Hespenehede; same locality II-IV-1993, Malaise trap, P. Hanson.

South America: "South America" (holotype *Corthylus praeustus* Schedl).

Brazil: Nova Teutonia [Santa Catarina], 1944, F. Plauermann; Monte Alegre, Parana, 26-IV-1986, 6-XII-1996, ethanol trap, *Eucalyptus grandis* stand, KAL-45, C.A.H. Flechtman.

Peru: "Peru."

Notes: The above treatment was based on the holotype, allotype, and 7 paratypes of *Corthylus praeustus* Schedl and on 1 specimen from Peru.

Corthylus gracilior Wood, n. sp.

Corthylus gracilior Wood: Holotype ♀; Merida, Merida, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *praeustus* Schedl by the larger size; by the more radically asymmetrical female antennal club, with sutures less strongly procurved; and by the much larger spongy area on the female frons.

Male: Similar to female except frons broadly convex, reticulate, rather coarsely punctured, spongy areas on frons absent; antennal club smaller, much less strongly asymmetrical; serrations on sutural interstriae of declivity larger.

Female: Length 1.8–1.9 mm, 2.8 times as long as wide; color dark reddish brown. Frons moderately concave eye to eye from epistoma to vertex; spongy areas on epistomal margin larger, concave area almost smooth, with many short setae, a transverse procurved carina present as in *praeustus*; antennal club 1.4 times as long as wide, mesal margin at sutures 1 and 2 weakly notched, apex of club subacutely pointed, segments 1 and 2 much narrower than in *praeustus*, smooth, shining areas much larger. Pronotum 1.14 times as long as wide; sides on more than basal half weakly arcuate, rather broadly rounded in front; anterior margin armed by about 8 low serrations; summit indefinite, anterior to middle of pronotum length; anterior slope confined to anterior fourth of pronotum length, moderately steep, asperities rather small, close, confused; posterior areas strongly reticulate; punctures obsolete; sparse, short setae on anterior and lateral margins. Elytra 1.7 times as long as wide, 1.5 times as long as pronotum; disc occupying basal 72 percent of elytra length; disc smooth, shining, many impressed lines present, punctures very small, some obsolete near declivity. Declivity broadly subconcave; ventrolateral margin acutely costate on lower three-fourths, crest rather abruptly rounded to suture; concave area almost flat except for sutural interstriae; sutural interstriae moderately elevated on middle half of declivity length, almost as high as wide, crest with about 5 small, pointed serrations; all surfaces strongly reticulate from suture to lateral margin. Sparse, short setae confined to sides near lower half of ventrolateral margin.

Distribution: Venezuela (Merida).

Type material: The female holotype was taken at Merida, Merida, Venezuela, 18-X-1969, 1700 m, No. 16, from an unidentified liana, S.L. Wood; the male allotype and 1 broken female paratype are from the same locality taken 7-X-1969, No. 41 from a *Vismia* branch, S.L. Wood. The holotype, allotype, and paratype are in the U.S. National Museum, Washington.

Corthylus gracilens Wood, n. sp.

Corthylus gracilens Wood: Holotype ♀; Telamaco Borba, Parana, Brazil; MZUSP, Sao Paulo, designated below

Diagnosis: Distinguished from *gracilior* Wood by the very different female frons and antennal club, as described

below; and by the larger, more deeply impressed punctures on the elytral disc.

Male: Similar to female except frons convex, partly rugose-reticulate, punctures small, no spongy areas; antennal club smaller, subcircular in outline, suture 1 partly septate, 2 a weak impression, non-septate, no cirrus; anterior margin of pronotum armed by 2 moderate serrations; declivity more coarsely punctured.

Female: Length 1.3–1.4 mm, 2.8 times as long as wide; bicolored, yellowish brown, with posterior third of elytra very dark reddish brown. Frons excavated eye to eye from epistoma to vertex, median half of vertex with a transverse row of very long setae curling downward on their apical third, median line of tuft with about six setae half length of others; central area with a subcircular area on median third extending from upper level of eyes to carina; carina low, acutely elevated, extending from eye to eye on a moderately procurved course, area from carina to epistomal margin occupied by a pair of large spongy areas from margin of eye to narrow median separation on epistoma (partly concealed on type by antennae); lateral areas above carina with a tuft of setae extending to tuft on vertex; area from spongy areas to epistoma not visible on type. Pronotum 1.2 times as long as wide; sides weakly arcuate of basal two-thirds, almost straight and parallel, rather broadly rounded in front; anterior margin armed by 6 low serrations; summit slightly in front of middle of pronotum length; anterior slope rather steep, asperities small, close, confused; posterior areas reticulate, punctures minute to obsolete; glabrous except for a few small, hairlike setae on anterior margin. Elytra 1.5 times as long as wide, 1.3 times as long as pronotum; disc occupying 75 percent of elytra length; disc smooth, shining, punctures very small, shallow, mostly confused on basal half, partly in obscure striae rows on posterior half. Declivity obliquely truncate as in *gracilior*; punctures on striae 2 and upper half of 1 in striae rows, punctures small, rather deep; similar punctures on lateral areas confused; surface not smooth, slightly irregular, obscure indications of reticulation on some areas (irregular).

Distribution: Brazil (Parana).

Type material: The female holotype (30-VI-1999), male allotype (12-XI-1999) and 1 male paratype (30-III-2001) were taken at Telamaco Borba, Parana, Brazil, in Klabin Papel e Cellulose forest, ethanol baited intercept traps, C.A.H. Flechtmann. The holotype and allotype are in the Museum de Zoologia, Universidade de Sao Paulo, Sao Paulo; the paratype is in the U.S. National Museum, Washington.

Corthylus bellus Wood, n. sp.

Corthylus bellus Wood: Holotype ♀; Piedras Blancas 11 km E Medellin, Antioquia, Colombia; USNM, Washington, designated below

Diagnosis: Distinguished from *praeustus* Schedl and *gracilior* Wood by the larger size; by the absence of a transverse carina on the lower female frons; by the dif-

ferent female antennal club; and by the more strongly elevated sutural interstriae on the declivity, its crest more strongly serrate.

Male: Similar to female except frons strongly convex, strongly reticulate, with small punctures, vestiture sparse and confined mostly to and near epistoma; antennal club smaller, weakly asymmetrical, cirrus absent; anterior margin of pronotum more coarsely serrate.

Female: Length 2.3–2.4 mm, 2.4 times as long as wide; color dark reddish brown. Frons rather strongly concave eye to eye from epistoma apparently to vertex (upper area obscured by pronotum on type); concave area without a transverse carina, lateral areas at level of eye with a small, transversely elongate callus ornamented by many short setae, longer setae on margins of callus; dorsal margin on vertex and margin above eyes apparently with a row of rather short setae (largely concealed by pronotum on type); antennal club large, rather strongly asymmetrical, entirely covered by micropunctures (no smooth, shining areas), sutures 1 and 2 rather weakly procurved, 1 septate, 2 represented by a groove, cirrus slender, longer than club. Pronotum 1.03 times as long as wide; sides on basal half feebly arcuate, subparallel, rather broadly rounded in front; anterior margin armed by 8 low serrations; summit slightly anterior to middle of pronotum length; anterior slope moderately steep, asperities rather coarse, close, confused; posterior areas strongly reticulate, punctures minute, those on median fourth associated with a very low, transverse ruga; sparse, short setae on anterior and lateral margins. Elytra 1.6 times as long as wide, 1.6 times as long as pronotum; disc occupying basal 90 percent of elytra length; disc smooth, shining, with several impressed lines, punctures small to minute, confused. Declivity very steep, ventrolateral crest forming three-fourths or more of a complete circumdeclivital ring; striae 1 and 2 on declivital face with small punctures almost in rows, area from striae 1 to lateral margin almost flat; sutural interstriae on upper three-fourths strongly elevated, higher than wide and armed on crest by 6 or 7 sharply pointed, rather coarse serrations; lateral areas at interstriae 3 with about three small tubercles. Sparse setae on declivity, short on interstriae 1 and apical margin, longer on lateral areas.

Distribution: Colombia (Antioquia).

Type material: The female holotype and male allotype were taken at Piedras Blancas 11 km E Medellin, Antioquia, Colombia, 17-VII-1970, 2300 m, No. 689, *Vismia*, S.L. Wood. The holotype and allotype are in the U.S. National Museum, Washington.

Corthylus cirritus Wood

Plate CCXXIII

Corthylus cirritus Wood, 1974:200. Holotype ♀; La Carbonera Experimental Forest 50 km NW Merida, Merida, Venezuela; USNM, Washington (References in Wood & Bright c1992:1071)

Diagnosis: Distinguished from *additus* Wood by the almost flat, spongy areas on the female frons extending

on the lateral fourths from the upper level of the eyes to slightly below the lower level of the eyes, the smooth, shining, concave area wider; the setae on the peripheral margin forming an almost complete ring from epistoma to vertex (with small breaks on the median line at the vertex and at the level of the antennal insertions; the sutural interstriae on the declivity not as high, with the serrations not as high, and the lateral tubercles absent.

Male: Similar to female except frons strongly convex, weakly reticulate, punctures small, sparse; transverse impression above epistoma shallow, vestiture sparse occurring only on and near epistoma; antennal club smaller, weakly asymmetrical, cirrus absent; serrations on anterior margin of pronotum smaller; declivital interstriae 1 slightly higher, serrations larger.

Female: Length 1.9–2.5 mm, 2.3 times as long as wide; color dark reddish brown. Frons rather strongly concave eye to eye from epistoma to vertex, lateral fifths yellowish and spongy from level of lower margin of eye to upper margin of eye; concave area obscurely micropunctate, mostly glabrous; peripheral margin from epistoma to vertex with a dense row of long setae, those on vertex twice as long as those below, tips of longest setae on vertex capable of attaining one-third distance toward epistoma; antennal club 1.1 times as long as wide, strongly asymmetrical, sutures moderately procurved, 1 septate, 2 and 3 indicated by densely micropunctate grooves, most of areas distad from each suture smooth, shining, with micropunctures sparse to absent on these areas, cirrus very long, slender and one to two times as long as pronotum. Pronotum 1.0 times as long as wide; sides on basal two-thirds almost straight and parallel, broadly rounded in front; anterior margin armed by a weakly subserrate low costa; summit slightly anterior to middle of pronotum length; anterior slope moderately steep, asperities low, rather sparse, confused; posterior areas strongly reticulate, punctures small, posterior margin of some of punctures bearing a minute ruga; anterior margin with sparse setae. Elytra 1.4 times as long as wide, 1.4 times as long as pronotum; disc occupying basal 85 percent of elytra length; disc smooth, shining, a few impressed lines present, punctures very small, confused. Declivity very steep; ventrolateral costa forming a complete circumdeclivital ring; face of declivity smooth, shining, weakly convex on basal half in area of interstriae 3, weakly concave on lower half and near suture above, one or two minute granules at middle or above on area of interstriae 3, punctures rather small, confused; sutural interstriae narrowly elevated on middle half of declivity length, almost as high as wide and armed by about 3 to 4 low serrations. Sparse setae on declivital interstriae 1 and near peripheral costa on upper half.

Distribution: Venezuela: Rancho Grande, Aragua, 9-IV-1970, 1100 m, No. 413, tree branches [holotype, allotype, paratypes, Nos. 412, 443 (Guttiferae), 445 paratypes], SLW.

Notes: The above treatment was based on the type series of 26 specimens.

Corthylus additus Wood

Plate CCXXI

Corthylus additus Wood, 1974:199. Holotype ♀; La Carbonera Experimental Forest 50 km NW Merida, Merida, Venezuela; USNM, Washington (References in Wood & Bright c1992:1070)

Diagnosis: Distinguished from *bellus* Wood by the deeper concave area on the female frons, the lateral elevations longer, higher, the peripheral setae from upper margin of eye to vertex much longer; by the sutural interstriae on the declivity being higher and coarsely serrate only on the lower half, and with several minute tubercles laterad from interstriae 3.

Male: Similar to female except frons strongly convex, reticulate, punctures sparse, sparse setae on epistoma; antennal club smaller, less strongly asymmetrical, cirrus absent; tubercles on lateral areas of declivity slightly larger, more numerous.

Female: Length 1.9–2.5 mm, 3.0 times as long as wide; color very dark reddish brown. Frons deeply concave on median half below upper level of eyes, more broadly impressed above, lateral thirds below upper level of eyes abruptly, rather strongly elevated about two-thirds distance toward epistomal margin; central concave area almost glabrous, lateral elevations with many long setae, lateral and upper margins with a peripheral row of long setae (narrowly interrupted at median line on vertex), tips of longest setae capable of extending one-third distance toward epistomal margin; antennal club 1.07 times as long as wide; as in *bellus*, except cirrus much longer. Pronotum 1.1 times as long as wide; sides on more than basal half almost straight and subparallel, rather narrowly rounded in front; anterior margin armed by about 8 serrations; summit distinctly anterior to summit; anterior slope moderately steep, asperities coarse, close, confused; posterior areas strongly reticulate, punctures small, those on median fourth usually associated with a low, transverse ruga; sparse, short setae on and near anterior and lateral margins. Elytra 1.7 times as long as wide, 1.6 times as long as pronotum; disc occupying basal 75 percent of elytra length; disc smooth, shining, with many impressed lines, punctures small, numerous, mostly confused. Declivity abrupt, very steep; ventrolateral crest subacutely elevated on more than lower two-thirds, rather narrowly rounded above; surface smooth, shining; punctures on striae 1 and 2 small, mostly in rows on basal half; area from striae 1 to lateral margin irregularly almost flat, a row of about five small tubercles on interstriae 5, about four to six small tubercles in lateral areas; sutural interstriae elevated on upper two-thirds of declivity length, much more strongly elevated on its lower half, crest on lower half armed by about 4 coarse serrations. Sparse short setae on apical half of elevation on sutural interstriae and on apical margin.

Distribution: Venezuela: La Carbonera Experimental Forest 50 km NW Merida, Merida, 10-14-XI-1969, 2500 m, *Nectandra*, *Clusia*, *Vismia* seedlings, branches, and

logs, SLW; Merida, Merida, 22-IX-1969, 1700 m, No. 12 in *Vismia*, No. 8 in *Ficus*, SLW.

Notes: The above treatment was based on the type series of 47 specimens.

Corthylus frontalis Wood, n. sp.

Corthylus frontalis Wood: Holotype ♀; Rancho Grande, Aragua, Venezuela; USNM, Washington, designated below

Diagnosis: Distinguished from *additus* Wood by the smaller size; by the larger, yellow, almost flat spongy areas on the female frons, a uniseriate row of long setae on spongy area margins, a definite median carina in central area of frons; and by other features described below.

Female: Length 1.9 mm, 2.3 times as long as wide; color dark reddish brown. Frons rather strongly concave eye to eye from epistoma to vertex, lateral fourths feebly elevated into yellow, spongy areas from epistoma to slightly above upper level of eyes, median concave area almost smooth, glabrous, a low median carina on upper two-thirds of concave area length; upper margin abruptly rounded and bearing a row of long hair from upper level of eyes almost to median line; a row of long hair around each spongy area; antennal club 1.1 times as long as wide, strongly asymmetrical, suture 1 mostly septate, 2 and 3 feebly indicated by partial grooves, cirrus slender about twice as long as pronotum. Pronotum 1.0 times as long as wide; sides weakly arcuate on basal half, rather broadly rounded in front; anterior margin armed by about 8 very weak serrations; summit slightly anterior to middle of pronotum length; anterior slope moderate, asperities small, close, confused; posterior areas strongly reticulate, punctures minute, those on median fourth associated with a very weak, transverse ruga; anterior margin with sparse setae. Elytra 1.2 times as long as wide, 1.2 times as long as pronotum; disc occupying basal 77 percent of elytra length; disc smooth, shining, with many impressed lines, punctures very small, confused, most obsolete near declivity. Declivity very steep, subtruncate, weakly convex, smooth, shining; circumdeclivital costa subacutely elevated on lower two-thirds, abruptly, narrowly rounded above, face shallowly concave on lower half and in area of interstriae 2 to base; striae 1 with small punctures in a definite row on basal two-thirds, confused laterally, about three feeble granules in area near middle of interstriae 3; sutural interstriae strongly elevated on central two-thirds of declivity length, about as high as wide, crest with 4 weak serrations. Sparse setae on interstriae 1 and about six longer setae on lateral areas.

Distribution: Venezuela (Aragua).

Type material: The female holotype was taken at Rancho Grande, Aragua, Venezuela, 9-IV-1970, 1100 m, No. 431, *Nectandra*, S.L. Wood. The holotype is in the U.S. National Museum, Washington.

Corthylus ingaensis (Schedl)

Corthylus ingaensis (Schedl), 1939:14 (*Metacorthylus*). Holotype ♂; El Collegio, Dep. Cundinamarca 27 mi. W Bogota, Colombia; BMNH, London (References in Wood & Bright c1992:1074)

Diagnosis: Distinguished by the unique female antennal club; by the reticulate, rather strongly convex elytral declivity, with the ventrolateral costa completing about half of a complete circumdeclivital ring; and by the female frons as described below.

Male: Similar to female except frons broadly convex, lower third of area below upper level of eyes weakly, transversely impressed, surface weakly reticulate, punctures rather small; sparse setae on epistoma; antennal club as wide as long, more nearly symmetrical, suture 1 straight, septate, 2 a straight groove, cirrus absent; anterior margin of pronotum armed by 2 large serrations.

Female: Length 1.7–1.8 mm, 2.3 times as long as wide; color black. Frons moderately concave eye to eye from epistoma to vertex, concave area above almost smooth, shining, punctures very small; lower area with a pair of oval, pale yellow, spongy areas, each about twice as long as wide and separated from one another by width of a spongy area, lower end of spongy area at level of antennal insertion; area above and lateral to spongy area with rather short, plumose setae to peripheral margin, peripheral margin from lower margin of eye to vertex with a dense row of very long setae; antennal club twice as wide as long, very strongly asymmetrical, suture 1 mostly, weakly septate, 2 and 3 grooved and micropunctate, areas distad from each suture mostly smooth, shining, cirrus distinctly longer than width of club. Pronotum 1.0 times as long as wide; sides on basal half feebly arcuate, subparallel, rather broadly rounded in front; anterior margin armed by about 6 small serrations of equal size; summit at middle of pronotum length; anterior slope steep, asperities rather large, close, confused; posterior areas almost rugose-reticulate, small punctures obsolete on dorsal area, median third with many low, transverse rugae; sparse setae on anterior and lateral margins. Elytra about 1.4 times as long as wide (spread), 1.4 times as long as pronotum; disc occupying 72 percent of elytra length; disc subshining, with several impressed lines, punctures very small, shallow, obsolete near declivity, those on striae 1 and 2 in obscure rows, others mostly confused. Declivity steep, moderately convex; ventrolateral costa forming about half of a circumdeclivital ring, crest rounded on basal area; surface reticulate; punctures on upper two-thirds of striae 1 and 2 small, in definite rows; sutural interstriae rather strongly elevated, crest uniformly costate, without punctures or serrations, as high as wide on middle half of its length, 2 as wide as 1, feebly impressed, lateral areas weakly convex, crest much lower than crest on 1, and armed by two small, pointed tubercles, lower one at middle of declivity. Sparse setae on apical margin and on sides near declivity.

Distribution: Colombia to Venezuela.

Colombia: El Colegio [Dep. Cundinamarca 27 mi. W Bogota], 1-VII-1937, R.P. Roba (holotype).

Venezuela: Rancho Grande, Aragua, 9-IV-1970, 1100 m, tree branch, SLW.

Notes: The above treatment was based on the male holotype and 2 males and 1 female from Venezuela. Schedl

(1939:14) illustrated the female frons and the antenna of both sexes.

Corthylus praealtus Schedl

Corthylus praealtus Schedl, 1976:80. Holotype ♂; Rio Negro [Parana or Santa Catarina], Brazil; NHMW, Wien (References in Wood & Bright c1992:1077)

Diagnosis: Distinguished from *petilus* Wood by the larger size and stouter body form; by the more narrowly rounded anterior margin of the male pronotum; by the minute punctures on the pronotum disc; and by the weakly elevated sutural interstriae on the declivity. The declivital face is shallowly concave.

Male: Length 3.6 mm, 2.5 times as long as wide; color dark reddish brown on asperate area of pronotum and posterior two-thirds of elytra, yellowish brown on other areas. Frons broadly convex, a shallow, transverse impression on lower third of area below upper level of eyes; surface reticulate, punctures small, not close; sparse setae on lower third; antennal club 1.5 times as long as wide, oval, apical margin narrowly rounded, surface densely micropunctate, suture 1 septate on mesal fourth, 2 feebly indicated by a partial groove, cirrus absent. Pronotum 1.1 times as long as wide; sides weakly arcuate on more than basal half, narrowly rounded in front; anterior margin armed by 6 weak serrations; summit anterior to middle of pronotum length; anterior slope rather steep, asperities coarse, close, confused; posterior areas reticulate, punctures minute; sparse setae on and near anterior and lateral margins. Elytra 1.5 times as long as wide, 1.3 times as long as pronotum; disc occupying basal 90 percent of elytra length; disc smooth, shining, a few impressed lines, punctures moderately small, deep, numerous. Declivity very steep; ventrolateral crest subacutely elevated on a complete circumdeclivital ring; each half of face moderately, uniformly concave, punctures rather coarse, deep, confused, no tubercles; sutural interstriae weakly elevated, wider than high, crest with about seven minute granules. Sparse setae on apical fourth of ventrolateral crest.

Distribution: Brazil: Rio Negro [Parana or Santa Catarina], II-1963, Bechyne.

Notes: The above treatment was based on the holotype.

Corthylus robustus Schedl

Plate CCXXVIII

Corthylus robustus Schedl, 1936:108. Holotype ♀; Nova Teutonia [Santa Catarina], Brazil; NHMW, Wien (References in Wood & Bright c1992:1079)

Diagnosis: Distinguished from *serrulatus* Eggers by the larger size; by the ventrolateral costa forming a complete circumdeclivital ring; by the female frons bearing a pair of spongy areas; and by the black color.

Male: Similar to female except frons strongly convex, a weak, transverse impression immediately above epistoma, surface mostly smooth, shining, punctures rather small, not close, sparse vestiture confined to lower third;

antennal club smaller, more nearly symmetrical, cirrus absent; anterior margin of pronotum with a median pair of large serrations; cirrus absent; anterior margin of pronotum with a median pair of large serrations; tubercles on basal half of declivital interstriae 3 slightly larger.

Female: Length 2.6–2.9 mm, 2.1 times as long as wide; color black. Frons moderately concave eye to eye from epistoma to vertex; surface of concave area on middle third densely micropunctate from epistoma to vertex, lateral thirds (slightly mesad from margin) with a pair of yellow, spongy areas from lower level of mesal margin of eye almost to vertex, surface of spongy area with dense, short setae, a row of longer setae around margin of spongy area; a peripheral row of much longer setae from below lower level of eye to vertex, except median third on vertex without setae, tips of longest setae on vertex capable of attaining half distance toward epistomal margin; antennal club 1.25 times as long as wide, strongly asymmetrical, surface densely micropunctate, sutures moderately procurved, 1 finely septate, 2 represented by a definite groove, 3 by a weak partial groove, cirrus slender, longer than club. Pronotum 0.94 times as long as wide; sides weakly arcuate on basal half, rather broadly rounded in front; anterior margin armed by a row of 10 low serrations; summit slightly anterior to middle of pronotum length; anterior slope moderately steep, asperities coarse, close, confused; posterior areas smooth, shining, punctures very small, a few small, transverse rugae on median third from summit to base. Elytra 1.1 times as long as wide, 1.2 times as long as pronotum; disc occupying 72 percent of elytra length; disc smooth, shining, sparse, impressed lines, a few micropunctures, punctures rather small, confused. Declivity very steep, weakly convex; ventrolateral costa forming a complete costate circumdeclivital ring; surface smooth, shining, punctures small, deep, rather dense, confused; punctures on striae 1 mostly in a row, confused on 2 and laterad; sutural interstriae moderately elevated on basal five-sixths, almost as high as wide, crest with about seven small punctures; area of 3 obscurely elevated and armed by a row of three to six small, pointed tubercles on middle half. Sparse setae on lower half of ventrolateral costa of declivity.

Distribution: Brazil: Nova Teutonia [Santa Catarina], XII-1934, F. Plaumann ("female holotype"), same data except VIII-1941 (allotype), II-1937, 15-VII-1937 (paratypes), III-1941, F. Plaumann (paratypes); "Brazil, J.L. Saunders;" Monte Alegre, Parana, 5-VII-1996, ethanol trap in *Eucalyptus grandis* stand, C.A.H. Flechtmann.

Notes: Schedl (1936:108–109) named "*Corthylus robustus* Egg, fem. nov." and designated a female "type," following his belief that each species needed separate male and female holotypes, although a subsequent "allotype" and "paratypes" were labeled but were not cited in the literature treating this species. The female holotype designated by Schedl (1936:108–109) stands as the type of this species; the male allotype was collected and labeled subsequent to the original description but stands as the allotype of this species. The paratypes have no standing as paratypes.

The above treatment was based on Schedl's female holotype, on his male allotype, on 2 male "paratypes," and on 2 female non-types received from NHMW, Wien, and on my male taken from an unspecified locality in Brazil by J.L. Saunders, and on 2 other specimens from Brazil.

Corthylus schulzi Wood, n. sp.

Corthylus schulzi Wood: Holotype ♀; Jodensavanne, Suriname, Kamp 8; USNM, Washington, designated below

Diagnosis: Distinguished from *robustus* Schedl by the smaller size and more slender body form; by the reddish brown color; by the higher sutural interstriae on the declivity, with smaller tubercles on interstriae 3; and by the longer, more abundant vestiture on the declivity. The female frons has a single, median, spongy area.

Female: Length 1.7 mm, 2.8 times as long as wide; color reddish brown. Frons rather deeply concave eye to eye from epistoma to vertex, upper area smooth, shining, sparsely micropunctate, lateral fourths with sparse, moderately long hair, lower fourth forming a median, oval, yellow spongy area above epistomal margin; upper margin above eyes ornamented by a dense row of very long setae, tips of longest setae capable of attaining epistomal margin; eye very large, coarsely faceted; antennal club large, strongly asymmetrical, 1.15 times as long as wide, suture 1 septate, weakly procurved, 2 and 3 moderately procurved, narrowly marked by densely micropunctate grooves, areas distad from sutures mostly smooth, shining. Pronotum about 1.2 times as long as wide (partly obscured on type by glue); sides on basal half weakly arcuate, broadly rounded in front; anterior margin armed by eight serrations; summit anterior to middle of pronotum length; anterior slope gradual, asperities small, close, confused; posterior areas mostly reticulate, punctures minute, with no rugae; sparse setae on anterior and lateral margins. Elytra 1.5 times as long as wide, 1.2 times as long as pronotum; disc occupying 70 percent of elytra length; disc almost smooth, shining, with many impressed lines, punctures minute, mostly confused. Declivity very steep, face weakly convex; ventrolateral costa subacutely elevated on about 60 percent of a complete circumdeclivital ring, crest rounded on upper one-fifth; sutural interstriae strongly, narrowly elevated on upper four-fifths, higher than wide, crest with seven or more small punctures; weakly impressed on basal half of area of interstriae 2, weakly elevated on upper half of area of interstriae 3, a row of about three minute granules on interstriae 3. Long setae mostly confined to declivity, rather numerous from crest of interstriae 1 to lateral margin.

Distribution: Suriname.

Type material: The female holotype was taken at Jodensavanne, Suriname, Kamp 8, 1961, at light, Schulz. The holotype is in the U.S. National Museum, Washington. This species is named for Dr. Schulz, from Suriname. He and I were contemporary guests for 3 weeks at a for-

est research laboratory deep in the interior of Venezuela in 1970.

Corthylus truncatus Wood

Plate CCXXIX

Corthylus truncatus Wood, 1985:272. Holotype ♀; jungle near Leonpampa, Huanuco Department, Peru, 800 m; USNM, Washington (References in Wood & Bright c1992:1080)

Diagnosis: Distinguished from all known *Corthylus* species by the large size; by the very stout body form; by the unique antennal club, with the cirrus longer than the pronotum; by the reticulate declivity, the weakly elevated sutural interstriae, and complete circumdeclivital costa.

Female: Length 4.2 mm, 1.9 times as long as wide; color of pronotum yellowish brown, elytra light reddish brown. Frons rather strongly concave eye to eye from epistoma to vertex; epistoma to upper level of eyes smooth, shining, glabrous, upper area with abundant micropunctures and moderately long setae to vertex, upper margin bearing a peripheral row of rather long setae; epistomal margin to lower mesal margin of eyes with a row of rather long setae; antennal club large, moderately asymmetrical, 1.13 times as long as wide, face densely micropunctate, sutures 1 to 3 weakly procurved, 1 partly septate, 2 and 3 weakly indicated by grooves, cirrus slender, longer than pronotum. Pronotum 1.2 times as long as wide; sides widest near base, arcuately converging cephalad to rather narrowly rounded anterior margin; anterior margin armed by about 8 very low serrations; summit indefinite, anterior to middle of pronotum length; anterior slope moderate, short, on anterior fourth, asperities small, sparse, confused; posterior areas smooth, shining, punctures very small, sparse; short, sparse setae on lateral fourths and on anterior margin. Elytra 1.0 times as long as wide, 1.2 times as long as pronotum; disc occupying basal 80 percent of elytra length; disc smooth, shining, sparse impressed lines present, punctures very small to obsolete. Declivity very steep, weakly convex, ventrolateral costa forming a complete circumdeclivital ring; sutural interstriae narrowly, weakly elevated on basal seven-eighths, wider than high; face of declivity densely micropunctate, falsely appearing reticulate from suture to lateral margin, weakly convex, obscurely cresting on middle third of area of interstriae 3, about four very small tubercles on central half of interstriae 3. Many microsetae and sparse longer setae on declivital face, sparse setae on sides of disc almost to base of elytra from about interstriae 5 to costa.

Distribution: Peru: Dep. Huanuco, vic. Leonpampa, 6-XII-1937, 800 m, No. 3811, F. Woytkowski.

Notes: The above treatment was based on the holotype.

Corthylus gracilis (Schedl)

Corthylus gracilis (Schedl), 1972:74 (*Corthylomimus*). Holotype ♂; Corcovado, Guanabara, Brazil; NHMW, Wien (References in Wood & Bright c1992:1074)

Diagnosis: Apparently allied to *eichhoffi* Schedl, distinguished by the very small size and more slender body form; by the weakly convex elytral declivity, with the circumdeclivital costa less strongly, less acutely elevated; and by other characters described below.

Male: Length 1.5 mm, 2.4 times as long as wide; color dark reddish brown. Frons broadly convex, reticulate, a distinct, transverse impression immediately above shining epistoma; sparse, short setae on and near epistoma; antennal club about equal in length and width, moderately asymmetrical, sutures moderately procurved, 1 septate. Pronotum 1.1 times as long as wide; sides on basal half feebly arcuate, rather narrowly rounded in front; anterior margin armed by a pair of basally contiguous, moderate serrations; summit slightly anterior to middle of pronotum length; anterior slope steep, asperities rather coarse, close, confused; posterior areas rugose-reticulate, punctures minute, obscure. Elytra 1.4 times as long as wide, 1.25 times as long as pronotum; disc occupying basal 90 percent of elytra length; disc smooth, shining, with many weakly impressed lines; striae not impressed, punctures minute, weakly impressed, in obscure, irregular rows. Declivity almost vertical, feebly convex; circumdeclivital costa complete, abrupt, weakly elevated; face of declivity reticulate, including slightly, uniformly elevated sutural interstriae; punctures very small, in definite row on sutural interstriae, each puncture bearing a very small, stout seta, punctures on lateral areas small, obscure, not close, most bearing a small, stout seta.

Distribution: Brazil: Corcovado, Guanabara, Brazil, IX-1970, Alvarenga & Seabra.

Notes: The above treatment was based on the male holotype.

Corthylus merkli Wood, n. sp.

Corthylus merkli Wood: Holotype ♀; Yanachaga Chemilien N.P., Pasco, Peru; NHMB, Budapest, designated below

Diagnosis: Distinguished from *concisus* Wood by the smaller, transverse rugae from base of pronotum to summit; by the larger, more distinctly impressed punctures on the elytral disc; and by the more nearly flattened elytral declivity, with the entire surface more strongly, uniformly reticulate. If specimens are found between Panama and Peru, intergradation of characters could occur.

Female: Length 2.6 mm, 2.6 times as long as wide; color black, except antennae yellowish. Frons similar to *concisus*, but with fewer setae on lower half, antennae with sutural calluses obscure. Pronotum as in *concisus*, except reticulation behind summit much stronger and transverse rugae slightly higher and more numerous. Elytral disc as in *concisus*, except punctures distinctly larger, deeper. Declivity similar to *concisus*, except more strongly reticulate and setae on tubercles longer.

Distribution: Peru (Pasco).

Type material: The female holotype was taken at Irena Refugio El Cedro, Yanachaga Chemilien N.P., Peru, 10°32.717'S, 75°21.492'W, 30-I-2003, 2460 m, A. Kun & B. Benedick, No. 46 Hungarian National Museum Expedition. The holotype is in the Naturhistorisches Museum, Budapest, Hungary.

Corthylus insignis Wood

Corthylus insignis Wood, 1974:200. Holotype ♀; 24 km E Barbosa, Antioquia, Colombia, 200 m; USNM, Washington (References in Wood & Bright c1992:1074)

Diagnosis: Closely allied to *compressicornis* (Fabricius) except slightly smaller; female frons and antennal club radically different, as described below; sutural interstriae on declivity not as high, crest more uniformly even, interstriae 2 on declivity not impressed, 3 not elevated above and tubercles much smaller; cirrus absent on female antennal club.

Male: Similar to female except frons convex, smooth, shining, punctures small, vestiture sparse, limited to epistomal area; antennal club slightly smaller, similar to female; anterior margin of pronotum more narrowly rounded and armed by 4 median serrations, median pair much larger.

Female: Length 1.8–2.0 mm, 2.1 times as long as wide; color dark reddish brown to black. Frons moderately concave eye to eye from epistoma to vertex; median third of epistomal margin glabrous, lateral thirds with a dense row of very long, golden setae continuing dorsad and joining at vertex, central area with rather short, subplumose, yellow setae; antennal club 1.3 times as long as wide, only slightly larger than in male, weakly asymmetrical, sutures weakly procurved, 1 septate, 2 indicated by a narrow groove, surface densely micropunctate, cirrus absent. Pronotum 1.1 times as long as wide; sides on more than basal half feebly arcuate, subparallel, rather broadly rounded in front; anterior margin armed by 6 low serrations; summit slightly anterior to middle of pronotum length; anterior slope moderately steep, asperities only on anterior fourth, coarse, close, confused; posterior areas strongly reticulate, punctures very small, not close, punctures on median fourth each associated with a feeble, transverse ruga; sparse short setae on anterior and lateral margins. Elytra 1.2 times as long as wide, 1.1 times as long as pronotum; disc occupying basal 70 percent of elytra length; disc smooth, shining, several impressed lines present near suture, punctures minute, confused. Declivity very steep; ventrolateral costa forming a complete circumdeclivital ring, appearing weakly concave from above; sutural interstriae strongly elevated, occupying upper five-sixths of declivity length, as high as wide, crest uniformly elevated and with several minute punctures; area of interstriae 2 not impressed, 3 very feebly elevated and with middle half of crest armed by three minute, pointed tubercles; base of sutural costa to lateral margin strongly reticulate. Sparse, short setae on sutural interstriae, three longer setae on 3, none on 5; sparse short setae on lower half of costal margin.

Distribution: Colombia: 24 km E Barbosa, Antioquia, 18-VII-1970, 1200 m, No. 699, *Inga*; SLW (type series); Montegrande, Caicedonia, Valle del Cauca, 19-VI-1959, guamo y cafe, J. Restrepo; La Rivera, Cacedonia, Valle del Cauca, 18-VI-1959, guamo verde, J. Restrepo; "Dep. Cuilo, X-1939, ramas, 3703, B. Losadas."

Notes: The above treatment was based on the type series of 29 specimens and on 6 other specimens from Colombia.

Corthylus compressicornis (Fabricius)

Plate CCXXIV

Corthylus compressicornis (Fabricius), 1801:388 (*Bostrichus*). Lectotype ♀; [Rio] Essequibo, Guiana; UZMC, Copenhagen, designated by Wood 1974:202 (References in Wood & Bright c1992:1072)

Diagnosis: Distinguished from *pharax* Schedl by the very different female frons and antenna, as described below; sutural interstriae on declivity less strongly elevated.

Male: Similar to female except frons convex eye to eye and from vertex to shallow, transverse impression above epistoma (occupying lower half of area below upper level of eyes), surface smooth, shining, punctures rather coarse, close, sparse setae on epistoma; antennal club 1.3 times as long as wide, much smaller than female, almost symmetrical, sutures feebly procurved, 1 finely septate, 2 a weak groove, cirrus absent; anterior margin of pronotum more narrowly rounded, armed by a median pair of large serrations.

Female: Length 2.1–2.2 mm, 2.2 times as long as wide; color dark brown to almost black.

"Frons . . . flat to feebly concave, lateral margins along inner margin of eye subacutely elevated, ending ventrally in a small denticle just below [level of] ocular emargination; epistomal margin weakly elevated; surface of subconcave area smooth and shining except for two large, contiguous, longitudinally oval, spongy areas occupying middle half from level of antennal insertion to a point well below upper level of eye; spongy areas yellow, almost smooth, their margins acutely elevated well above surfaces of frons or spongy areas; surface of spongy areas elevated slightly above surface of remainder of frons; areas of frons dorsad from spongy areas bearing fine, long, yellow hair over entire surface" (Wood 1974:202).

Antennal club 0.74 times as long as wide, wider than long, large, strongly asymmetrical, apical margin strongly arcuate from suture 1 on mesal margin to cirrus insertion; sutures moderately arcuate, 1 weakly septate, 2 and 3 narrowly impressed grooves, micropunctures not clearly defined, minute, sparse; cirrus slender, more than twice as long as club. Pronotum 1.07 times as long as wide; sides on basal half feebly arcuate, subparallel, rather broadly rounded in front; anterior margin armed by 4 low serrations, median pair slightly larger; summit slightly anterior to middle of pronotum length; anterior slope moderate, occupying one-third length of pronotum, asperities rather small, close, confused; posterior

areas strongly reticulate, median fourth with minute, transverse rugae from summit half distance to base, a few minute punctures on basal area; sparse, short setae on anterior margin. Elytra 1.2 times as long as wide, 1.3 times as long as pronotum; disc occupying basal 80 percent of elytra length; disc almost smooth, shining, punctures minute, confused, several impressed lines near suture. Declivity abrupt, very steep, appearing weakly convex from above; ventrolateral costa forming a complete circumdeclivital ring; sutural interstriae rather strongly elevated on upper three-fourths, crest narrowly acute, as high as wide, crest weakly subserrate on lower half; surface from base of sutural interstriae to lateral margin strongly reticulate; area of interstriae 2 on basal half of declivity length shallowly impressed, punctures obscure, rather large, close, confused; interstriae 3 on basal half rather weakly elevated, and armed by a row of three small, pointed tubercles, tubercle 1 slightly above middle, 2 at middle, 3 distinctly below middle; lower fourth of declivity shallowly impressed from suture to lateral margin, rather large punctures obscure, confused. Several minute setae on crest of sutural interstriae, three longer setae on 3, two or three on 5, several short setae on crest of lower half of circumdeclivital costa.

Distribution: Guiana to Venezuela (Bolivar).

Guiana: Rio Essequibo, Schmidt (lectotype, 1 lectopartype).

Venezuela: Campamento Rio Grande 30 km E Palmar, Bolivar, 12-VI-1970, 200 m, No. 556, *Alexa imperatrix*, S.L. Wood (allotype, 1 non-type female), and (same data except) No. 554, guamo negro.

Notes: The description of the female frons was based on the lectotype. The male description was based on the allotype and on 1 other male. The female antennal club was based on the female taken from the same tunnel as the allotype. I here designate as the allotype of *Bostrichus compressicornis* Fabricius the male from Campamento Rio Grande in Venezuela as listed above. All 3 Venezuelan specimens are in the U.S. National Museum, Washington.

Corthylus pharax Schedl

Corthylus pharax Schedl, 1976:80. Holotype ♀; Caruaru, Pernambuco, Brazil; NHMW, Wien (References in Wood & Bright c1992:1077)

Diagnosis: Distinguished from *schaufussi* Schedl by the smaller size; by the rounded margin of the ventrolateral declivital costa from the suture at the base to interstriae 3; by the distinctly impressed declivital punctures; and by the dense row of longer setae on the female frons.

Male: Similar to female except frons rather strongly convex eye to eye, a shallow, transverse impression on lower half of area below upper level of eyes, sparse setae on epistoma; antennal club 1.2 times as long as wide, about as in male *compressicornis* (Fabricius); anterior margin of pronotum with a median pair of large serrations; costa on sutural interstriae of declivity feebly serrate.

Female: Length 2.0–2.3 mm, 2.4 times as long as wide; color black. Very similar to *insignis* Wood (above) except peripheral row of long, yellow setae on frons not extended below level of antennal insertions; antennal club 1.6 times as long as wide, similar to *insignis*, but slightly asymmetrical. Pronotum 1.0 times as long as wide; similar to *insignis*, except serrations on anterior margin smaller, and punctures on basal fourth of disc slightly deeper. Elytra 1.7 times as long as wide, 1.7 times as long as pronotum; disc occupying basal 70 percent of elytra length; disc smooth, shining, punctures very small, confused, many impressed lines. Declivity very steep, weakly convex, ventrolateral costa almost forming a complete circumdeclivital ring, costa near suture above abrupt, not clearly elevated; sutural interstriae rather strongly elevated; sutural interstriae rather strongly elevated, higher than wide, crest uniform except weakly serrate near base, crest with a few punctures; strongly reticulate from base of sutural interstriae to lateral margin; area of interstriae 2 shallowly impressed on upper half, 3 weakly elevated above middle, armed by one or two small tubercles slightly above middle of declivity length; lower fifth shallowly concave. Sparse short setae on crest of sutural interstriae on declivity, interstriae 3 and 5 each with three to five longer setae.

Distribution: Brazil: Caruaru, Pernambuco, IV-1972, M. Alvarenga (holotype); Ibicara, Bahia, VII-1980, cacao, S. Leonardo; Cepec, Ilheus, Bahia, 1966–1968, at light; Curitiba, Parana, VI-1971, *Theobroma cacao*, J.A. Winder; Aracruz, Espirito Santo, 5-I-1992, No. 3500; Monte Alegre, Parana, 7-II-1999, ethanol trap in *Eucalyptus grandis* stand, C.A.H. Flechtmann; Brotas, Sao Paulo, International Paper forest, 5-VII-2001, *Eucalyptus grandis* stand, ethanol trap, K. Trefflich.

Notes: The above treatment was based on the female holotype and on 14 non-type specimens from Brazil in my collection. The allotype and paratypes of *C. argentensis* Schedl in NHMW, Wien, are specimens of *C. pharax* Schedl.

Corthylus schaufussi Schedl

Corthylus schaufussi Schedl, 1937:69. Lectotype ♂; Nova Teutonia, Santa Catarina, Brazil; NHMW, Wien, designated by Schedl 1979: 221 (References in Wood & Bright c1992:1079)

Diagnosis: Distinguished from *pharax* Schedl by the larger size; by the complete circumdeclivital costa; by the obscure to obsolete punctures on the upper half of the declivity; and by the shorter sparse setae on the dorsal margin of the frons.

Male: Similar to female except frons moderately convex, surface smooth, shining, punctures small, rather

close, a feeble, transverse impression above epistoma, sparse setae on and near epistoma; antennal club rather small, almost symmetrical, suture 1 straight, septate, 2 feebly procurved, marked by a narrow groove; anterior margin of pronotum more narrowly procurved, armed by a median pair of large serrations.

Female: Length 2.5–2.8 mm, 2.3 times as long as wide; color almost black. Frons moderately concave, upper margin rounded, concave area smooth, shining, finely closely punctured, upper three-fourths with many moderately long subplumose setae; peripheral margin variable, epistoma mostly glabrous, sparse hair on margin, lateral margin at level of antennal insertion with a dense row of golden setae, this row continuing at least to slightly above upper level of eyes (with no setae on vertex) or extending partly or entirely to median line, longest setae on vertex sometimes capable of attaining epistomal margin; antennal club not larger than in male, 1.3 times as long as wide, weakly asymmetrical, densely micropunctate, sutures weakly procurved, 1 septate, 2 a narrow groove. Pronotum 1.06 times as long as wide; sides on basal two-thirds feebly arcuate, broadly rounded in front; anterior margin armed by 4 low serrations; summit anterior to middle of pronotum length; anterior slope rather steep, surface between asperities reticulate, asperities rather coarse, close, confused; posterior areas reticulate, median half with many small, transverse rugae, punctures mostly obsolete; sparse, short setae on anterior margin. Elytra 1.25 times as long as wide, 1.2 times as long as pronotum; disc occupying 76 percent of elytra length; disc almost smooth, shining, punctures minute, mostly confused. Declivity abrupt, appearing weakly convex from dorsal aspect; ventrolateral costa forming a complete circumdeclivital ring; entire surface strongly reticulate; sutural interstriae strongly, narrowly elevated on basal five-sixths, higher than wide, costate crest with a row of several very small punctures; area of interstriae 2 shallowly impressed, small, obscure punctures confused from base of sutural interstriae to lateral margin, 3 near middle of declivity length weakly elevated and armed on crest by one to three small, pointed tubercles. Short, sparse setae on declivital interstriae 1 and 3 sometimes present.

Distribution: Brazil: Nova Teutonia, Santa Catarina, 300–500 m, IV-1941, 1947, XI-1956, VII-1957, F. Plaumann.

Notes: The above treatment was based on 13 specimens received from Plaumann and Schedl. One of these females was compared by me to a female cotype from the Eggers Collection.

LITERATURE CITED

No attempt was made to include complete literature references to the species and synonyms cited above in the synonymy of individual species. These references are presented in full in Wood & Bright (1987) and Bright & Skidmore (1997, 2002). Only literature cited in this volume is cited below. Items marked by an asterisk (*) were not seen before publication of this volume.

- *Alonso-Zarazaga, M.A., and C.H.C. Lyal. 1999. A world catalogue of families and genera of Curculionoidea (Insecta: Coleoptera (excepting Scolytidae and Platypodidae). Entomopraxis, Barcelona. 165 p.
- Anderson, William Henry, and Donald Morgan Anderson. 1971. Type specimens in the Hans Eggers collection of scolytid beetles (Coleoptera). Smithsonian Contributions to Zoology 94:1–38.
- *Anderson, R.S. 2002. Family 131. Curculionidae. In R.H.J. Arnett, M.C. Thomas, P.E. Skelley and J.H. Frank [eds.], American Beetles. Volume 2. Polyphaga: Scarabaeoidea through Curculionoidea. CRC Press LLC, Boca Raton, Florida.
- *Atkinson, Thomas Harris. 1993. Synopsis of the genus *Trischidias* Hopkins (Coleoptera: Scolytidae) in the southeastern United States with a description of a new species from Florida. Florida Entomologist 76:416–422.
- *Atkinson, Thomas Harris, and Armando Equihua. 1986. Biology of bark and ambrosia beetles (Coleoptera: Scolytidae and Platypodidae) of a tropical rain forest in southeastern Mexico with an annotated checklist of species. Annals of the Entomological Society of America 79: 414–423.
- *Baker, P.S., J.A.F. Jackson, and S.T. Murphy. 202. Natural Enemies, Natural Allies. CABI Commodities, Egham, UK.
- Balachowsky, Alfred Serge. 1949. Scolytides. Faune de France 50. 320 p.
- *Beaver, Roger A. 1972. Biological studies of Brazilian Scolytidae and Platypodidae (Coleoptera). *Camptocerus* Dejean. Bulletin of Entomological Research 62:247–256.
- *Beaver, Roger A. 1973a. Biological studies of Brazilian Scolytidae and Platypodidae (Coleoptera). II. The tribe Bothrosternini. Papeis Avulsos Zool. 26:227–236.
- *Beaver, Roger A. 1973b. Biological studies of Brazilian Scolytidae and Platypodidae (Coleoptera) III. The tribe Hylesinini. Papeis Avulsos Zool. 7:601–613.
- *Beaver, Roger A. 1974. Biological studies of Brazilian Scolytidae and Platypodidae (Coleoptera) IV. The tribe Cryphalini. Studies of Neotropical Fauna 9:171–178.
- *Beaver, Roger A. 1976. Biological studies of Brazilian Scolytidae and Platypodidae (Coleoptera) V. The tribe Xyleborini. Zeitschrift für Angewandte Entomologie 80(1):15–30.
- *Beaver, Roger A. 1979. Host specificity of temperate and tropical animals. Nature, London 281:139–141.
- *Beaver, Roger A. 1988. Insect-fungus relationships in the bark and ambrosia beetles. Academic Press, London.
- *Beaver, Roger A. 1989. Insect-fungus relationships in the bark and ambrosia beetles, p. 121–143. In N. Wilding, N.M. Collins, P.M. Hammond, and J.F. Webber [eds.], Insect fungus interactions. 14th Symposium of the Royal Entomological Society of London in Collaboration with the British Mycological Society. Academic Press, London, U.K.
- Bedel, Louis Ernest Marie. 1888. La Famille Scolytidae. Pages 385–444 in Faune des coleopteres du bassin de la Seine, etc. [Scolytidae 6:385–421]. Societe Entomologique de France, Annales, hors serie. 444 p.
- Beeson, Cyril Frederick Cherrington. 1929. Platypodidae and Scolytidae. British Museum (Natural History). Insects of Samoa, Part 4, Coleoptera, fascicle 4:217–248, 13 figs.
- _____. 1933. Entomological investigations on the spike disease of sandal, *Santalum album* Linn. Bostrichidae, Platypodidae and Scolytidae. Indian Forest Records 17(9):7–12, 1 fig.
- _____. 1935a. Platypodidae and Scolytidae of the Society Islands. Bernice P. Bishop Museum, Bulletin 142:115–121.
- _____. 1935b. Scolytidae of the Marquesas. Bernice P. Bishop Museum, Bulletin 142:101–114, 7 figs.
- _____. 1939. New species and biology of *Coccotrypes* and *Thammurgides* (Scolytidae, Col.). Indian Forest Records, Entomology (N.S.) 5:279–308.
- _____. 1940. Scolytidae and Platypodidae of the Mangarevan Expedition. Bernice P. Bishop Museum, Occasional Papers 15(18):191–203.
- _____. 1941. The ecology and control of the forest insects of India and the neighbouring countries. Dehra Dun: The Author. (5+) ii + 1007 p., 203 (+2) figs. (36 pls.).
- *Benavides, P., F.E. Vega, J. Romero-Severson, E.A. Bustillo, and J.J. Stuart. 2005. Biodiversity and biogeography of an important inbred pest of coffee, coffee berry borer (Coleoptera: Curculionidae: Scolytinae). Annals of the Entomological Society of America 98:359–366.
- Blackburn, Thomas, and David Sharp. 1885. Memoirs on the Coleoptera of the Hawaiian Islands [Scolytidae, p. 192–194]. Royal Dublin Society, Transactions (2)3:119–300, pls. IV, V.
- Blackman, Maulsby Willett. 1920. North American Ipidae of the subfamily Micracinae, with descriptions of new species and genera. Mississippi Agricultural Experiment Station, Technical Bulletin 9. 60 p., 5 pls.
- _____. 1922. Mississippi bark beetles. Mississippi Agricultural Experiment Station. Technical Bulletin 11. 130 p., 28 pls.
- _____. 1928a. Notes on Micracinae, with descriptions of twelve new species. New York State College of Forestry at Syracuse University, Technical Publication 25:185–208.
- _____. 1928b. The genus *Pityophthorus* Eichh. in North America. A revisional study of the Pityophthori, with descriptions of two new genera and seventy-one new species. New York State College of Forestry at Syracuse University, Technical Publication 25. 159 p., 11 pls.

- _____. 1939. A new genus and three new species of Scolytidae from Argentina and Bolivia (Coleoptera). *Revista de Entomologia*, Sao Paulo 10(1):86–96, 13 figs.
- _____. 1940. The scolytid beetles of the genus *Renocis* Casey, with descriptions of nine new species. United States National Museum, Proceedings 88(3084):373–401.
- _____. 1942. New species of bark beetles (Pityophthorini) from Mexico and tropical America (Coleoptera, Scolytidae). United States National Museum, Proceedings 92(3147):177–228.
- _____. 1943a. New genera and species of bark beetles of the subfamily Micracinae (Scolytidae, Coleoptera). United States National Museum, Proceedings 93(3165):341–365.
- _____. 1943b. New genera and species of Neotropical bark beetles (Coleoptera, Scolytidae). Washington Academy of Science, Journal 33(2):34–38.
- _____. 1943c. New species of American scolytid beetles, mostly neotropical. United States National Museum, Proceedings 94(3174):371–399.
- Blair, K.G. 1933. Further Coleoptera from the Galapagos Archipelago. *Annals and Magazine of Natural History* (10)11: 471–487.
- Blanchard, Emile. 1851. Tetramera u. Trimeria (Col.). In: Gay, Historia fisica y politica de Chile [Scolytidae, p. 426–430]. *Insecta* 5:1–563.
- Blanchard, Emile and Auguste Brulle. 1846. Insectes du voyage dans Amerique meridionale de M. Alcide d'Orbigny dans l'Amerique meridionale [*Phloeotrupes caelatus* n. sp., p. 204]. Bertrand, Paris.
- Blandford, Walter Fielding Holoway. 1894a. Notes on Scolytidae and their food-plants. *Insect Life* 6:260–265.
- _____. 1894b. The rhynchophorous Coleoptera of Japan. Part III. Scolytidae. Entomological Society of London, Transactions 1894:53–141.
- _____. 1896a. Contributions a la Faune indochinoise 16e Memoire (1). Scolytidae. Societe Entomologique de France, Annales 16:19–22.
- _____. 1896b. Descriptions of new Scolytidae from the Indo-Malayan and Austro-Malayan regions. Entomological Society of London, Transactions 1896:191–228.
- _____. 1896c. Scolytidae. *Biologia Centralia-Americana*, Coleoptera 4(6):97–144.
- _____. 1896d. Scolytides de la Nouvelle Caledonie. Societe Entomologique de Belgique, Annales 40:241–245.
- _____. 1904. Scolytidae. *Biologia Centralia-Americana*, Coleoptera 4(6):225–280.
- Boheman, Carl Heinrich. 1858. *Bostrichus ferrugineus* n. sp. Pages 88–89 in Fregatten Eugenies Resa, Zoologie I. Col. Norstedt, Stockholm. 217 p., 2 pls.
- Brethes, Juan. 1921a. Description d'un nouveau genre et une nouvelle espece d'Ipidae du Chile. *Revista Chilena de Historia Natural Pura y Aplicada* 25:433–435, fig. 37.
- _____. 1921b. Notas Coleopterologicas. *Revista de la Facultad de Agronomia, Universidad La Plata* 14:163–169.
- _____. 1922. Descripcion de various coleopteros de Buenos Aires. Sociedad Cientifica Argentina, Buenos Aires, Annales 94:263–305, 9 figs.
- Bright, Donald Edward, Jr. 1972a. New species of Scolytidae (Coleoptera) from Mexico, with additional notes: II. Subfamilies Scolytinae and Hylesininae. *Canadian Entomologist* 104(10):1489–1497.
- _____. 1972b. New species of Scolytidae (Coleoptera) from Mexico, with additional notes: III. Tribe Pityophthorini (except *Pityophthorus*). *Canadian Entomologist* 104(11): 1665–1679.
- _____. 1972c. The Scolytidae and Platypodidae of Jamaica (Coleoptera). Institute of Jamaica, Science Series, Bulletin 21. 108 p.
- _____. 1981. Studies on West Indian Scolytidae (Coleoptera): I. New species, new distribution records and taxonomic notes. *Studies on Neotropical Fauna and Environment* 16(3):151–164.
- _____. 1982. Studies of West Indian Scolytidae (Coleoptera). 2. New distribution records and descriptions of a new genus and species. *Studies in Neotropical Fauna and Environment* 17(2–3):163–168.
- _____. 1991. Studies in Xyleborini 2: review of the genus *Sampsonius* Eggers (Coleoptera, Scolytidae). *Studies on Neotropical Fauna and Environment* 26:11–28.
- *Bright, Donald Edward, and S.B. Peck. Scolytidae from the Galapagos Islands. Ecuador, with descriptions of four new species, new distribution records, and a key to species (Coleoptera: Scolytidae). *Koleopterologische Rundschau* 68:233–253.
- Bright, Donald Edward, Jr., and Robert E. Skidmore. 1997. A catalog of Scolytidae and Platypodidae (Coleoptera), Supplement 1 (1990–1994).
- _____. 2002. A catalog of the Scolytidae and Platypodidae (Coleoptera), Supplement 2 (1995–1999). NRC Research Press, Ottawa, Ontario, Canada. 553 p.
- Brongniart, Charles Jules Edme. 1877. Note sur des perforations observes dans deux morceaux de bois fossile. *Societe Entomologique de France, Annales* 7:215–220, pl. 7, Nr. 2, figs. 1–6.
- Broun, Thomas. 1904. Descriptions of new genera and species of New Zealand Coleoptera [Scolytidae, p. 125–127]. *Annales and Magazine of Natural History* (7)14:41–59, 105–127.
- *Browne, Francis George. 1958. Some aspects of host selection among ambrosia beetles in the humid tropics of South-East Asia. *Malayan Forester* 21(3):164–182.
- *_____. 1961. The biology of Malayan Scolytidae and Platypodidae. *Malayan Forest Record* 22:xi + 255 p.
- *_____. 1961. The generic characters, habits and taxonomic status of *Premnobius* Eichhoff (Coleopt., Scolytidae). *West African Timber Borer Research Unit* 4:45–51.
- _____. 1963. Taxonomic notes on Scolytidae (Coleoptera). *Entomologische Berichten* 23(3):53–59.
- _____. 1970. Some Scolytidae and Platypodidae (Coleoptera) in the collection of the British Museum. *Journal of Natural History* 4:539–583.
- Bruch, Carlos. 1914. Un nuevo Ipido (Escolitido) de Chile (*Phloeotribus porteri*, n. spec.). *Anales de Zoologia Aplicada*, Santiago de Chile 1:25–27, 1 pl., 5 figs.
- Butovitsch, Victor. 1929. Studien uber die Morphologie und Systematik der palaarktischen Splintkafer. *Stettiner Entomologische Zeitung* 90(1):1–72, 8 pls., 9 figs.
- *Byers, John Allen. 1995. Host tree chemistry affecting colonization in bark beetles, p. 154–213. In R.T. Cardé and W.J. Bell [eds.], *Chemical Ecology of Insects* 2. Chapman and Hall, New York.
- Campos Novais, Jose de. 1922. Um broqueador do cafeeiro, *Xyleborus coffeicola* n. sp. Fam. Ipidae. *Boletimo de Agricultura, Secretaria de Agricultura, Comercio e Obras Publicas*, Sao Paulo 23(3/4):67–70.
- Casey, Thomas Lincoln. 1886. Descriptive notes of North American Coleoptera. I. [*Renocis heterodoxus*, p. 257–259]. *California Academy of Science, Bulletin* 6:156–264, pl. 7.

LITERATURE CITED

- Chapuis, Felicien. 1869. Synopsis des Scolytides. Liege. J. Desoer, 56 p. [Reprinted as: Societe Royale des Sciences de Liege, Memoires (2)3:213–269, 1873].
- Chevrolat, Louis Alexandre Auguste. 1838. Xylophages. Pages 181–183, pl. 40 in Guerin-Meneville: "Iconographie du regne animal," Paris, 111:181–183, pl. 40.
- China, W.E. 1963. Opinion 683. *Scolytus* Geoffroy, 1762 (Insecta, Coleoptera): validated under the plenary powers. Bulletin of Zoological Nomenclature 20:416–417.
- *Cognato, Anthony I. and A.P. Vogler. 2001. Exploring data interaction and nucleotide alignment in a multiple gene analysis of *Ips* (Coleoptera: Scolytinae). Systematic Biology 50:758–780.
- Costa Lima, Angelo Moreira da. 1922. Sobre o scolytto destruidor dos cafezaes. Chacaras e Quintais 26:34–45.
- _____. 1923. Catalogo systematico dos insectos que vivem nas plantas do Brasil e ensaio de bibliographia entomologica Brasileira. Archivos da Escola Superior de Agricultura e Medicina Veterinaria 6(1–2):107–276 (1922), 8(1–2):60–301.
- _____. 1924. Sobre a broca do cafe (*Stephanoderes coffeae* Haged.). Charcaras e Quintais 30:316–319, 413–416.
- _____. 1928. Segundo catalogo systematico dos insectos que vivem nas plantas do Brasil e ensaio de bibliographia entomologica Brasileira. Archivos da Escola Superior de Agricultura e Medicina Veterinaria 8(1–2):69–301.
- _____. 1928. Sobre dois scolytideos. Instituto Oswaldo Cruz, Morias Supplemento 8:109–112.
- _____. 1930. Supplemento ao 2. Catalogo systematico de insectos que vivem nas plantas do Brasil e ensaio da bibliographia entomologica Brasileira. Campo. Agricultura, Industria, Commercio, Rio de Janeiro 1(7):38–48, (8):84–91, (9):28–31, (10):29–31, (11):66–69, (12):41–46.
- _____. 1936. Terceiro catalogo dos insectos que vivem nas plantas do Brazil. Ministerio da Agricultura, Departamento Nacional de Producao Vegetal, Escola Nacional de Agronomic, Rio de Janeiro, Direct. Lestat. Producao. 460 + iv p.
- _____. 1956. Insectos do Brasil, 10 Tomo, Coleopteros, 4 Ultima Parte [Scolytidae, p. 272–343]. Escola Nacional de Agronomia, Serie Didatica No. 12, Servicio Grafico I.B.G.A., Rio de Janeiro. 373 p., 260 figs.
- _____. 1967. Quatro catalogo dos insectos que vivem nas plantas do Brasil. Rio de Janeiro, Ministerio do Agricultura Departamento de Defesa e Inspecao Agropecuaria, Servicio de Defesa Sanitaria Vegetal. Laboratorio Central de Patologia Vegetal.
- Danthione. 1888. *Byrrhus toranio*. Page 270 in [J. Et.?] Bernard, Memoir pour servir a l'Histoire Naturelle de l'olivier, sec. II: Des insectes qui vivent sur l'olivier. Memoir pour servir a l'Histoire Naturelle de la Provence 6:271–272.
- Decaux, Francois. 1890. (*Coccotrypes laboulbenei* n. sp.) Etudes sur les insectes recueillis a l'exposition universelle. Paris. 36 p.
- DeGeer, Charles. 1775. Memoires pour l'histoire des insectes. Vol. 5 [Scolytidae, p. 190–197]. L.L. Grefing, Stockholm. 5 + 448 p., 16 pls.
- DelGuercio, Giacomo. 1925. Intorno ad un nuovo genere e ad una specie nuova Scolytidae gravamente dannosa all'oliva in Sicilia. *Comesiella sicula* (n. gen. n. sp.). Atti della Roy. Accademia del Geografili (Florence) 22:210–218.
- Diamond, Jared. 1995. Easter's end. Discover [Magazine]. Vol. 16, No. 8, August.
- Dufschmidt, Kaspar. 1825. Fauna Austriae, oder Beschreibung der osterreichischen Insecten fur angehende der entomologie. Akad. Buchhand., Linz u. Leipzig. Vol. 3, 289 p.
- Duges, Eugene. 1887. Metamorphoses de quelques Coleopteres du Mexique [*Xyleborus guanajatus* Duges, p. 140–143]. Societe Entomologique de Belgique, Annales 31:137–147, 7 pls.
- Ebeling, Walter. 1935. A new scolytid beetle found in the bark of lemon trees (Coleoptera, Scolytidae). Pan-Pacific Entomologist 11:21–23.
- Eggers, Hans. 1908. Fünf neue Borkenkafer. Entomologische Blätter 4:214–217.
- _____. 1910. Vier weitere palaarktische Borkenkafer (Col.). Deutsche Entomologische Zeitschrift 1910:557–561.
- _____. 1912a. Beiträge zur Kenntnis der Borkenkafer, II. Entomologische Blätter 8:47–49.
- _____. 1912b. Beiträge zur Kenntnis der Borkenkafer, IV. Entomologische Blätter 8:203–210.
- _____. 1914. Bemerkungen zu Reitters Borkenkaferbestimmungstabellen, 2 Auflage (continued from 1913). Entomologische Blätter 10:38–41, 107–110, 183–189, 296–299.
- _____. 1919. 60 neue Borkenkafer (Ipidae) aus Afrika, nebst zehn neuen Gattungen, zwei Abarten. Entomologische Blätter 15:229–243.
- _____. 1920. 60 neue Borkenkafer (Ipidae) aus Afrika, nebst zehn neuen Gattungen, zwei Abarten. Entomologische Blätter 16:33–45, 115–126.
- _____. 1922a. Neue Borkenkafer (Ipidae) aus Afrika. (Nachtrag I). Entomologische Blätter 18:163–174.
- _____. 1922b. Seltene und neue palaarktische Borkenkafer, IV. Entomologische Blätter 18:116–121.
- _____. 1923. Neue indomalayische Borkenkafer (Ipidae). Zoologische Mededeelingen 7:129–220.
- _____. 1924. Neue Borkenkafer (Ipidae) aus Afrika (Nachtrag II). Entomologische Blätter 20:99–111.
- _____. 1925. Ipidae aus Burma. Sbornik Faunistických Práci Entomologického Oddělení Národního Museum v Praze 3(21):151–160.
- _____. 1927a. Neue Borkenkafer (Ipidae, Col.) aus Afrika (Nachtrag III). Revue de Zoologie et de Botanique Africaines 15(2):172–199.
- _____. 1927b. Neue indomalayische Borkenkafer (Ipidae). I Nachtrag. Treubia 9(4):390–408.
- _____. 1928a. Ein neuer *Coccotrypes* (Ipidae, Col.). Tijdschrift voor Entomologie 71:117–118.
- _____. 1928b. Ipidae (Coleoptera) da America do Sul. Archivos do Instituto Biologico de Defesa Agricola e Animal 1:83–99.
- _____. 1929a. Eine neue Ipidengattung (Col.) Aus Nordamerika. Tijdschrift voor Entomologie 72:40–41.
- _____. 1929b. Zehn neue *Loganius*-Arten (Ipidae, Col.) aus Sudamerika. Wiener Entomologische Zeitung 46(2):59–65.
- _____. 1929c. Zur Synonymie der Borkenkafer (Ipidae, Col.), I. Wiener Entomologische Zeitung 46:41–55.
- _____. 1930a. Borkenkafer (Ipidae, Col.) aus Sudamerika, III. Entomologische Blätter 26:163–171.
- _____. 1930b. Neue *Xyleborus*-Arten (Col., Scolytidae) aus Indien. Indian Forest Records, Entomology 14(9):177–208.
- _____. 1931a. Borkenkafer (Ipidae, Col.) aus Sudamerika, III. Entomologische Blätter 27:14–23.
- _____. 1931b. Borkenkafer (Ipidae, Col.) aus Sudamerika, IV. Wiener Entomologische Zeitung 48:29–42.
- _____. 1932a. Borkenkafer (Ipidae, Col.) aus Sudamerika, V. Wiener Entomologische Zeitung 49:226–235.

- _____. 1932b. Neue Borkenkafer aus Afrika (Nachtrag IV). *Revue de Zoologie et de Botanique Africaines* 22(1):23–37.
- _____. 1932c. Neue Borkenkafer (Ipidae, Col.) aus Afrika (Nachtrag V). *Revue de Zoologie et de Botanique Africaines* 22(3):291–304.
- _____. 1933. Borkenkafer (Ipidae, Col.) aus Sudamerika, VI. Material des Museum Paris aus Franz. Guyana und Venezuela. *Travaux du Laboratoire d'Entomologie, Museum National d'Histoire Naturelle, Memoires Originaux* 1: 1–37.
- _____. 1934. Borkenkafer (Ipidae, Col.) aus Sudamerika, VII. *Entomologische Blätter* 30:78–84.
- _____. 1935. Borkenkafer aus Sudamerika (Ipidae, Col.), VIII. Vergessene und neue Gattungen (I. Teil). *Revista de Entomologia, Rio de Janeiro* 5:75–87, 153–159, 329–334.
- _____. 1936a. Borkenkafer aus Sudamerika (Ipidae, Col.), VIII. Vergessene und neue Gattungen (2. Teil). *Revista de Entomologia, Rio de Janeiro* 6:388–394.
- _____. 1936b. Neue Borkenkafer (Scolytidae, Col.) aus Indien. *Annals and Magazine of Natural History* (10)17:626–636.
- _____. 1937. Borkenkafer aus Sudamerika (Ipidae, Col.), VIII. Vergessene und neue Gattungen. (Teil, Schluss). *Revista de Entomologia, Rio de Janeiro* 7:79–88.
- _____. 1939. Japanische Borkenkafer, II. Arbeiten über Morphologische und Taxonomische Entomologie 6:114–123.
- _____. 1940a. Borkenkafer aus Sudamerika. (Coleoptera: Ipidae), IX. Insel Guadeloupe. Arbeiten über Morphologische und Taxonomische Entomologie 7(2):123–141.
- _____. 1940b. Neue Borkenkafer (Col., Scolytidae) aus Afrika. Nachtrag IX. *Revue de Zoologie et de Botanique Africaines* 33:99–108.
- _____. 1940c. Neue Borkenkafer (Col., Scolytidae) aus Africa. Nachtrag X. *Revue de Zoologie et de Botanique Africaines* 33:227–239.
- _____. 1941a. Borkenkafer aus Sudamerika (Col., Ipid.) IX. Insel Guadeloupe. Arbeiten über Morphologische und Taxonomische Entomologie 8:99–109.
- _____. 1941b. Zur palaarktischen Borkenkaferfauna VI. *Stettiner Entomologische Zeitung* 102:119–124.
- _____. 1942a. Borkenkafer (Ipidae, Col.) aus Sudamerika IX, 5 neue Chilenen. *Zoologischer Anzeiger* 139:13–17.
- _____. 1942b. Neue Arten- und Bestimmungstabelle der Gattung *Phloeoborus*. (Coleoptera: Ipidae). Arbeiten über Morphologische und Taxonomische Entomologie 9:266–274.
- _____. 1943a. Borkenkafer (Col., Ipidae) aus Sudamerika, X. Bolivia. *Mitteilungen der Munchner Entomologische Gesellschaft* 33:344–389.
- _____. 1943b. Neue Borkenkafer aus dem Deutschen entomologischen Institut. Arbeiten über Morphologische und Taxonomische Entomologie 10:241–248.
- _____. 1944. Zur palaarktischen Borkenkaferfauna (Coleoptera, Ipidae), X. Arbeiten über Morphologische und Taxonomische Entomologie 40:140–143.
- _____. 1951. Borkenkafer (Ipidae, Col.) aus Sudamerika, XII. *Entomologische Blätter* 45–46:144–154.
- Eichhoff, Wilhelm Joseph. 1864. Ueber die Mundtheile und die Fuhlerbildung der europäischen Xylophagi sens. strict. *Berliner Entomologische Zeitung* 8:17–46, pl. 1.
- _____. 1868a. Neue amerikanische Borkenkafer-Gattungen und Arten. *Berliner Entomologische Zeitschrift* 11:399–402.
- _____. 1868b. Neue amerikanische Borkenkafer-Gattung und Arten. *Berliner Entomologische Zeitschrift* 12:145–152.
- _____. 1868c. Ueber deutsche Kafer. *Berliner Entomologische Zeitschrift* 11:391.
- _____. 1869a. Neue Borkenkafer. *Berliner Entomologische Zeitschrift* 12:273–280.
- _____. 1869b. Neue exotische *Xyleborus* Arten. *Berliner Entomologische Zeitschrift* 12:280–282.
- _____. 1872. Neue exotische Tomiciden-Arten. *Berliner Entomologische Zeitschrift* 15:131–136.
- _____. 1875. Pages 200–203 in Felicien Chapuis et W. Eichhoff, *Scolytides recueillis au Japan par M.C. Lewis*. *Societe Entomologique de Belgique, Annales* 18:195–203.
- _____. 1878a. Neue oder noch unbeschriebene Tomicinen. *Stettiner Entomologische Zeitung* 39:383–392.
- _____. 1878b. Ratio, descriptio, emendatio eorum Tomicinorum qui sunt in Dr. Medin. Chapuisi et autoris ipsius collectionibus et quos praeterea recognovit. *Societe Entomologique de Liege, Memoires* (2)8:1 + iv + 531, 5 pls. [dated 1879, but reviews published in 1878].
- Erichson, Wilhelm Ferdinand. 1836. Systematische Auseinandersetzung der Familie der Borkenkafer (Bostrichidae). *Archiv fur Naturgeschichte* 2(1):45–65.
- _____. 1847. *Conspectus Insectorum Coleopterorum quae in Republica Peruana observata sunt* [Scolytidae, p. 64]. *Archiv fur Naturgeschichte* 13(1):67–185.
- Fabricius, Johann Christian. 1775. *Systema entomologiae* [Scolytidae, p. 59–60, Appendix 454]. Flensburgi and Lipsiae, Korte. 832 p.
- _____. 1787. *Mantissa insectorum sistens forum species nuper detectas, adjectis characteribus genericis, differentiis specificis emendationibus, observationibus* [Scolytidae, p. 36–38]. Proft, Hafniae. Vol. 1, 20 + 348 p.
- _____. 1792. *Entomologia systematica emendata et aucta, secundum classes, ordines, genera, species adjectis synonymis, locis, observationibus, descriptionibus* [Scolytidae, 1(1):180, 1(2):363–368]. Proft, Hafniae. Vol. 1, pt. 1, 20 + 330 p., vol. 1, pt. 2, 538 p.
- _____. 1801. *Systema eleutheratorum, secundum ordines, genera, species, adjectis synonymis, locis observationibus, descriptionibus* [Scolytidae 1:368, 2:378–395]. Kiliae, Bibliopol. Acad. Vol. 1, 24 + 506 p., vol. 2, 687 p.
- Fairmaire, Leon Marc Herminie. 1887. *Descriptions de deux especes nouvelles de Scolytides, du genre Phloeoborus* Er. *Societe Entomologique de France, Bulletin* (6)7: XV–XVI.
- Ferrari, Johann Angelo. 1867a. Die Forst- und Baumzucht-schadlichen Borkenkafer (Tomicides Lac.) aus der Familie der Holzverderber (Scolytides Lac.), etc. Carl Gerold's Sohn, Wien. 96 p.
- _____. 1867b. Nachtrage, Berichtigungen und Aufklarungen über zweifelhaft gebliebene Arten in Die Forst- und baumzucht-schadlichen Borkenkafer (Tomicides Lac.), etc. *Coleopterologische Hefte* 2:104–115.
- _____. 1867c. Ueber *Monarthrum chapuisi* Kirsch. *Berliner Entomologische Zeitschrift* 11:405.
- _____. 1868. Nachtrage, Berichtigungen und Aufklarungen über zweifelhaft gebliebene Arten in: Die forst- und baumzucht-schadlichen Borkenkafer (Tomicides Lac.). *Berliner Entomologische Zeitschrift* 12:251–258.
- *Farrell, Brian D., A.S. Sequeira, B.C. O'Meara, B.B. Normark, J.H. Chung, and Bjarte H. Jordal. 2001. The evolution of agriculture in beetles (Curculionidae: Scolytinae and Platypodinae). *Evolution* 55:2011–2027.
- *Flechtmann, Carlos A.H., A.L.T. Ottati, and C.W. Berisford. 1999. Attraction of ambrosia beetles (Coleoptera:

LITERATURE CITED

- Scolytidae) to different tropical pine species in Brazil. *Environmental Entomology* 28:649–658.
- *Flechtmann, Carlos A.H. 2000. Comparison of four trap types for ambrosia beetles (Coleoptera, Scolytidae) in Brazilian *Eucalyptus* stands. *Journal of Economic Entomology* 93:1701–1707.
- Fonseca, Jose Pinto da. 1925. De um novo parasita do cafeeiro *Metacorthylus affinis* n. sp. *Commissao de Estudo e Debellação da Praga Cafeeira, Secretaria de Agricultura, Comercio e Obras, Publicacao, Sao Paulo. No. 12, 8 p., 1 pl.*
- _____. 1927. *Corthylus affinis* n. sp. (Col.). *Revista do Museu Paulista* 15:585–590, 1 pl.
- Formanek, Romuald. 1908. Eine neue Borkenkäfer Gattung. *Entomologische Blätter* 4:91.
- Fuchs, Anton Gilbert. 1911. Morphologische Studien über Borkenkäfer. I. Die Gattungen *Ips* DeGeer und *Pityogenes* Bedel. *Habschr. Techn. Hochschule Karlsruhe. C. Wold und S., München. 45 p., 39 figs.*
- Geoffroy, Etienne Louis. 1762. *Histoire abregee des insectes qui se trouvent aux environs de Paris dans laquelle ces animaux sont range suivant un order methodique (Scolytidae, 1:309–310, pl.V.)*. Paris 523 p.
- Gredler, Vincenz Maria. 1866. Die Käfer von Tirol nach ihrer horizontalen und vertikalen Verbreitung [Scolytidae, 368–375]. II Teil. J. Eberle, Bozen. P. 235–496.
- Guerin-Meneville, Felix Edouard. 1838. Sur le nouveau genre Piezorrhopale. *Revue Zoologique par la Societe Cuvierienne (Revue et magazine de zoologie pure et appliquee)* 1838:107–108.
- Guillebeau, Francisque. 1893. Revision des especes du genre *Phloeophthorus* Woll., et description d'un nouveau genre de Scolytidae. *Societe Entomologique de France, Annales* 62:57–64.
- Gyllenhal, Leonardo. 1813. *Insecta svecica descripta, Clasis I, Coleoptera sive Elleuterata [Scolytidae, p. 335–372] FJ. Leverentz, Scaris. 1(3):1–730.*
- *Haack, Robert A. 2001. Intercepted Scolytidae (Coleoptera) at U.S. ports of entry: 1985–2000. *Integrated Pest Management Reviews* 6:253–282.
- *_____. 2006. Exotic bark- and wood-boring Coleoptera in the United States: recent establishments and interceptions. *Canadian Journal of Forest Research-Revue Canadienne De Recherche Forestiere* 36:269–288.
- Hagedorn, Julius Max. 1903. *Enumeratio Scolytidarum e Guayana, Venezuela et Columbia natarum Musei Historico-Naturalis Parisiorum, descriptionibus specierum novarum adjectis. Musee d'Histoire Naturelle, Bulletin* 1903(10): 545–550.
- _____. 1904. Steinnussbohrer. *Allgemeinen Zeitschrift für Entomologie* 9:447–452.
- _____. 1905a. *Enumeratio Scolytidarum e Guyana, Venezuela et Columbia natarum Musei Historico-Naturalis Parisiorum, descriptionibus specierum novarum adjectis. II. Musee d'Histoire Naturelle, Bulletin* 1905(6): 412–416.
- _____. 1905b. Über *Scolytoplatypus* Schauf. *Insekten-bose* 1905:63–64 [reprint paged 1–3].
- _____. 1909 Diagnosen bisher unbeschriebener Borkenkäfer (Col.). *Deutsche Entomologische Zeitschrift, Ser. 2, 1909(1):733–746.*
- _____. 1910a. Coleoptera Fam. Ipidae. Pars 111:1–178, pls. 1–14, in Wytzman, *Genera Insectorum*. Brussels. 178 p.
- _____. 1910b. Diagnosen bisher unbeschriebener Borkenkäfer (Col.). *Deutsche Entomologische Zeitschrift, Ser. 2, 1910(1):1–13.*
- _____. 1910c. Ipidae. Pars 4 in Schenkling, *Coleopterorum Catalogus*. W. Junk, Berlin. 134 p.
- _____. 1910d. Wieder ein neuer Kaffeeschadling. *Entomologische Blätter* 6:1–4.
- _____. 1912a. Borkenkäfer (Ipidae) Welche in Kautschukbaumen Leben. *Review Zoologique Africaine* 1(3):336–346.
- _____. 1912b. Ipiden als Kaffeeschadlinge. *Entomologische Blätter* 8:33–46, 6 figs.
- Herbst, Johan Friedrich Willhelm. 1793. *Natursystem aller bekannten in- und ausländischen Insekten, als eine forsetzung der von Buffonschen Naturgeschichte. Der Käfer. Vol. 5 [Scolytidae, p. 71–127]. Berlin. 392 p., 16 pls.*
- *Herfs, Adolf. 1950. Studien an dem Steinnussborkenkäfer, *Coccotrypes tangani* Eggers. *Hofchenbriefe für Wissenschaft und Praxis* 3(1):3–31.
- Hoffmann, Adolphe. 1935. Les *Scolytus* du departement de Seine-et-Oise. *Conference Soc. Savantes de Seine-et-Oise* 1935:82–87.
- _____. 1939. Description d'une sous-espece nouvelle du genre *Scolytus* du midi de la France (Col., Scol.) (*S. multistriatus* Marsh., *therondi*, subsp. n., on elm, *Ulmus campestris*). *Miscellanea Entomologica* 40(4):36–37.
- Hopkins, Andrew Delmar. 1909. Contributions toward a monograph of the scolytid beetles. I. The genus *Dendroctonus*. *United States Department of Agriculture* 17(1):164, 8 pls., 95 figs.
- _____. 1911. Contributions toward a monograph of the bark weevils of the genus *Pissodes*. *United States Department of Agriculture, Bureau of Entomology, Technical Bulletin* 20(1). 68 p. 22 pls., 9 figs.
- _____. 1914. List of generic names and their type-species in the coleopterous superfamily Scolytoidea. *United States National Museum, Proceedings* 48:115–136.
- _____. 1915a. Classification of the Cryphalinae with descriptions of new genera and species. *United States Department of Agriculture, Report* 99. 75 p., 4 pls.
- _____. 1915b. Contributions toward a monograph of the scolytid beetles, Part II. Preliminary classification of the superfamily Scolytoidea. *United States Department of Agriculture, Bureau of Entomology, Technical Bulletin* 17(2):165–232, pls. 9–15.
- Hornung, Ernst Gottfried. 1842. Über einige in den Betelnüssen vorkommende Käfer. *Stettiner Entomologische Zeitung* 3:115–117.
- Iglesias, Francisco. 1914. Ipidae brasileiros. *Diagnose de duas especies novas. Revista do Museu Paulista* 9:128–132, 5 figs.
- Illiger, Johann Karl Wilhelm. 1807. X. Vorschlag zur Aufnahme im Fabricischen System fehlender Käfergattungen [Scolytidae, p. 320–321, 344, 350]. *Magazin für Insektenkunde* 6:318–349.
- Jordal, Bjarte H. 1998a. A review of *Scolytodes* Ferrari (Coleoptera: Scolytidae) associated with *Cecropia* (Cecropiaceae) in the northern Neotropics. *Journal of Natural History* 32:31–84.
- *_____. 1998b. New species and new records of *Scolytodes* Ferrari (Coleoptera: Scolytidae) from Costa Rica and Panama. *Revista Tropical* 46:407–420.
- *_____. 1998c. Review of *Scolytoidea* Ferrari (Coleoptera: Scolytidae) associated with *Cecropia* (Cecropiaceae) in

- the northern Neotropics. *Journal of Natural History* 32: 31–84.
- * ———. 2001. The origin and radiation of sib-mating haplodiploid beetles (Coleoptera, Curculionidae, Scolytinae). Department of Zoology, University of Bergen, Bergen (ISBN 82-91963-03-7).
- *Jordal, Bjarte H., Roger A. Beaver, B.B. Normark, and Brian D. Ferrell. 2002. Extraordinary sex ratios and evolution of male neoteny in sib-mating Ozopemon beetles. *Biological Journal of the Linnean Society* 75:353–360.
- *Jordal, Bjarte H., and Lawrence Richard Kirkendall. 1998. Ecological relationships of a guild of tropical beetles breeding in *Cecropia* petioles in Costa Rica. *Journal of Tropical Ecology* 14:153–176.
- Keen, Frederick Paul. 1955. The western pine beetle (*Dendrotonus brevicomis*). United States Department of Agriculture, Forest Service Forest Pest Leaflet 1. 4 p.
- Kirby, William. 1837. Part 4, Insects: Coleoptera, Family Scolytidae. Pages 191–195 in Richardson, Fauna Boreali-Americana; or the zoology of the northern parts of British America. J. Murray, London. 249 p.
- *Kirkendall, Lawrence Richard. 1983. The evolution of mating systems in bark and ambrosia beetles (Coleoptera: Scolytidae and Platypodidae). *Zoological Journal of the Linnean Society* 77:293–352.
- * ———. 1993. Ecology and evolution of biased sex ratios in bark and ambrosia beetles. In D.L. Wensch, M.A. Ebbert (ed.). *Evolution and diversity of sex ratio: insects and mites*, p. 235–345.
- *Kirkendall, Lawrence Richard, and Bjarte H. Jordal. 2006. The bark and ambrosia beetles (Curculionidae, Scolytinae) of Cocos Island, Costa Rica and the role of mating systems in island zoogeography. *Biological Journal of the Linnean Society* 89:729–743.
- *Kirkendall, Lawrence Richard, D.S. Kent, and K.A. Raffa. 1997. Interactions between males, females and offspring in bark and ambrosia beetles: the significance of living in tunnels for the evolution of social behaviour. In B.J. Crespi and J.C. Choe (ed.), *Social behaviour in insects and arachnids*, p. 181–215. Cambridge University Press, Cambridge.
- Kirsch, Theodor Franz Wilhelm. 1866. Beitrage zur Kaferfauna von Bogota [Scolytidae, p. 213–214]. *Berliner Entomologische Zeitschrift* 10:73–217.
- . 1875. Beitrage zur Kenntniss der Peruanischen Kaferfauna [Scolytidae, p. 283–285]. *Berliner Entomologische Zeitschrift* 19:241–304.
- *Klepzig, K.D., and D.L. Six. 2004. Bark beetle-fungal symbiosis: Context dependency in complex associations. *Symbiosis* 37:189–205.
- *Kuhnholz, S., John H. Borden, and A. Uzunovic. 2001. Secondary ambrosia beetles in apparently healthy trees: adaptations, potential causes and suggested research. *Integrated Pest Management Reviews* 6:209–219.
- *Kuschel, Guillermo. 1995. Phylogenetic classification of Curculionoidea. *Memoirs of the Entomological Society of Washington* 14:5–35.
- *Kuschel, Guillermo, Richard A.B. Leschen, and Elwood C. Zimmerman. 2000. Platypodidae under scrutiny. *Invertebrate Taxonomy* 14:771–805.
- *Lanier, Gerald Norman. 1966. Interspecific mating and cytological studies of closely related species of *Ips* DeGeer and *Orthotomicus* Ferrari (Coleoptera: Scolytidae). *Candian Entomologist* 98(2):175–188.
- Latreille, Pierre Andre. 1796. *Precis des caracteres generiques des insectes disposes dan un ordre naturel* [Scolytidae, p. 49–51]. Prevot, Paris. 14 + 210 + 5 p.
- . 1802/1803. *Histoire naturelle generale et particuliere des Crustaces et des Insectes. Ouvrage faisant suite a l'Histoire Naturelle generale et particuliere, composee par Leclerc de Buffon, et redigee par C.S. Sonnini, membre de plusieurs societes savantes. Vol. 3. Familles naturelles des genres* [Scolytidae, p. 202–206 (1802)]. Dufart, Paris. 467 p.
- . 1807. *Genera crustaceorum et insectorum secundum ordinem naturalem in familias disposita, inconibus exemplisque plurimius explicata* [Scolytidae, p. 273–280]. Paris. Vol. 2. 280 p.
- . 1829. *Les Crustaces, les Aracnides et les Insectes, distribues en famille naturelle, ouvrage format des tomes 4 et 5 de celui de M. De Baron Cuvier sur le regne animale (dexuime edition)* [Scolytidae, p. 89–93]. Deterville, Paris. Vol. 2., xxiv + 556 p., 5 pls.
- *Lawrence, John F., and A.F. Newton. 1995. Families and sub-families of Coleoptera (with selected genera, notes, references and data on family-group names), p. 779–1006. In J. Pakaluk and S.A. Slipinski [eds.], *Biology, Phylogeny, and Classification of Coleoptera. Papers celebrating the 80th birthday of Roy A. Crowson*. Museum in Institut Zoologii PAN, Warsaw.
- Lea, Arthur Mills. 1910. On Australian and Tasmanian Coleoptera, with descriptions of new species. Part I. [Scolytidae, p. 133–150]. *Royal Society of Victoria, Proceedings* 22(N.S.):113–152, pl. 30.
- Lebedev, A. 1926. *Pityogenes spessittsevi* n. sp. (Col., Ipidae). *Entomologische Blatter* 22:120–123, 2 figs.
- LeConte, John Lawrence. 1868. Appendix. Pages 150–178 in C. Zimmermann, *Synopsis of the Scolytidae of America north of Mexico*. American Entomological Society, Transactions 2:141–178.
- . 1876. Family IX. Scolytidae. In J.L. LeConte and G.H. Horn, *The Rhynchophora of America north of Mexico*. American Philosophical Society, Proceedings 15:341–391, Appendix. 426 p.
- . 1878. Additional descriptions of new species [Part of an article by E.A. Schwarz, *The Coleoptera of Florida*] [Scolytidae by LeConte, p. 432–434. List of species by Schwarz, p. 468–469]. American Philosophical Society, Proceedings 17:353–472.
- Lekander, Bertil. 1968. The number of larval instars in some bark beetle species. *Entomologisk Tidskrift* 89:25–34.
- Letzner, Karl Wilhelm. 1848. *Bostrichus jalappae*. In Bericht uber die arbeiten der entomologischen sektion im jahre 1848 [Scolytidae, p. 99]. *Arbeiten der Schlesichen Gesellschaft fur Vaterlandische Kultur, Breslau 1848:96, 99*.
- Lezhava, V.V. 1940a. Neue Art eines Borkenkafer in Georgien [In Russian]. *Bull. Mus. Georgia* 4/6:71–72.
- . 1940b. Neue Art Borkenkafer in der Georgischen SSR [In Russian]. *Akademia Nauk Gruzinskoi SSR* 1940: 193–194.
- Lindemann, Karl. 1875. *Monographie der Borkenkafer Russlands* [Die Cryphaloiden Tomiciden]. *Moskovskoe Obshchestvo Ispytatelei Prirody* 51:148–169, 320–380.
- Lucas, Robert. 1920. *Catalogus alphabeticus generum et subgenerum coleopterorum orbis terrarum totius*. Nicolaischer, Berlin.
- *Lyal, C.H.C. 1995. The ventral structures of the weevil head (Coleoptera:Curculionoidea). *Memoirs of the Entomological Society of Washington* 14:35–51.

LITERATURE CITED

- *Lyal, C.H.C., and T. King. 1996. Elytro-tergal stridulation in weevils (Insecta: Coleoptera: Curculionoidea). *Journal of Natural History* 30:703–773.
- Mandelsham, M. Yu. 2002. New synonymy and records of Palaearctic Scolytidae, Coleoptera. *Zoosyst. Rossica* 9:204.
- Mannerheim, Carl Gustav von. 1843. Beitrag zur Kafer-fauna der Aleutschen Inseln, der Insel Sitkha und Neu-Californiens [In Latin]. Societe Imperiale des Naturalistes de Moscou Bulletin (Moscovskogo Oshchestva Ispytatelej Prirody, Otdel Biologicheskij Bjulleten) 16(2): 175–314 [reprint paged 1–142].
- _____. 1852. Zweiter Nachtrag zur Kafer-fauna der Nord-Amerikanischen Laender des Russischen Reiches [Scolytidae, p. 356–359 or 74–77]. Societe Imperiale des Naturalistes de Moscou, Bulletin (Moscovskogo Oshchestva Ispytatelej Prirody, Otdel Biologicheskij Bjulleten) 25: 283–387 [reprint paged 1–105].
- Marchant, K.R., and John Harvey Borden. 1976. Worldwide introduction and establishment of bark and timber beetles (Coleoptera: Scolytidae and Platypodidae). Simon Fraser University, Pest Management Papers No. 6. 76 p.
- Marshall, Thomas. 1802. *Entomologia Britannica, sistens insecta Britanniae indigena, secundum methodum Linnaeanum disposita* [Scolytidae, p. 51–60]. J. White, London. 548 p.
- *Marvaldi, A.E. 1997. Higher level phylogeny of Curculionidae (Coleoptera: Curculionoidea) based mainly on larval characters, with special reference to broad-nosed weevils. *Cladistics—the International Journal of the Willi Hennig Society* 13:285–312.
- *Marvaldi, A.E., and J.J. Morrone. 2000. Phylogenetic systematics of weevils (Coleoptera: Curculionoidea): A reappraisal based on larval and adult morphology. *Insect Systematics and Evolution* 31:43–58.
- *Marvaldi, A.E., A.S. Sequeira, C.W. O'Brien, and Brian D. Farrell. 2002. Molecular and morphological phylogenetics of weevils (Coleoptera, Curculionoidea); do niche shifts accompany diversification? *Systematic Biology* 51: 761–785.
- *May, B.M. 1993. Larvae off Curculionoidea (Insecta: Coleoptera): a systematic overview. *Fauna of New Zealand* 28:1–1221.
- *Mecke, Roland. 2004a. A new Brazilian bark beetle, *Xylchinomus lucianae* sp. n. (Coleoptera, Curculionidae, Scolytinae, Tomicini), from *Araucaria angustifolia* (Conifera, Araucarioaceae). *Mitteilungen der Museum für Naturkunden Berlin, Deutsche Entomologische Zeitschrift* 51:217–220.
- _____. 2004b. Title unknown [Item treating *Monarthrum meuseli* (Reitter)]. *Deutsche Entomologische Zeitschrift* 51:217–220.
- *_____. 2005. Tibial thorns or true hairs of corresponding structure in both, bark beetles (Scolytidae) and bark inhabiting weevils (Curculionidae: Cossoninae: Araucariinae). *Entomologica Generalis* 28:17–21.
- *Mecke, Roland, M.H.M. Galileo, and W. Engles. 2001. New records of insects associated with *Araucaria* trees: phytophagous Coleoptera and Hymenoptera and their natural enemies. *Studies on Neotropical Fauna and Environment* 36:113–124.
- *Milne, David Hall, and Ronald Lawrence Giese. 1969. The Colombian timber beetle, *Corthylus columbianus* (Coleoptera: Scolytidae). IX, Population biology and gallery characteristics. *Entomological News* 80:225–237.
- Motschulsky, Victor von. 1863. *Essai d'un catalogue des insectes de l'île Ceylon*. Moskov Obshch. Isp. Prirody Biol. Bjul. (Bulletin de la Societe Imperiale des Naturalistes de Moscou) 36:509–517.
- _____. 1866. *Neue Borkenkäfer de Ceylon* [In French] [Scolytidae, p. 401–404]. Moskov. Obshch Isp. Prirody Biol. Bjul (Bulletin de la Societe Imperiale des Naturalistes de Moscou 39:401–404, etc.).
- Muller, W.J. 1818. [Title unknown]. *German Magazin der Entomologie* 3:244–249.
- Mulsant, Martiel Etienne, and Claudius Rey. 1853. Description d'une espece nouvelle de Coleoptera du genre *Bostrichus*. *Opuscule entomologiques de Lyon* 2:91–92.
- _____. 1856. Description d'une nouvelle espece de Coleoptere du genre *Bostrichus*. *Societe Linneenne de Lyon, Annales* 3:111–113.
- Murayama, Jozo J. 1958. Studies in the scolytid-fauna of the northern half of the Far East, IV: new genera and new species. *Yamaguti University, Faculty of Agriculture, Bulletin* 9:927–936.
- *Naumann-Etienne, K. 1978. Morphological, zoogeographical and biological aspects of the Scolytidae from *Nothofagus dombeyi* in Argentina. *Studies on Neotropical Fauna and Environment* 13:51–62.
- Niisima, Yoshinao. 1910. Die Borkenkäfer nord- und mittel-Japans. *Sapporo Natural History Society, Transactions* 3:1–18.
- *Nobuchi, Akira. 1969. A comparative morphological study of the proventriculus in the adult of the superfamily Scolytoidea (Coleoptera). *Bulletin of the Government Forest Experiment Station* 224:39–110, pl. 1–17.
- *Noguera-Martinez, F.A., and Thomas Harris Atkinson. 1990. Biogeography and biology of bark and ambrosia beetles (Coleoptera: Scolytidae and Platypodidae) of a mesic montane forest in Mexico, with an annotated checklist of species. *Annals of the Entomological Society of America* 83:453–466.
- Nordlinger, Hermann. 1856. Nachtrage zur Ratzeburg's Forstinsekten [Scolytidae, p. 17–45]. *Julius Weise, Stuttgart*. 4 + 83 p., 1 Taf.
- *Normark, B.B., Bjarte H. Jordal, and Brian D. Farrell. 1999. Origin of a haplodiploid beetle lineage. *Proceedings of the Royal Society of London Series B-Biological Sciences* 266:2253–2259.
- Numberg, Marian. 1956. *Nowe neotropikalne Scolytidae* (Coleoptera) [New Neotropical Scolytidae]. *Annales Zoologici, Warszawa* 16(10):135–146, pls. 19–20.
- _____. 1958. Przyczynek do poznania Scolytidae i Platypodidae (Coleoptera) fauny neotropikalnej [Contribution to the knowledge of the Neotropical fauna of Scolytidae and Platypodidae]. *Acta Zoologica Cracoviensia* 2(21): 479–506, 2 pls.
- _____. 1962. Zur Kenntnis der neotropischen Borkenkäfer-fauna (Col., Scolytidae). *Papeis Avulsos do Departamento de Zoologia, Secretaria de Agricultura, Sao Paulo* 15: 223–237.
- _____. 1963a. Die Gattung *Xyleborus* Eichhoff (Coleoptera, Scolytidae), Ergänzungen, Berichtigungen und Erweiterung der Diagnosen (II Teil). *Annales du Musee Royale du Congo Belge, Tervuren (Belgique), Ser. 8, Sciences Zoologiques* 115. 127 p.
- _____. 1963b. Zur Kenntnis der Scolytidae und Platypodidae-Fauna aus Costa Rica [Contribution to the knowledge of Scolytidae and Platypodidae fauna of Costa

- Rica]. Wisconsin Academy of Science, Arts, and Letters, Transactions 52:97–110.
- _____. 1964. Neue Scolytiden (Coleoptera) aus der Sammlung des Ungarischen Naturwissenschaftlichen Museums in Budapest. *Annales Historiconaturales Musei Naturalis Hungarici* 56:431–437.
- _____. 1971. Borkenkäfer (Scolytidae) und Kernkäfer (Platypodidae, Coleoptera) als Schädlinge des Kakaobaumes (*Theobroma cacao* L.) Mit besonderer Berücksichtigung des Staates Bahia in Brasilien. *Papeis Avulsos de Zoologica* 25(8):57–68.
- _____. 1972. Kenntnis der Faune der Borken- und Kernkäfer Brasiliens (Coleoptera, Scolytidae) *Papeis Avulsos de Zoologia* 25(20):189–198.
- *Odegaard, F. 2004. Species richness of phytophagous beetles in the tropical tree *Brosimum utile* (Moraceae): the effects of sampling strategy and the problem of tourists. *Ecological Entomology* 29:76–88.
- *Okello, S., C. Reichmuth, and F.A. Schulz. 1996. Observations on the biology and host specificity of *Pagiocerus frontalis* (Fabricius) (Coleoptera: Scolytidae) at 20 degrees C and 25 degrees C and 75% rh. *Zeitschrift für Pflanzenkrankheiten und Pflanzenschutz-Journal of Plant Diseases and Protection* 103:377–382.
- *Paine, T.D., K.F. Raffa, and T.C. Harrington. 1997. Interactions among scolytid bark beetles, their associated fungi, and live host conifers. *Annual Review of Entomology* 42:179–206.
- Panzer, Georg Wolfgang Franz. 1791. Beschreibung eines noch unbekanntem sehr kleinen Kapuzkäfers. *Naturforscher* 25:35–38.
- _____. 1795. *Entomologia Germanica* (p. 61), Nürnberg.
- Paykull, Gustav von. 1800. *Fauna Suecica: Insecta* (Coleoptera) [Scolytidae 145–156], Uppsala. Vol. 3, 459 p.
- Perkins, Robert Cyril Layton. 1900. Coleoptera Rhynchophora: Scolytidae. Pages 173–182 in *Fauna Hawaiiensis* 2(3).
- Perroud. 1864. *Bostrichus boieldieui* n. sp. *Societe Linneenne de Lyon, Annales* 1864:188.
- Petty, Jerald L. 1977. Bionomics of two aspen bark beetles, *Trypophloeus populi* and *Procryphalus mucronatus* (Coleoptera: Scolytidae). *Great Basin Naturalist* 37(1):105–127.
- Peyerimhoff, Marie Paulde. 1919. Notes sur la biologie de quelques Coleopteres phytophages du Nord-Africain (troisieme serie) [Scolytidae, p. 247–257]. *Societe Entomologique de France, Annales* 88:169–258.
- Philippi, R.A., and Friedr. Philippi. 1864. Beschreibung einiger neuen chilenischen Käfer. *Stettiner Entomologische Zeitung* 25(10–11):373–378.
- Pjatnitskii, Georgia K. 1929. *Hypothenemus lezhavai* n. sp. *Lezhava Izd. Narod. Kom. Zem. Gruzii* 1929:1–15.
- *Rabinowitz, D. 1977. Effects of a mangrove borer, *Poecilips rhizophorae*, on propagules of *Rhizophora harrisonii* in Panama. *Florida Entomologist* 60:129–134.
- *Raffa, Kenneth Francis. 2001. Mixed messages across multiple trophic levels: the ecology of bark beetle chemical communication systems. *Chemoecology* 11:49–65.
- Ratzeburg, Julius Theodor Christian. 1837. Die forst-insekten oder Abbildung und Bescheibung der in den Wäldern Preussens und der Nachbarstaaten als schädlich oder nützlich bekannt gewordenen Insekten. Nicolai, Berlin. 3 vols. [Käfer, vol. 1].
- Redtenbacher, Ludwig. 1845. Die Gattungen der deutschen Käfer-Fauna. Carl Gerold, Wien 177 p., 2 Taf.
- _____. 1849. *Fauna Austriaca, Die Käfer, nach der analytischen methode bearbeitet* [Scolytidae, p. 36, 356–365, 790–793, 851–852]. Carl Gerold, Wien. xxvii + 883 p.
- Reitter, Edmund. 1913. Bestimmungstabelle der Borkenkäfer (Scolytidae) aus Europe und den angrenzenden Landern. *Wiener Entomologische Zeitung* 32(Beiheft):1–116.
- Rey, Claudius. 1885. Footnotes. Pages 127–128, 142–143 in W.J. Eichhoff, *Les xylophages d'Europe*. *Revue d'Entomologie* 2:97–117, 121–145.
- Rudinsky, Julius Alexander. 1966. Host selection and invasion by the Douglas-fir beetle, *Dendroctonus pseudotsugae* Hopkins, in coastal Douglas-fir forests. *Canadian Entomologist* 98:98–111.
- Sawamoto, Takahisha. 1942. Eine neuer Fichtenborkenkäfer aus Hokkaido. *Insecta Matsumurana* 16(3–4):165–169.
- Schedl, Karl Eduard. 1931a. Morphology of the bark-beetles of the genus *Gnathotrichus* Eichh. *Smithsonian Miscellaneous Collections* 82(10):1–88, 40 figs.
- _____. 1931b. Notes on the genus *Xyleborus* Eichh. *Annals and Magazine of Natural History* (10)8:339–347.
- _____. 1933. New Scolytidae from the Philippines. *Philippine Journal of Science* 51(1):101–106.
- _____. 1934a. Neue Indomalayische Scolytidae. II. Beitrag. *Entomologische Beitrag. Entomologische Berichten* 9:84–92.
- _____. 1934b. Neue Scolytidae und Platypodidae aus Zentral- und Sudamerika. *Entomologische Blätter* 30:208–212.
- _____. 1934c. Studies on Hawaiian Scolytidae (Col.). *Stylops* 3(8):177–179.
- _____. 1935a. Neue amerikanische Borkenkäfer. *Archivos do Instituto de Biologia Vegetal, Rio de Janeiro* 2(1):91–95.
- _____. 1935b. New bark-beetles and ambrosia-beetles (Col.). *Stylops* 4(12):270–276.
- _____. 1935c. New Scolytidae and Platypodidae from Central and South America. *Revista de Entomologia, Sao Paulo* 5:342–359.
- _____. 1935d. Scolytidae und Platypodidae, 29 Beitrag. *Arbeiten über Morphologische und Taxonomische Entomologie* 2(1):51.
- _____. 1936a. Notes on Malayan Scolytidae and Platypodidae and descriptions of some new species. *Journal of the Federated Malay States Museums* 18(1):1–18.
- _____. 1936b. Scolytidae and Platypodidae. Contribution 35. The collection of the South Australian Museum. *Records of the South Australian Museum* 5(4):513–535, 2 figs.
- _____. 1936c. Scolytidae und Platypodidae (Coleopt.)—neue Zentral- und Sudamerikanische Argen (36 Beitrag). *Archivos do Instituto de Biologia Vegetal, Rio de Janeiro* 3(1):99–110.
- _____. 1936d. Some new Scolytidae and Platypodidae from the Malay Peninsula. *Journal of the Federated Malay States Museums* 18(1):19–35, 1 fig.
- _____. 1937a. New Scolytidae and Platypodidae (Coleoptera). *Royal Entomological Society of London, Proceedings* (B)6(1):13–15.
- _____. 1937b. Scolytidae und Platypodidae (Coleoptera). 44 Beitrag. *Arbeiten über Morphologische und Taxonomische Entomologie* 4(1):66–70.
- _____. 1937c. Scolytidae und Platypodidae-Zentral und sudamerikanische Arten. *Archivos do Instituto de Biologia Vegetal, Rio de Janeiro* 3(2):155–170.
- _____. 1938a. Die Einteilung der Pityophthorine. *Archiv für Naturgeschichte* 7(2):157–188.

LITERATURE CITED

- _____. 1938b. New records of African Scolytidae and Platypodidae (Col.). 54th Contribution. Annals and Magazine of Natural History (11)2:450–458, 2 figs.
- _____. 1938c. Scolytidae und Platypodidae. 48 Beitrag. Die Gattungen *Coccotrypes* Eichh., *Poecilips* Schauf., *Thamnurgides* Hopk. und *Dendrugus* Egg. nebst Beschreibung einer neuen Art. Entomologische Berichten 10: 8–12, 2 Abb.
- _____. 1938d. Scolytidae und Platypodidae. 53 Beitrag. Diagnosen neuer und Fundort bereits bekannter argentinischer Arten. Revista de la Sociedad Entomologica Argentina, Buenos Aires 10(1):21–28.
- _____. 1939a. Fauna Argentinaensis, III. 70 Communication. Notas del Museo de la Plata 4(Zoologia 28):407–412.
- _____. 1939b. Malaysian Scolytidae and Platypodidae (IV). 57th Contribution. Journal of the Federated Malay States Museums 18(3):327–364.
- _____. 1939c. Scolytidae und Platypodidae. 47 Beitrag. Tijdschrift voor Entomologie 82:30–53, 12 figs.
- _____. 1939d. Scolytidae und Platypodidae (Coleoptera). 58 Beitrag. Arbeiten über Morphologische und Taxonomische Entomologie 6(1):45–48.
- _____. 1939e. Scolytidae und Platypodidae. 59 Beitrag, I. Zur synonymie der Borkenkafer. Revue de Zoologie et de Botanique Africaines 32(3/4):379–387.
- _____. 1939f. Scolytidae und Platypodidae. 63 Beitrag. Mitteilungen Münchner Entomologischen Gesellschaft 29(4): 564–585.
- _____. 1939g. Scolytidae y Platypodidae. 64 Communication. Diagnosis de especies nuevas y procedencias interesantes de la Argentina. Notas del Museo de la Plata 4(Zoologia 19):169–174.
- _____. 1939h. Scolytidae und Platypodidae (Col.). 68 Beitrag. Revista de Entomologia 10(3):718–727.
- _____. 1939i. Some new Neotropical species of Scolytidae in the collections of the British Museum (Coleoptera). Royal Entomological Society of London, Proceedings (B)8(1): 12–16.
- _____. 1940a. Fauna Mexicana, I. Insecta, Coleoptera, superfamilia Scolytoidea: Scolytidae, Coptonotidae y Platypodidae Mexicanos. Contribution 69. Anales de la Escuela Nacional de Ciencias Biológicas, Mexico 1(3–4):317–377 (1939).
- _____. 1940b. Scolytidae und Platypodidae (Coleoptera). Arbeiten über Morphologische und Taxonomische Entomologie 7(3):203–208.
- _____. 1940c. Zur Einteilung und Synonymie der Cryphalinae (Col., Scolytidae). 71 Beitrag. Mitteilungen Münchner Entomologischen Gesellschaft 30(2):583–591.
- _____. 1941a. 77th contribution to the morphology and taxonomy of the Scolytoidea. Hawaiian Entomological Society, Proceedings 11(1):109–116.
- _____. 1941b. Neue afrikanische Gattungen und Arten. 72 Beitrag. Revue de Zoologie et de Botanique Africaines 34(3/4):379–424.
- _____. 1942a. Forschungsberichte zur Scolytoiden-Fauna der Malayischen Halbinsel, V. 80 Beitrag. Kolonialforstliche Mitteilungen 5(2–3):169–218.
- _____. 1942b. Interessante und neue Scolytiden und Platypodiden aus der australischen Region. 79 Beitrag. Mitteilung der Münchener Entomologische Gesellschaft 32:162–201.
- _____. 1942c. Neue Scolytidae aus Java. 76 Beitrag. Tijdschrift voor Entomologie 85:1–49.
- _____. 1948a. Fauna Neotropical, I. 89 Contribution. Notas del Museo de la Plata 14(Zoologia 116):35–43.
- _____. 1948b. Neotropical Scolytidae, I. 97th contribution to the morphology and taxonomy of the Scolytoidea (Col.). Revista Brasileira de Biologia 9(3):261–284, 2 figs.
- _____. 1948c. New species and records of Australian Scolytidae. Royal Society of Queensland, Proceedings 60(2): 25–29.
- _____. 1948d. On some new Neotropical Scolytidae (Col.). 88 Contribution. Revista de Entomologia 19(3):575–579.
- _____. 1948e. Tropical seed beetles of the genus *Coccotrypes* Eichhoff. 99 Contribution. Tijdschrift voor Entomologie 91:113–120.
- _____. 1950a. Fauna Aethiopica, III. 103 Contribution. Institut Royal des Sciences Naturelles de Belgique, Bulletin 26(50):1–36.
- _____. 1950b. Fauna Indo-Malayensis, II. 104 Contribution. Annals and Magazine of Natural History (12)3:892–990.
- _____. 1950c. Neotropical Scolytoidea, II. 107 Contribution. Dusenía 1(3):145–180.
- _____. 1951a. Bark- and ambrosia beetles from Surinam, I. 124 Contribution. Entomologische Berichten 13:376–378.
- _____. 1951b. Chilenische Borkenkafer, I. 114 Beitrag. Revista Chilena de Entomologia 1:15–22.
- _____. 1951c. Fauna Argentinaensis, VI. 115 Beitrag. Acta Zoologica Lilloana 9:283–292 [Reprint dated 1950].
- _____. 1951d. Fauna Indomalayaensis, I. Tijdschrift voor Entomologie 93:41–98.
- _____. 1951e. Fauna Samoanus (Scolytoidea), I. 109 Contribution. Bernice P. Bishop Museum, Occasional Papers 20(10):131–156, 5 figs.
- _____. 1951f. Neotropische Scolytoidea, IV. 112 Beitrag. Dusenía 2(2):71–130.
- _____. 1952a. Fauna Argentinaensis, V. 115 Beitrag. Acta Zoologica Lilloana 12:443–463 [Reprint dated 1951 but actually printed in 1952].
- _____. 1952b. Fauna Argentinaensis, VII. 136 Beitrag. Acta Zoologica Lilloana 16:33–46.
- _____. 1952c. Fauna Philippinensis, VIII. 123 Contribution. Philippine Journal of Science 80(3):363–371.
- _____. 1952d. Neotropische Scolytoidea, III. 110 Beitrag. Dusenía 3:343–366.
- _____. 1953a. Bark and ambrosia beetles from Indochina. 127 Contribution. Revue Française d'Entomologie 20:123–130.
- _____. 1953b. Fauna Indomalayensis, III. 133 Contribution. Annals and Magazine of Natural History (12)6:288–304.
- _____. 1953c. Fauna Madagascariensis, III. 125 Contribution. Institut Scientifique de Madagascar, Ser. E, 8:67–106.
- _____. 1953d. New Scolytoidea. Queensland Museum Memoirs 13:80–83.
- _____. 1954a. Fauna Indomalayensis, IV. 141 Beitrag. Philippine Journal of Science 83(2):137–159.
- _____. 1954b. Neotropische Scolytoidea, VI. 142 Beitrag. Dusenía 5(1):21–48.
- _____. 1954c. Scolytoidea from the Gold Coast, I. 135 Contribution. Revue de Zoologie et de Botanique Africaines 50(1–2):45–88.
- _____. 1955a. Borken und Ambrosiakäfer des Museums Frey, I. 149 Beitrag. Entomologischen Arbeiten aus dem Museum G. Frey, Tutzing 6:267–276.
- _____. 1955b. Chilenische Borkenkafer, II. Revista Chilena de Entomologia 4:255–259.
- _____. 1955c. Die Kiefern-Borkenkafer Guatemalas. 145 Beitrag. Zeitschrift für Angewandte Entomologie 38(1): 1–48.

- _____. 1957. Scolytoidea nouveaux du Congo Belge, II. Mission R. Mayne-K.E. Schedl 1952. Annales du Musee Royale du Congo Belge Tervuren (Belgique), Ser. 8, Sciences Zoologiques 56:1–162.
- _____. 1958a. Fauna Argentinensis, VII. 136 Beitrag. Acta Zoologica Lilloana 16:33–46.
- _____. 1958b. Indian bark and timber beetles, I. Indian Forest Records, Entomology N.S. 9(7):165–169.
- _____. 1958c. Zur Synonymie der Borkenkafer, II. 159 Beitrag. Tijdschrift voor Entomologie 10(3/4):141–155.
- _____. 1959a. A check list of the Scolytidae and Platypodidae (Coleoptera) of Ceylon with descriptions of new species and biological notes. Royal Entomological Society of London, Transactions 111(15):469–534.
- _____. 1959b. Ein neuer *Phloeotribus* aus Peru. 179 Beitrag. Entomologischen Arbeiten aus dem Museum G. Frey 10(2):405–406.
- _____. 1959c. Neue Scolytoidea aus Brasilien. 172 Beitrag. Beitrage zur Entomologie 9(5/6):545–557.
- _____. 1961a. A few Scolytidae from Trinidad. 192 Contribution. Annals and Magazine of Natural History (13)3: 529–531.
- _____. 1961b. Borkenkafer aus der Turkei, II. Mitteilung. 190 Beitrag. Anzeiger fur Schadlingskunde 34:184–188.
- _____. 1961c. New species of bark- and timber beetles from the Neotropical region. 186 Contribution. Pan-Pacific Entomologist 37(4):223–233.
- _____. 1962a. On some African bark and timber beetles. 195 Contribution. West African Timber Borer Research Unit Annual Report 5:57–74.
- _____. 1962b. Scolytidae und Platypodidae Africas. Band 2. Familie Scolytidae. Revista de Entomologia de Mocambique 5(1):1–594.
- _____. 1962c. Zur synonymie der Borkenkafer, VIII (Coleoptera). 205 Beitrag. Beitrage zur Entomologie 12(3–4): 485–494.
- _____. 1962d. Zur synonymie der Borkenkafer, X. 213 Beitrag. Mitteilungen Munchner Entomologischen Gesellschaft 52:85–107.
- _____. 1963a. Fauna Mexicana, II (Col.). 216 Beitrag. Entomologisch Arbeiten aus dem Museum G. Frey 14:156–167.
- _____. 1963b. Neotropical Scolytoidea, VII. 211 Beitrag. Reichenbachia 1(27):209–234.
- _____. 1963c. Studies on the fauna of Surinam and other Guyanas: No. 21. Borkenkafer der Bodenfauna in Surinam. 199 Beitrag. Studies of the Fauna of Surinam and other Guyanas 6(32):52–64.
- _____. 1963d. Zur Synonymie der Borkenkafer, XI. 215 Beitrag. Koleopterologische Rundschau 40/41:60–66.
- _____. 1964a. Drei neue brasilianische Scolytiden (Col., Scolytidae). 225 Beitrag. Studia Entomologica, Revista Internacional de Entomologia (N.S.) 7:205–208.
- _____. 1964b. Zur Synonymie der Borkenkafer, XIV. 223 Beitrag. Reichenbachia, Dresden 2:209–223.
- _____. 1964c. Zur Synonymie der Borkenkafer, XV. 228 Beitrag. Reichenbachia 3(29):303–316.
- _____. 1966a. Etwas uber die Borkenkafer der Araucarien. 239 Beitrag. Anzeiger fur Schadlingskunde 39(3):42–45.
- _____. 1966b. Neotropische Scolytoidea, VIII. 238 Beitrag. Entomologische Arbeiten aus dem Museum G. Frey 17: 74–128.
- _____. 1967a. Neotropische Scolytoidea, IX. 251 Beitrag. Opuscula Zoologica 99:1–19.
- _____. 1967b. The scientific results of the Hungarian soil zoological expedition to the Brazzaville-Congo, 21. Die Arten der Familien Scolytidae und Platypodidae (Coleoptera). Opuscula Zoologica, Budapest 7(1):207–232.
- _____. 1970a. Neotropische Scolytoidea, X. 270 Beitrag. Koleopterologischer Rundschau 48:79–110.
- _____. 1970b. Scolytidae et Platypodidae (Coleoptera) recoltés en Guyane française par la Mission du Musée National d'Histoire Naturelle (1). 275 Contribution. Societe Entomologique de France, Annales 6(3):581–584.
- _____. 1970c. Zur Synonymie der Borkenkafer, XX. Naturhistorisches Museum Wien, Annales 74:221–231.
- _____. 1971a. Coleoptera: Scolytidae and Platypodidae from Ceylon. Entomologica Scandinavica (Suppl.) 1:274–285.
- _____. 1971b. Scolytidae und Platypodidae aus dem Zoologischen Museum der Universität in Kopenhagen (Insecta, Coleoptera). 265 Beitrag. Steenstrupia 1:145–156.
- _____. 1972a. Die Borkenkafer (Scolytidae, Coleoptera) von Chile. 264 Beitrag. Mitteilungen Munchener Entomologischen Gesellschaft 62:129–153.
- _____. 1972b. Neotropische Scolytidea, XI. 293 Beitrag. Koleopterologische Rundschau 50:37–86.
- _____. 1972c. New Scolytidae and Platypodidae from the Papuan subregion and Australia. 279 Contribution. Papua New Guinea Agricultural Journal 23(3–4):61–72.
- _____. 1972d. Scolytidae of Ceylon. 287 Contribution. Mitteilungen des Schweizerischen Entomologischen Gesellschaft 45(1–3):221–229.
- _____. 1973a. Borkenkafer aus Bolivien (Coleoptera). 300 Beitrag. Folia Entomologica Hungarica, Rovartani Közlemenyek (Series Nova) 26(Suppl.):365–373.
- _____. 1973b. Neotropische Scolytoidea, XII. 295 Contribution. Papeis Avullsos de Zoologia, Sao Paulo 26(11): 149–172.
- _____. 1975a. Fauna Argentinensis, VII: Der Nahuel Huapi National Park. 316 Beitrag. Studies on the Neotropical Fauna 10(1):1–18.
- _____. 1975b. Indian bark and timber beetles, VI. 312 Contribution. Revue Suisse Zoologie 82(3):445–458.
- _____. 1975c. New Scolytidae and Platypodidae from Papua and New Guinea, IV. 317 Contribution. Naturhistorisches Museum Wien, Annales 79:337–399.
- _____. 1975d. Zur Synonymie der Borkenkafer, XXV. 314 Beitrag. Entomologische Blätter 71(1):39–54.
- _____. 1976. Neotropische Scolytoidea, XIII. Entomologische Abhandlungen Staatliches Museum für Tierkunde in Dresden 41(3):49–92.
- _____. 1977. Scolytoidea aus El Salvador. 327 Beitrag. Zeitschrift der Arbeitsgemeinschaft Österreich Entomologen 29(1–2):41–48.
- _____. 1978. Neotropische Scolytoidea, XIV (Coleoptera). 335 Beitrag. Entomologische Abhandlungen Staatliches Museum für Tierkunde in Dresden 41(8):291–309.
- _____. 1979a. Die Typen der Sammlung Schedl Familie Scolytidae (Coleoptera). Kataloge der wissenschaftlichen Sammlungen des Naturhistorischen Museums in Wien, Entomologie 3(2). 286 p.
- _____. 1979b. Fauna Argentinensis, IX. 331 Contribution. Lacta Zoologica Lilloana 33:57–62.
- _____. 1979c. Zur Synonymie der Borkenkafer, XXIX. 345 Beitrag. Entomologischen Arbeiten aus dem Museum G. Frey 28:119–132.
- _____. 1980a. Scolytoidea from Queensland (Australia) (Coleoptera). 336 Contribution. Faunistische Abhandlungen

LITERATURE CITED

- Staatliches Museum für Tierkunde in Dresden 7(21): 183–189.
- _____. 1980b. Zur Synonymie der Borkenkafer, 28. 339 Beitrag. Zeitschrift ArbGem ost. Ent. 31(3–4):117–124.
- _____. 1981. Ein neuer *Xyleborus* aus Brasilien (Coleoptera, Scolytidae). Entomologische Blätter 77(1–2):5.
- *Schoenherr, Joachim. 1994. Neue Borkenkafer von Brasilien (Coleoptera: Scolytidae). Deutsche Entomologische Zeitschrift (Neue Folge) 41:63–69.
- Schwarz, Eugene Amandus. 1886. Remarks on North American scolytids. Entomologica Americana 2:40–43, 54–56.
- _____. 1891. Contribution to the life-history of *Corthylus punctatissimus* and description of *C. spinifer* n. sp. Entomological Society of Washington, Washington, D.C., Proceedings 2:109–115.
- Sharp, David. 1879. On some Coleoptera from the Hawaiian Islands [Scolytidae, p. 101–102]. Entomological Society of London, Transactions 1879:77–105.
- _____. 1885. [In Blackburn and Sharp, *Xylebous confusus* descriptions]. Royal Dublin Society Scientific, Transactions 3(2):193.
- *Six, D.L. 2003. Bark beetle-fungus symbiosis, p. 99–116. In K. Bourtzis and T.A. Miller [eds.], Insect Symbiosis. CRC Press, Baton Rouge, Florida.
- Skalitzy, Karl. 1876. *Scolytus kirschii* Skal. Entomologische Monatsblätter 1876:110.
- Sokanovskii, Boris V. 1960. K sistematike i rasposrtraneniju koroedov (Coleoptera, Ipidae) SSSR i sopedel'nykh stran [Systematics and distribution of bark beetles in USSR and neighbouring countries]. Entomologischeskoje Obozrenie 39(3):674–678.
- *Sousa, W.P., S.P. Quek, and B.J. Mitchell. 2003. Regeneration of *Rhizophora mangle* in a Caribbean mangrove forest: interacting effects of canopy disturbance and a stem-boring beetle. Oecologia 137:436–445.
- Stebbing, Edward Percy. 1903. Departmental notes on insects that affect forestry. Office of the Superintendent of Government Printing, Calcutta 2:151–334, pls. 7–19.
- _____. 1914. Indian forest insects of economic importance. Coleoptera. Eyre and Spottiswoode, London. xvi + 648 p., 63 pls.
- Strohmeyer, Heinrich. 1909. Beschreibung zweier neuer *Phloeoborus*-Arten und Ergänzung der Diagnosen einiger bekannter Phloeotrupiden unter Berücksichtigung der Sekunderen Geschlechtscharaktere. Entomologische Blätter 5:248–251.
- _____. 1911. Borkenkafer der Philippinen. Philippine Journal of Science, D. General Biology 6:17–29.
- Swaine, James Malcolm. 1915. Descriptions of new species of Ipidae (Coleoptera). Canadian Entomologist 47:355–369, pls. 47:13–14.
- _____. 1917. Canadian bark-beetles, Part I. Descriptions of new species. Dominion of Canada Department of Agriculture, Entomological Branch, Technical Bulletin 14(1). 32 p.
- _____. 1918. Canadian bark-beetles, Part 2. A preliminary classification with an account of the habits and means of control. Dominion of Canada Department of Agriculture, Entomological Branch, Technical Bulletin 14(2). 143 p., 31 pls.
- _____. 1934. Three new species of Scolytidae (Coleoptera). Canadian Entomologist 66:204–206.
- *Thompson, Richard T. 1992. Observations on the morphology and classification of weevils (Coleoptera, Curculionidae) with a key to major groups. Journal of Natural History 26:835–891.
- Toledo Piza Junior, Salvador de. 1924. Uma nova especie de Irido do genero *Stephanoderes*. Revista da Sociedade Rural Brasileira 53:354–355, 2 figs.
- Waterhouse, Charles Owen. 1890. Coleoptera. Pages 548–556 in H.N. Ridley, Notes on the zoology of Fernando Noronha. Journal of the Linnean Society 22(124–125):473–570.
- Weele, H.W. van der. 1910. *Xyleborus coffeivorus* nov. spec. Een nieuwe koffieparasiet. Teysma, Batavia 21:308–316.
- *Wertheim, B. E.J.A. van Baalen, M. Dicke, and L.E.M. Vet. 2005. Pheromone-mediated aggregation in nonsocial arthropods: An evolutionary ecological perspective. Annual Review of Entomology 50:321–346.
- Westwood, John Obadiah. 1836. Description of a minute coleopterous insect, forming the type of a new subgenus allied to *Tomicus*, with some observations upon the affinities of the Xylophaga. Entomological Society of London, Transactions 1(1):34–36, pl. VII, figs. 1a–1h.
- Wichmann, Heinrich E. 1913. Ein neuer *Eccoptogaster* aus der *multistriatus*-Gruppe. Wiener Entomologische Zeitung 32:210–211.
- _____. 1914. Zur Kenntnis der Ipiden, II. Entomologische Blätter 10:136–139.
- _____. 1915a. Zur Kenntnis der Ipiden, III. Entomologische Blätter 11:102–107.
- _____. 1915b. Zur Kenntnis der Ipiden, IV. Entomologische Blätter 11:213–217.
- Wickham, Henry Federick. 1916. New fossil Coleoptera from the Florissant Beds. State University of Iowa, Laboratories of Natural History, Bulletin 7(3):18–19.
- Wollaston, Thomas Vernon. 1854. Insecta Maderensia, being an account of the insects of the Islands of the Madeiran group [Scolytidae, p. 288–306]. Van Voorst, London. xliii + 634 p., 13 pls.
- _____. 1857. Catalogue of the coleopterous insects of Madeira in the collection of the British Museum. London 234 p., 1 pl.
- _____. 1860. Additions to Madeiran Coleoptera. Annals and Magazine of Natural History (3)5:358–365.
- *Wood, David Lee. 1982. The role of pheromones, kairomones, and allomones in the host selection and colonization behavior of bark beetles Coleoptera. Annual Review of Entomology. Palo Alto, California, Annual Reviews Inc. 27:411–446.
- Wood, Stephen Lane. 1954. A revision of North American Cryphalini (Scolytidae, Coleoptera). University of Kansas Science Bulletin 36(2):959–1089.
- _____. 1956a. New species of bark beetles (Coleoptera: Scolytidae), mostly Mexican, Part II. Canadian Entomologist 88:231–240.
- _____. 1956b. New species of bark beetles (Coleoptera: Scolytidae), mostly Mexican, Part III. Canadian Entomologist 88:247–258.
- _____. 1960. Coleoptera: Platypodidae and Scolytidae. Insects of Micronesia 18(1). 73 p.
- _____. 1961a. Key to the North American genera of Scolytidae. Coleopterist's Bulletin 15:41–48.
- _____. 1961b. New records and species of Scolytidae (Coleoptera) from Colombia. Great Basin Naturalist 21:1–7.
- _____. 1961c. New species of bark beetles (Coleoptera: Scolytidae), mostly Mexican, Part VI. Great Basin Naturalist 21:87–107.

- _____. 1962. Miscellaneous taxonomic notes on Scolytidae (Coleoptera). *Great Basin Naturalist* 22:76–82.
- _____. 1966. New synonymy in the Platypodidae and Scolytidae (Coleoptera). *Great Basin Naturalist* 26:17–33.
- _____. 1967a. New records and species of Neotropical bark beetles (Scolytidae: Coleoptera). *Great Basin Naturalist* 27(2):79–97.
- _____. 1967b. New records and species of Neotropical bark beetles (Scolytidae, Coleoptera), II. *Great Basin Naturalist* 27(3):119–141.
- _____. 1968a. A key to the species of the *Cnesinus* LeConte (Coleoptera: Scolytidae) of North and Central America. *Great Basin Naturalist* 28(2):88–110.
- _____. 1968b. New records and species of Neotropical bark beetles (Scolytidae: Coleoptera), III. *Great Basin Naturalist* 28(1):1–15.
- _____. 1969. New records and species of Neotropical bark beetles (Scolytidae: Coleoptera), Part IV. *Brigham Young University Science Bulletin, Biological Series* 10(2). 46 p.
- _____. 1971. New records and species of Neotropical bark beetles (Scolytidae: Coleoptera), Part V. *Brigham Young University Science Bulletin, Biological Series* 15(3). 54 p.
- _____. 1972a. New synonymy in American bark beetles (Scolytidae: Coleoptera). *Great Basin Naturalist* 31(3):140–152.
- _____. 1972b. New synonymy in American bark beetles (Scolytidae: Coleoptera), Part II. *Great Basin Naturalist* 32(4):190–201.
- _____. 1972c. Notes on the classification of the tribe Scolytini (Coleoptera, Scolytidae). *Bulletin of Entomological Research* 62(2):243–246.
- _____. 1973a. New species of American *Microcorthylyus* (Coleoptera: Scolytidae). *Great Basin Naturalist* 33(4):265–275.
- _____. 1973b. On the taxonomic status of Platypodidae and Scolytidae (Coleoptera). *Great Basin Naturalist* 33(1):77–90.
- _____. 1974a. New species of American bark beetles (Scolytidae: Coleoptera). *Brigham Young University, Science Bulletin, Biological Series* 19(1). 67 p.
- _____. 1974b. New species of American Corthylini (Coleoptera: Scolytidae). *Great Basin Naturalist* 34:135–150.
- _____. 1974c. New species of American *Corthylyus* (Coleoptera: Scolytidae). *Great Basin Naturalist* 34:181–202.
- _____. 1974d. New synonymy and records of American bark beetles (Coleoptera: Scolytidae). *Great Basin Naturalist* 34:277–290.
- _____. 1975a. New synonymy and new species of American bark beetles (Coleoptera: Scolytidae). *Great Basin Naturalist* 35(1):21–32.
- _____. 1975b. New synonymy and new species of American bark beetles (Coleoptera: Scolytidae), Part II. *Great Basin Naturalist* 35:391–401.
- _____. 1977a. Introduced and exported American Scolytidae (Coleoptera). *Great Basin Naturalist* 37(1):67–74.
- _____. 1977b. New synonymy and new species of American bark beetles (Coleoptera: Scolytidae). Part IV. *Great Basin Naturalist* 37(2):207–220.
- _____. 1977c. New synonymy and new species of American bark beetles (Coleoptera: Scolytidae), Part V. *Great Basin Naturalist* 37(3):383–394.
- _____. 1977d. New synonymy and new species of American bark beetles (Coleoptera: Scolytidae), Part VI. *Great Basin Naturalist* 37(4):511–522.
- _____. 1978a. A reclassification of the subfamilies and tribes of Scolytidae (Coleoptera) [French summary]. *Société Entomologique de France, Annales* 14(1):95–122.
- _____. 1978b. New synonymy and new species of American bark beetles (Coleoptera: Scolytidae), Part VII. *Great Basin Naturalist* 38(4):397–405.
- _____. 1979. New synonymy and new species of American bark beetles (Coleoptera: Scolytidae), Part VIII. *Great Basin Naturalist* 39(2):133–142.
- _____. 1980a. Correlation of anatomical characters used in classification with patterns of behavior in Scolytidae (Coleoptera). Presented at the International Congress of Entomology, Kyoto, Japan, Forestry Section. August 1980. Oral report, see abstract.
- _____. 1980b. New American bark beetles (Coleoptera: Scolytidae) with two recently introduced species. *Great Basin Naturalist* 40(4):353–358.
- _____. 1980c. New genera and new generic synonymy in Scolytidae (Coleoptera). *Great Basin Naturalist* 40:89–97.
- _____. 1982a. New species of American bark beetles (Coleoptera: Scolytidae). *Great Basin Naturalist* 42(2):223–231.
- _____. 1982b. The bark and ambrosia beetles of North and Central America (Coleoptera: Scolytidae), a taxonomic monograph. *Great Basin Naturalist Memoirs* 6. 1359 p.
- _____. 1985. New synonymy and new species of bark beetles (Coleoptera: Scolytidae). *Great Basin Naturalist* 45(2):266–275.
- _____. 1986a. A reclassification of the genera of Scolytidae (Coleoptera). *Great Basin Naturalist Memoirs* 10. 126 p.
- _____. 1986b. New synonymy and new species of American bark beetles (Coleoptera: Scolytidae), Part XI. *Great Basin Naturalist* 46(2):265–273.
- _____. 1988. Nomenclatural changes and new species of Scolytidae (Coleoptera). *Great Basin Naturalist* 48(1):31–38.
- _____. 1989. Nomenclatural changes and new species of Scolytidae (Coleoptera), part IV. *Great Basin Naturalist* 49:167–185.
- _____. 1992. Nomenclatural changes and new species of Scolytidae and Platypodidae (Coleoptera), part II. *Great Basin Naturalist* 52:89–92.
- _____. 1993. Revision of the genera of Platypodidae (Coleoptera). *Great Basin Naturalist* 53(3):259–281.
- Wood, Stephen Lane, and Donald Edward Bright, Jr. 1987. A catalog of Scolytidae and Platypodidae (Coleoptera), Part 1: Bibliography. *Great Basin Naturalist Memoirs* 11. 686 p.
- _____. c1992. A catalog of Scolytidae and Platypodidae (Coleoptera), Part 2: Taxonomic index. *Great Basin Naturalist Memoirs* 13, vols. A and B. 1553 p. [Copyrighted 8 December 1992, 50 copies mailed by the senior author on 27 December 1992, publisher incorrectly reported the date of publication of vol. B as January 1993].
- Wood, Stephen Lane, and Yin Hui-Fen. 1986. Relict occurrence of three “American” Scolytidae (Coleoptera) from Asia. *Great Basin Naturalist* 46(3):461–464.
- *Wood, Stephen Lane, George C. Stevens, and H.J. Lezama. 1992. Los Scolytidae (Coleoptera) de Costa Rica: Clave de la subfamilia Scolytinae, Tribu Corthylini. *Revista de Biología Tropical* 40:247–286.
- *Yust, H.R. 1957. Biology and habits of *Pagiocerus fiorii* in Ecuador. *Journal of Economic Entomology* 50:92–96.
- *Zanucio, J.C., M.F. Sossai, Carlos A.H. Fllehtmann, T.V. Zanuncio, E.M. Guimaraes, and M.C. Espindula. 2005. Plants of an *Eucalyptus* clone damaged by Scolytidae

LITERATURE CITED

- and Platypodidae (Coleoptera). *Pesquisa Agropecuaria Brasileira* 40:513–515.
- *Zherikin, V.V., and V.G. Gratshev. 1995. A comparative study of the hind wing venation of the superfamily Curculionoidea, with phylogenetic implications. In J. Pakaluk and S.A. Slipinski (ed.). *Biology, phylogeny, and classification of Coleoptera, papers celebrating the 80th birthday of Roy A. Crowson*. Muzeum i Instytut Zoologii PAN, Warszawa.
- Zimmermann, C. 1868. Synopsis of the Scolytidae of America north of Mexico. *American Entomological Society, Transactions* 2:141–149.
- *Zimmerman, Elwood C. 1994. *Australian weevils (Coleoptera, Curculionoidea)*. CSIRO Information Services, Melbourne.

INDEX

Non-Latin names are given in this index in regular type.

This index includes all Latin names used in this monograph for Scolytidae. Family-group names (family, subfamily, tribe) and names applied below the rank of subspecies (including aberrations, variations, nomen nudums) are given in regular type. Valid names of genera and species are in bold type. The names of synonyms of genera are given in italics. Author names for valid species are given in regular bold type; author names of synonyms of species are given in regular type. The generic name used in the original combination of species name, whether valid or a synonym, is given in non-bold italic followed by the author name in regular type. For junior synonyms of species, the valid name of the senior synonym of that species is given in bold italics type in parentheses, for example: (**=ater**). Only names of modern living species are listed. Fossil species are not included in this volume.

<i>abacis</i> Wood, <i>Tricolus</i>	686
<i>abbreviatus</i> Eichhoff, <i>Corthylus</i>	856
<i>abbreviatus</i> (Schedl), (<i>Cryptocleptes</i>), <i>Pseudothysanoes</i>	308
<i>abbreviatus</i> Schedl, <i>Pityophthorus</i> , (=exsectus)	650
<i>abbreviatus</i> Schedl, <i>Pseudochramesus</i> , (=setifer)	155
<i>abdominalis</i> Hopkins, <i>Hypothenemus</i> , (=columbi)	523
<i>aberrans</i> Schedl, <i>Chramesus</i>	166
<i>aberrans</i> Wichmann, <i>Microborus</i>	239
<i>abhorrens</i> Wichmann, (<i>Eccoptogaster</i>), <i>Scolytus</i> , (=multistriatus)	222
<i>abhorrens</i> Wood, <i>Hypothenemus</i>	504
<i>abrupteclivis</i> Schedl, <i>Corthylus</i>	858
<i>abruptus</i> Schedl, <i>Tricolus</i>	684
<i>absonus</i> Wood, <i>Microcorthylus</i>	783
Abstract	i
<i>abundans</i> Lea, <i>Acacacis</i> , (=atomarius)	30
<i>acaciae</i> Schedl, <i>Cryptocarenus</i> , (=heveae)	493
<i>acacicolens</i> Wood, <i>Chramesus</i>	164
<i>Acanthotomicus</i>	335
<i>accomodatus</i> Schedl, <i>Xyleborus</i> (=adelographus)	435
<i>aciculatus</i> Schedl, <i>Coccotrypes</i>	360
Acknowledgements	22
<i>aclinis</i> Wood, <i>Xyleborus</i> , (=improvidus)	442
<i>aconcaguensis</i> Wood, <i>Xylechinus</i>	58
<i>Acorthylus</i>	483
Acronyms of museum type repositories	21
<i>acuminatus</i> Schedl, <i>Cnemonyx</i>	198
<i>acuminatus</i> Schedl, <i>Cnesinus</i>	83
<i>acuminatus</i> Schedl, <i>Hylocurus</i> , (=dimorphus)	327
<i>acuminatus</i> Schedl, <i>Xyleborus</i>	448
<i>acus</i> Wood, <i>Amphicranus</i>	703
<i>acuteclavatus</i> (Hagedorn), <i>Pseudochramesus</i>	154
<i>acutedentatus</i> Schedl, <i>Hylocurus</i>	322
<i>additus</i> Wood, <i>Corthylus</i>	862
<i>adelographus</i> Eichhoff, <i>Xyleborus</i>	435
<i>Adiaeretus</i> Hagedorn, (=Hypothenemus)	497
<i>adjunctum</i> Schedl, (<i>Pterocyclon</i>), <i>Monarthrum</i> , (=laevigatum) ..	755
<i>adumbratus</i> Blandford, <i>Xyleborus</i> , (=pfeili)	453
<i>adusta</i> (Eggers), (<i>Hylocurosoma</i>), <i>Scolytodes</i>	293

<i>adusticus</i> Wood, <i>Cnesinus</i>	97
<i>adustus</i> Eggers, <i>Cryptocarenus</i> , (=seriatus)	496
<i>adustus</i> (Eggers), <i>Hylocurosoma</i> , <i>Scolytodes</i> , (=adusta)	293
<i>adustus</i> Schedl, <i>Cnesinus</i>	97
<i>advena</i> Blandford, <i>Coccotrypes</i>	358
<i>advena</i> Schedl, <i>Chramesus</i>	171
<i>advena</i> Schedl, <i>Cnesinus</i>	94
<i>aeneipennis</i> (Fabricius), (<i>Hylesinus</i>), <i>Camptocerus</i>	202
<i>aequaliclavatus</i> Schedl, <i>Hypothenemus</i>	505
<i>aequalis</i> Wood, <i>Hylocurus</i>	327
<i>aequipunctata</i> Eggers, <i>Scolytodes</i>	274
<i>aesculi</i> Ferrari, (<i>Xyleborus</i>), <i>Xyleborinus</i> , (=saxeseni)	473
<i>affinis</i> Eggers, (<i>Eccoptogaster</i>), <i>Scolytus</i> , (=multistriatus)	222
<i>affinis</i> Eggers, <i>Bothrosternus</i>	103
<i>affinis</i> Eggers, <i>Tricolus</i>	685
<i>affinis</i> Eichhoff, <i>Xyleborus</i>	447
<i>affinis</i> Fonseca, <i>Corthylus</i> , (1927), (=papulans)	854
<i>affinis</i> Fonseca, (<i>Metacorthylus</i>), <i>Corthylus</i> , (1925, =papulans) ..	854
<i>africanus</i> (Hopkins), (<i>Stephanoderes</i>), <i>Hypothenemus</i>	523
<i>ageratinae</i> Wood, <i>Scolytodes</i>	273
<i>alexae</i> Wood, <i>Ambrosiodmus</i>	406
<i>alienus</i> Schedl, <i>Corthylus</i>	832
<i>alienus</i> Schedl, (<i>Cryphalomorphus</i>), <i>Scolytogenes</i> , (=jalapae) ..	486
<i>alienus</i> Wood, <i>Cnesinus</i>	82
<i>alni</i> Mulsant & Rey, (<i>Bostrichus</i>), <i>Xyleborus</i> , (=pfeili)	453
<i>alter</i> Eggers, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (=birmanus)	508
<i>alter</i> (Eggers), (<i>Xylebous</i>), <i>Dryocoetoides</i>	385
<i>alternans</i> Eggers, <i>Dryocoetes</i> , (=autographus)	355
<i>alternans</i> Eichhoff, <i>Xyleborus</i> , (=volvulus)	451
<i>alternatus</i> Eggers, <i>Hylocurus</i>	321
<i>altitilis</i> Schedl, <i>Xyleborus</i>	445
<i>alvarengai</i> Bright, <i>Sampsonius</i>	370
<i>alvarengai</i> Schedl, <i>Pityophthorus</i>	651
<i>amazonicus</i> (Eggers) (<i>Loganius</i>), <i>Cnemonyx</i>	192
<i>amazonicus</i> (Eggers), (<i>Neodryocoetes</i>), <i>Araptus</i>	569
<i>amazonicus</i> Eggers, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (=obscurus)	514
<i>amazonicus</i> Schedl, (<i>Ceratolepis</i>), <i>Cnemonyx</i> , (=amazonicus Eggers)	192
<i>amazonicus</i> Schedl, <i>Scolytus</i>	226
<i>amazonicus</i> Wood, <i>Cryptocarenus</i>	492
<i>ambitosus</i> (Schaufuss), <i>Premnobius</i>	368
<i>Ambrosiodmus</i>	401
<i>americanus</i> Hopkins, <i>Dryocoetes</i> , (=autographus)	355
<i>amoenus</i> Schedl, <i>Xyleborus</i> , (=asper)	430
<i>amparae</i> Wood, <i>Monarthrum</i>	746
<i>amphicranoides</i> (Schedl), (<i>Pterocyclon</i>), <i>Monarthrum</i>	734
<i>Amphicranus</i>	689
<i>ampliatu</i> s Eggers, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (=birmanus)	508
<i>ampliatu</i> s Schedl, <i>Cnesinus</i>	93
<i>ampliocollis</i> Eichhoff, <i>Xyleborus</i> , (=ferrugineus)	449
<i>amplipennis</i> Hopkins, <i>Hypothenemus</i> , (=columbi)	523
<i>amplipennis</i> Schedl, <i>Cnesinus</i>	81
<i>amplu</i> s Wood, <i>Phloeotribus</i>	130
<i>anacardii</i> Wood, <i>Pityophthorus</i>	656
<i>Anaeretus</i> Duges, (=Xyleborus)	410
<i>analogus</i> Schedl, (<i>Xyleborus</i>), <i>Xyleborinus</i> , (=intersetosus)	472
<i>analogus</i> (Wood), <i>Acanthotomicus</i>	337
<i>anaxeus</i> Wood, <i>Phelloterus</i>	621
<i>anceps</i> Wood, <i>Scolytodes</i>	284
<i>Anchonoceus</i> Eichhoff, (=Monarthrum)	713
<i>andersoni</i> Wood, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (=seriatus) ..	516

INDEX

<i>andinus</i> Wood, <i>Araptus</i>	609	<i>asaroriensis</i> Beeson, <i>Hypothenemus</i> , (= <i>eruditus</i>)	519
<i>andinus</i> Wood, <i>Chaetophloeus</i>	182	<i>ascendens</i> Schedl, <i>Pityophthorus</i>	633
<i>andinus</i> Wood, <i>Corthylus</i>	852	<i>asiminae</i> Hopkins, <i>Hypothenemus</i> , (= <i>eruditus</i>)	518
<i>angustatus</i> Browne, <i>Scolytus</i>	227	<i>asper</i> Eggers, <i>Xyleborus</i>	430
<i>angustatus</i> Eichhoff, (<i>Xyleborus</i>), <i>Xyleborinus</i> , (= <i>saxeseni</i>)	473	<i>asper</i> Erichson, <i>Phloeoborus</i>	39
<i>angustatus</i> Wood, <i>Tricolus</i>	679	<i>asperatus</i> Blandford, <i>Phloeotribus</i> , (= <i>setulosus</i>)	145
<i>angustior</i> Eggers, <i>Camptocerus</i>	204	<i>asperatus</i> Schedl, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>seriatus</i>)	516
<i>Anisandrus</i> Ferrari, (= <i>Xyleborus</i>)	410	<i>aspericauda</i> Eggers, (<i>Xyleborus</i>), <i>Xyleborinus</i> , (= <i>gracilis</i>)	475
<i>anisandrus</i> Schedl, (<i>Xyleborus</i>), <i>Ambrosiodmus</i> , (= <i>hagedorni</i>)	407	<i>aspericollis</i> Schedl, <i>Chramesus</i>	167
<i>annectens</i> Wood, <i>Camptocerus</i>	210	<i>aspericollis</i> Strohmeier, <i>Phloeoborus</i> , (= <i>cristatus</i>)	43
<i>annexus</i> Wood, <i>Corthylus</i>	835	<i>aspericollis</i> Wollaston, (<i>Cryphalus</i>), <i>Hypothenemus</i> , (= <i>eruditus</i>)	518
<i>annulatum</i> Wood, <i>Monarthrum</i>	763	<i>asperipunctatus</i> Eggers, <i>Xyleborus</i>	430
<i>Anodius</i> Motschulsky, (= <i>Dryocoetes</i>)	355	<i>asperulus</i> Eggers, <i>Phloeotribus</i>	141
<i>anonae</i> Hopkins, <i>Coccotrypes</i> , (= <i>carpophagus</i>)	362	<i>asperulus</i> (Eggers), (<i>Xyleborus</i>), <i>Dryocoetoides</i>	386
<i>antennarius</i> Schedl, <i>Corthylus</i>	857	<i>asperulus</i> Eichhoff, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>obscurus</i>)	514
<i>antennatus</i> Schedl, <i>Scolytus</i>	224	<i>asperulus</i> Schedl, <i>Chramesus</i>	166
<i>antennatus</i> Wood, <i>Corthyloxiphus</i>	794	<i>assequens</i> Schedl, (<i>Pterocyclon</i>), <i>Monarthrum</i> , (= <i>ingens</i>)	743
<i>anticus</i> Schedl, <i>Pityophthorus</i>	639	<i>assidius</i> (Schedl), (<i>Xyleborus</i>), <i>Gnathotrupes</i>	671
<i>antipodius</i> (Eggers), (<i>Blastophagus</i>), <i>Hylurgonotus</i>	64	<i>assimilis</i> Boheman, <i>Scolytus</i> , (= <i>rugulosus</i>)	221
<i>antipodius</i> Schedl, <i>Hylesinus</i> , (= <i>toranio</i>)	30	<i>associatus</i> Schedl, <i>Xyleborus</i>	429
<i>Aphanocleptus</i> , (= <i>Pseudothysanoes</i>)	301	<i>ater</i> Eggers, <i>Dendrosinus</i>	147
<i>apicalis</i> Wood, <i>Amphicranus</i>	698	<i>ater</i> Eggers, <i>Eupagiocerus</i>	101
<i>apicalis</i> Wood, <i>Corthyloxiphus</i>	793	<i>ater</i> Eggers, (<i>Hylocurosoma</i>), <i>Scolytodes</i> , (= <i>aterrima</i>)	285
<i>apicinotatus</i> Schedl, <i>Pityophthorus</i> , (= <i>terebrans</i>)	648	<i>ater</i> (Eggers), (<i>Prionosceles</i>), <i>Scolytodes</i>	294
<i>apicipennis</i> Schedl, <i>Pityophthorus</i>	651	<i>ater</i> (Paykull), (<i>Bostrichus</i>), <i>Hylastes</i>	27
<i>apiculatus</i> Schedl, <i>Pityophthorus</i>	655	<i>ater</i> (Schedl), (<i>Cnesinus</i>), <i>Sternobothrus</i>	110
<i>Apidocephalus</i> Wickham, (= <i>Hylesinus</i>)	29	<i>ater</i> Schedl, <i>Corthylus</i>	841
<i>Apoxyleborus</i> Wood, (= <i>Xylosandrus</i>)	464	<i>aterrima</i> Wood, (<i>Scolytodes</i>)	285
<i>appendiculatum</i> Schedl, (<i>Pterocyclon</i>), <i>Monarthrum</i> , (= <i>nudum</i>)	751	<i>aterrimus</i> Eggers, <i>Camptocerus</i>	204
<i>approximatus</i> Hopkins, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>interstitialis</i>)	510	<i>aterrimus</i> (Schedl), (<i>Stephanoderes</i>), <i>Hypothenemus</i>	506
<i>apuliae</i> Costa Lima, <i>Spermophthorus</i>	622	<i>aterrimus</i> Wood, <i>Scolytodes</i> , (= <i>aterrima</i>)	285
<i>aquilus</i> Wood, <i>Camptocerus</i> , (= <i>opacicollis</i>)	209	<i>atlantica</i> Schedl, <i>Phloeotribus</i> , (= <i>setulosus</i>)	145
<i>araguensis</i> Wood, <i>Amphicranus</i>	707	<i>atoma</i> (Hopkins), (<i>Hypothenemus</i>), <i>Trischidias</i>	527
<i>araguensis</i> Wood, <i>Araptus</i>	601	<i>atomarius</i> (Chapuis), (<i>Hylesinus</i>), <i>Acacacis</i>	30
<i>araguensis</i> Wood, <i>Corthyloxiphus</i>	791	<i>atomus</i> Wood, <i>Corthylus</i>	847
<i>araguensis</i> Wood, <i>Corthylus</i>	843	<i>atomus</i> Wood, <i>Pseudothysanoes</i>	303
<i>araguensis</i> Wood, <i>Phloeoborus</i>	43	<i>atrata</i> (Blandford), (<i>Prionosceles</i>), <i>Scolytodes</i>	268
<i>araguensis</i> Wood, <i>Xyleborus</i>	441	<i>atratus</i> (Blandford), (<i>Prionosceles</i>), <i>Scolytodes</i> , (= <i>atrata</i>)	268
<i>Araptus</i>	547	<i>atratus</i> Chapuis, <i>Scolytus</i> , (= <i>carinatus</i>)	234
<i>araucariae</i> (Schedl), (<i>Conophthocranulus</i>), <i>Araptus</i>	569	<i>atratus panamensis</i> Wood, (<i>Prionosceles</i>), <i>Scolytodes</i> (= <i>atrata</i>)	264
<i>araucariae</i> Schedl, (<i>Pseudohylesinus</i>), <i>Xylechinosomus</i> , (= <i>brasiliensis</i>)	47	<i>atrocis</i> Wood, <i>Cladoctonus</i>	151
<i>arbuti</i> Hopkins, (<i>Xyleborus</i>), <i>Xyleborinus</i> , (= <i>saxeseni</i>)	473	<i>atrocis</i> Wood, <i>Pelloterus</i>	621
<i>Archaeoscolytus</i> Butovitsch, (= <i>Scolytus</i>)	214	<i>atrodeclivis</i> Wood, <i>Cnesinus</i> , (= <i>adustus</i>)	97
<i>Archeophalus</i> Schedl, (= <i>Hypothenemus</i>)	497	<i>atrotibialis</i> (Eggers), (<i>Prionosceles</i>), <i>Scolytodes</i>	296
<i>arecae</i> (Hornung), (<i>Bostrichus</i>), <i>Hypothenemus</i>	522	<i>attenuatus</i> Wood, <i>Amphicranus</i>	700
<i>argentinae</i> Blackman, <i>Phloeotribus</i> , (= <i>subovatus</i>)	139	<i>attenuatus</i> Wood, <i>Coptoborus</i>	400
<i>argentinae</i> Schedl, <i>Dendrodicticus</i>	333	<i>attenuatus</i> Wood, <i>Corthylus</i>	857
<i>argentinae</i> Wood, <i>Chramesus</i>	173	<i>auctus</i> Wood, <i>Dendrocranulus</i>	354
<i>argentinensis</i> Eggers, <i>Pityophthorus</i>	653	<i>aulmanni</i> Hagedorn, (<i>Cryphalus</i>), <i>Hypothenemus</i> , (= <i>seriatus</i>)	515
<i>argentinensis</i> (Eggers), (<i>Prionosceles</i>), <i>Scolytodes</i>	299	<i>auricomus</i> Blandford, <i>Camptocerus</i>	207
<i>argentinensis</i> Eggers, <i>Scolytopsis</i> , (= <i>toba</i>)	213	<i>aurilegulus</i> Schaufuss, <i>Xyleborus</i>	459
<i>argentinensis</i> Nunberg, <i>Neocryphus</i>	482	<i>australis</i> Schedl, <i>Phloeotribus</i> , (= <i>pilula</i>)	139
<i>argentinensis</i> Schedl, <i>Chramesus</i>	163	<i>autographus</i> (Ratzeburg), (<i>Bostrichus</i>), <i>Dryocoetes</i>	355
<i>argentinensis</i> Schedl, <i>Corthylus</i> , (= <i>serrulatus</i>)	859	<i>aztecum</i> Wood, <i>Monarthrum</i>	745
<i>argentinensis</i> Schedl, <i>Hypothenemus</i> , (= <i>eruditus</i>)	519	<i>badius</i> Eichhoff, <i>Xyleborus</i> , (= <i>volculus</i>)	451
<i>argentinensis</i> (Schedl), <i>Phthorophloeus</i> , <i>Phloeotribus</i>	129	<i>badius</i> Schedl, <i>Chramesus</i>	176
<i>argentinensis</i> Schedl, <i>Xyleborus</i> , (= <i>ferrugineus</i>)	449	<i>bahiae</i> Wood, <i>Amphicranus</i>	700
<i>argentinae</i> (Schedl), (<i>Bostrichus</i>), <i>Pseudothysanoes</i>	305	<i>bahiae</i> Wood, <i>Pityophthorus</i>	654
<i>argentinae</i> (Schedl), (<i>Breviophthorus</i>), <i>Araptus</i>	595	<i>bahiae</i> Wood, <i>Pycnarthrum</i>	245
<i>argentinae</i> Wood, <i>Scolytodes</i>	273	<i>bakeri</i> Hopkins, <i>Coccotrypes</i> , (= <i>carpophagus</i>)	362
<i>armaticeps</i> Schedl, <i>Hylurgonotus</i>	63	<i>baluchistani</i> Schedl, <i>Scolytus</i> , (= <i>rugulosus</i>)	221
<i>armatus</i> Blandford, <i>Phloeotribus</i> , (= <i>setulosus</i>)	145	<i>bambesanus</i> Eggers, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>arecae</i>)	522
<i>artecuneolus</i> Schedl, (<i>Xyleborus</i>), <i>Theoborus</i> , (= <i>coartatus</i>)	390	<i>bananensis</i> Eggers, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>javanus</i>)	524
<i>artepunctatus</i> Eggers, <i>Dryocoetes</i> , (= <i>autographus</i>)	355	<i>banosa</i> (Hagedorn), (<i>Hexacolus</i>), <i>Scolytodes</i>	285
<i>artespinosus</i> Schedl, <i>Xyleborus</i> , (= <i>spinulosus</i>)	425	<i>banosus</i> (Hagedorn), (<i>Hexacolus</i>), (= <i>banosa</i>)	285
<i>artestrigosus</i> Schedl, <i>Bothrosternus</i>	104	<i>barbatus</i> Eggers, (<i>Minulus</i>), <i>Cnemonyx</i> , (= <i>galeritus</i>)	199
<i>artetenus</i> (Schedl), (<i>Xyleborus</i>), <i>Coptoborus</i>	401	<i>barbatus</i> Schedl, (<i>Ceratolepis</i>), <i>Cnemonyx</i> , (= <i>errans</i>)	197
<i>artus</i> (Wood), (<i>Gnathophthorus</i>), <i>Dacnophthorus</i>	617		

SCOLYTIDAE OF SOUTH AMERICA

<i>barbatus</i> Schedl, <i>Dendrocranulus</i>	351	<i>boliviana</i> Eggers, <i>Scolytodes</i>	275
<i>barbatus</i> Schedl, <i>Scolytus</i>	226	<i>bolivianum</i> Eggers, <i>Monarthrum</i> , (= <i>chapuisi</i>)	732
<i>barbifer</i> Schedl, (<i>Gnathotrichus</i>), <i>Gnathotrupes</i>	666	<i>bolivianus</i> Eggers, <i>Corthylus</i>	837
<i>barbosai</i> Wood, <i>Pityophthorus</i>	652	<i>bolivianus</i> Eggers, <i>Cryptocarenus</i> , (= <i>seriatus</i>)	496
<i>barinensis</i> Wood, <i>Araptus</i>	594	<i>bolivianus</i> (Eggers), (<i>Isophthorus</i>), <i>Acanthotomicus</i>	339
<i>barinensis</i> Wood, <i>Cryptocarenus</i>	496	<i>bolivianus</i> Eggers, <i>Phloeotribus</i> , (= <i>setulosus</i>)	145
<i>barinensis</i> Wood, <i>Hypothenemus</i>	505	<i>bolivianus</i> Eggers, <i>Pityophthorus</i>	653
<i>barinensis</i> Wood, <i>Phrixosoma</i>	69	<i>bolivianus</i> Eggers, (<i>Prionosceles</i>), <i>Scolytodes</i> , (= <i>similis</i>)	299
<i>barinensis</i> Wood, <i>Scolytus</i>	233	<i>bolivianus</i> Eggers, <i>Scolytodes</i> , (= <i>boliviana</i>)	275
<i>basjoo</i> Niisima, (<i>Cryphalus</i>), <i>Hypothenemus</i> , (= <i>eruditus</i>)	518	<i>bolivianus</i> (Eggers), (<i>Stephanoderes</i>), <i>Hypothenemus</i>	509
<i>bassivorus</i> Hopkins, <i>Coccotrypes</i> , (= <i>dactyliperda</i>)	363	<i>bolivianus</i> Eggers, <i>Xyleborus</i>	453
<i>bauhaniae</i> Schedl, <i>Hypothenemus</i> , (= <i>areccae</i>)	522	<i>bolivianus</i> Schedl, <i>Chramesus</i>	175
<i>beaveri</i> Wood, <i>Araptus</i>	590	<i>bolivianus</i> Schedl, <i>Gnathotrupes</i>	667
<i>beaveri</i> Wood, <i>Cnesinus</i>	79	<i>bolivianus</i> (Schedl), (<i>Neodryocoetes</i>), <i>Araptus</i>	611
<i>beaveri</i> Wood, <i>Cryptocarenus</i>	495	<i>bolivianus</i> Schedl, <i>Scolytus</i>	224
<i>bellus</i> Bright, <i>Coptoborus</i>	398	<i>boliviensis</i> Wood, <i>Scolytodes</i> , (= <i>similis</i>)	299
<i>bellus</i> (Schedl), (<i>Cryptocleptes</i>), <i>Pseudothysanoes</i>	304	<i>boops</i> Blandford, <i>Microborus</i>	239
<i>bellus</i> Wood, <i>Corthylus</i>	861	<i>borassi</i> Beeson, <i>Coccotrypes</i> , (= <i>dactyliperda</i>)	363
<i>belti</i> Blandford, <i>Phloeoborus</i>	42	<i>Boroxylon</i> Hopkins, (= <i>Xyleborus</i>)	410
<i>bicallosum</i> (Schedl), (<i>Pterocyclon</i>), <i>Monarthrum</i>	734	<i>bosqi</i> (Schedl), <i>Acorthylus</i>	484
<i>bicaudatus</i> (Blandford), (<i>Bothrosternus</i>), <i>Sternobothrus</i>	112	<i>Bostrichips</i> , (= <i>Pseudothysanoes</i>)	301
<i>bicavus</i> Wood, <i>Tricolus</i>	683	<i>Bothrosternini</i> , Tribe	25, 71
<i>bicinctus</i> Schedl, <i>Cnesinus</i>	81	<i>Bothrosternus</i>	102
<i>bicinctus</i> Wood, <i>Scolytus</i>	226	<i>Bothryperus</i> , (= <i>Phrixosoma</i>)	65
<i>bicolor</i> Eggers, <i>Cnesinus</i>	89	<i>Brachydendrus</i> Schedl, (= <i>Araptus</i>)	547
<i>bicolor</i> (Eggers), (<i>Hexacolus</i>), <i>Scolytodes</i>	282	<i>Brachyspartus</i>	796
<i>bicolor</i> Eggers, <i>Hypothenemus</i> , (= <i>eruditus</i>)	519	<i>bradfordi</i> Hopkins, <i>Hypothenemus</i> , (= <i>eruditus</i>)	518
<i>bicolor</i> Eggers, <i>Microborus</i>	238	<i>brasiliana</i> Wood, <i>Scolytodes</i>	270
<i>bicolor</i> Eggers, <i>Microcorthylus</i>	778	<i>brasilianus</i> Wood, <i>Tricolus</i>	687
<i>bicolor</i> Eggers, <i>Scolytodes</i> , (= <i>eggersi</i>)	283	<i>brasiliensis</i> (Eggers), (<i>Prionosceles</i>), <i>Scolytodes</i>	269
<i>bicolor</i> Eggers, <i>Scolytus</i>	223	<i>brasiliensis</i> Eggers, <i>Scolytopsis</i>	212
<i>bicolor</i> (Ferrari), (<i>Corthylus</i>), <i>Monarthrum</i>	738	<i>brasiliensis</i> Eggers, (<i>Xyleborus</i>), <i>Ambrosiodmus</i> , (= <i>obliquus</i>) ..	404
<i>bicolor</i> Philippi, <i>Hylesinus</i>	30	<i>brasiliensis</i> Hopkins, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>cruidiae</i>)	513
<i>bicolor</i> Schedl, <i>Hypothenemus</i> , (= <i>eruditus</i>)	519	<i>brasiliensis</i> Nunberg, <i>Chramesus</i>	174
<i>bicolor</i> Wood, <i>Monarthrum</i> , (= <i>bicoloratum</i>)	733	<i>brasiliensis</i> Nunberg, <i>Hylocurus</i>	315
<i>bicoloratum</i> Wood, <i>Monarthrum</i>	733	<i>brasiliensis</i> Nunberg, <i>Premnobius</i> , (= <i>ambitosus</i>)	368
<i>biconicus</i> Eggers, <i>Xyleborus</i>	456	<i>brasiliensis</i> Schedl, (<i>Anchonocerus</i>), <i>Monarthrum</i> , (= <i>quadridens</i>)	741
<i>bicornatulus</i> (Wood), (<i>Xyleborus</i>), <i>Xyleborinus</i>	477	<i>brasiliensis</i> Schedl, (<i>Ceratolepis</i>), <i>Cnemonyx</i> , (= <i>errans</i>)	197
<i>bicornutus</i> (Wood), (<i>Xyleborus</i>), <i>Taurodemus</i>	464	<i>brasiliensis</i> Schedl, <i>Cryptocarenus</i> , (= <i>punctifrons</i>)	495
<i>bicostatus</i> (Schedl), (<i>Cnesinus</i>), <i>Sternobothrus</i>	110	<i>brasiliensis</i> Schedl, <i>Dryocoetes</i> , (= <i>autographus</i>)	355
<i>bidens</i> Wood, (<i>Mimips</i>), <i>Acanthotomicus</i> , (= <i>bidentis</i>)	339	<i>brasiliensis</i> Schedl, (<i>Hexacolus</i>), <i>Scolytodes</i> , (= <i>brasiliana</i>)	270
<i>bidentatus</i> Schedl, <i>Hylocurus</i> , (= <i>discifer</i>)	320	<i>brasiliensis</i> Schedl, (<i>Mimips</i>), <i>Monarthrum</i> , (= <i>amparae</i>)	746
<i>bidentis</i> Wood, <i>Acanthotomicus</i>	339	<i>brasiliensis</i> (Schedl), (<i>Neodryocoetes</i>), <i>Araptus</i>	576
<i>bifidus</i> Schedl, <i>Tricolus</i>	686	<i>brasiliensis</i> Schedl, (<i>Breviophthorus</i>), <i>Araptus</i> , (= <i>gracilentus</i>) ..	583
<i>bifoveatum</i> Wood, <i>Monarthrum</i>	745	<i>brasiliensis</i> Schedl, <i>Phrixosoma</i>	69
<i>biguttatus</i> Blandford, <i>Phloeotribus</i>	140	<i>brasiliensis</i> Schedl, <i>Pseudochramesus</i>	155
<i>binodus</i> Wood, <i>Scolytus</i>	225	<i>brasiliensis</i> (Schedl), (<i>Phthorophloeus</i>), <i>Phloeotribus</i>	126
<i>bipunctatus</i> Eichhoff, <i>Amphicranus</i>	705	<i>brasiliensis</i> Schedl, (<i>Neomips</i>), <i>Pityophthorus</i> , (= <i>dimorphus</i>) ..	648
<i>birmanus</i> (Eichhoff), (<i>Triarmocerus</i>), <i>Hypothenemus</i>	508	<i>brasiliensis</i> (Schedl), (<i>Pseudohylesinus</i>), <i>Xylechinosomus</i>	47
<i>biseriatus</i> Schedl, (<i>Xyleborus</i>), <i>Xylosandrus</i> , (= <i>curtulus</i>)	467	<i>brasiliensis</i> (Schedl), (<i>Stephanopodius</i>), <i>Styphlosoma</i>	545
<i>bisetosus</i> Schedl, (<i>Brachyspartus</i>), <i>Monarthrum</i> , (= <i>egenum</i>)	730	<i>brasiliensis</i> (Schedl), (<i>Xylocleptes</i>), <i>Dendrocranulus</i>	349
<i>bispinatus</i> Eichhoff, <i>Xyleborus</i> , (= <i>ferrugineus</i>)	449	<i>brasiliensis</i> (Blackman), (<i>Renocis</i>), <i>Chaetophloeus</i>	182
<i>bispinatus</i> Schedl, <i>Cnesinus</i>	87	<i>brevicauda</i> Wichmann, (<i>Eccoptogaster</i>), <i>Scolytus</i> , (= <i>thoracicus</i>) ..	236
<i>bispinatus</i> Wood, <i>Scolytus</i>	225	<i>brevicollis</i> Eggers, <i>Cryptocarenus</i>	494
<i>bispinus</i> Wood, <i>Chramesus</i>	178	<i>Breviophthorus</i> Schedl, (= <i>Araptus</i>)	547
<i>bisulcatus</i> Schedl, <i>Cnesinus</i>	90	<i>brevior</i> Wood, <i>Amphicranus</i>	709
<i>bituberculatum</i> Wood, <i>Monarthrum</i>	760	<i>brevior</i> Wood, <i>Microcorthylus</i>	781
<i>bituberculatus</i> Eggers, <i>Premnobius</i> , (= <i>cavipennis</i>)	367	<i>brevipilosus</i> Eggers, <i>Coccotrypes</i> , (= <i>rutschuruensis</i>)	361
<i>bituberculatus</i> Eggers, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>brunneus</i>)	525	<i>brevis</i> Eggers, <i>Bothrosternus</i>	105
<i>bituberculatus</i> Nunberg, <i>Corthylus</i> , (= <i>convexicauda</i>)	836	<i>brevis</i> (Eggers), (<i>Problechilus</i>), <i>Scolytodes</i>	297
<i>bituberculatus</i> Schedl, <i>Cnesinus</i>	90	<i>brevisetosis</i> (Eggers), (<i>Pityophthorus</i>), <i>Araptus</i>	571
<i>Blastophagus</i> Eichhoff, (= <i>Tomicus</i>)	64	<i>brevisetosus</i> Schedl, <i>Cnemonyx</i>	198
<i>bodei</i> Eggers, (<i>Phloeoborus</i>) (= <i>signatus</i>)	34	<i>breviusculus</i> Chapuis, <i>Phloeoborus</i> , (= <i>nitidicollis</i>)	38
<i>boeldieui</i> Perroud, (<i>Bostrichus</i>), <i>Hypothenemus</i> , (= <i>eruditus</i>) ..	518	<i>brosimi</i> Wood, <i>Pycnarthrum</i>	243
<i>boliviae</i> (Blackman), (<i>Camptocerus</i>), <i>Cnemonyx</i>	194	<i>brownei</i> Schedl, <i>Amphicranus</i>	711
<i>boliviae</i> Blackman, <i>Phloeotribus</i> , (= <i>picipennis</i>)	143	<i>Brownia</i> Nunberg, (= <i>Ambrosiodmus</i>)	401
<i>boliviae</i> (Schedl), (<i>Hexacolus</i>), <i>Scolytodes</i>	279	<i>bruchi</i> (Hagedorn), (<i>Hexacolus</i>), <i>Scolytodes</i> ..	280
<i>boliviae</i> (Schedl), (<i>Stephanopodius</i>), <i>Styphlosoma</i>	546	<i>bruchi</i> Schedl, (<i>Scolytus</i>), <i>Scolytopsis</i> , (= <i>toba</i>)	213
<i>boliviae</i> Wood, <i>Cladoctonus</i> , (= <i>corumbensis</i>)	150		

INDEX

<i>brunneicollis</i> Hopkins, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>erectus</i>)	507	<i>Ceratolepis</i> Chapuis, (= <i>Cnemonyx</i>)	186
<i>brunneipennis</i> Hopkins, <i>Hypothenemus</i> , (= <i>columbi</i>)	523	<i>ceylonicus</i> Schedl, <i>Coccotrypes</i> , (= <i>carpophagus</i>)	362
<i>brunneum</i> (Eichhoff), (<i>Pterocyclon</i>), <i>Monarthrum</i>	742	<i>Chaetophloeus</i>	181
<i>brunneus</i> (Hopkins), (<i>Stephanoderes</i>), <i>Hypothenemus</i>	525	<i>Chalcohyus</i> , (= <i>Pseudothysanoes</i>)	301
<i>brunneus</i> Nunberg, <i>Corthylus</i> , (= <i>papulans</i>)	854	<i>chapuisi</i> Kirsch, <i>Monarthrum</i>	732
<i>brunneus</i> Schedl, <i>Hylurgonotus</i> , (= <i>tuberculatus</i>)	62	<i>chapuisi</i> Wood, <i>Scolytodes</i>	281
<i>bucco</i> Schaufuss, <i>Xyleborus</i> , (= <i>similis</i>)	455	<i>charpentierae</i> Schedl, <i>Camptocerus</i> , (= <i>cinctus</i>)	203
<i>buculus</i> Schedl, <i>Sampsonius</i>	373	<i>chiliensis</i> Eggers, <i>Phloeotribus</i> , (= <i>willei</i>)	142
<i>burgdorfi</i> Hopkins, <i>Xyleborus</i> , (= <i>spathipennis</i>)	439	<i>chiliensis</i> (Nunberg), (<i>Squamosinus</i>), <i>Xylechinus</i>	54
<i>busecki</i> (Hopkins), (<i>Xyleborus</i>), <i>Xyleborinus</i>	472	<i>chilensis</i> Schedl), (<i>Conophthocranulus</i>), <i>Araptus</i>	583
<i>cachoeirinhae</i> Schedl, <i>Xyleborus</i> , (= <i>majusculus</i>)	433	<i>Chiloxylon</i>	356
<i>cacuminatus</i> Eggers, <i>Xyleborus</i>	445	<i>chiriquensis</i> Eggers, <i>Pagiocerus</i> (= <i>frontalis</i>)	99
<i>caelatus</i> Blanchard, (<i>Phloeotrupes</i>), <i>Phloeoborus</i> (= <i>scaber</i>)	42	<i>chiriquensis</i> Wood, <i>Corthylus</i>	835
<i>caesalpiniae</i> Blackman, <i>Spermophthorus</i> , (= <i>apuliae</i>)	622	<i>chloropus</i> Duftschmid, <i>Hylastes</i> (= <i>ater</i>)	27
<i>caldensis</i> Wood, <i>Xyleborus</i>	456	<i>Chondronoderes</i> Schedl, (= <i>Hypothenemus</i>)	497
<i>caliculus</i> (Schedl), (<i>Gnathocortus</i>), <i>Gnathotrupes</i>	671	<i>Chramesus</i>	156
<i>californicus</i> Hopkins, <i>Hypothenemus</i>	517	<i>ciliatus</i> Schedl, (= <i>longiusculus</i>), (<i>Gnathotrichus</i>), <i>Gnathotrupes</i>	663
<i>callidus</i> Schedl, <i>Corthylus</i>	854	<i>cinctipennis</i> Schedl, (<i>Xyleborus</i>), <i>Xyleborinus</i> , (= <i>saxesenii</i>)	473
<i>calvus</i> Schedl, <i>Xylechinus</i> , (= <i>imperialis</i>)	56	<i>cinctus</i> Chapuis, <i>Camptocerus</i>	203
<i>camerurus</i> Eggers, (<i>Pseudocrypturgus</i>), <i>Microborus</i> , (= <i>boops</i>)	239	<i>cirratus</i> Nunberg, (<i>Loganius</i>), <i>Cnemonyx</i> , (= <i>difformis</i>)	196
<i>camopinus</i> Hagedorn, (<i>Xyleborus</i>), <i>Taurodemus</i> , (= <i>splendidus</i>)	462	<i>cirratus</i> Schedl, <i>Gnathotrupes</i>	668
<i>Camptocerus</i>	199	<i>cirriifer</i> Wood, <i>Corthylus</i>	856
<i>canalicula</i> Wood, <i>Scolytodes</i>	275	<i>cirritus</i> Wood, <i>Corthylus</i>	861
<i>canaliculus</i> Wood, <i>Scolytodes</i> , (= <i>canicula</i>)	275	<i>citri</i> Ebeling, <i>Hypothenemus</i> , (= <i>eruditus</i>)	519
<i>canalis</i> Wood, <i>Monarthrum</i>	759	<i>Cladoborus</i> Sawamoto, (= <i>Pityophthorus</i>)	624
<i>canariensis</i> Eggers, <i>Coccotrypes</i> , (= <i>carpophagus</i>)	362	<i>Cladotonus</i>	149
<i>cancellatus</i> (Chapuis), (<i>Bothrosternus</i>), <i>Sternobothrus</i>	113	Classification	10
<i>canellae</i> Wood, <i>Scolytus</i>	230	<i>clematicolens</i> Wood, <i>Araptus</i>	608
<i>capitalis</i> Beeson, <i>Hypothenemus</i> , (= <i>arecae</i>)	522	<i>clusiae</i> Wood, <i>Araptus</i>	582
<i>capito</i> Schaufuss, <i>Xyleborus</i> , (= <i>similis</i>)	455	<i>Cnemonyx</i>	186
<i>capucinoides</i> Eggers, <i>Dryocoetoides</i> , (= <i>capucinus</i>)	378	<i>Cnesinus</i>	71
<i>capucinus</i> (Eichhoff), (<i>Xyleborus</i>), <i>Dryocoetoides</i>	378	<i>coartatus</i> (Sampson), (<i>Xyleborus</i>), <i>Theoborus</i>	390
<i>carabicus</i> Eggers, <i>Pagiocerus</i> (= <i>frontalis</i>)	99	<i>Coccotrypes</i>	356
<i>caracicolai</i> , Hopkins, <i>Dryocoetoides</i> , (= <i>cristatus</i>)	384	<i>coccotrypoides</i> Eggers, (<i>Xyleborus</i>), <i>Theoborus</i> , (= <i>villosulus</i>)	389
<i>carabicus</i> Eggers, <i>Cryptocarenus</i> , (= <i>heveae</i>)	493	<i>cofeicola</i> Campos Novaes, (<i>Xyleborus</i>), <i>Hypothenemus</i> (= <i>hampei</i>)	511
<i>carabicus</i> Eggers, <i>Xyleborus</i>	434	<i>cofeae</i> Hagedorn, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>hampei</i>)	511
<i>carabicus</i> Schedl, (<i>Cryphalomorphus</i>), <i>Scolytogenes</i> , (= <i>jalapae</i>)	486	<i>cofeae</i> Schedl, <i>Cnesinus</i>	95
<i>carabicus</i> Schedl, (<i>Poecilips</i>), <i>Coccotrypes</i> , (= <i>cyperi</i>)	359	<i>cofeae</i> Wood, <i>Corthylus</i>	829
<i>carapae</i> Wood, <i>Liparthrum</i>	183	<i>cofeae</i> Würth, (<i>Xyleborus</i>), <i>Xylosandrus</i> , (= <i>morigerus</i>)	466
<i>carbonarius</i> Schedl, <i>Cnesinus</i>	82	<i>coffeiceus</i> (Schedl), (<i>Xyleborus</i>), <i>Ambrosiodmus</i>	408
<i>carbonerae</i> Wood, <i>Corthyloxiphus</i>	795	<i>coffeivorus</i> Weele, (<i>Xyleborus</i>), <i>Hypothenemus</i> , (= <i>hampei</i>)	511
<i>caribaeus</i> (Blackman), (<i>Neodryocoetes</i>), <i>Araptus</i>	571	<i>colaphus</i> Wood, <i>Gnathotrupes</i>	662
<i>carinatum</i> Wood, <i>Pycnarthrum</i>	246	<i>collaris</i> (Blandford), <i>Tricolus</i>	689
<i>carinatus</i> Chapuis, <i>Scolytus</i>	234	<i>collaris</i> Chapuis, <i>Phloeotribus</i>	127
<i>carinatus</i> Eggers, <i>Sternobothrus</i>	113	<i>colombiae</i> Wood, <i>Corthyloxiphus</i>	793
<i>carinifrons</i> Wood, <i>Monarthrum</i>	761	<i>colombianus</i> (Blackman), (<i>Cryptocleptes</i>), <i>Pseudothysanoes</i>	305
<i>Carphodicticini</i> , Tribe	26, 332	<i>colombianus</i> Wood, <i>Cnesinus</i>	86
<i>Carphodicticus</i>	333	<i>colombianus</i> Wood, <i>Hylocurus</i>	321
<i>carpophagus</i> (Hornung), (<i>Bostrichus</i>), <i>Coccotrypes</i>	362	<i>colombianus</i> Wood, <i>Pseudopityophthorus</i>	624
<i>carumbensis</i> Wood, <i>Coptoborus</i>	399	<i>colombianus</i> Wood, <i>Taurodemus</i>	463
<i>casavaensis</i> Schedl, <i>Hypothenemus</i> , (= <i>seriatus</i>)	516	<i>coloreus</i> Wood, <i>Tricolus</i>	688
<i>cassiae</i> Eichhoff, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>obscurus</i>)	514	<i>columbi</i> Hopkins, <i>Hypothenemus</i>	523
<i>castaneus</i> Ferrari, <i>Corthylus</i>	838	<i>columbiana</i> (Schedl), (<i>Hexacolus</i>), <i>Scolytodes</i>	300
<i>castaneus</i> Schedl, (<i>Gnathotrichus</i>), <i>Gnathotrupes</i> , (= <i>longipennis</i>)	665	<i>columbianus</i> Schedl, <i>Corthylus</i> , (= <i>ater</i>)	841
<i>castaneus</i> Schedl, <i>Microcorthylus</i> , (= <i>puerulus</i>)	785	<i>columbianus</i> Schedl, (<i>Hexacolus</i>), <i>Scolytodes</i> , (= <i>columbiana</i>)	300
<i>castaneus</i> Wood, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>birmanus</i>)	508	<i>columbianus</i> (Schedl), (<i>Neopityophthorus</i>), <i>Araptus</i>	576
<i>catarinensis</i> Wood, <i>Monarthrum</i>	762	<i>comatum</i> Eggers, (<i>Eupteroxylon</i>), <i>Monarthrum</i> , (= <i>scrobiceps</i>)	734
<i>catharinensis</i> Eggers, <i>Xyleborus</i>	455	<i>Comesiella</i> DelGuercio, (= <i>Phloeotribus</i>)	115
<i>catulus</i> (Blandford), (<i>Xyleborus</i>), <i>Coptoborus</i>	397	<i>comitabilis</i> Wood, <i>Corthylus</i>	845
<i>caucasicus</i> Butovitsch, <i>Scolytus</i> , (= <i>rugulosus</i>)	221	<i>comitabilis</i> Wood, <i>Scolytodes</i>	290
<i>caudatus</i> Eggers, <i>Scolytus</i>	230	<i>communis</i> Schaufuss, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>eruditus</i>)	518
<i>cavipennis</i> Eichhoff, <i>Premnobius</i>	367	<i>compactus</i> (Eichhoff), (<i>Xyleborus</i>), <i>Xylosandrus</i>	467
<i>cavipennis spinosus</i> Hagedorn, <i>Premnobius</i> , (= <i>ambitosus</i>)	368	<i>compressicornis</i> (Fabricius), (<i>Bostrichus</i>), <i>Corthylus</i>	867
<i>cecropicolens</i> Wood, <i>Corthylus</i>	825	<i>concentralis</i> Schedl, (<i>Ctenyophthorus</i>), <i>Araptus</i> , (= <i>confluens</i>)	598
<i>celatus</i> (Schedl), (<i>Breviophthorus</i>), <i>Araptus</i>	572	<i>concentus</i> Wood, <i>Xyleborus</i>	436
<i>celatus</i> Wood, <i>Xyleborinus</i>	477	<i>concius</i> Wood, <i>Microcorthylus</i>	787

SCOLYTIDAE OF SOUTH AMERICA

<i>conditus</i> Wood, <i>Dendrocranus</i>	350	<i>costatus</i> Wood, <i>Metacorthylus</i>	771
<i>confertus</i> Wood, <i>Corthylus</i>	841	<i>costatus</i> (Eggers), (<i>Brachyspartus</i>), <i>Monarthrum</i>	754
<i>confluens</i> (Schedl), (<i>Ctenyophthorus</i>), <i>Araptus</i>	598	<i>costatus</i> (Chapuis), (<i>Bothrosternus</i>), <i>Sternobothrus</i>	112
<i>confluens</i> Schedl, <i>Xyleborus</i>	429	<i>costatus</i> (Chapuis), <i>Camptocerus</i>	205
<i>confusa</i> (Eggers), (<i>Hyllocurosoma</i>), <i>Scolytodes</i>	293	<i>costatus</i> (Eichhoff), (<i>Stephanoderes</i>), <i>Hypothenemus</i>	525
<i>confusus</i> (Eggers), (<i>Hyllocurosoma</i>), <i>Scolytodes</i> , (= <i>confusa</i>)	293	<i>costellatus</i> Chapuis, <i>Scolytus</i>	227
<i>confusus</i> Eichhoff, <i>Xyleborus</i> , (= <i>ferrugineus</i>)	449	<i>costulatus</i> Blackman, <i>Pseudochramesus</i>	153
<i>confusus</i> Wood, <i>Corthylus</i>	833	<i>costulatus</i> Blandford, <i>Cnesinus</i>	95
<i>congonus</i> Hagedorn, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>setosus</i>)	524	<i>costulatus</i> Wood, <i>Corthylus</i>	828
<i>congruens</i> Schedl, <i>Xyleborus</i>	429	<i>coumacomis</i> Wood, <i>Araptus</i>	589
<i>conidens</i> Browne, <i>Scolytus</i> , (= <i>caudatus</i>)	230	<i>cracens</i> Wood, <i>Amphicranus</i>	701
<i>conifer</i> (Hagedorn), (<i>Xyleborus</i>), <i>Sampsonius</i>	371	<i>cracens</i> Wood, <i>Araptus</i>	604
<i>connexum</i> Wood, <i>Monarthrum</i>	751	<i>cracens</i> Wood, <i>Coptoborus</i>	400
<i>Conophthocranus</i> Schedl, (= <i>Pityophthorus</i>)	624	<i>crassus</i> (Schedl), (<i>Thamnophthorus</i>), <i>Araptus</i>	600
<i>consobrinus</i> (Eichhoff), (<i>Gnathotrichus</i>), <i>Gnathotrupes</i>	670	<i>crassus</i> Wood, <i>Corthylus</i>	834
<i>consocius</i> (Blandford), <i>Gymnochilus</i>	248	<i>crebra</i> Schedl, <i>Cnemonyx</i>	197
<i>conspiciens</i> Schedl, (<i>Xyleborus</i>), <i>Coccotrypes</i> , (= <i>cyperi</i>)	359	<i>crebra</i> Wood, <i>Phrixosoma</i>	69
<i>constricta</i> Wood, <i>Scolytodes</i>	295	<i>crenatus</i> Eggers, (<i>Xyleborus</i>), <i>Dryocoetoides</i> , (= <i>cristatus</i>)	384
<i>constrictus</i> Wood, <i>Scolytodes</i> , (= <i>constricta</i>)	295	<i>crenatus</i> Eichhoff, <i>Amphicranus</i> , (= <i>thoracicus</i>)	711
<i>constrictus</i> Schedl, (<i>Gnathotrichus</i>), <i>Gnathotrupes</i> , (= <i>longipennis</i>)	665, 670	<i>crenatus</i> Olivier, (<i>Scolytus</i>), <i>Hylastinus</i> (= <i>obscurus</i>)	29
<i>constrictus</i> (Eggers), (<i>Hyllocurosoma</i>), <i>Scolytodes</i> , (= <i>confusa</i>) ..	295	<i>crenulatus</i> Duftschmidt, (<i>Hylesinus</i>), <i>Hylastinus</i> , (= <i>obscurus</i>) ..	29
<i>contortus</i> Schedl, <i>Phloeotribus</i>	142	<i>cribricollis</i> Eichhoff, <i>Pagiocerus</i>	100
<i>contracta</i> Wood, <i>Scolytodes</i>	295	<i>cribricollis</i> (Schedl), (<i>Neodryocoetes</i>), <i>Araptus</i>	599
<i>contractus</i> Chapuis, <i>Phloeotribus</i> , (= <i>rudis</i>)	134	<i>cribripennis</i> (Schedl), (<i>Neodryocoetes</i>), <i>Araptus</i>	605
<i>contractus</i> (Chapuis), (<i>Hylastes</i>), <i>Xylechinosomus</i>	48	<i>crinalis</i> Wood, <i>Scolytodes</i>	278
<i>contractus</i> Wood, <i>Microcorthylus</i> , (= <i>puerulus</i>)	785	<i>crinita</i> Wood, <i>Scolytodes</i>	292
<i>contractus</i> Wood, <i>Scolytodes</i> , (= <i>contracta</i>)	295	<i>crinitulus</i> (Wood), (<i>Xyleborus</i>), <i>Theoborus</i>	389
<i>convexicauda</i> Eggers, <i>Corthylus</i>	836	<i>crinitus</i> Wood, <i>Scolytodes</i> , (= <i>crinita</i>)	292
<i>convexifrons</i> Wood, <i>Araptus</i>	580	<i>cristatum</i> (Ferrari), (<i>Cosmocorymus</i>), <i>Monarthrum</i>	740
<i>convexifrons</i> Wood, <i>Corthylus</i>	848	<i>cristatus</i> Chapuis, <i>Phloeoborus</i>	43
<i>convexus</i> Schedl, <i>Scolytus</i>	224	<i>cristatus</i> (Fabricius), (<i>Bostrichus</i>), <i>Dryocoetoides</i>	384
<i>cooki</i> Hopkins, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>hampei</i>) ..	511	<i>cristatus</i> Schedl, <i>Chramesus</i> , (= <i>spinosus</i>)	180
Coptoborus	390	<i>cristatus</i> Schedl, (<i>Phacrylus</i>), <i>Neocryphus</i> (= <i>argentinensis</i>) ..	482
<i>Coptodryas</i> , (= <i>Cnemonyx</i>)	186	<i>cristatus</i> Wood, <i>Carphodicticus</i>	333
<i>Coptogaster</i> Illiger, (= <i>Scolytus</i>)	214	<i>cristatus</i> Wood, <i>Scolytus</i>	230
<i>Coptosomus</i> Schedl, (= <i>Cnemonyx</i>)	186	<i>crotonis</i> Wood, <i>Pityophthorus</i>	647
<i>corniculatus</i> Schedl, (<i>Xyleborus</i>), <i>Coptoborus</i> (= <i>vespatorius</i>) ..	393	<i>crudiae</i> (Panzer), (<i>Bostrichus</i>), <i>Hypothenemus</i>	512
<i>corniculatus</i> Schedl, (<i>Xyleborus</i>), <i>Coptoborus</i> , (= <i>vespatorius</i>) ..	393	<i>Cryphalini</i> , Tribe	26, 479
<i>coronatus</i> Eggers, <i>Corthylus</i>	840	<i>Cryphaloides</i> Formanek, (= <i>Coccotrypes</i>)	356
<i>coronatus</i> Eichhoff, <i>Xyleborus</i> , (= <i>spathipennis</i>)	439	<i>Cryphalomorphus</i> Schaufuss, (= <i>Scolytogenes</i>)	486
<i>coronatus</i> Wood, <i>Cryptocarenus</i> , (= <i>brevicollis</i>)	494	<i>Cryphalomorphus</i> Schedl, <i>Hypothenemus</i> , (= <i>brunneus</i>)	525
<i>corpulentus</i> (Schedl), (<i>Neodryocoetes</i>), <i>Araptus</i>	589	<i>Cryphalophilus</i> Schedl (= <i>Scolytogenes</i>)	486
<i>Corthycyclon</i> Schedl, (= <i>Corthylus</i>)	804	Cryptocarenus	488
<i>corthyliformis</i> Schedl, (<i>Gnathotrichus</i>), <i>Gnathotrupes</i> , (= <i>longipennis</i>)	665, 670	<i>Cryptocleptes</i> , (= <i>Pseudothysanoes</i>)	301
<i>Corthylina</i>	656	<i>Cryptulocephalus</i> , (= <i>Pseudothysanoes</i>)	301
<i>Corthylini</i>	26, 541	<i>Ctenophorini</i> , Tribe	26, 237
<i>Corthylini</i> , subtribe <i>Corthylina</i>	541, 656	<i>Ctenophorus</i> Chapuis, (= <i>Scolytodes</i>)	249
<i>Corthylini</i> , subtribe <i>Pityophthorina</i>	544	<i>Ctenyophthorus</i> Schedl, (= <i>Pityophthorus</i>)	624
Corthylocurus	797	<i>cubanus</i> Eggers, (<i>Thamnurgides</i>), <i>Coccotrypes</i> , (= <i>advena</i>)	358
<i>corthyloides</i> Schedl, (<i>Gnathotrichus</i>), <i>Gnathotrupes</i> , (= <i>consobrinus</i>)	670	<i>cubensis</i> Hopkins, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>erectus</i>) ..	507
<i>Corthylomimus</i> Ferrari, (= <i>Monarthrum</i>)	713	<i>cubensis</i> Wood, <i>Scolytopsis</i> , (= <i>puncticollis</i>)	213
<i>Corthylomimus</i> Schedl, (= <i>Corthylus</i>)	804	<i>Cumatomicus</i> Ferrari, (= <i>Ips</i>)	341
Corthyloxiphus	788	<i>cuneatus</i> (Eichhoff), (<i>Xyleborus</i>), <i>Coptoborus</i>	396
Corthylus	804	<i>curtuloides</i> Eggers, (<i>Xyleborus</i>), <i>Xylosandrus</i> , (= <i>curtulus</i>)	467
<i>corticalis</i> Eichhoff, <i>Pityophthorus</i>	635	<i>curtulus</i> (Eichhoff), (<i>Xyleborus</i>), <i>Xylosandrus</i>	467
Cortisinus	149	<i>curtus</i> Eggers, <i>Xyleborus</i> , (= <i>spathipennis</i>)	439
<i>corumbensis</i> Eggers, <i>Chramesus</i>	163	curtus Wood, <i>Microcorthylus</i>	784
<i>corumbensis</i> (Eggers), (<i>Hoplites</i>), <i>Cladoctonus</i>	150	<i>cylindricus</i> Hopkins, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>plumeriae</i>)	521
<i>Cosmocorymus</i> Ferrari, (= <i>Monarthrum</i>)	713	<i>cylindricus</i> Schedl, <i>Chramesus</i>	176
<i>costalimai</i> Blackman, <i>Pityophthorus</i>	639	<i>cylindricus</i> Schedl, <i>Hypothenemus</i> , (= <i>eruditus</i>)	519
<i>costalimai</i> Nunberg, (<i>Ernophloeus</i>), <i>Hypothenemus</i> , (= <i>fuscicollis</i>)	505	<i>cylindricus</i> Schedl, <i>Phloeotribus</i>	136
<i>costalimai</i> Schedl, <i>Dendrocranus</i>	350	<i>cylindricus</i> Schedl, <i>Scolytodes</i> (= <i>unipunctata</i>)	276
<i>costaricensis</i> Nunberg, <i>Sampsonius</i> , (= <i>dampfi</i>)	372	<i>cylindripennis</i> Schedl, <i>Hypothenemus</i> , (= <i>eruditus</i>)	519
<i>costaricensis</i> (Schedl), (<i>Neodryocoetes insularis</i> var. <i>costari-</i> <i>censis</i>), <i>Araptus</i>	580	<i>Cylindrotomicus</i> Eggers, (= <i>Scolytogenes</i>)	486
		<i>cyperi</i> (Beeson), (<i>Thamnurgides</i>), <i>Coccotrypes</i>	359
		<i>Cyrtotomicus</i> Ferrari, (= <i>Ips</i>)	341
		Dacnophthorus	616
		<i>Dacryophthorus</i> Schedl, (= <i>Liparthrum</i>)	183
		<i>Dacryphalus</i> Hopkins, (= <i>Hypocryphalus</i>)	487

INDEX

<i>dactyliperda</i> (Fabricius), (<i>Bostrichus</i>), <i>Coccotrypes</i>	363	<i>dolosum</i> Wood, <i>Monarthrum</i>	731
<i>dampfi</i> Schedl, <i>Sampsonius</i>	372	<i>donaticus</i> Wood, <i>Corthylus</i>	858
<i>darwinensis</i> Schedl, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>seriatus</i>)	516	<i>donisthorpei</i> Formanek (<i>Cryphaloides</i>), <i>Coccotrypes</i> , (= <i>carpophagus</i>)	362
<i>declivis</i> Eichhoff, <i>Xyleborus</i>	458	Dryocoetes	355
<i>declivis</i> Wood, <i>Araptus</i>	596	Dryocoetini, Tribe	26, 342
<i>declivis</i> Wood, <i>Corthyloxiphus</i>	795	<i>Dryocoetinus</i> Balachowsky, (= <i>Dryocoetes</i>)	355
<i>declivis</i> Wood, <i>Hylocurus</i>	326	Dryocoetoides	374
<i>declivis</i> Wood, <i>Microcorthylus</i>	781	<i>dryographus</i> Schedl, <i>Cnesinus</i> , (= <i>dividuus</i>)	84
<i>declivis</i> Wood, <i>Xylechinus</i>	59	<i>Dryotomicus</i> Wood, (= <i>Phloeotribus</i>)	115
<i>declivistriata</i> Schedl, <i>Scolytodes</i>	280	<i>Dryotomus</i> Chapuis, (= <i>Phloeotribus</i>)	115
<i>declivistriatus</i> Schedl, <i>Scolytodes</i> , (= <i>declivistrata</i>)	280	<i>dubiosum</i> (Schedl), (<i>Pterocyclon</i>), <i>Monarthrum</i>	753
<i>decolor</i> Boieldieu, (<i>Tomicus</i>), <i>Xyleborinus</i> , (= <i>saxeseni</i>)	473	<i>dubiosus</i> Schedl, <i>Hypothenemus</i> , (= <i>eruditus</i>)	519
<i>decora</i> Wood, <i>Scolytodes</i>	286	<i>dubiosus</i> (Schedl), (<i>Metacorthylus</i>), <i>Corthylus</i>	851
<i>decora</i> Wood, <i>Scolytodes</i> , (= <i>decora</i>)	286	<i>dubiosus</i> Schedl, (<i>Prionosceles</i>), <i>Scolytodes</i> , (= <i>vicina</i>)	298
<i>degener</i> Wood, <i>Microcorthylus</i>	776	<i>dubiosus</i> Schedl, (<i>Thamnophthorus</i>), <i>Araptus</i> , (= <i>nudus</i>)	598
<i>demaisoni</i> Eggers, (<i>Eccoptogaster</i>), <i>Scolytus</i> , (= <i>kirschi</i>)	221	<i>dubium</i> Eichhoff, (<i>Pterocyclon</i>), <i>Monarthrum</i> , (= <i>quadridens</i>)	741
<i>demissus</i> Wood, <i>Xyleborus</i>	434	<i>dubius</i> Eichhoff, <i>Phloeotribus</i> , (= <i>setulosus</i>)	145
Dendrocranulus	343	<i>dubius</i> Schedl, <i>Hylocurus</i> , (= <i>retusipennis</i>)	325
Dendroctonus	64	<i>dubius</i> (Schedl), (<i>Neodryocoetes</i>), <i>Araptus</i>	587
Dendrodicticus	333	<i>duplicatus</i> (Schedl), (<i>Mimips</i>), <i>Acanthotomicus</i>	337
Dendrosinus	146	<i>duplosquamosus</i> Schedl, (<i>Chramesus</i>), <i>Pseudochramesus</i>	154
<i>Dendurgus</i> Eggers, (= <i>Coccotrypes</i>)	356	<i>durangoensis</i> Wood, <i>Monarthrum</i>	757
<i>denotatus</i> Wood, <i>Cnesinus</i>	96	<i>durum</i> (Schedl), (<i>Pterocyclon</i>), <i>Monarthrum</i> , (= <i>laterale</i>)	739
<i>dentatulum</i> Wood, <i>Monarthrum</i>	736	<i>ealaenis</i> Eggers, (<i>Archeophalus</i>), <i>Hypothenemus</i> , (= <i>eruditus</i>)	519
<i>dentatum</i> Eggers, <i>Monarthrum</i> , (= <i>dentatulum</i>)	736	ebeneus Wood, <i>Phloeotribus</i>	141
<i>dentatus</i> Eggers, <i>Corthylus</i> , (= <i>abbreviatus</i>)	856	ebenus Wood, <i>Hypothenemus</i>	520
<i>dentellus</i> Wood, <i>Chramesus</i>	178	ebenus (Wood), (<i>Xyleborus</i>), <i>Taurodemus</i>	463
<i>denticollis</i> Schedl, <i>Hylocurus</i> (= <i>errans</i>)	313	<i>Eccoptogaster</i> Gyllenhal, (= <i>Scolytus</i>)	214
<i>denticulatus</i> Wood, <i>Chramesus</i>	165	<i>edentatus</i> Hagedorn, (<i>Phthorinus</i>), <i>Monarthrum</i> , (= <i>bicolor</i>)	738
<i>dentifrons</i> Wood, <i>Monarthrum</i>	758	egenum (Blandford), (<i>Pterocyclon</i>), <i>Monarthrum</i>	730
<i>dentipes</i> Schedl, <i>Chramesus</i> , (= <i>spinusosus</i>)	180	<i>eggersi</i> Hagedorn, <i>Coccotrypes</i> , (= <i>dactyliperda</i>)	363
deperditus Wood, <i>Cnesinus</i>	87	<i>eggersi</i> (Schedl), (<i>Brachydendrus</i>), <i>Araptus</i>	609
deplanatus Eggers, <i>Xyleborus</i>	434	<i>eggersi</i> Schedl, <i>Phloeotribus</i> , (= <i>nitidicollis</i>)	132
<i>depressus</i> Eichhoff, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>arecae</i>)	522	<i>eggersi</i> Schedl, (<i>Poecilips</i>), <i>Coccotrypes</i> , (= <i>cyperi</i>)	359
<i>despectus</i> Schedl, <i>Phloeotribus</i> , (= <i>collaris</i>)	127	<i>eggersi</i> (Schedl), <i>Scolytodes</i>	283
<i>destructor</i> Eggers, <i>Sinophloeus</i>	51	<i>eggersi</i> Wood, <i>Monarthrum</i>	743
<i>detectus</i> Schedl, <i>Pityophthorus</i>	634	eggersi Wood, <i>Pagiocerus</i>	100
<i>detractus</i> Wood, <i>Sampsonius</i>	373	<i>Eggeria</i> Lebedev, (= <i>Pityogenes</i>)	335
<i>diadematus</i> Eggers, <i>Cryptocarenus</i>	491	eggersianus Wood, <i>Amphicranus</i>	708
<i>dichrous</i> Eichhoff, (<i>Xylebous</i>), <i>Ambrosiodmus</i> , (? = <i>obliquus</i>)	404, 459	<i>ehlersi</i> Eichhoff, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>eruditus</i>)	518
<i>differens</i> Hopkins, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>crudiæ</i>)	513	<i>ehlersi rotrovi</i> Peyerimhoff, <i>Hypothenemus</i> , (= <i>eruditus</i>)	519
<i>difformis</i> (Schedl), (<i>Loganius</i>), <i>Cnemonyx</i>	196	<i>Ekkoptogaster</i> Herbst (= <i>Scolytus</i>)	214
<i>dilatatum</i> Schedl, <i>Xyleborus</i> , (= <i>similis</i>)	455	<i>elaecarpi</i> Beeson, <i>Coccotrypes</i> , (= <i>dactyliperda</i>)	363
<i>dilatatus</i> Eichhoff, <i>Xyleborus</i> , (= <i>similis</i>)	455	electilis Wood, <i>Amphicranus</i>	700
<i>diligens</i> Wood, <i>Monarthrum</i>	764	electinus Wood, <i>Corthylus</i>	833
<i>dilutus</i> Wood, <i>Microcorthylus</i>	780	electus Wood, (<i>Gnathotrypanus</i>), <i>Gnathotrupes</i>	664
<i>dimidiatum</i> (Ferrari), (<i>Corthylus</i>), <i>Monarthrum</i>	750	elegans Blandford, <i>Cnesinus</i>	85
<i>dimidiatum</i> Hagedorn, (<i>Pterocyclon</i>), <i>Monarthrum</i> , <i>hagedorni</i>	759	elegans Eichhoff, <i>Amphicranus</i> , (= <i>thoracicus</i>)	711
<i>dimidiatus</i> Chapuis, <i>Scolytus</i>	235	elegans Eichhoff, <i>Hylocurus</i>	325
dimorphus (Schedl), (<i>Cryptocleptes</i>), <i>Pseudothysanoes</i>	307	elegantulus Schedl, <i>Amphicranus</i>	701
dimorphus (Schedl), (<i>Micraxis</i>), <i>Hylocurus</i>	327	elegantulus Schedl, <i>Amphicranus</i> , (= <i>brownei</i>)	711
dimorphus Schedl, <i>Pityophthorus</i>	648	elevatus Eggers, <i>Xyleborus</i>	452
<i>dirus</i> Wood, <i>Xyleborinus</i>	477	ellipticus Chapuis, <i>Phloeoborus</i>	37
<i>discedens</i> Eggers, <i>Scolytodes</i> , (= <i>discriminata</i>)	274	ellipticus Eggers, (<i>Hexaculus</i>), <i>Scolytodes</i> (= <i>maura</i>)	270
<i>discedens</i> Schedl, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>erectus</i>)	507	<i>elongatissimus</i> Wood, <i>Scolytodes</i> , (= <i>ater</i>)	294
discifer Eichhoff, <i>Hylocurus</i>	320	elongatulus Schedl, <i>Pityophthorus</i>	645
discoideus Blandford, <i>Corthylus</i>	829	<i>elongatum</i> Eggers, (<i>Hylocurosoma</i>), <i>Scolytodes</i> , (= <i>ater</i>)	294
discretus Eggers, <i>Xyleborus</i>	437	<i>elongatus</i> Chapuis, <i>Phloeoborus</i> , (= <i>rudis</i>)	35
discretus Wood, <i>Cnesinus</i> , (= <i>nitidus</i>)	84	<i>elongatus</i> Herbst, (<i>Bostrichus</i>), <i>Hylurgus</i> , (= <i>ligniperda</i>)	61
discriminata Wood, <i>Scolytodes</i>	274	<i>elongatus</i> Hopkins, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>eruditus</i>)	519
dissimilis Schedl, <i>Scolytodes</i>	277	<i>elongatus</i> Schedl, <i>Scolytodes</i> , (= <i>trispinosa</i>)	274
<i>distans</i> Schedl, (<i>Pterocyclon</i>), <i>Monarthrum</i> , (= <i>minutum</i>)	754	elongatus Schedl, <i>Scolytus</i>	223
distinctus (Motschulsky), (<i>Anodius</i>), <i>Coccotrypes</i>	360	elongatus (Schedl), (<i>Thamnophthorus</i>), <i>Araptus</i>	592
diversus Wood, <i>Microcorthylus</i>	783	<i>Elzearius</i> Guillebeau, (= <i>Phloeotribus</i>)	115
dividuus Schedl, <i>Cnesinus</i>	84	emarginatus (Eggers), (<i>Corthylus</i>), <i>Corthyloxiphus</i>	796
dohrni (Eichhoff), (<i>Steganocranus</i>), <i>Amphicranus</i>	702	emarginatus Hopkins, <i>Coptoborus</i> , (= <i>vespatorius</i>)	393
dohrni Wollaston, (<i>Tomicus</i>), <i>Xyleborinus</i> , (= <i>saxeseni</i>)	473	emarginatus Schedl, <i>Hypothenemus</i> , (= <i>obscurus</i>)	514
		emarginatus Wood, <i>Gnathotrupes</i>	661

SCOLYTIDAE OF SOUTH AMERICA

<i>ensifer</i> Wood, <i>Sampsonius</i>	373	<i>fici</i> Wood, <i>Phloeotribus</i>	134
<i>epistomalis</i> Wood, <i>Araptus</i>	585	<i>fici</i> Wood, <i>Pycnarthrum</i> , (= <i>pallidum</i>)	244
<i>epistomalis</i> Wood, <i>Corthylus</i>	846	<i>ficcicolens</i> Wood, <i>Scolytodes</i>	289
<i>Epomadius</i> Blandford, (= <i>Scolytodes</i>)	249	<i>ficus</i> Hopkins, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>seriatus</i>)	516
<i>Epsips</i> Beeson, (= <i>Hypothenemus</i>)	497	<i>fielbrigi</i> Hopkins, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>seriatus</i>)	515
<i>equihuai</i> Wood, <i>Araptus</i>	595	<i>fimbricatorne</i> (Blandford), (<i>Pterocyclon</i>), <i>Monarthrum</i>	740
<i>equihuai</i> Wood, <i>Corthylus</i>	830	<i>fimbriatus</i> (Schedl), (<i>Gnathotrichus</i>), <i>Gnathotrupes</i>	666
<i>erectus</i> LeConte, <i>Hypothenemus</i>	507	<i>fiorii</i> Eggers, (<i>Hylastinus</i>), <i>Pagiocerus</i> (= <i>frontalis</i>)	99
<i>erinaceus</i> Schedl, <i>Chramesus</i>	179	<i>flagellatus</i> Wood, <i>Hylocurus</i>	327
<i>erinaceus</i> Schedl, <i>Phloeotribus</i>	132	<i>flavescens</i> Hopkins, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>interstitialis</i>)	510
<i>Erineophilus</i> Hopkins, (= <i>Scolytodes</i>)	249	<i>flavicollis</i> Hopkins, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>eruditus</i>)	519
<i>Erineosinus</i> Blackman, (= <i>Liparthrum</i>)	183	<i>flavicornis</i> (Chapuis), (<i>Loganius</i>), <i>Cnemonyx</i>	190
<i>Ernophloeus</i> Numberg, (= <i>Hypothenemus</i>)	497	<i>flavicornis</i> Chevrolat, <i>Scolytus</i> , (= <i>multistriatus</i>)	222
<i>Ernoporides</i> Hopkins, (= <i>Scolytogenes</i>)	486	<i>flavipes</i> (Fabricius), (<i>Bostrichus</i>), <i>Taurodemus</i>	461
<i>erosus</i> Schedl, <i>Phloeotribus</i>	135	<i>flavipes</i> Hopkins, <i>Hypothenemus</i> , (= <i>eruditus</i>)	519
<i>erosus</i> (Wollaston), (<i>Tomicus</i>), <i>Orthotomicus</i>	341	<i>flavipes</i> Panzer, (<i>Hylesinus</i>), <i>Hylurgus</i> , (= <i>ligniperda</i>)	61
<i>errans</i> (Blandford), (<i>Ceratolepis</i>), <i>Cnemonyx</i>	197	<i>flavosquamosus</i> Hopkins, <i>Hypothenemus</i> , (= <i>eruditus</i>)	518
<i>errans</i> Blandford, <i>Hylocurus</i>	313	<i>flavus</i> (Fabricius), (<i>Hylesinus</i>), <i>Dryocoetoides</i>	381
<i>erraticus</i> Schedl, <i>Pityophthorus</i>	652	<i>flechtmanni</i> Wood, <i>Acanthotomicus</i>	337
<i>eruditus</i> Westwood, <i>Hypothenemus</i>	518	<i>flechtmanni</i> Wood, <i>Hylocurus</i>	316
<i>erythrinae</i> Eggers, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>eruditus</i>)	519	<i>floridensis</i> Blackman, (<i>Tachyderes</i>), <i>Cryptocarenum</i> , (= <i>seriatus</i>)	496
<i>esau</i> Gredler, <i>Hylesinus</i> , (= <i>toranio</i>)	30	<i>floridensis</i> Hopkins, (<i>Ernoporides</i>), <i>Scolytogenes</i> , (= <i>jalapae</i>)	486
<i>eucracens</i> Wood, <i>Pityophthorus</i>	644	<i>floridensis</i> Hopkins, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>seriatus</i>)	515
<i>Eulytocyclus</i> Blandford, (= <i>Phloeotribus</i>)	115	<i>floridensis</i> Hopkins, (<i>Xyleborus</i>), <i>Xyleborinus</i> , (= <i>saxeseni</i>)	463
<i>eumerum</i> Schedl, (<i>Pterocyclon</i>), <i>Monarthrum</i> , (= <i>quadridens</i>)	741	<i>floridensis</i> Schedl, <i>Coccotrypes</i> , (= <i>distinctus</i>)	360
<i>Eupagiocerus</i>	101	<i>foederatus</i> Schedl, <i>Xyleborus</i>	432
<i>eupolyphagus</i> Beeson, <i>Hypothenemus</i> , (= <i>areccae</i>)	522	<i>foratus</i> Wood, <i>Cnesinus</i>	87
<i>Eupteroxylon</i> Eggers, (= <i>Monarthrum</i>)	713	<i>fornicator</i> Eggers, (<i>Xyleborus</i>), <i>Eucwallacea</i> , (= <i>fornicator</i>)	409
<i>eurypterus</i> Schedl, <i>Chramesus</i> , (= <i>globosus</i>)	174	<i>fornicatus</i> (Eichhoff), (<i>Xyleborus</i>), <i>Eucwallacea</i>	409
<i>eusimplicis</i> Wood, <i>Araptus</i>	608	<i>freiburgi</i> Schedl, <i>Xylechinus</i>	57
<i>Eucallacea</i>	408	<i>frenatus</i> (Schedl), (<i>Thamnophthorus</i>), <i>Araptus</i>	592
<i>evonymi</i> Hopkins, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>eruditus</i>)	519	<i>freyi</i> Schedl, <i>Phloeoborus</i>	36
<i>exasperatus</i> Schedl, <i>Coccotrypes</i> , (= <i>carpophagus</i>)	362	<i>freyi</i> Schedl, (<i>Problochilus</i>), <i>Gymnochilus</i> , (= <i>zonatus</i>)	248
<i>excavatus</i> Eggers, (<i>Anchonocerus</i>), <i>Monarthrum</i> , (= <i>ingens</i>)	743	<i>frigidus</i> Blackburn, (<i>Xyleborus</i>), <i>Xyleborinus</i> , (= <i>saxeseni</i>)	463
<i>excavatus</i> Wood, <i>Araptus</i>	571	<i>frontalis</i> (Fabricius), (<i>Bostrichus</i>), <i>Pagiocerus</i>	99
<i>excavatus</i> Wood, <i>Scolytus</i>	229	<i>frontalis</i> Hopkins, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>brunneus</i>)	525
<i>excellens</i> Schedl, <i>Pityophthorus</i>	633	<i>frontalis</i> (Schedl), (<i>Breviophthorus</i>), <i>Araptus</i>	590
<i>excellens</i> Wood, <i>Cnesinus</i>	85	<i>frontalis</i> Schedl, (<i>Gnathocranus</i>), <i>Araptus</i> , (= <i>frontis</i>)	615
<i>excisus</i> (Ferrari), (<i>Morizus</i>), <i>Corthylus</i>	853	<i>frontalis</i> Schedl, (<i>Gnathotrichus</i>), <i>Gnathotrupes</i> , (= <i>fimbriatus</i>)	666
Excluded species	544	<i>frontalis</i> Wood, <i>Acorthylus</i>	485
<i>exile</i> Eichhoff, (<i>Pterocyclon</i>), <i>Microcorthylus</i> , (= <i>parvulus</i>)	779	<i>frontalis</i> Wood, <i>Araptus</i> , (= <i>praevius</i>)	589
<i>exilis</i> (Schedl), <i>Coptoborus</i>	395	<i>frontalis</i> Wood, <i>Corthyloxiphus</i>	792
<i>exilis</i> Wood, <i>Micracis</i>	330	<i>frontalis</i> Wood, <i>Corthylus</i>	863
<i>eximius</i> Schedl, <i>Hypothenemus</i>	518	<i>frontalis</i> Wood, <i>Cryptocarenum</i>	495
<i>eximius</i> Wood, <i>Scolytodes</i> , (= <i>grandis</i>)	249	<i>frontis</i> Wood, <i>Araptus</i>	615
<i>exornatum</i> (Schedl), (<i>Pterocyclon</i>), <i>Monarthrum</i>	749	<i>frontoglabrata</i> (Schedl), (<i>Hexacolus</i>), <i>Scolytodes</i>	279
<i>expers</i> Wood, <i>Araptus</i>	612	<i>frontoglabrata</i> (Schedl), (<i>Hexacolus</i>), <i>Scolytodes</i> , (= <i>fronto-</i> <i>glabrata</i>)	279
<i>explicitus</i> Wood, <i>Amphicranus</i>	699	<i>frustrata</i> Wood, <i>Phroxosoma</i>	68
<i>expulsus</i> Wood, <i>Sampsonius</i>	371	<i>fulgens</i> Schedl, <i>Monarthrum</i>	737
<i>exsectus</i> Schedl, <i>Pityophthorus</i>	650	<i>fulgens</i> Wood, <i>Cnesinus</i>	90
<i>facialis</i> Schedl, <i>Scolytus</i>	222	<i>fulgidum</i> Wood, <i>Pycnarthrum</i>	242
<i>falaciosus</i> Wood, <i>Araptus</i>	586	<i>fulgidus</i> Wood, <i>Cnesinus</i>	91
<i>fallax</i> Costa Lima, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>crudiae</i>)	513	<i>fulminea</i> Wood, <i>Scolytodes</i>	284
<i>fallax</i> Hagedorn, (<i>Meringopalpus</i>), <i>Gymnochilus</i> , (= <i>zonatus</i>)	248	<i>fulmineus</i> Wood, <i>Scolytodes</i> , (= <i>fulminea</i>)	284
<i>falsus</i> Schedl, <i>Xyleborus</i>	444	<i>funebri</i> (Schedl), (<i>Xyleborus</i>), <i>Ambrosiodmus</i>	406
<i>farinosus</i> Blandford, <i>Hypothenemus</i> , (= <i>birmanus</i>)	508	<i>fungicola</i> Eggers, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>areccae</i>)	522
<i>fasciatus</i> Fabricius, (<i>Hylesinus</i>), <i>Camptocerus</i> , (= <i>suturalis</i>)	204	<i>furnissi</i> Wood, <i>Monarthrum</i>	756
<i>fasciatus</i> Reitter, <i>Scolytus</i> , (= <i>kirschi</i>)	221	<i>furcescens</i> Wood, <i>Cnemonyx</i>	195
<i>fauveli</i> Reitter, <i>Scolytus</i> , (= <i>rugulosus</i>)	221	<i>fuscatus</i> Eichhoff, <i>Xyleborus</i> , (= <i>ferrugineus</i>)	449
<i>femoratus</i> Eggers, <i>Xyleborus</i> , (= <i>spathipennis</i>)	439	<i>fuscescens</i> Stephens, (<i>Hylurgus</i>), <i>Hylastinus</i> , (= <i>obscurus</i>)	29
<i>fenestratum</i> Eggers, <i>Monarthrum</i>	738	<i>fuscicollis</i> (Eichhoff), <i>Hypothenemus</i>	505
<i>ferox</i> Blandford, <i>Xyleborus</i>	426	<i>fusciseriatus</i> Eggers, <i>Xyleborus</i> , (= <i>spinulosus</i>)	425
<i>ferrugineus</i> Boheman, (<i>Bostrichus</i>), <i>Xyleborus</i> , (= <i>similis</i>)	455	<i>fuscobrunneus</i> Eichhoff, <i>Xyleborus</i> , (= <i>affinis</i>)	447
<i>ferrugineus</i> (Fabricius), (<i>Bostrichus</i>), <i>Xyleborus</i>	449	<i>galeritius</i> Eichhoff, <i>Cnemonyx</i>	199
<i>ferrugineus</i> Hopkins, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>multidentatus</i>)	515	<i>garai</i> Wood, <i>Corthylus</i>	826
<i>ferrugineus</i> Hopkins, <i>Hypothenemus</i> , (= <i>eruditus</i>)	519		
<i>festus</i> Wood, <i>Scolytodes</i>	268		
<i>festus</i> Wood, <i>Scolytodes</i> , (= <i>festus</i>)	268		

INDEX

<i>garciae</i> Schedl, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>stigmaticus</i>)	507	<i>grandis</i> (Schedl), <i>Scolytodes</i> , (rejected name)	249
<i>gaujonii</i> Fairmaire, <i>Phloeoborus</i>	44	<i>granosum</i> Wood, <i>Monarthrum</i>	764
<i>geayi</i> Hagedorn, <i>Xyleborus</i>	454	<i>granosus</i> Eichhoff, <i>Phloeoborus</i>	44
<i>genialis</i> Wood, <i>Scolytodes</i> , (= <i>gemmae</i>)	294	<i>granosus</i> Wood, <i>Metacorthylus</i>	769
<i>gemmae</i> Wood, <i>Scolytodes</i>	294	<i>granularis</i> Schedl, <i>Xyleborus</i> , (= <i>volvulus</i>)	451
<i>gemmaeus</i> Wood, <i>Scolytodes</i> , (= <i>gemmae</i>)	294	<i>granulatus</i> (Eggers), (<i>Pagiocerus</i>), <i>Chramesus</i>	172
<i>gentilis</i> Schedl, (<i>Pityophthorus</i>), <i>Gnatholeptus</i> , (= <i>shannoni</i>)	619	<i>granulatus</i> Eggers, <i>Phloeoborus</i> , (= <i>ovatus</i>)	39
<i>gentilis</i> (Schedl), (<i>Xyleborus</i>), <i>Coptoborus</i>	398	<i>granulatus</i> (Ferrari), (<i>Xylocleptes</i>), <i>Acanthotomicus</i>	339
<i>georgiae</i> Hopkins, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>seriatus</i>)	515	<i>granulicauda</i> (Eggers), (<i>Xyleborus</i>), <i>Dryocoetoides</i>	378
<i>germari</i> Eichhoff, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>eruditus</i>)	518	<i>granulicauda</i> Schedl, <i>Pityophthorus</i> , (= <i>terebrans</i>)	648
<i>ghanaensis</i> Schedl, <i>Hypothenemus</i> , (= <i>fuscicollis</i>)	505	<i>granulifer</i> Wood, <i>Monarthrum</i>	756
<i>gibber</i> Schedl, (<i>Pterocyclon</i>), <i>Monarthrum</i> , (= <i>minutum</i>)	754	<i>granulipennis</i> Schedl, <i>Chramesus</i>	170
<i>gibbus</i> (Chapuis), (<i>Nemophilus</i>), <i>Cnesinus</i>	86	<i>granulipennis</i> (Schedl), (<i>Neodryocoetes</i>), <i>Araptus</i>	610
<i>gibbus</i> Fabricius, (<i>Hylesinus</i>), <i>Camptocerus</i> , (= <i>aeneipennis</i>)	202	<i>granulipennis</i> Schedl, <i>Pityophthorus</i> , (= <i>terebrans</i>)	648
<i>giganteus</i> (Schedl), (<i>Micracis</i>), <i>Hylocurus</i>	317	<i>granulipennis</i> Schedl, (<i>Tricolus</i>), <i>Amphicranus</i> , (= <i>gracilis</i>)	703
<i>gilvipes</i> Blandford, (<i>Xyleborus</i>), <i>Ambrosiodmus</i> , (= <i>obliquus</i>)	404	<i>granulosum</i> Wood, <i>Monarthrum</i>	761
<i>glabellus</i> Schedl, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>hampei</i>)	511	<i>granulosus</i> (Schedl), (<i>Breviophthorus</i>), <i>Araptus</i>	604
<i>glaber</i> (Eggers), (<i>Loganius</i>), <i>Cnemonyx</i>	190	<i>grenadensis</i> Hopkins, <i>Xyleborus</i> , (= <i>volvulus</i>)	451
<i>glaber</i> Eggers, <i>Scolytodes</i>	274	<i>Gretschkinia</i> , (= <i>Pseudothysanoes</i>)	301
<i>glaber</i> Schedl, (<i>Problechilus</i>), <i>Scolytodes</i> , (= <i>schoenmanni</i>)	297	<i>grisseopuberulus</i> Schedl, <i>Coccotrypes</i> , (= <i>carpophagus</i>)	362
<i>glaber</i> Wood, (<i>Prionosceles</i>), <i>Scolytodes</i> , (= <i>glaberescens</i>)	267	<i>griseus</i> Blackburn, (<i>Hypothenemus</i>), <i>Hypocryphalus</i> , (= <i>mangiferae</i>)	487
<i>glaberescens</i> Wood, <i>Scolytodes</i>	267	<i>grossmanni</i> Schedl, <i>Xyleborus</i>	447
<i>glaberima</i> Wood, <i>Scolytodes</i>	274	<i>grossus</i> Chapuis, <i>Phloeoborus</i>	41
<i>glaberimus</i> Wood, <i>Scolytodes</i> , (= <i>glaberima</i>)	274	<i>grouvellei</i> Blandford, <i>Amphicranus</i>	709
<i>glabrata</i> (Schedl), (<i>Hexacolus</i>), <i>Scolytodes</i>	289	<i>gruneri</i> Schedl, <i>Pityophthorus</i> , (= <i>quadrispinatus</i>)	650
<i>glabratellus</i> Schedl, <i>Hypothenemus</i> , (= <i>eruditus</i>)	519	<i>guadeloupensis</i> Schedl, (<i>Hypothenemus</i> , (= <i>plumeriae</i>))	521
<i>glabratus</i> (Ferrari), (<i>Corthylus</i>), <i>Microcorthylus</i>	785	<i>guadeloupensis</i> Schedl, (<i>Neodryocoetes</i>), <i>Araptus</i> , (= <i>laevigatus</i>)	579
<i>glabratus</i> Schedl, <i>Hypothenemus</i> , (= <i>eruditus</i>)	519	<i>guanaguatensis</i> Duges, <i>Xyleborus</i> , (= <i>volvulus</i>)	451
<i>glabratus</i> (Schedl), <i>Hexacolus</i> , <i>Scolytodes</i> , (= <i>glabrata</i>)	289	<i>guatemalensis</i> Hopkins, <i>Ambrosiodmus</i> , (= <i>hagedorni</i>)	407
<i>glabrella</i> (Schedl), (<i>Hexacolus</i>), <i>Scolytodes</i>	287	<i>guatemalensis</i> Hopkins, <i>Dryocoetoides</i> , (= <i>capucinus</i>)	378
<i>glabrellus</i> (Schedl), (<i>Hexacolus</i>), <i>Scolytodes</i> , (= <i>glabrella</i>)	287	<i>guatemalensis</i> Hopkins, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>crudiatae</i>)	513
<i>glabriculum</i> Schedl, (<i>Pterocyclon</i>), <i>Monarthrum</i> , (= <i>gracilior</i>)	746	<i>guayanensis</i> Eggers, <i>Corthylus</i> , (= <i>papulans</i>)	854
<i>globosus</i> (Eichhoff), (<i>Hylesinus</i>), <i>Dendrosinus</i> , (= <i>ater</i>)	148	<i>guayanensis</i> Eggers, <i>Phloeoborus</i> , (= <i>signatus</i>)	34
<i>globosus</i> Hagedorn, <i>Chramesus</i>	174	<i>guayanensis</i> Eggers, <i>Xyleborus</i> , (= <i>tumucensis</i>)	445
<i>gloriosus</i> Wood, <i>Araptus</i>	590	<i>guevinae</i> (Schedl), (<i>Bostrichips</i>), <i>Pseudothysanoes</i>	305
<i>Gnathoborus</i> Schedl, (= <i>Araptus</i>)	547	<i>guanae</i> Blackman, (<i>Neodryocoetes</i>), <i>Araptus</i> , (= <i>hymenaeae</i>)	570
<i>Gnathocortus</i> Schedl, (= <i>Gnathotrupes</i>)	656	<i>gunnerae</i> Wood, <i>Scolytodes</i>	282
<i>Gnathocranus</i> Schedl, (= <i>Araptus</i>)	547	<i>guyanae</i> Wood, <i>Araptus</i>	602
<i>Gnathoglochinus</i> Schedl, (= <i>Gnathotrupes</i>)	656	<i>guyanaensis</i> (Schedl), (<i>Erineophilus</i>), <i>Scolytodes</i>	271
<i>Gnatholeptus</i>	618	<i>guyanensis</i> Wood, <i>Araptus</i>	578
<i>Gnathomimus</i> Schedl, (= <i>Gnathotrupes</i>)	656	<i>Gymnochilus</i>	246
<i>Gnathophorus</i> Schedl, (= <i>Pityophthorus</i>)	624	<i>habilis</i> Wood, <i>Scolytodes</i>	286
<i>Gnathophthorus</i> Wood, (= <i>Pityophthorus</i>)	624	<i>haemorrhous</i> Schmidberger, <i>Scolytus</i> , (= <i>rugulosus</i>)	221
<i>Gnathotrupes</i>	656	<i>haesitus</i> Schedl, <i>Dryocoetoides</i> , (= <i>rusticus</i>)	380
<i>Gnathotrypanus</i> Wood, (= <i>Gnathotrupes</i>)	656	<i>hagedorni</i> (Iglesias), (<i>Xyleborus</i>), <i>Ambrosiodmus</i>	407
<i>golbachi</i> Schedl, <i>Scolytus</i>	229	<i>hagedorni</i> (Schedl), (<i>Prionosceles</i>), <i>Scolytodes</i>	291
<i>golbachi</i> Wood, <i>Pseudochramesus</i>	155	<i>hagedorni</i> (Schedl), (<i>Pterocyclon</i>), <i>Monarthrum</i>	759
<i>gracilens</i> Wood, <i>Coptoborus</i>	401	<i>Hagedornus</i> Lucas, (= <i>Pityophthorus</i>)	624
<i>gracilens</i> Wood, <i>Corthylus</i>	860	<i>hamamelidis</i> Hopkins, <i>Hypothenemus</i> , (= <i>eruditus</i>)	519
<i>gracilentum</i> (Schedl), <i>Monarthrum</i>	733	<i>hampei</i> (Ferrari), (<i>Cryphalus</i>), <i>Hypothenemus</i>	511
<i>gracilentum</i> (Schedl), (<i>Neodryocoetes</i>), <i>Araptus</i>	583	<i>harringtoni</i> Blackman, <i>Phloeotribus</i>	133
<i>gracilicornis</i> (Schedl), (<i>Xyleborus</i>), <i>Xyleborinus</i>	478	<i>harringtoni</i> Blackman, <i>Pseudochramesus</i>	154
<i>gracilicornum</i> Schedl, (<i>Pterocyclon</i>), <i>Monarthrum</i> , (= <i>exornatum</i>)	749	<i>harringtoni</i> (Blackman), (<i>Tachyderes</i>), <i>Cryptocrenus</i>	492
<i>gracilior</i> (Schedl), (<i>Pterocyclon</i>), <i>Monarthrum</i>	746	<i>hawaiiensis</i> Schedl, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>seriatus</i>)	516
<i>gracilior</i> Wood, <i>Corthylus</i>	860	<i>heathi</i> Hopkins, <i>Hypothenemus</i> , (= <i>eruditus</i>)	519
<i>gracilis</i> Blandford, <i>Cnesinus</i>	82	<i>hebes</i> Schedl, <i>Phloeotribus</i>	128
<i>gracilis</i> Eggers, <i>Amphicranus</i>	703	<i>herbertfranzi</i> (Schedl), (<i>Gnathotrichus</i>), <i>Gnathotrupes</i>	664
<i>gracilis</i> Eggers, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>eruditus</i>)	519	<i>Heteroborips</i> Reitter, (= <i>Xyleborus</i>)	410
<i>gracilis</i> Eichhoff, <i>Pycnarthrum</i> , (= <i>hispidum</i>)	242	<i>heterolepis</i> Costa Lima, <i>Hypothenemus</i> , (= <i>arecae</i>)	522
<i>gracilis</i> (Eichhoff), (<i>Xyleborus</i>), <i>Xyleborinus</i>	475	<i>heveae</i> (Hagedorn), (<i>Stephanoderes</i>), <i>Cryptocrenus</i>	493
<i>gracilis</i> (Schedl), (<i>Corthylomimus</i>), <i>Corthylus</i>	865	<i>Hexacolinus</i> Schedl (= <i>Scolytodes</i>)	249
<i>gracilis</i> (Schedl), (<i>Neodryocoetes</i>), <i>Araptus</i>	588	<i>Hexacolus</i> Eichhoff, (= <i>Scolytodes</i>)	249
<i>gracilis</i> (Schedl), (<i>Phacrylus</i>), <i>Acorthylus</i>	485	<i>hirsutus</i> Schedl, <i>Dendrosinus</i> , (= <i>ater</i>)	147
<i>gracilis</i> Schedl, <i>Scolytodes</i>	271	<i>hirsutus</i> Schedl, <i>Xylechinosomus</i>	47
<i>grandis</i> Eichhoff, <i>Xyleborus</i>	446	<i>hirsutus</i> Wood, <i>Bothrosternus</i>	105
<i>grandis</i> (Erichson), (<i>Phloeotrupes</i>), <i>Phloeoborus</i>	37	<i>hirtellus</i> Schedl, <i>Phloeotribus</i>	124
<i>grandis</i> Schedl, <i>Cnesinus</i>	89		
<i>grandis</i> (Schedl), (<i>Hexacolus</i>), <i>Scolytodes</i>	279		
<i>grandis</i> (Schedl), (<i>Neodryocoetes</i>), <i>Araptus</i>	600		

SCOLYTIDAE OF SOUTH AMERICA

<i>hirtellus</i> Schedl, (<i>Xyleborus</i>), <i>Theoborus</i> , (= <i>theobromae</i>)	388	<i>inaequidens</i> Schedl, <i>Pityophthorus</i>	647
<i>hirticulus</i> Wood, <i>Phloeotribus</i>	123	<i>inaequidens</i> Wood, <i>Hylocurus</i>	326
<i>hirtipennis</i> Schedl, <i>Camptocerus</i> , (= <i>suturalis</i>)	204	<i>inaffectatus</i> (Schedl), (<i>Xyleborus</i>), <i>Dryocoetoides</i>	379
<i>hirtipennis</i> Schedl, <i>Hypothenemus</i> , (= <i>eruditus</i>)	519	<i>incanus</i> Wood, <i>Phloeotribus</i>	137
<i>hirtus</i> Wood, <i>Phloeotribus</i>	133	<i>incertus</i> Schedl, <i>Xyleborus</i>	454
<i>hispidulosus</i> Wood, <i>Cnesinus</i>	93	<i>incisus</i> (Schedl), <i>Tricolus</i> , <i>Amphicranus</i>	704
<i>hispidulus</i> Eggers, <i>Phloeotribus</i>	126	<i>inconveniens</i> Schedl, <i>Xyleborus</i> , (= <i>sparsipilosus</i>)	453
<i>hispidulus</i> LeConte, (<i>Cryphalus</i>), <i>Hypothenemus</i> , (= <i>crudiae</i>)	512	<i>indicus</i> Eggers, (<i>Thamnurgides</i>), <i>Coccotrypes</i> , (= <i>cyperi</i>)	359
<i>hispidum</i> (Ferrari), <i>Pycnarthrum</i>	242	<i>indolatus</i> Wood, <i>Dryocoetoides</i>	385
<i>hispidus</i> Eggers, <i>Cnesinus</i>	92	<i>industrius</i> Sampson, (<i>Xyleborus</i>), <i>Premnobius</i> , (= <i>cavipennis</i>)	367
<i>hispidus</i> Eggers, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>arecae</i>)	522	<i>inermis</i> Wood, <i>Microcorthylus</i> , (= <i>parvulus</i>)	779
<i>hivaoea</i> Beeson, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>crudiae</i>)	513	<i>infedelis</i> Wood, <i>Camptocerus</i>	209
<i>Homoeocryphalus</i> Lindemann, (= <i>Hypothenemus</i>)	497	<i>inferior</i> Schedl, <i>Xyleborus</i>	427
<i>hondurensis</i> Wood, <i>Monarthrum</i>	756	<i>infimus</i> Schedl, <i>Pityophthorus</i>	649
<i>hoodi</i> Blackman, (<i>Neodryocoetes</i>), <i>Araptus</i> , (= <i>hymenaeae</i>)	570	<i>ingae</i> Blackman, (<i>Prionosceles</i>), <i>Scolytodes</i> (= <i>maura</i>)	270
<i>hopkinsi</i> Beeson, (<i>Xyleborus</i>), (= <i>ferrugineus</i>)	449	<i>ingae</i> Wood, <i>Phloeotribus</i>	128
<i>hopkinsi</i> Browne, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>multi-</i> <i>dentatus</i>)	515	<i>ingaensis</i> (Schedl), (<i>Metacorthylus</i>), <i>Corthylus</i>	863
<i>Hoplites</i> Eggers, (= <i>Cladoctonus</i>)	149	<i>ingens</i> (Eichhoff), (<i>Pterocyclon</i>), <i>Monarthrum</i>	743
<i>Hoplitontus</i> Wood, (= <i>Cladoctonus</i>)	149	<i>inoblitus</i> (Schedl), (<i>Loganius</i>), <i>Camptocerus</i>	208
<i>Hoplitophthorus</i> Wood, (= <i>Cladoctonus</i>)	149	<i>inopinatus</i> Schedl, <i>Xyleborus</i>	427
<i>horridatus</i> Wood, <i>Xyleborus</i>	428	<i>inops</i> Eichhoff, (Eichhoff), <i>Hypocryphalus</i> , (= <i>mangiferae</i>)	487
<i>horridicus</i> Wood, <i>Xyleborus</i>	427	<i>inops</i> Wood, <i>Microcorthylus</i>	780
<i>hostilis</i> (Blackman), (<i>Neodryocoetes</i>), <i>Araptus</i>	577	<i>inornatus</i> Wood, <i>Coptoborus</i>	399
<i>hostilis</i> Wood, <i>Microcorthylus</i> , (= <i>diversus</i>)	783	<i>insculptus</i> Wood, <i>Dryocoetoides</i>	385
<i>huapiae</i> (Schedl), (<i>Phthorophloeus</i>), <i>Xylechinus</i>	60	<i>insidiosum</i> Wood, <i>Monarthrum</i>	730
<i>hubbardi</i> Hopkins, <i>Coccotrypes</i> , (= <i>carpophagus</i>)	362	<i>insidiosus</i> (Schedl), (<i>Loganius</i>), <i>Cnemonyx</i>	199
<i>hubbardi</i> Hopkins, <i>Xyleborus</i> , (= <i>volvulus</i>)	451	<i>insignis</i> Eichhoff, (<i>Xyleborus</i>), <i>Taurodemus</i> , (= <i>varians</i>)	461
<i>hubbardi</i> Schwarz, (<i>Bothrosternus</i>), <i>Pagiocerus</i> (= <i>frontalis</i>)	99	<i>insignis</i> Wood, <i>Cnemonyx</i>	194
<i>humilis</i> Blackman, (<i>Neodryocoetes</i>), <i>Araptus</i> , (= <i>hymenaeae</i>)	570	<i>insignis</i> Wood, <i>Corthylus</i>	866
<i>humilus</i> (Blanchard), (<i>Hylesinus</i>), <i>Xylechinosomus</i>	50	<i>insolium</i> (Schedl), (<i>Pterocyclon</i>), <i>Monarthrum</i>	760
<i>Hylastes</i>	27	<i>insulare</i> Blair, <i>Pycnarthrum</i>	243
Hylastini, Tribe	24, 27	<i>insularis</i> Eggers, <i>Coccotrypes</i> , (= <i>cyperi</i>)	359
<i>Hylastinus</i>	28	<i>insularis</i> Eggers, (<i>Dryocoetes</i>), <i>Coccotrypes</i> , (= <i>cyperi</i>)	359
Hylesininae, Subfamily	24, 27	<i>insularis</i> Eggers, (<i>Neodryocoetes</i>), <i>Araptus</i> , (= <i>hymenaeae</i>)	570
Hylesinini, Tribe	25, 28	<i>insularis</i> Eggers, (<i>Neopityophthorus</i>), <i>Araptus</i> , (= <i>laevigatus</i>)	579
<i>Hylesinus</i>	29	<i>insularis</i> Perkins, <i>Hypothenemus</i> , (= <i>eruditus</i>)	518
<i>Hylocurosoma</i> Eggers, (= <i>Scolytodes</i>)	249	<i>insularis</i> Sharp, <i>Xyleborus</i> , (= <i>ferrugineus</i>)	449
<i>Hylocurus</i>	308	<i>integer</i> Eichhoff, <i>Coccotrypes</i> , (= <i>carpophagus</i>)	362
<i>hylurgoides</i> Schedl, <i>Chramesus</i>	177	<i>intermedium</i> Schedl, <i>Monarthrum</i>	733
<i>hylurgoides</i> (Schedl), (<i>Coptodryas</i>), <i>Cnemonyx</i>	192	<i>intermedius</i> Eggers, <i>Phloeoborus</i>	35
<i>Hylurgonotus</i>	61	<i>intermedius</i> Schedl, <i>Hylocurus</i> , (= <i>vianai</i>)	314
<i>hylurgulus</i> Schedl, <i>Phloeotribus</i>	123	<i>interpositus</i> Schedl, <i>Hylocurus</i>	318
<i>Hylurgus</i>	61	<i>interpunctata</i> (Eggers), (<i>Prionosceles</i>), <i>Scolytodes</i>	300
<i>hymenaeae</i> (Eggers), (<i>Neodryocoetes</i>), <i>Araptus</i>	570	<i>interpunctatus</i> (Eggers), (<i>Prionosceles</i>), <i>Scolytodes</i> , (= <i>inter-</i> <i>punctata</i>)	300
<i>Hypertensus</i> Hagedorn, (= <i>Araptus</i>)	547	<i>interpunctus</i> Hopkins, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>interstitialis</i>)	510
Hypoborini, Tribe	25, 181	<i>interruptus</i> (Eggers), (<i>Hoplites</i>), <i>Cladoctonus</i>	151
<i>Hypoborus</i>	184	<i>interruptus</i> Schedl, <i>Hylocurus</i> , (= <i>giganteus</i>)	317
<i>Hypocryphalus</i>	487	<i>intersetosus</i> (Blandford), (<i>Xyleborus</i>), <i>Xyleborinus</i>	472
<i>Hypopityophthorus</i> Bright, (= <i>Pityophthorus</i>)	624	<i>intersetosus</i> Eggers, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>eruditus</i>)	519
<i>Hypothenemus</i>	497	<i>interstitialis</i> Eichhoff, <i>Xyleborus</i> , (= <i>volvulus</i>)	451
<i>Hypothenoides</i> Hopkins, (= <i>Scolytogenes</i>)	486	<i>interstitialis</i> (Hopkins), (<i>Stephanoderes</i>), <i>Hypothenemus</i>	510
<i>icicae</i> Wood, <i>Pityophthorus</i>	642	<i>intricatus</i> Schedl, (<i>Xyleborus</i>), <i>Coptoborus</i> (= <i>catulus</i>)	397
<i>iheringi</i> Iglesias, <i>Xyleborus</i>	459	Introduction	1
<i>illepidus</i> Schedl, (<i>Xyleborus</i>), <i>Ambrosiodmus</i> , (= <i>obliquus</i>)	404	<i>Intrusus</i> Wood, <i>Tricolus</i>	679
<i>imbellis</i> Wood, <i>Pityophthorus</i>	642	Ipini, Tribe	26, 334
<i>imbricornis</i> Eichhoff, <i>Phloeoborus</i> , (= <i>asper</i>)	39	<i>Ips</i>	341
<i>imitans</i> Eggers, <i>Microborus</i> , (= <i>aberrans</i>)	239	<i>irregularis</i> Eggers, <i>Phloeoborus</i>	40
<i>imitans</i> (Eggers), (<i>Prionosceles</i>), <i>Scolytodes</i>	269	<i>irregularis</i> Eggers, <i>Pityophthorus</i>	646
<i>imitator</i> Schedl, (<i>Xyleborus</i>), <i>Dryocoetoides</i> , (= <i>asperulus</i>)	386	<i>Isophthorus</i> Schedl (= <i>Acanthotomicus</i>)	335
<i>imitatrix</i> (Schedl), (<i>Neodryocoetes</i>), <i>Araptus</i>	605	<i>itaiyaensis</i> Schedl, <i>Xyleborus</i> , (= <i>mutabilis</i>)	442
<i>impar</i> Schedl, <i>Hylocurus</i>	318	<i>ituriensis</i> Schedl, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>plumeriae</i>)	521
<i>impensus</i> (Wood), (<i>Thamnophthorus</i>), <i>Araptus</i>	606	<i>jalapae</i> (Letzner), <i>Scolytogenes</i>	486
<i>imperialis</i> (Schedl), (<i>Pseudochramesus</i>), <i>Xylechinus</i>	56	<i>jalapae</i> Schedl, (<i>Pterocyclon</i>), <i>Monarthrum</i> , (= <i>validum</i>)	729
<i>impolitus</i> Wood, <i>Chramesus</i>	169	<i>jaliscoensis</i> Wood, <i>Araptus</i>	580
<i>imporcatus</i> Wood, <i>Chramesus</i>	170	<i>janaiensis</i> Bright, <i>Xyleborus</i> , (= <i>scaber</i>)	431
<i>impressifrons</i> Hopkins, (<i>Hypothenemus</i>), <i>Trischidias</i> , (= <i>atoma</i>)	527	<i>javanus</i> Chapuis, <i>Scolytus</i> , (= <i>multistriatus</i>)	221
<i>impressus</i> Eichhoff, <i>Xyleborus</i> , (= <i>ferrugineus</i>)	449		
<i>impressus</i> (Schedl), (<i>Gnathoglochinus</i>), <i>Gnathotrupes</i>	667		
<i>improvidus</i> Schedl, <i>Xyleborus</i>	442		

INDEX

<i>javanus</i> (Eggers), (<i>Stephanoderes</i>), <i>Hypothenemus</i>	524	<i>limax</i> (Schedl), (<i>Sphenoceros</i>), <i>Araptus</i>	615
<i>jucunda</i> Wood, <i>Scolytodes</i>	267	<i>limbata</i> (Eggers), (<i>Hylocurosoma</i>), <i>Scolytodes</i>	293
<i>jucundus</i> (Chapuis), (<i>Ceratolepis</i>), <i>Cnemonyx</i>	193	<i>limbatus</i> (Eggers), (<i>Hylocurosoma</i>), <i>Scolytodes</i> , (= <i>limbata</i>)	293
<i>juglandis</i> Blackman, <i>Hypothenemus</i> , (= <i>eruditus</i>)	519	<i>limatus</i> Wood, <i>Dendrocranulus</i> , (= <i>columbianus</i>)	349
<i>jujuya</i> Blackman, <i>Phloeotribus</i>	133	<i>limbellus</i> Wood, <i>Dendrocranulus</i>	353
<i>kalshoveni</i> Schedl, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>javanus</i>)	524	<i>liminaris</i> Wood, <i>Araptus</i>	577
Key to subfamilies and tribes	24	<i>limitaris</i> Wood, <i>Dendrocranulus</i>	352
<i>kirkendalli</i> Wood, <i>Araptus</i>	578	<i>linderae</i> Hopkins, <i>Ambrosiodmus</i> , (= <i>obliquus</i>)	404
<i>kirkendalli</i> Wood, <i>Gnathotrupes</i>	668	<i>linearicollis</i> (Schedl), (<i>Xyleborus</i>), <i>Xyleborinus</i>	474
<i>kirschi</i> Skalitzky, <i>Scolytus</i>	221	<i>linearis</i> (Schedl), (<i>Thamnophthorus</i>), <i>Araptus</i>	576
<i>kleinei</i> Eggers, <i>Pycnarthrum</i>	245	<i>lineatifrons</i> Hopkins, <i>Hypothenemus</i> , (= <i>eruditus</i>)	519
<i>knabi</i> Hopkins, (<i>Ernoporidae</i>), <i>Scolytogenes</i> , (= <i>jalapae</i>)	486	<i>lineatus</i> Eggers, <i>Phloeotribus</i> , (= <i>rudis</i>)	134
<i>koebeli</i> Hopkins, <i>Hypothenemus</i> , (= <i>eruditus</i>)	519	<i>Liparthrum</i>	183
<i>kroaticus</i> Fuchs, <i>Hylastinus</i> (= <i>obscurus</i>)	29	<i>liquidambarae</i> Wood, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>seriatus</i>)	516
<i>kuennemanni</i> Reitter, <i>Hypothenemus</i> , (= <i>obscurus</i>)	514	Literature cited	869
<i>kuscheli</i> Wood, <i>Pityophthorus</i>	641	<i>lobatum</i> (Farrari), (<i>Corthylus</i>), <i>Monarthrum</i>	736
Label data for figured specimens, plates I–CCXXX	530	<i>lobatus</i> (Eggers), (<i>Sternobothrus</i>), <i>Cortisinus</i>	149
<i>laboulbenei</i> Decaux, <i>Coccotrypes</i> , (= <i>dactyliperda</i>)	363	<i>lobellum</i> Wood, <i>Monarthrum</i>	737
<i>lacordairei</i> (Chapuis), (<i>Bothrosternus</i>), <i>Sternobothrus</i> , (= <i>costatus</i>)	112	<i>Loganius</i> Chapuis, (= <i>Cnemonyx</i>)	186
<i>laetus</i> Schedl, <i>Cnesinus</i> (= <i>gracilis</i>)	83	<i>lomatae</i> Schedl, (<i>Pteleobius</i>), <i>Sinophloeus</i> (= <i>porteri</i>)	57
<i>laetus</i> Wood, <i>Scolytus</i>	232	<i>longicollis</i> (Blandford), (<i>Loganius</i>), <i>Cnemonyx</i>	198
<i>laevae</i> Eggers, (<i>Hylocurosoma</i>), <i>Scolytodes</i> , (= <i>lavicorpa</i>)	300	<i>longicollis</i> Eggers, <i>Dryocoetes</i> , (= <i>autographus</i>)	355
<i>laevicollis</i> (Eggers), (<i>Problechilus</i>), <i>Scolytodes</i>	297	<i>longicollis</i> (Schedl), (<i>Gnathotrichus</i>), <i>Gnathotrupes</i>	669
<i>laevicollis</i> Schedl, <i>Cnesinus</i> , (= <i>dividius</i>)	84	<i>longideclivis</i> Wood, <i>Xyleborus</i> , (= <i>deplanatus</i>)	434
<i>laevicorpa</i> Wood, <i>Scolytodes</i>	300	<i>longipennis</i> (Blanchard), (<i>Tomicus</i>), <i>Gnathotrupes</i>	665
<i>laevicorpus</i> Wood, <i>Scolytodes</i> , (= <i>laevicorpa</i>)	300	<i>longipennis</i> Eggers, <i>Scolytodes</i>	274
<i>laevigata</i> Ferrari, <i>Scolytodes</i>	273	<i>longipennis</i> Eggers, <i>Xyleborus</i>	438
<i>laevigatulus</i> Wood, <i>Scolytodes</i> , (= <i>gracilis</i>)	271	<i>longipennis</i> Wood, <i>Stegomerus</i>	482
<i>laevigatum</i> (Eichhoff), (<i>Pterocyclon</i>), <i>Monarthrum</i>	755	<i>longipilis</i> Schedl, <i>Pityophthorus</i>	640
<i>laevigatus</i> (Blandford), (<i>Hypothenemus</i>), <i>Cryptocarenum</i>	494	<i>longipilus</i> Eggers, <i>Phloeotribus</i>	145
<i>laevigatus</i> Chapuis, (<i>Ctenophorus</i>), <i>Scolytodes</i> , (= <i>chapuisi</i> Wood)	281	<i>longipilus</i> Schedl, <i>Hypothenemus</i> , (= <i>eruditus</i>)	519
<i>laevigatus</i> (Eggers), (<i>Pityophthorus</i>), <i>Araptus</i>	579	<i>longiusculus</i> (Schedl), (<i>Gnathotrichus</i>), <i>Gnathotrupes</i>	663
<i>laevigatus</i> Schedl, (<i>Hexacolus</i>), <i>Scolytodes</i> (= <i>gracilis</i>)	271	<i>longulus</i> Kolenati, <i>Hylurgus</i> , (= <i>ligniperda</i>)	61
<i>laevis</i> (Eggers), (<i>Prionosceles</i>), <i>Scolytodes</i>	300	<i>longulus</i> (Nunberg), (<i>Micracis</i>), <i>Hylocurus</i>	315
<i>lambottei</i> Chapuis, (<i>Nemobius</i>), <i>Pycnarthrum</i> , (= <i>hispidum</i>)	242	<i>longulus</i> (Schedl), (<i>Xyleborus</i>), <i>Xyleborinus</i> , (= <i>buscki</i>)	472
<i>languidus</i> Eichhoff, <i>Pityophthorus</i>	636	<i>longulus</i> Kolenati, <i>Hylurgus</i> , (= <i>ligniperda</i>)	61
<i>largipennis</i> Toleda Piza Junior, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>crudiae</i>)	513	<i>longus</i> (Schedl), (<i>Anchonocerus</i>), <i>Monarthrum</i>	751
<i>laricis</i> (Fabricius), (<i>Bostrichus</i>), <i>Orthotomicus</i>	341	<i>lucaris</i> Wood, <i>Cnesinus</i>	95
<i>laterale</i> (Eichhoff), (<i>Pterocyclon</i>), <i>Monarthrum</i>	739	<i>lucasi</i> Hopkins, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>seriatus</i>)	516
<i>laticeps</i> (Wood), (<i>Xyleborus</i>), <i>Xylosandrus</i>	469	<i>lucianae</i> Mecke, <i>Xylechinus</i>	49
<i>laticollis</i> Wood, <i>Scolytopsis</i>	212	<i>lucidus</i> Wood, <i>Bothrosternus</i>	103
<i>laticollis</i> Schedl, <i>Xyleborus</i>	208	<i>luederwaldti</i> Eggers, <i>Pagiocerus</i>	99
<i>laticollis</i> Schedl, <i>Camptocerus</i>	208	<i>lunatulus</i> Eggers, <i>Phloeoborus</i> , (= <i>scaber</i>)	42
<i>latum</i> Schedl, (<i>Cosmocorynus</i>), <i>Monarthrum</i> , (= <i>scrobiceps</i>)	734	<i>luteus</i> Wood, <i>Chramesus</i>	172
<i>laureli</i> Wood, <i>Amphicranus</i>	704	<i>luzonicus</i> Eggers, (<i>Xyleborus</i>), <i>Xylosandrus</i> , (= <i>morigerus</i>)	466
<i>lebronneci</i> Beeson, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>crudiae</i>)	513	<i>macer</i> Blandford, <i>Xyleborus</i>	458
<i>lecontei</i> Hopkins, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>crudiae</i>)	513	<i>macer</i> (Bright), (<i>Neodryocoetes</i>), <i>Araptus</i>	596
<i>lectus</i> Wood, <i>Microborus</i>	239	<i>macer</i> Wood, <i>Microcorthylus</i>	780
<i>Leperisinus</i> Reitter, (= <i>Hylesinus</i>)	29	<i>macrocerus</i> Eichhoff, <i>Corthylus</i>	855
<i>Lepicerinus</i> Hinton, (= <i>Scolytogenes</i>)	486	<i>macrocornis</i> Wood, <i>Chramesus</i>	177
<i>Lepiceroides</i> Schedl, (= <i>Hypothenemus</i>)	497	<i>maculatus</i> Schedl, <i>Xylechinus</i>	55
<i>Lepicerus</i> Eichhoff, (= <i>Scolytogenes</i>)	486	<i>maculicollis</i> Sharp, <i>Hypothenemus</i> , (= <i>birmanus</i>)	508
<i>lepidus</i> Wood, <i>Cryptocarenum</i>	493	<i>maculicornis</i> (Blandford), (<i>Ceratolepis</i>), <i>Cnemonyx</i>	193
<i>lesnei</i> Hagedorn, <i>Amphicranus</i>	709	<i>magna</i> Blackman, <i>Phrixosoma</i>	67
<i>Letznerella</i> Reitter, (= <i>Scolytogenes</i>)	486	<i>magnificus</i> Wood, <i>Xyleborus</i>	440
<i>letzneri</i> Ferrari, <i>Corthylus</i>	842	<i>maja</i> (Eggers), (<i>Prionosceles</i>), <i>Scolytodes</i>	299
<i>levis</i> Blackman (<i>Hexacolus</i>), <i>Scolytodes</i> , (= <i>chapuisi</i>)	281	<i>major</i> (Eggers), (<i>Loganius</i>), <i>Camptocerus</i>	210
<i>levis</i> Chapuis, (<i>Ctenophorus</i>), <i>Scolytodes</i>	281	<i>major</i> Eggers, (<i>Prionosceles</i>), <i>Scolytodes</i> (1928), (= <i>major</i>)	299
<i>levis</i> Wood, <i>Phloeotribus</i> , (= <i>nitidicollis</i>)	132	<i>major</i> Eggers, <i>Scolytodes</i> (1943), (= <i>majula</i>)	373
<i>lezjavai</i> Pjatnitskii, <i>Hypothenemus</i> , (= <i>eruditus</i>)	519	<i>major</i> Schedl, <i>Dendrocranulus</i>	352
<i>liberiensis</i> Hopkins, <i>Coccotrypes</i> , (= <i>carpophagus</i>)	362	<i>major</i> Schedl, <i>Pagiocerus</i> , (= <i>luederwaldti</i>)	99
<i>libida</i> Wood, <i>Scolytodes</i>	294	<i>major</i> Wood, <i>Scolytodes</i> , (= <i>majula</i>)	273
<i>libidus</i> Wood, <i>Scolytodes</i> , (= <i>libida</i>)	294	<i>majula</i> Wood, <i>Scolytodes</i>	273
<i>librocedri</i> Swaine, <i>Xyleborinus</i> , (= <i>saxeseni</i>)	473	<i>majusculus</i> Schedl, <i>Xyleborus</i>	433
<i>ligniperda</i> (Fabricius), (<i>Bostrichus</i>), <i>Hylurgus</i>	61	<i>mali</i> Hopkins, <i>Hypothenemus</i> , (= <i>eruditus</i>)	519
<i>limatus</i> Wood <i>Dendrocranulus</i> , (= <i>columbianus</i>)	349	<i>mamillatus</i> Chapuis, <i>Phloeoborus</i>	37
		<i>mandibularis</i> Blackman, <i>Gnatholeptus</i> , (= <i>shannoni</i>)	619
		<i>mandibularis</i> Schedl, <i>Pityophthorus</i>	640
		<i>mangiferae</i> Eggers, <i>Hypocryphalus</i> , (= <i>mangiferae</i> Stebbing)	487

SCOLYTIDAE OF SOUTH AMERICA

<i>mangiferae</i> (Stebbing), (<i>Cryphalus</i>), <i>Hypocryphalus</i>	487	<i>minulus</i> Wood, <i>Araptus</i>	602
<i>manglissiensis</i> Lezhava, <i>Scolytus</i> , (= <i>rugulosus</i>)	221	<i>minulus</i> Wood, <i>Corylus</i>	827
<i>manni</i> Blackman, <i>Phloeotribus</i> , (= <i>pilula</i>)	139	<i>minusculus</i> Schedl, <i>Cnesinus</i>	83
<i>manni</i> Blackman, <i>Pseudochramesus</i>	156	<i>minusculus</i> Wood, <i>Phloeoborus</i>	39
<i>marahuaci</i> Wood, <i>Phloeoborus</i>	40	<i>minuta</i> Wood, <i>Scolytodes</i>	290
<i>marcidum</i> (Schedl), (<i>Pterocyclon</i>), <i>Monarthrum</i>	752	<i>minutissimum</i> (Schedl), (<i>Pterocyclon</i>), <i>Monarthrum</i>	748
<i>marginatum</i> Wood, <i>Monarthrum</i>	760	<i>minutissimus</i> (Schedl), (<i>Brachydendrus</i>), <i>Araptus</i>	582
<i>marginatus</i> Chapuis, <i>Scolytus</i>	232	<i>minutissimus</i> Schedl, (<i>Cryphalomorphus</i>), <i>Scolytogenes</i> , (= <i>jalapae</i>)	486
<i>marginatus</i> Eggers, <i>Phloeotribus</i> (= <i>transversus</i>)	144	<i>minutissimus</i> Schedl, (<i>Hexacolus</i>), <i>Scolytodes</i> , (= <i>minuta</i>)	290
<i>marginicollis</i> (Eggers), (<i>Cnesinus</i>), <i>Sternobothrus</i>	109	<i>minutissimus</i> Schedl, <i>Hypothenemus</i> , (= <i>pubescens</i>)	512
<i>maronicus</i> Eggers, <i>Xyleborus</i>	431	<i>minutissimus</i> Schedl, <i>Microcorythylus</i> , (= <i>minimus</i>)	778
<i>maroocayi</i> Schedl, <i>Hypothenemus</i> , (= <i>seriatus</i>)	516	<i>minutissimus</i> Schedl, <i>Tricolus</i>	680
<i>martiniquensis</i> Eggers, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>arecae</i>)	522	<i>minutulus</i> Schedl, <i>Hypothenemus</i> , (= <i>eruditus</i>)	519
<i>marylandicae</i> Hopkins, (<i>Hypothenemus</i>), <i>Trischidias</i> , (= <i>atoma</i>)	527	<i>minutum</i> (Schedl), (<i>Pterocyclon</i>), <i>Monarthrum</i>	754
<i>mascarensis</i> Eichhoff, <i>Xyleborus</i> , (= <i>affinis</i>)	447	<i>minutus</i> Hopkins, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>seriatus</i>)	515
<i>mauiensis</i> Schedl, <i>Hypothenemus</i> , (= <i>eruditus</i>)	519	<i>minutus</i> Schedl, (<i>Cryphalus</i>), <i>Hypothenemus</i> , (= <i>eruditus</i>)	519
<i>maura</i> (Blandford), <i>Scolytodes</i>	270	<i>minutus</i> Schedl, <i>Pityophthorus</i>	636
<i>maurus</i> (Blandford), (<i>Prionosceles</i>), <i>Scolytodes</i> , (= <i>maura</i>)	270	<i>minutus</i> Wood, <i>Scolytodes</i> , (= <i>minuta</i>)	290
<i>media</i> Eggers, <i>Scolytodes</i> , (= <i>medialis</i>)	274	<i>mirabilis</i> Nunberg, <i>Corylus</i>	851
<i>medialis</i> Wood, <i>Corythocurus</i>	801	<i>mirabilis</i> Wood, <i>Araptus</i>	591
<i>medialis</i> Wood, <i>Scolytodes</i>	274	<i>mirandus</i> Wood, <i>Stegomerus</i>	481
<i>mediterraneus</i> Eggers, (<i>Eccoptogaster</i>), <i>Scolytus</i> , (= <i>rugulosus</i>)	221	<i>mirus</i> Wood, <i>Araptus</i>	591
<i>medius</i> Eggers, (<i>Prionosceles</i>), <i>Scolytodes</i> (= <i>maura</i>)	270	<i>mixtecus</i> Bright, <i>Phloeotribus</i> , (= <i>setulosus</i>)	145
<i>melaeus</i> (Eichhoff), (<i>Dryocoetes</i>), <i>Dendrocranus</i>	353	<i>modus</i> Wood, <i>Dendrocranus</i>	350
<i>melanarius</i> Schedl, (<i>Xyleborus</i>), <i>Ambrosiodmus</i> , (= <i>obliquus</i>)	404	<i>monachus</i> (Blandford), (<i>Xylechinus</i>), <i>Dryocoetoides</i>	377
<i>meridensis</i> Wood, <i>Hypothenemus</i>	506	<i>Monarthrum</i>	713
<i>meridensis</i> Wood, <i>Liparthrum</i>	184	<i>Monebius</i> Hopkins, (= <i>Pycnarthrum</i>)	240
<i>meridensis</i> Wood, <i>Xyleborus</i> , (= <i>mutabilis</i>)	442	<i>montanus</i> Wood, <i>Corylus</i>	833
<i>Meringopalpus</i> Hagedorn, (= <i>Gymnochilus</i>)	246	<i>moravicae</i> Wood, <i>Gnathotrupes</i>	662
<i>meris</i> Wood, <i>Cnesinus</i>	90	<i>moreirai</i> Eggers, <i>Coccotrypes</i> , (= <i>dactyliperda</i>)	363
<i>merkli</i> Wood, <i>Corythylus</i>	866	<i>morigerus</i> (Blandford), (<i>Xyleborus</i>), <i>Xylosandrus</i>	466
<i>mesoleius</i> Schedl, <i>Hypothenemus</i> , (= <i>eruditus</i>)	519	<i>morio</i> (Schedl), (<i>Loganius</i>), <i>Camptocerus</i>	209
<i>Mesoscolytus</i> Broun, (= <i>Xyleborus</i>)	410	<i>moritzi</i> Ferrari, <i>Brachyspartus</i>	797
<i>Metacorythylus</i>	765	<i>moritzi</i> Schedl, (<i>Pterocyclon</i>), <i>Monarthrum</i> , (= <i>dimidiatum</i>)	750
Methods	19	<i>moritzi</i> Wood, <i>Corythocurus</i>	800
<i>meuseli</i> (Reitter), (<i>Xyleborus</i>), <i>Monarthrum</i>	749	<i>moritzi</i> Wood, <i>Pityophthorus</i>	655
<i>mexicanus</i> Eggers, (<i>Amphicranus</i>), <i>Monarthrum</i> , (= <i>validum</i>)	729	<i>Morizus</i> Ferrari, (= <i>Corythylus</i>)	804
<i>mexicanus</i> Eggers, (<i>Xyleborus</i>), <i>Ambrosiodmus</i> , (= <i>obliquus</i>)	404	<i>morstatti</i> Hagedorn, (<i>Xyleborus</i>), <i>Xylosandrus</i> , (= <i>compactus</i>)	467
<i>mexicanus</i> Schedl, <i>Chramesus</i> , (= <i>pumilus</i>)	166	<i>morula</i> (Schedl), (<i>Hexacolus</i>), <i>Scolytodes</i>	290
<i>micarius</i> Wood, <i>Araptus</i>	603	<i>morulus</i> (Schedl), (<i>Hexacolus</i>), <i>Scolytodes</i> , (= <i>morula</i>)	290
<i>micidus</i> Wood, <i>Amphicranus</i>	702	<i>moschatae</i> Schaufuss, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>obscurus</i>)	514
Micracini, Tribe	26, 301	<i>mucunae</i> (Blackman), (<i>Neodryocoetes</i>), <i>Araptus</i>	570
<i>Micracis</i>	329	<i>mucunavorus</i> Wood, <i>Araptus</i>	572
<i>Micracisella</i>	328	<i>multidentatus</i> (Hopkins), (<i>Stephanoderes</i>), <i>Hypothenemus</i>	515
<i>Micracisoides</i> , (= <i>Hylocurus</i>)	308	<i>multiseriatus</i> Schedl, <i>Pseudochramesus</i> , (= <i>harringtoni</i>)	154
<i>Microborus</i>	238	<i>multispinosus</i> Wood, <i>Pseudothysanoes</i>	307
<i>Microcorythylus</i>	771	<i>multistriatus</i> (Marsham), (<i>Ips</i>), <i>Scolytus</i>	222
<i>micrographus</i> (Schedl), (<i>Breviophthorus</i>), <i>Araptus</i>	586	<i>murilloi</i> (Blackman), (<i>Cryptocleptes</i>), <i>Pseudothysanoes</i>	306
<i>micrograptinus</i> Wood, (<i>Pityophthorus</i>), <i>Araptus</i> , (= <i>micro-</i> <i>graphus</i> Schedl)	586	<i>mutabilis</i> Schedl, <i>Xyleborus</i>	443
<i>micronifer</i> Wollaston, (<i>Cryphalus</i>), <i>Hypothenemus</i> , (= <i>crudiae</i>)	512	<i>muticus</i> Wood, <i>Araptus</i>	611
<i>mimicus</i> (Schedl), (<i>Mimips</i>), <i>Acanthotomicus</i>	338	<i>Myeloborus</i> Blackman, (= <i>Pityophthorus</i>)	624
<i>mimicus</i> Schedl, (<i>Cryphalus</i>), <i>Hypocryphalus</i> , (= <i>mangiferae</i>)	487	<i>Myelophilus</i> Eichhoff, (= <i>Tomicus</i>)	64
<i>mimicus</i> Wood, <i>Xyleborus</i>	440	<i>myristicae</i> Hopkins, <i>Hypothenemus</i> , (= <i>eruditus</i>)	519
<i>Mimiocurus</i>	544	<i>myrmedon</i> Eichhoff, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>eruditus</i>)	518
<i>Mimips</i> Eggers, (= <i>Acanthotomicus</i>)	335	<i>myrti</i> Wood, <i>Tricolus</i>	687
<i>minimus</i> Schedl, <i>Microcorythylus</i>	778	<i>mystacinus</i> Wood, <i>Tricolus</i>	682
<i>minimus</i> Schedl, <i>Xylechinosisomus</i>	49	<i>naevia</i> Wood, <i>Scolytodes</i>	288
<i>minimus</i> Wood, <i>Micracis</i>	331	<i>naevius</i> Wood, <i>Scolytodes</i> , (= <i>naevia</i>)	288
<i>minimus</i> Wood, <i>Pityophthorus</i>	637	<i>nahueliae</i> (Schedl), (<i>Phthorophloeus</i>), <i>Xylechinus</i>	58
<i>minor</i> (Eggers), (<i>Anchonocerus</i>), <i>Amphicranus</i>	706	<i>nanulus</i> Schedl, (<i>Gnathotrichus</i>), <i>Gnathotrupes</i> , (= <i>nanus</i>)	669
<i>minor</i> Eggers, <i>Chramesus</i>	165	<i>nanulus</i> Schedl, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>eruditus</i>)	519
<i>minor</i> Eggers, (<i>Dendrugus</i>), <i>Coccotrypes</i> , (= <i>advena</i>)	358	<i>nanus</i> Eggers, <i>Coccotrypes</i> , (= <i>carpophagus</i>)	362
<i>minor</i> (Eggers), (<i>Prionosceles</i>), <i>Scolytodes</i>	271	<i>nanus</i> (Eichhoff), (<i>Gnathotrichus</i>), <i>Gnathotrupes</i>	669
<i>minor</i> Eggers, <i>Xylechinus</i>	57	<i>nanus</i> Hagedorn, <i>Hypothenemus</i> , (= <i>crudiae</i>)	513
<i>minor</i> Schedl, <i>Cnemonyx</i>	196	<i>nanus</i> Wood, <i>Phloeotribus</i>	124
<i>minor</i> Wood, <i>Phloeotribus</i>	142	<i>nardus</i> Schedl, (<i>Hexacolus</i>), <i>Scolytodes</i> , (= <i>guyanaensis</i>)	271
<i>minor</i> Wood, <i>Phrixosoma</i>	67	<i>naumannii</i> (Schedl), (<i>Gnathomimus</i>), <i>Gnathotrupes</i>	672
<i>Minulus</i> Eggers, (= <i>Cnemonyx</i>)	186		

INDEX

<i>nayaritensis</i> Wood, <i>Scolytodes</i>	291	<i>nodicornis</i> Wichmann, (<i>Eccoptogaster</i>), <i>Scolytus</i> , (= nodulus)	235
<i>nayaritensis</i> Wood, <i>Tricolus</i>	688	<i>nodifer</i> Reitter, <i>Scolytus</i> , (= multistriatus)	222
<i>nebulosus</i> Wood, <i>Microcorthylus</i>	779	<i>nodifer</i> Wood, <i>Hylocurus</i>	323
<i>nebulosus</i> Wood, <i>Phloeotribus</i> , (= nitidicollis)	132	nodulus (Wichmann), (<i>Eccoptogaster</i>), <i>Scolytus</i>	235
<i>nectandrae</i> Wood, <i>Gnathotrupes</i>	662	<i>noguerai</i> Wood, <i>Corthylus</i>	837
<i>nectandrae</i> Wood, <i>Pityophthorus</i>	638	<i>Nomebius</i> , <i>Novas</i> , (= <i>Pycnarthrum</i>)	240
<i>neglectus</i> Schedl, <i>Chramesus</i>	164	<i>notatus</i> Eggers, <i>Xyleborus</i> , (= ferrugineus)	449
<i>neglectus</i> Schedl, <i>Phloeotribus</i> , (= nitidicollis)	132	nothofagi (Schedl), (<i>Gnathomimus</i>), <i>Gnathotrupes</i>	672
<i>Negritus</i> Eggers, (= <i>Scolytogenes</i>)	486	<i>Notoxyleborus</i> Schedl, (= <i>Xyleborus</i>)	410
<i>neivai</i> Eggers, <i>Xyleborus</i>	457	novagrenadensis Eggers, <i>Xyleborus</i>	432
<i>Nemobius</i> Chapuis, (= <i>Pycnarthrum</i>)	240	<i>novaguineanus</i> Schedl, <i>Xyleborus</i> , (= similis)	455
neoadjunctus (Schedl), (<i>Xyleborus</i>), <i>Gnathotrupes</i>	670	<i>novateutonicus</i> Schedl, <i>Cnesinus</i> , (= sulcatus)	88
<i>Neocryphalus</i> Eggers, (= <i>Scolytogenes</i>)	486	novateutonicus (Schedl), (<i>Gnathocranus</i>), <i>Araptus</i>	595
Neocryphus	482	novateutonicus (Schedl), (<i>Phthorophloeus</i>), <i>Phloeotribus</i>	130
<i>Neodryocoetes</i> Eggers, (= <i>Araptus</i>)	547	novateutonicus Schedl, <i>Pityophthorus</i>	647
neofacialis Schedl, <i>Scolytus</i>	225	<i>novateutonicus</i> Schedl, (<i>Problechilus</i>), <i>Gymnochilus</i> , (= consocius)	248
<i>Neoglostatus</i> , (= <i>Pseudothysanoes</i>)	301	novateutonicus (Schedl), (<i>Ptilopodius</i>), <i>Hypothenemus</i>	506
<i>neogracilis</i> Schedl, (<i>Xyleborus</i>), <i>Xyleborinus</i> , (= gracilis)	475	novateutonicus Schedl, <i>Scolytus</i>	234
<i>Neohylesinus</i> , (= <i>Phrixosoma</i>)	65	<i>novateutonicus</i> Schedl, <i>Xyleborus</i> (= posticus)	441
<i>Neomips</i> Schedl, (= <i>Pityophthorus</i>)	624	<i>nuciferus</i> Schedl, (<i>Poecilips</i>), <i>Coccotrypes</i> , (= advena)	358
<i>Neophloeotribus</i> Eggers, (= <i>Phloeotribus</i>)	115	<i>nudipennis</i> Schedl, <i>Corthylus</i> , (= punctatus)	844
<i>Neopityophthorus</i> Schedl, (= <i>Araptus</i>)	547	nudulus Wood, <i>Coptoborus</i>	394
neosphenos (Schedl), (<i>Xyleborus</i>), <i>Coptoborus</i>	397	nudum (Schedl), (<i>Pterocyclon</i>), <i>Monarthrum</i>	751
<i>neotardus</i> Schedl, <i>Corthylus</i> , (= punctatus)	844	nudus (Schedl), (<i>Thamnophthorus</i>), <i>Araptus</i>	598
<i>Neotomicus</i> Fuchs (= <i>Acanthotomicus</i>)	340	<i>nyssae</i> Hopkins, <i>Xyleborus</i> , (= ferrugineus)	449
neotruncatus (Schedl), (<i>Amasa</i>), <i>Xyleborus</i>	424	<i>oahuensis</i> Schedl, <i>Hypothenemus</i> , (= arecae)	522
<i>nephelii</i> Eggers, (<i>Thamnurgides</i>), <i>Coccotrypes</i> , (= rhizophorae)	359	obesa Blackman, <i>Phrixosoma</i>	68
<i>nesianus</i> Beeson, <i>Xyleborus</i> , (= ferrugineus)	449	obesum (Schedl), (<i>Pterocyclon</i>), <i>Monarthrum</i>	743
<i>nevermanni</i> Schedl, <i>Eupagiocerus</i> , (= ater)	101	<i>obesus</i> Hopkins, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= jacanus)	524
<i>nibarani</i> Beeson, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= birmanus)	508	<i>obesus</i> Kirsch, <i>Phloeotribus</i> , (= pilula)	138
niger (Eggers), (<i>Ceratolepis</i>), <i>Cnemonyx</i>	194	obesus Wood, <i>Araptus</i>	582
niger (Fabricius), (<i>Hylesinus</i>), <i>Camptocerus</i>	206	obesus Wood, <i>Corthyloxiphus</i>	795
<i>niger</i> Hopkins, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= seriatus)	516	<i>obliquum</i> Schedl, (<i>Pterocyclon</i>), <i>Monarthrum</i> , (= fimbrati- corne)	740
niger (Schedl), (<i>Metacorthylus</i>), <i>Corthylus</i>	846	obliquus (LeConte), (<i>Pityophthorus</i>), <i>Ambrosiodmus</i>	404
niger Schedl, <i>Pityophthorus</i>	637	<i>obliquus</i> Chapuis, <i>Phloeotribus</i> , (= pilula)	138
niger Schedl, (<i>Poecilips</i>), <i>Coccotrypes</i> , (= advena)	358	<i>obliquus</i> Hopkins, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= inter- stitialis)	510
niger Wood, <i>Phloeoborus</i>	40	<i>obliquus</i> Schedl, <i>Corthylus</i> , (= suturalis)	830
nigra Wood, <i>Micracisella</i>	328	<i>obnixus</i> Schedl, (<i>Gnathotrichus</i>), <i>Gnathotrupes</i> , (= conso- brinus)	670
nigrescens Wood, <i>Corthylus</i>	836	obscuriceps Wood, (<i>Metacorthylus</i>)	769
<i>nigricans</i> Schedl, (<i>Camptocerus</i>), <i>Cnemonyx</i> , (= niger)	194	obscuriceps Wood, <i>Microcorthylus</i>	778
nigricans Wood, <i>Corthylus</i>	839	obscuriceps Wood, <i>Monarthrum</i>	757
nigriceps Wood, <i>Pityophthorus</i>	633	obscuriceps Wood, <i>Scolytus</i>	235
<i>nigricollis</i> Hopkins, <i>Hypothenemus</i> , (= eruditus)	519	<i>obscuripes</i> Schedl, <i>Hypothenemus</i> , (= eruditus)	519
<i>nigrinus</i> Schedl, (<i>Ermoporus</i>), <i>Trischidias</i> , (= atoma)	527	obscurum Wood, <i>Monarthrum</i>	757
<i>nigripennis</i> Hopkins, <i>Hypothenemus</i> , (= eruditus)	519	obscurus Eggers, <i>Microcorthylus</i>	786
nigrosetosus Hagedorn, <i>Xylechinus</i>	54	obscurus (Eggers), (<i>Neodryocoetes</i>), <i>Araptus</i>	587
nitella (Schedl), (<i>Hexacolus</i>), <i>Scolytodes</i>	280	<i>obscurus</i> Eichhoff, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= arecae)	522
<i>nitellus</i> (Schedl), (<i>Hexacolus</i>), <i>Scolytodes</i> , (= nitella)	280	obscurus (Fabricius), (<i>Hylesinus</i>), <i>Hypothenemus</i>	514
nitens (Schedl), (<i>Hexacolus</i>), <i>Scolytodes</i>	281	<i>obscurus</i> Ferrari, (<i>Cryphalus</i>), <i>Hypothenemus</i> , (= eruditus)	516
nitens Wood, <i>Araptus</i>	607	obscurus (Marshall), (<i>Ips</i>), <i>Hylastinus</i>	29
nitida (Eggers), (<i>Prionosceles</i>), <i>Scolytodes</i>	278	obtusicornis Schedl, <i>Sampsonius</i>	374
nitidicollis Chapuis, <i>Phloeoborus</i>	38	obtusipennis Schedl, <i>Hylocurus</i>	317
nitidicollis (Eggers), (<i>Phthorophloeus</i>), <i>Phloeotribus</i>	132	obtusitrumcatus (Schedl), (<i>Xyleborus</i>), <i>Dryocoetoides</i>	384
<i>nitidifrons</i> Hopkins, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= multidentatus)	515	obtusum (Eggers), (<i>Pterocyclon</i>), <i>Monarthrum</i>	753
<i>nitidipennis</i> Hopkins, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= seriatus)	516	<i>obtusus</i> Schedl, (<i>Corthylus</i>), <i>Brachyspartus</i> , (= moritzi)	797
<i>nitidipennis</i> Schedl, (<i>Breviophthorus</i>), <i>Araptus</i> , (= nitens)	607	occidentalis Eggers, <i>Camptocerus</i>	208
nitidipennis (Schedl), (<i>Neodryocoetes</i>), <i>Araptus</i>	579	occidentalis Schedl, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= arecae)	522
<i>nitidulus</i> Guerin-Meneville, (<i>Piezorhopalus</i>), <i>Amphicranus</i> , (= thoracicus)	711	ocellatus (Wood), (<i>Xyleborus</i>), <i>Ambrosiodmus</i>	405
<i>nitidulus</i> Hopkins, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= seriatus)	516	<i>oculentatus</i> Schedl, (<i>Pterocyclonoides</i>), <i>Tricolus</i> , (plaumanni)	679
<i>nitidulus</i> (Schedl), (<i>Neodryocoetes</i>), <i>Araptus</i>	579	ocularis Blandford, <i>Cnesinus</i>	97
<i>nitidulus</i> Schedl, (<i>Neodryocoetes</i>), <i>Araptus</i> , (= costaricensis)	580	ocularis Wood, <i>Araptus</i>	601
nitidus Eggers, <i>Cnesinus</i>	84	ocularis (Wood), (<i>Mimips</i>), <i>Acanthotomicus</i>	338
<i>nitidus</i> Eggers, <i>Pagiocerus</i> , (= frontalis)	99	oleanderi (Schedl), (<i>Neodryocoetes</i>), <i>Mimicurus</i> (excluded species)	544
<i>nitidus</i> (Eggers), <i>Prionosceles</i> , <i>Scolytodes</i> , (= nitida)	278		
nodatus Wood, <i>Scolytus</i>	228		

SCOLYTIDAE OF SOUTH AMERICA

<i>oleiperda</i> Fabricius, (<i>Bostrichus</i>), <i>Hylesinus</i> (=toranio)	30	<i>parvipunctatus</i> Eggers, <i>Xyleborus</i> , (=bolivianus)	444, 453
<i>oliveirai</i> Schedl, <i>Corthylus</i> , (=punctatus)	844	<i>parvistriatus</i> Wood, <i>Araptus</i>	606
<i>olivierai</i> Schedl, <i>Pityophthorus</i>	632	<i>parvistriatus</i> Wood, <i>Hypothenemus</i>	517
<i>ommatea</i> Wood, <i>Scolytodes</i>	272	<i>parvulus</i> Eichhoff, <i>Xyleborus</i> , (=similis)	455
<i>ommateus</i> Wood, <i>Scolylodes</i> , (=ommatea)	272	<i>parvulus</i> Ferrari, <i>Microcorthylus</i>	779
<i>oneratus</i> Schedl, <i>Xyleborus</i> , (=incertus)	454	<i>parvulus</i> Wood, <i>Araptus</i>	611
<i>opaca</i> Wood, <i>Scolytodes</i>	298	<i>parvum</i> (Eggers), (<i>Anchonocerus</i>), <i>Monarthrum</i>	744
<i>opacicollis</i> (Eggers), (<i>Loganius</i>), <i>Camptocerus</i>	209	<i>parvus</i> Blackman, (<i>Tachyderes</i>), <i>Cryptocarenus</i> , (=heveae)	493
<i>opacicollis</i> Eggers, <i>Phloeotribus</i>	136	<i>parvus</i> (Eggers), <i>Hylocurosoma</i> , <i>Scolytodes</i> , (=parva)	292
<i>opacicollis</i> (Eggers), (<i>Prionosceles</i>), <i>Scolytodes</i>	276	<i>parvus</i> Eichhoff, <i>Xyleborus</i> , (=affinis)	447
<i>opacifrons</i> Hopkins, <i>Hypothenemus</i> , (=pubescens)	512	<i>parvus</i> Hopkins, <i>Hypothenemus</i> , (=eruditus)	519
<i>opacifrons</i> Wood, <i>Pityophthorus</i>	643	<i>parvus</i> (Nunberg), (<i>Ceratolepis</i>), <i>Cnemonyx</i>	199
<i>opacipennis</i> Hopkins, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (=interstitialis)	510	<i>parvus</i> Wood, <i>Microcorthylus</i>	784
<i>opacithorax</i> Schedl, <i>Phloeoborus</i>	41	<i>parvus</i> Wood, <i>Tricolus</i>	685
<i>opaculus</i> Schedl, <i>Sternobothrus</i>	113	<i>pauciconcavus</i> Schedl, <i>Gnathotrupes</i> , (=impressus)	667
<i>opacus</i> (Eichhoff), (<i>Stephanoderes</i>), <i>Hypothenemus</i>	511	<i>paucus</i> Wood, <i>Theoborus</i>	388
<i>opacus</i> Schedl, <i>Hypocryphalus</i> , (=mangerae)	487	<i>pecanis</i> Hopkins, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (=seriatus)	516
<i>opacus</i> Schedl, <i>Pseudochramesus</i>	156	<i>pecanus</i> Hopkins, (<i>Xyleborus</i>), <i>Xyleborinus</i> , (=saxeseni)	473
<i>opacus</i> Wood, <i>Scolytodes</i> , (=opaca)	298	<i>penicillus</i> Schedl, <i>Scolytus</i> , (=propinquus)	231
<i>opimulus</i> Schedl, (<i>Xyleborus</i>), <i>Xyleborinus</i> , (=saxeseni)	473	<i>peniculus</i> Wood, <i>Chramesus</i>	175
<i>opimus</i> Wood, <i>Scolytodes</i> , (=opaca)	298	<i>pennatum</i> Schedl, (<i>Pterocyclon</i>), <i>Monarthrum</i> , (=gracilior)	746
<i>opimus</i> (Wood), (<i>Xyleborus</i>), <i>Ambrosiodmus</i>	407	<i>pennatus</i> Schedl, <i>Sampsonius</i>	371
<i>orientalis</i> Eggers, <i>Camptocerus</i>	207	<i>perbrevis</i> Schedl, (<i>Xyleborus</i>), <i>Eucwallacea</i> , (=formicatus)	409
<i>orientalis</i> Eggers, (<i>Emptogaster</i>), <i>Scolytus</i> , (=multistriatus)	222	<i>perdita</i> Wood, <i>Scolytodes</i>	283
<i>orinocanus</i> Wood, <i>Scolytopsis</i>	213	<i>perditus</i> Wood, <i>Scolytodes</i> , (=perdita)	283
<i>orinocensis</i> Wood, <i>Chramesus</i>	169	<i>perebeae</i> Ferrari, (<i>Amphicranus</i>), <i>Taurodemus</i> , (=flavipes)	461
<i>orinocensis</i> Wood, <i>Phloeoborus</i>	42	<i>peregrinus</i> Eggers, (<i>Xyleborus</i>), <i>Xyleborinus</i> , (=saxeseni)	473
<i>Orthotomicus</i>	340	<i>Periocyphalus</i>	527
<i>ovalis</i> (Eggers), (<i>Hexacolus</i>), <i>Scolytodes</i>	276	<i>peritus</i> Blandford, <i>Hypothenemus</i> , (=birmanus)	508
<i>ovalis</i> Schedl, <i>Chramesus</i>	167	<i>perkinsi</i> Hopkins, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (=birmanus)	508
<i>ovatus</i> Chapuis, <i>Phloeoborus</i>	39	<i>perlongus</i> Eggers, <i>Xyleborus</i>	457
<i>ovatus</i> (Eggers), (<i>Dryotomus</i>), <i>Phloeotribus</i>	125	<i>permagna</i> (Eggers), (<i>Prionosceles</i>), <i>Scolytodes</i>	268
<i>Pachynoderes</i> Schedl, (=Hypothenemus)	497	<i>permagus</i> Eggers, <i>Scolytodes</i> , (=perdita)	268
<i>pacificus</i> Beeson, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (=birmanus)	508	<i>pernanulus</i> Schedl, <i>Tricolus</i>	680
<i>Pagiocerus</i>	98	<i>perniciosis</i> Wood, <i>Araptus</i>	573
<i>pallidum</i> (Chapuis), <i>Pycnarthrum</i>	244	<i>perplexa</i> Schedl, <i>Scolytodes</i>	277
<i>pallidus</i> Hopkins, <i>Hypothenemus</i> , (=plumeriae)	521	<i>perplexus</i> Schedl, <i>Scolytodes</i> , (=perplexa),	277
<i>pallidus</i> Schedl, <i>Microcorthylus</i> , (=glabratus)	785	<i>perpusilla</i> Wood, <i>Scolytodes</i>	292
<i>palmaris</i> Eggers, <i>Coccotrypes</i>	361	<i>perpusillus</i> Wood, <i>Scolytodes</i> , (=perpusilla)	292
<i>palmicola</i> Hornung, (<i>Bostrichus</i>), <i>Coccotrypes</i> , (=dactyliperda)	362	<i>persicae</i> Hopkins, (<i>Thammurgides</i>), <i>Coccotrypes</i> , (=advena)	358
<i>pampasae</i> Schedl, <i>Pityophthorus</i>	642	<i>pertusus</i> (Wood), (<i>Gnathophthorus</i>), <i>Dacnophthorus</i>	617
<i>panamensis</i> Blackman, <i>Chramesus</i> , (=pumilus)	166	<i>peruana</i> Wood, <i>Scolytodes</i>	274
<i>panamensis</i> (Blandford), (<i>Loganius</i>), <i>Cnemonyx</i>	191	<i>peruanum</i> Schedl, <i>Monarthrum</i> , (=peruvianum)	739
<i>papuanus</i> Schedl, <i>Scolytus</i> , (=multistriatus)	222	<i>peruanum</i> (Schedl), (<i>Pterocyclon</i>), <i>Monarthrum</i>	752
<i>papuellus</i> Wood, <i>Corthylus</i>	855	<i>peruanus</i> Eggers, <i>Scolytopsis</i>	211
<i>papulus</i> Eichhoff, <i>Corthylus</i>	854	<i>peruanus</i> Schedl, <i>Chramesus</i>	171
<i>Paracorthylus</i> , (=Metacorthylus)	765	<i>peruanus</i> Schedl, <i>Corthylus</i>	843
<i>paradoxus</i> (Schedl), (<i>Xyleborus</i>) <i>Dryocoetoides</i>	381	<i>peruanus</i> Wood, <i>Xylosandrus</i>	468
<i>paraguayensis</i> Eggers, <i>Dendrosinus</i> , (=ater)	147	<i>peruensis</i> Schedl, <i>Phloeotribus</i> , (=rudis)	134
<i>paraguayensis</i> Hopkins, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (=crudiae)	513	<i>peruensis</i> Schedl, <i>Scolytus</i>	233
<i>paraguayensis</i> (Schedl), (<i>Cnesinus</i>), <i>Sternobothrus</i>	110	<i>peruviana</i> Eggers, <i>Phrixosoma</i>	67
<i>paraguayensis</i> Schedl, (<i>Xyleborus</i>), <i>Xyleborinus</i> , (=saxeseni)	473	<i>peruvianum</i> Wood, <i>Monarthrum</i>	739
<i>parallela</i> (Schedl), (<i>Hexacolus</i>), <i>Scolytodes</i>	272	<i>peruvianus</i> Schedl, <i>Xyleborus</i>	435
<i>parallelocollis</i> Eggers, <i>Xyleborus</i>	436	<i>perversus</i> Hagedorn, (<i>Xyleborus</i>), <i>Taurodemus</i> , (=varians)	461
<i>parallelus</i> (Hopkins), (<i>Stephanoderes</i>), <i>Hypothenemus</i>	521	<i>pfeili</i> (Ratzeburg), <i>Xyleborus</i>	453
<i>parallelus</i> Schedl, (<i>Hexacolus</i>), <i>Scolytodes</i> , (=parallela)	272	<i>Phacrylus</i> Schedl, (=Acorthylus)	483
<i>paranae</i> (Schedl), (<i>Brachydendrus</i>), <i>Araptus</i>	603	<i>pharax</i> Schedl, <i>Corthylus</i>	867
<i>paranaensis</i> (Schoenherr), (<i>Pteleobius</i>), <i>Xylechinosomus</i>	50	<i>Phelloterus</i>	620
<i>parcellus</i> Wood, <i>Xyleborus</i>	433	<i>philippinensis</i> Eggers, (<i>Dendrugus</i>), <i>Coccotrypes</i> , (=advena)	358
<i>parcius</i> Schedl, <i>Hypothenemus</i> , (=eruditus)	519	<i>philippinensis</i> Hopkins, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (=javanus)	524
<i>parcus</i> Wood, <i>Chramesus</i>	176	<i>philippinensis</i> Schedl, <i>Coccotrypes</i> , (=advena)	358
<i>pardous</i> (Eggers), (<i>Xyleborus</i>), <i>Ambrosiodmus</i>	406	<i>Phloeoborus</i>	30
<i>parilis</i> Schedl, <i>Hypothenemus</i> , (=eruditus)	519	<i>Phloeochilus</i> Schedl, (=Liparthrum)	183
<i>partilis</i> Wood, <i>Araptus</i>	612	<i>Phloeophthorus</i> Wollaston, (=Phloeotribus)	115
<i>parva</i> (Eggers), (<i>Hylocurosoma</i>), <i>Scolytodes</i>	292	<i>Phloeosinini</i> , Tribe	25, 146
<i>parvicirrus</i> Wood, <i>Corthylus</i>	844	<i>phloeosinites</i> Schedl, <i>Chramesus</i>	180
<i>parvipunctatus</i> Eggers, <i>Xyleborus</i>	444, 453	<i>Phloeotribini</i> , Tribe	25, 115
		<i>phloeotriboides</i> Schedl, <i>Chramesus</i>	172

INDEX

<i>Phloeotribus</i>	115	<i>praeceps</i> Wood, <i>Scolytodes</i>	277
<i>Phloeotrogus</i> Motschulsky, (= <i>Ambrosiodmus</i>)	401	<i>praeustus</i> Schedl, <i>Corthylus</i>	859
<i>Phloeotrupes</i> Erichson, (<i>Hylesinus</i>), <i>Phloeoborus</i>	30	<i>praeivus</i> Wood, <i>Araptus</i>	589
<i>Phloeotrypetus</i> Wood, (= <i>Liparthrum</i>)	183	<i>preclarum</i> Wood, <i>Monarthrum</i> , (= <i>parvum</i>)	744
<i>phoenicola</i> Beeson, <i>Coccotrypes</i> , (= <i>carpophagus</i>)	362	Preface	v
<i>Phrixosoma</i>	65	<i>Premnobius</i>	366
<i>Phrixosomini</i> , Tribe	24, 65	<i>Premnophilus</i> Browne (= <i>Premnobius</i>)	366
<i>Phthorinus</i> Eichhoff, (= <i>Monarthrum</i>)	713	<i>princeps</i> Blandford, <i>Xyleborus</i>	439
<i>Phthorophloeus</i> Rey, (= <i>Phloeotribus</i>)	115	<i>Prionosceles</i> Blandford, (= <i>Scolytodes</i>)	249
<i>piceus</i> Stephens, (<i>Hylurgus</i>), <i>Hylastinus</i> , (= <i>obscurus</i>)	29	<i>priscus</i> Wood, <i>Chramesus</i>	168
<i>picipennis</i> Eggers, <i>Phloeotribus</i>	143	<i>pristinus</i> Wood, <i>Corthylocurus</i>	800
<i>Piezorhopalus</i> Guerin-Meneville, (= <i>Amphicranus</i>)	689	<i>Problechilus</i> Eichhoff, (= <i>Gymnochilus</i>)	246
<i>pileatus</i> Wood, <i>Dryocoetoides</i>	379	<i>procer</i> Eichhoff, <i>Xyleborus</i>	458
<i>pilifer</i> Wood, <i>Corthylus</i>	831	<i>procerus</i> (Erichson), (<i>Phloeotrupes</i>), <i>Phloeoborus</i>	36
<i>pilifer</i> Wood, <i>Phloeotribus</i>	123	<i>Prochramesus</i> Wood, (= <i>Chramesus</i>)	156
<i>pilifrons</i> Browne, (<i>Poecilips</i>), <i>Coccotrypes</i> , (= <i>cyperi</i>)	359	<i>productus</i> Hagedorn, <i>Scolytus</i> , (= <i>marginatus</i>)	232
<i>pilifrons</i> (Schedl), (<i>Hexacolus</i>), <i>Scolytodes</i>	288	<i>productus</i> Hagedorn, <i>Xyleborus</i>	448
<i>pilosula</i> (Eggers), (<i>Problechilus</i>), <i>Scolytodes</i>	296	<i>profanus</i> Schedl, <i>Phloeotribus</i>	131
<i>pilosulus</i> (Eggers), (<i>Problechilus</i>), <i>Scolytodes</i> , (= <i>pilosula</i>)	296	<i>Progenius</i> Blandford, (= <i>Xyleborus</i>)	410
<i>pilosulus</i> Schedl, <i>Coccotrypes</i> , (= <i>carpophagus</i>)	362	<i>propinquus</i> Blandford, <i>Scolytus</i>	231
<i>pilosus</i> (Eggers), (<i>Cnesinus</i>), <i>Sternobothrus</i>)	108	<i>prosper</i> Schedl, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>javanus</i>) ..	524
<i>pilosus</i> Eggers, <i>Cryptocarenus</i>	497	<i>proticorus</i> Wood, <i>Cnemonyx</i>	192
<i>pilosus</i> Eggers, <i>Dendrocranulus</i>	354	<i>protuberans</i> Wood, <i>Corthylocurus</i>	801
<i>pilosus</i> Eggers, <i>Hylastinus</i> (= <i>obscurus</i>)	29	<i>proximus</i> Chapuis, <i>Scolytus</i>	232
<i>pilosus</i> Schedl, <i>Hyllocurus</i>	319	<i>proximus</i> Eggers, <i>Xyleborus</i> , (= <i>affinis</i>)	447
<i>pilosus</i> Wood, <i>Xylechinosomus</i>	48	<i>pruni</i> Hopkins, <i>Hypothenemus</i> , (= <i>eruditus</i>)	519
<i>pilula</i> (Erichson), (<i>Hylesinus</i>), <i>Phloeotribus</i>	138	<i>pruni</i> (Wood), (<i>Phacrylus</i>), <i>Acorthylus</i>	484
<i>pinguis</i> Wood, <i>Corthylus</i>	826	<i>Pruniphagus</i> Murayama (= <i>Xylechinus</i>)	51
<i>pinguis</i> Wood, <i>Dendrocranulus</i>	351	<i>Pseudips</i> Cognato (= <i>Orthotomicus</i>)	340
<i>pini</i> Hopkins, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>seriatus</i>) ..	516	<i>pseudoacuminata</i> (Schedl), (<i>Hexacolus</i>), <i>Scolytodes</i>	284
<i>pinicola</i> Bedel, <i>Hylastes</i> (= <i>ater</i>)	27	<i>pseudoacuminatus</i> (Schedl), (<i>Hexacolus</i>), <i>Scolytodes</i> , (= <i>pseudoacuminata</i>)	284
<i>pinnatus</i> Eggers, <i>Scolytus</i>	228	<i>pseudoacuminatus</i> Wood, <i>Xyleborus</i>	448
<i>pistor</i> Schedl, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>javanus</i>) ..	524	<i>pseudoandinus</i> Wood, <i>Corthylus</i>	852
<i>Pityoceragenes</i> Balachowsky, (= <i>Pityogenes</i>)	335	<i>pseudoangustatus</i> Schedl, (<i>Xyleborus</i>), <i>Xyleborinus</i> , (= <i>saxeseni</i>)	473
<i>Pityogenes</i>	335	<i>pseudobrasiliensis</i> Eggers, (<i>Xyleborus</i>), <i>Ambrosiodmus</i> , (= <i>obliquus</i>)	404
<i>Pityophthorina</i> , Subtribe	544	<i>pseudocaudatus</i> Eggers, <i>Scolytus</i> , (= <i>caudatus</i>)	230
<i>Pityophthoroides</i> Blackman, (= <i>Pityophthorus</i>)	624	<i>Pseudochramesus</i>	152
<i>Pityophthorus</i>	624	<i>pseudococcotrypes</i> Eggers, <i>Xyleborus</i> , <i>Theoborus</i> , (= <i>theo-</i> <i>bromae</i>)	388
<i>plagiatum</i> Eichhoff, (<i>Corthylus</i>), <i>Monarthrum</i> , (= <i>brunneum</i>) ..	742	<i>Pseudocorthylus</i> Ferrari, (= <i>Corthylus</i>)	804
<i>plaumanni</i> Schedl, <i>Amphicranus</i>	710	<i>pseudocostellatus</i> Schedl, <i>Scolytus</i>	227
<i>plaumanni</i> Schedl, (<i>Brachydendrulus</i>), <i>Araptus</i> , (= <i>plau-</i> <i>mannianus</i>)	575	<i>Pseudocryphalus</i> Casey, (= <i>Chaetophloeus</i>)	181
<i>plaumanni</i> (Schedl), (<i>Breviophthorus</i>), <i>Araptus</i>	588	<i>Pseudocrypturgus</i> Eggers, (= <i>Microborus</i>)	238
<i>plaumanni</i> Schedl, <i>Cnesinus</i>	80	<i>pseudoexcisus</i> Wood, <i>Corthylus</i>	853
<i>plaumanni</i> (Schedl), (<i>Cryptocleptes</i>), <i>Pseudothysanoes</i>	306	<i>pseudoferox</i> Wood, <i>Xyleborus</i>	426
<i>plaumanni</i> (Schedl), (<i>Pterocyclon</i>), <i>Monarthrum</i>	731	<i>pseudogracilis</i> Schedl, (<i>Xyleborus</i>), <i>Xyleborinus</i> , (= <i>saxeseni</i>) ..	473
<i>plaumanni</i> Schedl, <i>Tricolus</i>	679	<i>pseudoinpar</i> Schedl, <i>Hyllocurus</i> , (= <i>giganteus</i>)	317
<i>plaumanni</i> Wood, <i>Hyllocurus</i>	320	<i>Pseudomicracis</i> Blackman, (= <i>Micracisella</i>)	328
<i>plaumanni</i> Wood, <i>Scolytus</i>	229	<i>pseudoparvum</i> Wood, <i>Monarthrum</i>	744
<i>plaumannianus</i> Wood, <i>Araptus</i>	575	<i>Pseudopityophthorus</i>	623
<i>playonensis</i> Wood, <i>Araptus</i>	584	<i>pseudoprocer</i> Schedl, <i>Xyleborus</i> , (= <i>declivis</i>)	458
<i>plicatus</i> Wood, <i>Araptus</i>	573	<i>pseudosimilis</i> Wood, <i>Araptus</i>	599
<i>plumeriae</i> (Nordlinger), (<i>Bostrichus</i>), <i>Hypothenemus</i>	521	<i>pseudosolitarius</i> (Eggers), (<i>Xyleborus</i>), <i>Dryocoetoides</i>	383
<i>podocarpi</i> Wood, <i>Pityophthorus</i>	641	<i>pseudosolitarius schizolobus</i> Schedl, <i>Dryocoetoides</i> , (= <i>pseudosolitarius</i>)	383
<i>Poecilips</i> Schaufuss (= <i>Coccotrypes</i>)	356	<i>pseudotenuis</i> (Schedl), <i>Coptoborus</i>	396
<i>politus</i> Eichhoff, <i>Amphicranus</i>	710	<i>Pseudothysanoes</i>	301
<i>politus</i> Hagedorn, <i>Xyleborus</i>	437	<i>pseudotsugae</i> Swaine, <i>Dryocoetes</i> , (= <i>autographus</i>)	355
<i>polyphagus</i> Costa Lima, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>crudiae</i>)	513	<i>pseudocillus</i> Wood, <i>Corthylus</i>	831
<i>polyphagus</i> Eggers, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>areccae</i>)	522	<i>psidii</i> Hopkins, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>birmanus</i>) ..	508
<i>porcatus</i> Blandford, <i>Cnesinus</i>	96	<i>Pterocyclon</i> Eichhoff, (= <i>Monarthrum</i>)	713
<i>porosus</i> Wood, <i>Cryptocarenus</i> , (= <i>heveae</i>)	493	<i>Pterocyclonoides</i> Schedl, (= <i>Tricolus</i>)	673
<i>porrectus</i> Schedl, <i>Microcorthylus</i> , (= <i>puerulus</i>)	785	<i>puberulus</i> (Chapuis), (<i>Dryotomus</i>), <i>Phloeotribus</i>	125
<i>porteri</i> Brethes, <i>Sinophloeus</i>	51, 53, 57	<i>pubescens</i> Hopkins, <i>Hypothenemus</i>	512
<i>porteri</i> Brethes, <i>Xylechinus</i> (to <i>Sinophloeus</i>)	57, 60	<i>pubescens</i> (Schedl), (<i>Neodryocoetes</i>), <i>Araptus</i>	575
<i>porteri</i> Bruch, <i>Phloeotribus</i>	145	<i>pubescens</i> Wood, <i>Cryptocarenus</i>	494
<i>posticoides</i> Schedl, <i>Xyleborus</i> (= <i>posticus</i>)	441	<i>puer</i> (Schedl), (<i>Hexacolus</i>), <i>Scolytodes</i>	279
<i>posticus</i> Eichhoff, <i>Xyleborus</i>	441		
<i>praealtus</i> Schedl, <i>Corthylus</i>	864		

SCOLYTIDAE OF SOUTH AMERICA

<i>puertoricensis</i> Bright, <i>Coptoborus</i>	398	<i>redtenbacheri</i> Ferrari, <i>Corthylus</i>	834
<i>puerulus</i> Schedl, <i>Microcorthylus</i>	785	<i>reimoseri</i> Schedl, <i>Pycnarthrum</i> , (= <i>hispidum</i>)	242
<i>pulchellus</i> Wood, <i>Cnesinus</i>	80	<i>remorsus</i> Wood, <i>Phloeotribus</i>	143
<i>pulcherrimus</i> Schedl, <i>Xyleborus</i> , (= <i>perlongus</i>)	457	<i>Renocis</i> , (= <i>Chaetophloeus</i>)	181
<i>pulchripes</i> Schedl, <i>Xyleborus</i> , (= <i>perlongus</i>)	457	<i>reticulatum</i> Schedl, <i>Pycnarthrum</i> , (= <i>pallidum</i>)	244
<i>pullus</i> Wood, <i>Pericoryphalus</i>	528	<i>reticulatus</i> (Chapuis), (<i>Hylesinus</i>), <i>Cnesinus</i>	84
<i>pulverulentus</i> Eichhoff, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>seriatus</i>)	515	<i>reticulatus</i> Wood, <i>Araptus</i>	605
<i>pumilio</i> Eggers, <i>Tricolus</i>	682	<i>reticulatus</i> Wood, <i>Corthylocurus</i>	803
<i>pumilio</i> Eichhoff, <i>Dryocoetes</i>	355	<i>reticulatus</i> Wood, <i>Corthyloxiphus</i>	794
<i>pumilus</i> (Chapuis), (<i>Rhopalopleurus</i>), <i>Chramesus</i>	166	<i>reticulatus</i> Wood, <i>Pityophthorus</i>	646
<i>pumilus</i> (Eggers), (<i>Cnesinus</i>), <i>Sternobothrus</i>	111	<i>reticus</i> Wood, <i>Cnesinus</i>	82
<i>pumilus</i> Wood, <i>Araptus</i>	594	<i>retifer</i> Wood, <i>Xylosandrus</i>	468
<i>punctata</i> (Eggers), (<i>Hylocurosoma</i>), <i>Scolytodes</i>	286	<i>retifrons</i> Wood, <i>Pityophthorus</i>	644
<i>punctatissimus</i> (Schedl), (<i>Neodryocoetes</i>), <i>Araptus</i>	577	<i>retusicollis</i> Zimmermann, <i>Xyleborus</i> , (= <i>ferrugineus</i>)	449
<i>punctatorugosus</i> Chapuis, <i>Phloeoborus</i>	38	<i>retusipennis</i> Blandford, <i>Hylocurus</i>	325
<i>punctatus</i> Eggers, <i>Corthylus</i>	844	<i>retusus</i> Eichhoff, <i>Amphicranus</i> , (= <i>thoracicus</i>)	711
<i>punctatus</i> Eggers, <i>Pagiocerus</i>	101	<i>retusus</i> (Eichhoff), (<i>Xyleborus</i>), <i>Xylosandrus</i>	469
<i>punctatus</i> (Eggers), (<i>Hylocurosoma</i>), <i>Scolytodes</i> , (= <i>punctata</i>)	286	<i>retusus</i> Schedl, (<i>Xyleborus</i>), <i>Xyleborinus</i> , (= <i>saxeseni</i>)	473
<i>punctatus</i> Eggers, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>hampei</i>)	511	<i>rhizophorae</i> Eggers, (<i>Dendrugus</i>), <i>Coccotrypes</i> , (= <i>rhizo-</i> <i>phorae</i>)	359
<i>punctatus</i> Ratzeburg, (<i>Eccoptogaster</i>), <i>Scolytus</i> , (= <i>rugulosus</i>)	221	<i>rhizophorae</i> (Hopkins), (<i>Spermatoplex</i>), <i>Coccotrypes</i>	359
<i>punctatus</i> Schedl, (<i>Phloeotrupes</i>), <i>Phloeoborus</i> , (= <i>grandis</i>)	37	<i>Rhopalopleurus</i> Chapuis, (= <i>Chramesus</i>)	156
<i>punctatus</i> Wood, <i>Corthyloxiphus</i>	792	<i>ricini</i> (Eggers), (<i>Xyleborus</i>), <i>Theoborus</i>	389
<i>puncticollis</i> Blandford, <i>Dendrosinus</i>	148	<i>rileyi</i> Hopkins, <i>Xyleborus</i> , (= <i>volvulus</i>)	451
<i>puncticollis</i> Blandford, <i>Scolytopsis</i>	213	<i>rimosus</i> Eichhoff, <i>Pagiocerus</i> , (= <i>frontalis</i>)	99
<i>puncticollis</i> Chapuis, <i>Phloeotribus</i> , (= <i>rudis</i>)	134	<i>ritchiei</i> Sampson, (<i>Hypothenemus</i>), <i>Scolytogenes</i> , (= <i>jalapae</i>)	486
<i>puncticollis</i> Hopkins, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>erectus</i>)	507	<i>robai</i> Blackman, <i>Cnesinus</i>	94
<i>punctifrons</i> Hopkins, <i>Hypothenemus</i> , (= <i>eruditus</i>)	519	<i>robai</i> (Blackman), <i>Pityophthorus</i>	634
<i>punctifrons</i> Schedl, <i>Cryptocarenum</i>	495	<i>robiniae</i> Hopkins, (<i>Hypothenemus</i>), <i>Trischidias</i> , (= <i>atoma</i>)	527
<i>punctifrons</i> Wood, <i>Corthylus</i>	848	<i>robustum</i> (Schedl), (<i>Pterocyclon</i>), <i>Monarthrum</i>	754
<i>punctipennis</i> Hopkins, <i>Hypothenemus</i> , (= <i>eruditus</i>)	519	<i>robustum</i> Blackman, <i>Hypothenemus</i> , (= <i>seriatus</i>)	516
<i>punctulatus</i> Eggers, <i>Coccotrypes</i> , (= <i>carpophagus</i>)	362	<i>robustum</i> Eichhoff, (<i>Cryphalus</i>), <i>Hypocryphalus</i> , (= <i>mangiferae</i>)	487
<i>pusilla</i> (Eggers), (<i>Hylocurosoma</i>), <i>Scolytodes</i>	287	<i>robustum</i> Schedl, <i>Hylocurus</i>	864
<i>pusillima</i> Wood, <i>Scolytodes</i>	291	<i>robustum</i> (Schedl), (<i>Phacrylus</i>), <i>Acorthylus</i>	319
<i>pusillimus</i> Wood, <i>Scolytodes</i> , (= <i>pusillima</i>)	291	<i>robustum</i> (Schedl), (<i>Thannophthorus</i>), <i>Araptus</i>	485
<i>pusillus</i> Eggers, <i>Corthylus</i>	828	<i>rollinae</i> Hopkins, <i>Coccotrypes</i> , (= <i>carpophagus</i>)	592
<i>pusillus</i> Eggers, (<i>Hylocurosoma</i>), <i>Scolytodes</i> , (= <i>pusilla</i>)	287	<i>roppae</i> Schedl, <i>Pityophthorus</i> , (= <i>quadrispinatus</i>)	362
<i>pusillus</i> Eggers, <i>Hypothenemus</i> , (= <i>eruditus</i>)	519	<i>roupalae</i> Wood, <i>Araptus</i>	650
<i>pusillus</i> Schedl, <i>Cnesinus</i>	86	<i>rubra</i> Wood, <i>Phrixosoma</i>	610
<i>pusio</i> Eggers, <i>Xyleborus</i>	433	<i>rubricollis</i> (Eichhoff), (<i>Xyleborus</i>), <i>Ambrosiodmus</i>	69
<i>pustulatus</i> Schedl, (<i>Gnathotrichus</i>), <i>Gnathotrupes</i>	663	<i>rubripes</i> (Eggers), (<i>Pityophthorus</i>), <i>Dendrocranulus</i>	405
<i>Pycnarthrum</i>	240	<i>rudis</i> Eichhoff, <i>Phloeotribus</i>	354
<i>pygmaeolus</i> Schedl, <i>Pityophthorus</i>	638	<i>rudis</i> Erichson, <i>Phloeoborus</i>	134
<i>pygmaeus</i> Eichhoff, <i>Coccotrypes</i> , (= <i>carpophagus</i>)	362	<i>rudis</i> Wood, <i>Bothrosternus</i>	35
<i>pygmaeus</i> Hopkins, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>eruditus</i>)	519	<i>rufescens</i> Hopkins, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>obscurus</i>)	104
<i>quadraticolle</i> Eichhoff, <i>Pycnarthrum</i> , (= <i>hispidum</i>)	242	<i>ruficollis</i> (Fabricius), (<i>Bostrichus</i>), <i>Tricolus</i>	514
<i>quadridens</i> Blackman, <i>Camptocerus</i>	205	<i>rufipes</i> Eggers, <i>Xyleborus</i>	681
<i>quadridens</i> (Eichhoff), (<i>Pterocyclon</i>), <i>Monarthrum</i>	741	<i>rufipes</i> Eichhoff, (<i>Anchonocerus</i>), <i>Monarthrum</i> , (= <i>ingens</i>)	441
<i>quadridens</i> Wood, <i>Amphicranus</i>	708	<i>rufithorax</i> Eichhoff, (<i>Xyleborus</i>), <i>Dryocoetoides</i> , (= <i>capucinus</i>)	743
<i>quadridens</i> Wood, <i>Microcorthylus</i>	782	<i>rufithorax nigricollis</i> Hagedorn, <i>Dryocoetoides</i> , (= <i>granuli-</i> <i>cauda</i>)	378
<i>quadridentatum</i> Eggers, (<i>Pterocyclon</i>), <i>Monarthrum</i> , (= <i>obtusum</i>)	753	<i>rufodorsalis</i> Wood, <i>Tricolus</i>	378
<i>quadridentatus</i> Hopkins, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>interstitialis</i>)	510	<i>rufonitidus</i> Schedl, <i>Sternobothrus</i>	685
<i>quadrimaculatus</i> Schedl, <i>Amphicranus</i>	712	<i>rufopalliatu</i> s Eichhoff, <i>Araptus</i>	108
<i>quadrispinatus</i> Schedl, <i>Pityophthorus</i>	650	<i>rufopalliatu</i> s Hopkins, <i>Hypothenemus</i> , (= <i>columbi</i>)	614
<i>quadrispinosus</i> Eggers, <i>Sampsonius</i>	372	<i>rufopiceus</i> Eggers, <i>Xyleborus</i> , (= <i>ferrugineus</i>)	523
<i>quadrituberculatus</i> Schedl, (<i>Gnathotrichus</i>), <i>Gnathotrupes</i> , (= <i>consobrinus</i>)	670	<i>rufopilosus</i> Eggers, <i>Corthylus</i>	449
<i>quercus</i> Hopkins, (<i>Xyleborus</i>), <i>Xyleborinus</i> , (= <i>saxeseni</i>)	473	<i>rufopilosus</i> Eggers, <i>Corthylus</i>	851
<i>radulosus</i> Blandford, <i>Phloeoborus</i> , (= <i>cristatus</i>)	43	<i>rufotestaceus</i> Wood, <i>Microcorthylus</i>	787
<i>rallus</i> (Wood), (<i>Gnathophthorus</i>), <i>Dacnophthorus</i>	618	<i>rufulus</i> Schedl, <i>Chiloxylon</i>	356
<i>rasilis</i> Schedl, <i>Amphicranus</i>	705	<i>rugatus</i> Blandford, <i>Phloeoborus</i> , (= <i>asper</i>)	39
<i>reconditus</i> (Schedl), (<i>Xyleborus</i>), <i>Xyleborinus</i>	476	<i>rugipennis</i> Eggers, <i>Phloeoborus</i> , (= <i>rudis</i>)	35
<i>rectangulus</i> Ferrari, (<i>Tomicus</i>), <i>Orthotomicus</i> , (= <i>erosus</i>)	341	<i>rugosipennis</i> Schedl, <i>Xyleborus</i> , (= <i>bolivianus</i>)	453
<i>rectus</i> Schedl, <i>Hylocurus</i> , (= <i>brasiliensis</i>)	315	<i>rugosus</i> Wood, <i>Hypothenemus</i>	515
<i>rectus</i> Wood, <i>Camptocerus</i>	207	<i>rugulosa</i> Eggers, <i>Scolytodes</i>	275
<i>reditus</i> Wood, <i>Dendrocranulus</i>	351	<i>Ruguloscolytus</i> Butovitsch, (= <i>Scolytus</i>)	214
		<i>rugulosipes</i> Wood, <i>Xyleborus</i>	446
		<i>rugulosa</i> Eggers, <i>Scolytodes</i>	275
		<i>rugulosus</i> (Eggers), (<i>Loganius</i>), <i>Cnemonyx</i>	195

INDEX

<i>rugulosus</i> Eggers, <i>Phloeotribus</i>	137	<i>serena</i> Wood, <i>Scolytodes</i>	282
<i>rugulosus</i> Eggers, <i>Scolytodes</i> , (= <i>rugulosa</i>)	275	<i>serenus</i> Wood, <i>Scolytodes</i> , (= <i>serena</i>)	282
<i>rugulosus</i> (Muller), (<i>Bostrichus</i>) <i>Scolytus</i>	221	<i>seriatus</i> (Eichhoff), (<i>Stephanoderes</i>), <i>Hypothenemus</i>	515
<i>rugulosus baluchistani</i> , Schedl	221	<i>seriatus</i> Eggers, <i>Camptocerus</i> , (= <i>costatus</i>)	205
<i>rugulosus intermedius</i> Sokanovski, (<i>Scolytus</i>), (= <i>rugulosus</i>)	221	<i>seriatus</i> Eggers, <i>Cryptocarenus</i>	496
<i>rugulosus similis</i> Butovitsch, <i>Scolytus</i> , (= <i>rugulosus</i>)	221	<i>sericeus</i> Chapuis, <i>Phloeoborus</i> , (= <i>scaber</i>)	42
<i>runseyi</i> Hopkins, <i>Hypothenemus</i> , (= <i>eruditus</i>)	519	<i>serratus</i> Eggers, <i>Phloeotribus</i>	144
<i>rusticus</i> Wood, <i>Dryocoetoides</i>	380	<i>serratus</i> Fabricius, (<i>Bostrichus</i>), <i>Taurodemus</i> , (= <i>varians</i>)	461
<i>rutschuruensis</i> Eggers, <i>Coccotrypes</i>	361	<i>serratus</i> Wood, <i>Eupagiocerus</i> , (= <i>ater</i>)	101
<i>sacchari</i> Hopkins, <i>Hypothenemus</i> , (= <i>eruditus</i>)	519	<i>serrulatus</i> Eggers, <i>Corthylus</i>	859
<i>sacchari</i> Hopkins, <i>Xyleborus</i> , (= <i>affinis</i>)	447	<i>setifer</i> Schedl, <i>Pseudochramesus</i>	155
<i>sachalinensis</i> Sokanovskii, <i>Dryocoetes</i> , (= <i>autographus</i>)	355	<i>setifer</i> Wood, <i>Corthylocurus</i>	803
<i>sachtlebeni</i> Schedl, <i>Xylechinomus</i>	50	<i>setiger</i> Schedl, <i>Chramesus</i>	168
<i>saginatius</i> Wood, <i>Xyleborinus</i>	474	<i>setosus</i> Beeson, (<i>Thamnurgides</i>), <i>Coccotrypes</i> , (= <i>advena</i>)	358
<i>salicis</i> Hopkins, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>seriatus</i>)	516	<i>setosus</i> Eggers, <i>Cnesinus</i>	93
<i>samarkandicus</i> Butovitsch, <i>Scolytus</i> , (= <i>rugulosus</i>)	221	<i>setosus</i> (Eichhoff), (<i>Hypoborus</i>), <i>Hypothenemus</i>	524
<i>Sampsonius</i>	369	<i>setulosum</i> Waterhouse, <i>Pycnarthrum</i>	244
<i>sanctaluciae</i> Hoffmann, <i>Scolytus</i> , (= <i>rugulosus</i>)	221	<i>setulosus</i> Eggers, (<i>Loganius</i>), <i>Cnemonyx</i> , (= <i>panamensis</i>)	191
<i>sanguineus</i> Schedl, <i>Corthylus</i>	838	<i>setulosus</i> Eggers, <i>Microborus</i> , (= <i>aberrans</i>)	239
<i>saxeseni</i> (Ratzeburg), (<i>Bostrichus</i>), <i>Xyleborinus</i>	473	<i>setulosus</i> Eichhoff, <i>Phloeotribus</i>	144
<i>scaber</i> Erichson, <i>Phloeoborus</i>	42	<i>severus</i> Wood, <i>Dryocoetoides</i>	380
<i>scaber</i> Marsham, (<i>Ips</i>), <i>Hylesinus</i> (= <i>toranio</i>)	30	<i>sexdentatum</i> Eggers, (<i>Anchonocerus</i>), <i>Amphicranus</i> , (= <i>sexdent-</i> <i>ticulum</i>)	707
<i>scaber</i> Schedl, <i>Xyleborus</i>	431	<i>sexdentatum</i> Eggers, <i>Monarthrum</i> , (= <i>bicolor</i>)	738
<i>scalaris</i> (Schedl), (<i>Xyleborus</i>), <i>Ambrosiodmus</i>	404	<i>sexdentatus</i> Eggers, <i>Sampsonius</i>	371
<i>scaliger</i> Hagedorn, (<i>Loganius</i>), <i>Cnemonyx</i> , (= <i>flavicornis</i>)	190	<i>sexdenticulum</i> (Wood), (<i>Monarthrum</i>), <i>Amphicranus</i>	707
<i>schaufussi</i> Blandford, <i>Amphicranus</i>	705	<i>sexnotatus</i> (Schedl), (<i>Xyleborus</i>), <i>Premnobius</i>	367
<i>schaufussi</i> Schedl, <i>Corthylus</i>	868	<i>sextuberculatus</i> Eggers, <i>Pityophthorus</i>	643
<i>schedli</i> Eggers, <i>Xyleborus</i> , (= <i>ferrugineus</i>)	449	<i>sextuberculatus</i> Schedl, (<i>Gnathotrichus</i>), <i>Gnathotrupes</i> , (= <i>consobrinus</i>)	670
<i>schedli</i> Wood, <i>Cnemonyx</i> , (= <i>errans</i>)	197	<i>sextuberculatus</i> Schedl, <i>Xyleborus</i>	450
<i>schedli</i> Wood, <i>Phloeotribus</i>	124	<i>shannoni</i> (Blackman), (<i>Pityophthorus</i>), <i>Gnatholeptus</i>	619
<i>schedlianus</i> Wood, <i>Araptus</i>	614	<i>shanorum</i> Beeson, (<i>Thamnurgides</i>), <i>Coccotrypes</i> , (= <i>rhizo-</i> <i>phorae</i>)	359
<i>schildi</i> Schedl, <i>Xyleborus</i>	439	<i>signatifrons</i> (Schedl), (<i>Brachyspartus</i>), <i>Corthylocurus</i>	802
<i>schoenbachi</i> Kirsch, <i>Phloeotribus</i>	140	<i>signatus</i> Ferrari, (<i>Corthylus</i>), <i>Monarthrum</i> , (= <i>bicolor</i>)	738
<i>schoenherri</i> Schedl, (<i>Xyleborus</i>), <i>Xyleborinus</i> , (? = <i>gracilis</i>)	475	<i>signatus</i> Strohmeier, <i>Phloeoborus</i>	34
<i>schoenherri</i> Schedl, <i>Dryocopus</i>	88	<i>silvestris</i> Beeson, <i>Xyleborus</i> , (= <i>volvulus</i>)	451
<i>schoenmanni</i> Wood, <i>Scolytodes</i>	297	<i>similaris</i> Wood, <i>Pityophthorus</i>	635
<i>schultzei</i> Schedl, (<i>Xyleborus</i>), <i>Eucallalcea</i> , (= <i>fornicatus</i>)	409	<i>similis</i> Blackman, <i>Cnesinus</i> , (= <i>costulatus</i>)	95
<i>schultzi</i> Wood, <i>Cnesinus</i>	89	<i>similis</i> Eggers, (<i>Loganius</i>), <i>Cnemonyx</i> , (= <i>panamensis</i>)	191
<i>schulzi</i> Wood, <i>Coptoborus</i>	394	<i>similis</i> Eggers, <i>Phloeoborus</i> , (= <i>signatus</i>)	34
<i>schulzi</i> Wood, <i>Corthylus</i>	865	<i>similis</i> (Eggers), (<i>Prionosceles</i>), <i>Scolytodes</i>	299
<i>schwarzi</i> Hopkins, (<i>Cosmoderes</i>), <i>Hypothenemus</i> , (= <i>eruditus</i>)	518	<i>similis</i> Ferrari, <i>Xyleborus</i>	455
<i>schwarzi</i> Hopkins, <i>Xyleborus</i> , (= <i>volvulus</i>)	451	<i>similis</i> Schedl, <i>Gnathotrupes</i> , (= <i>barbifer</i>)	666
<i>scitulus</i> Wood, <i>Tricolus</i>	683	<i>simillimus</i> Schedl, <i>Corthylus</i>	840
<i>Scolyocheilus</i> Reitter, (= <i>Scolytus</i>)	214	<i>simplex</i> Schedl, <i>Hylocurus</i> , (= <i>brasiliensis</i>)	315
<i>Scolytidae</i>	23	<i>simplicidens</i> Wood, <i>Phloeotribus</i>	129
<i>Scolytinae</i> , Subfamily	24, 185	<i>simplicis</i> Wood, <i>Araptus</i>	607
<i>Scolytini</i> , Tribe	25, 185	<i>simplicis</i> Wood, <i>Chramesus</i>	164
<i>Scolytodes</i>	249	<i>simplicis</i> Wood, <i>Corthylus</i>	832
<i>Scolytogenes</i>	486	<i>simplicis</i> Wood, <i>Pityophthorus</i>	635
<i>Scolytopsis</i>	210	<i>simplicis</i> Wood, <i>Corthyloxiphus</i>	794
<i>Scolytus</i>	214	<i>simulans</i> Wood, <i>Microcorthylus</i>	782
<i>scrobiceps</i> (Eichhoff), (<i>Pterocyclon</i>), <i>Monarthrum</i>	734	<i>singularis</i> Wood, <i>Hylocurus</i>	323
<i>sculpturatus</i> (Blandford), (<i>Bothrosternus</i>), <i>Sternobothrus</i>	114	<i>sinopae</i> Schedl, <i>Pityophthorus</i>	649
<i>sechii</i> Nunberg, <i>Dendrocranus</i> , (= <i>costalimai</i>)	350	<i>Sinophloeus</i>	50
<i>semibrunneus</i> Eggers, <i>Pseudochramesus</i> , (= <i>acuteclavatus</i>)	154	<i>sipolisii</i> Fairmaire, <i>Phloeoborus</i> , (= <i>procerus</i>)	36
<i>semicastaneus</i> (Mannerheim), (<i>Bostrichus</i>), <i>Dryocoetes</i> , (= <i>autographus</i>)	355	<i>sobrinus</i> Eichhoff, (<i>Xyleborus</i>), <i>Xyleborinus</i> , (= <i>saxeseni</i>)	473
<i>semicostatus</i> (Schedl), (<i>Xyleborus</i>), <i>Dryocoetoides</i>	382	<i>sobrinus</i> Wood, <i>Periocryphalus</i>	528
<i>semierrnis</i> (Numberg), (<i>Pityophthorus</i>), <i>Gnatholeptus</i>	619	<i>societatis</i> Beeson, <i>Xyleborus</i> , (= <i>affinis</i>)	447
<i>semipalens</i> (Schedl), (<i>Pterocyclon</i>), <i>Monarthrum</i>	747	<i>sodalis</i> Blandford, <i>Phloeotribus</i> , (= <i>setulosus</i>)	145
<i>semipunctata</i> Wood, <i>Scolytodes</i>	285	<i>solericensi</i> Wood, <i>Xylelchinus</i>	60
<i>semipunctatus</i> Eggers, <i>Xyleborus</i>	437	<i>solicitatus</i> Wood, <i>Chramesus</i>	175
<i>semipunctatus</i> Wood, <i>Scolytodes</i> , (= <i>semipunctata</i>)	285	<i>solidus</i> (Schedl), (<i>Blastophagus</i>), <i>Hylurgonotus</i>	63
<i>semisulcatus</i> Wood, <i>Araptus</i>	608	<i>solidus</i> Schedl, <i>Gnathotrupes</i> , (= <i>velatus</i>)	665
<i>semitruncatum</i> Wood, <i>Monarthrum</i>	763	<i>solitariceps</i> Schedl, (<i>Xyleborus</i>), <i>Theoborus</i> , (= <i>ricini</i>)	389
<i>senex</i> Schedl, <i>Tricolus</i>	684	<i>solitariiformis</i> (Schedl), (<i>Xyleborus</i>), <i>Coptoborus</i>	396
<i>setosus</i> (Eichhoff), (<i>Xyleborus</i>), <i>Xyleborinus</i>	476	<i>solitarinus</i> (Schedl), <i>Dryocoetoides</i>	381
<i>setus</i> Wood, (<i>Hoplitophthorus</i>), <i>Cladoctonus</i> , (= <i>interruptus</i>)	151	<i>solitariipennis</i> Schedl, (<i>Xyleborus</i>), <i>Dryocoetoides</i> , (= <i>para-</i> <i>doxus</i>)	381
<i>setus</i> Wood, <i>Micracis</i>	330		
<i>septentrionis</i> (Mannerheim), (<i>Bostrichus</i>), <i>Dryocoetes</i> , (= <i>autographus</i>)	355		
<i>septulosum</i> Wood, <i>Monarthrum</i>	750		

SCOLYTIDAE OF SOUTH AMERICA

<i>solitarius</i> Hagedorn, (<i>Xyleborus</i>), <i>Dryocoetoides</i> , (= <i>cristatus</i>)	384	<i>subaffinis</i> Eggers, <i>Xyleborus</i> , (= <i>affinis</i>)	447
<i>soltaii</i> Hopkins, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>seriatus</i>)	516	<i>subagnatus</i> Eggers, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>javanus</i>)	524
<i>soltaii</i> Hopkins, <i>Xyleborus</i> , (= <i>ferrugineus</i>)	449	<i>subaplanatus</i> Schedl, (<i>Poecilips</i>), <i>Coccotrypes</i> , (= <i>cyperi</i>)	359
<i>sparsepilosa</i> Wood, <i>Scolytodes</i>	287	<i>subcarinatum</i> Wood, <i>Monarthrum</i>	758
<i>sparsepunctatus</i> Schedl, (<i>Neodryocoetes</i>), <i>Araptus</i> , (= <i>amazonicus</i>)	569	<i>subcarinatum</i> Wood, <i>Pycnarthrum</i>	246
<i>sparsipilosus</i> Eggers, <i>Xyleborus</i>	453	<i>subcentralis</i> Hopkins, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>eruditus</i>)	519
<i>spathifer</i> Schedl, (<i>Xylechinus</i>), <i>Sinophloeus</i> , (= <i>porteri</i>)	57	<i>subcentralis</i> Wood, <i>Araptus</i>	597
<i>spathipennis</i> Eichhoff, <i>Xyleborus</i>	439	<i>subcostatulus</i> Wood, <i>Metacorthylus</i>	771
<i>spatulatus</i> Wood, <i>Cryptocarenum</i>	490	<i>subcristata</i> (Eggers), (<i>Hexacolus</i>), <i>Scolytodes</i>	289
<i>Spermatoplex</i> Hopkins, (= <i>Coccotrypes</i>)	356	<i>subcristata</i> (Eggers), (<i>Hexacolus</i>), <i>Scolytodes</i> , (= <i>subcristata</i>)	289
<i>Spermophthorus</i>	622	<i>subcylindricus</i> Eggers, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>eruditus</i>)	519
<i>Sphaerosinus</i> , (= <i>Phrixosoma</i>)	65	<i>subcylindricus</i> Schedl, (<i>Cryphalus</i>), <i>Hypocryphalus</i> , (= <i>mangiferae</i>)	487
<i>spheniscus</i> Schedl, <i>Tricolus</i>	682	<i>subdepressus</i> Rey, (<i>Xyleborus</i>), <i>Xyleborinus</i> , (= <i>saxeseni</i>)	473
<i>Sphenoceros</i> Schedl, (= <i>Araptus</i>)	547	<i>subductum</i> (Schedl), (<i>Pterocyclon</i>), <i>Monarthrum</i>	742
<i>spicatus</i> Wood, <i>Coptoborus</i>	394	<i>subductum</i> Schedl, <i>Xyleborus</i>	430
<i>spiculatus</i> Wood, <i>Araptus</i>	588	<i>subelongatus</i> Hopkins, <i>Hypothenemus</i> , (= <i>pubescens</i>)	512
<i>spinachius</i> (Schedl), <i>Amphicranus</i>	702	<i>submarginatus</i> Wood, <i>Araptus</i>	613
<i>spinatus</i> (Schedl), (<i>Bostrichips</i>), <i>Pseudothysanoes</i>	304	<i>subglabratus</i> Schedl, <i>Hypothenemus</i> , (= <i>arecae</i>)	522
<i>spinidens</i> Schedl, <i>Scolytus</i>	223	<i>subgranulatus</i> Schedl, <i>Hylocurus</i>	316
<i>spinifer</i> Schwarz, <i>Corthylus</i> , (= <i>papulans</i>)	854	<i>subimpressum</i> Wood, <i>Monarthrum</i>	748
<i>spinifex</i> Blandford, <i>Hylocurus</i>	324	<i>subimpressum</i> Eggers, (<i>Dryocoetes</i>), <i>Coccotrypes</i> , (= <i>cyperi</i>)	359
<i>spiniger</i> (Schedl), (<i>Xyleborus</i>), <i>Xyleborinus</i>	475	<i>subincisuralis</i> Schedl, <i>Tricolus</i>	680
<i>spinipennis</i> Eggers, <i>Phloeotribus</i> , (= <i>setulosus</i>)	145	<i>subitus</i> Schedl, <i>Xyleborus</i> , (= <i>ferrugineus</i>)	449
<i>spinipennis</i> Wood, <i>Corthylus</i>	850	<i>submarginatus</i> Blandford, <i>Xyleborus</i> , (= <i>similis</i>)	455
<i>spinulosus</i> Schedl, <i>Xyleborus</i> , (= <i>spinulosus</i>)	425	<i>submarginatus</i> Schedl, <i>Scolytus</i>	234
<i>spinosus</i> Brethes, <i>Chramesus</i>	180	<i>subnitidus</i> Schedl, (<i>Poecilips</i>), <i>Coccotrypes</i> , (= <i>advena</i>)	358
<i>spinosus</i> Hagedorn, <i>Premnobius</i> , (= <i>cavipennis</i>)	368	<i>subopacicollis</i> Hopkins, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>seriatus</i>)	516
<i>Spinuloscolytus</i> Butovitsch, (= <i>Scolytus</i>)	214	<i>subopacus</i> Schedl, <i>Bothrosternus</i>	104
<i>spinulosus</i> Blandford, <i>Xyleborus</i>	425	<i>subopacus</i> Schedl, <i>Microcorthylus</i> , (= <i>glabratus</i>)	785
<i>splendens</i> Wood, <i>Pityophthorus</i>	638	<i>subopacus</i> Wood, <i>Tricolus</i>	681
<i>splendidulus</i> (Schedl), (<i>Neodryocoetes</i>), <i>Araptus</i>	581	<i>subopacus</i> Blandford, <i>Phloeotribus</i>	139
<i>splendidulus</i> Wood, <i>Corthylus</i>	845	<i>subplanatus</i> Eggers, <i>Xyleborus</i>	450
<i>splendius</i> (Schaufuss), (<i>Xyleborus</i>), <i>Taurodemus</i>	462	<i>subproprius</i> (Schedl), (<i>Pterocyclon</i>), <i>Metacorthylus</i>	768
<i>Squamasinus</i> Nunberg (= <i>Xylechinus</i>)	51	<i>subrufus</i> Wood, <i>Tricolus</i>	681
<i>squamatilis</i> Wood, <i>Xylechinus</i>	56	<i>subsimilis</i> (Schedl), (<i>Breviophthorus</i>), <i>Araptus</i>	593
<i>squamifer</i> Wood, <i>Cnesinus</i>	91	<i>subspinosus</i> Eggers, (<i>Xyleborus</i>), <i>Xyleborinus</i> , (= <i>saxeseni</i>)	373
<i>squamiger</i> Schedl, <i>Xylechinus</i>	56	<i>substrigatus</i> Blackman, <i>Cnesinus</i> (= <i>gracilis</i>)	83
<i>squamiger</i> Wood, <i>Phloeotribus</i>	128	<i>subsulcatus</i> (Schedl), (<i>Breviophthorus</i>), <i>Araptus</i>	604
<i>squamiger</i> Chapuis, <i>Camptocerus</i> , (= <i>niger</i>)	206	<i>subsulcatus</i> Schedl, <i>Corthylus</i>	840
<i>squamosus</i> Schedl, (<i>Neoglostatus</i>), <i>Pseudothysanoes</i> , (= <i>abbreviatus</i>)	308	<i>subtilis</i> (Schedl), <i>Coptoborus</i>	395
<i>squamosus</i> Wood, <i>Cnesinus</i>	96	<i>subtriatus</i> Schedl, (<i>Cryphalomorphus</i>), <i>Scolytogenes</i> , (= <i>jalapae</i>)	486
<i>squamulatus</i> Eichhoff, <i>Xyleborus</i>	425	<i>subtruncatus</i> (Schedl), (<i>Pterocyclon</i>), <i>Metacorthylus</i>	767
<i>squamulatus niger</i> Nunberg, <i>Xyleborus</i> , (= <i>squamulatus</i>)	425	<i>subtuberculatus</i> Eggers, <i>Chramesus</i>	178
<i>squamulosus</i> Eggers, (<i>Ernoporus</i>), <i>Acothylus</i> , (= <i>bosqi</i>)	484	<i>subtulum</i> Wood, <i>Styphlosoma</i>	546
<i>Steganocranus</i> Eichhoff, (= <i>Amphicranus</i>)	689	<i>subvestitus</i> Eggers, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>arecae</i>)	522
<i>Stegomerus</i>	480	<i>suggrandis</i> Schedl, <i>Microcorthylus</i>	784
<i>sterculiae</i> Hopkins, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>birmanus</i>)	508	<i>sulcatus</i> Bright, <i>Sampsonius</i>	374
<i>Sternobothrus</i>	106	<i>sulcatus</i> Eggers, <i>Cnesinus</i>	88
<i>stigmatosus</i> (Schedl), (<i>Stephanoderes</i>), <i>Hypothenemus</i>	507	<i>sulcatus</i> Nunberg, (<i>Neodryocoetes</i>), <i>Araptus</i> , (= <i>semisulcatus</i>)	608
<i>Streptocranus</i> Schedl (= <i>Coptoborus</i>)	390	<i>sulcatus</i> Schedl, (<i>Breviophthorus</i>), <i>Araptus</i> , (= <i>cribricollis</i>)	599
<i>striata</i> Atkinson, <i>Trischidias</i>	527	<i>sulcatus</i> Schedl, <i>Xylechinus</i> , (= <i>chiliensis</i>)	54
<i>striata</i> (Eggers), (<i>Sphaerosinus</i>), <i>Phrixosoma</i>	70	<i>sulcifrons</i> Chapuis, <i>Phloeotribus</i>	135
<i>striatopunctatus</i> Lea, (<i>Cryphalus</i>), <i>Hypothenemus</i> , (= <i>eruditus</i>)	518	<i>sulcifrons</i> Eichhoff, <i>Phloeoborus</i>	44
<i>striatulus</i> Hagedorn, <i>Camptocerus</i> , (= <i>niger</i>)	206	<i>sulcipenne</i> (Schedl), (<i>Pterocyclon</i>), <i>Monarthrum</i>	736
<i>striatulus</i> Schedl, <i>Hypothenemus</i> , (= <i>seriatus</i>)	516	<i>sundaensis</i> Eggers, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>fuscicollis</i>)	505
<i>striatus</i> Eggers, <i>Bothrosternus</i> , (= <i>truncatus</i>)	105	<i>surinamensis</i> Schedl, <i>Coccotrypes</i> , (= <i>rutschuruensis</i>)	361
<i>striatus</i> Eggers, <i>Chramesus</i>	170	<i>surinamensis</i> Schedl, <i>Pityophthorus</i>	652
<i>striatus</i> Eggers, <i>Phloeotribus</i> , (= <i>mitidicollis</i>)	132	<i>surinamensis</i> Wood, <i>Monarthrum</i>	762
<i>striatus</i> Eggers, (<i>Phthorophloeus</i>), <i>Phloeotribus</i> , (= <i>rudis</i>)	134	<i>suspectus</i> Wood, <i>Hypothenemus</i>	522
<i>strigilatus</i> Eggers, <i>Corthylus</i> , (= <i>letzneri</i>)	842	<i>suturalis</i> (Eggers), (<i>Bothrosternus</i>), <i>Sternobothrus</i>	111
<i>strigilis</i> Wood, <i>Chramesus</i>	173	<i>suturalis</i> Eggers, <i>Phloeotribus</i>	138
<i>strigipennis</i> Schedl, <i>Scolytus</i> , (= <i>pseudocostellatus</i>)	227	<i>suturalis</i> (Fabricius), (<i>Hylesinus</i>), <i>Camptocerus</i>	204
<i>strohmeyeri</i> Schedl, (<i>Xyleborus</i>), <i>Ambrosiodmus</i> , (= <i>rubricollis</i>)	405		
<i>strumosus</i> Schedl, (<i>Xyleborus</i>), <i>Xylosandrus</i> , (= <i>curtulus</i>)	467		
<i>Stylotentus</i> Schedl, (= <i>Hypothenemus</i>)	497		
<i>Styphlosoma</i>	544		
<i>subaciculatus</i> Wood, <i>Araptus</i>	574		

INDEX

<i>suturalis</i> Eggers, <i>Corthylus</i>	830	<i>trevori</i> Beeson, <i>Coccotrypes</i> , (= <i>carpophagus</i>)	362
<i>suturalis</i> Eggers, <i>Phloeotribus</i>	138	<i>triangularis</i> Wood, <i>Cnesinus</i>	91
<i>suturalis</i> Redtenbacher, (<i>Hylesinus</i>), (= <i>toranio</i>)	30	<i>Triarmocerus</i> Eichhoff, (= <i>Hypothenemus</i>)	497
<i>suturalis</i> Wood, <i>Scolytodes</i>	269	<i>tribulatus</i> Wood, <i>Xyleborus</i>	438
Systematic Section	20	Tricolus	673
<i>taboensis</i> Schedl, (<i>Xyleborus</i>), <i>Ambrosiodmus</i> , (= <i>rubricollis</i>) ..	405	<i>trifasciatus</i> Schedl, (<i>Cosmocorynus</i>), <i>Monarthrum</i> , (= <i>laterale</i>) ..	739
<i>Tachyderes</i> Blackman (= <i>Cryptocarenum</i>)	488	<i>trifolii</i> Muller, (<i>Dermestes</i>), <i>Hylastinus</i> (= <i>obscurus</i>)	29
<i>tamarindi</i> Hopkins, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>seriatus</i>)	516	<i>Trigonogenius</i> Hagedorn, (= <i>Pityophthorus</i>)	624
<i>tanganus</i> Eggers, <i>Coccotrypes</i> , (= <i>dactyliperda</i>)	363	<i>trimaculatus</i> Schedl, (<i>Problechilus</i>), <i>Gymnochilus</i> , (= <i>consocius</i>) ..	248
<i>tanganus</i> Hagedorn, <i>Xyleborus</i> , (= <i>ferrugineus</i>)	449	<i>trinidadensis</i> Schedl, <i>Xyleborus</i> , (= <i>caraibicus</i>)	434
<i>tantillus</i> Lea, (<i>Cryphalus</i>), <i>Hypothenemus</i> , (= <i>eruditus</i>)	518	Trischidias	526
<i>tapatapaoensis</i> Schedl, (<i>Xyleborus</i>), <i>Eucwallacea</i> , (= <i>fornicatus</i>) ..	409	<i>trispinosa</i> Eggers, <i>Scolytodes</i>	274
<i>tardulus</i> Wood, <i>Corthylus</i> , (= <i>punctatus</i>)	844	<i>tritici</i> Hopkins, <i>Hypothenemus</i> , (= <i>californicus</i>)	517
<i>tardus</i> Schedl, <i>Corthylus</i> , (= <i>punctatus</i>)	844	<i>trivialis</i> Wood, <i>Hypothenemus</i>	508
<i>tardus</i> Wood, <i>Scolytodes</i> , (= <i>praeceps</i>)	277	<i>tropicalis</i> Wood, <i>Cryptocarenum</i>	491
<i>taunayi</i> Eggers, (<i>Xylechinus</i>), <i>Xylechinosomus</i> , (= <i>contractus</i>) ..	48	<i>tropicus</i> Eichhoff, <i>Coccotrypes</i> , (= <i>dactyliperda</i>)	363
Taurodemus	459	<i>tropicus</i> Wood, <i>Micracis</i>	331
<i>taxicola</i> Lezhava, <i>Scolytus</i> , (= <i>rugulosus</i>)	221	<i>truncatellus</i> (Schedl), (<i>Xyleborus</i>), <i>Dryocoetoides</i>	380
<i>tayuyaensis</i> Schedl, <i>Dendrocranulus</i>	354	<i>truncatiformis</i> Wood, <i>Corthylus</i>	847
<i>tectonae</i> Stebbing, (<i>Cryphalus</i>), <i>Hypothenemus</i> (= <i>eruditus</i>) ..	518	<i>truncatorum</i> (Schedl), (<i>Amphicranus</i>), <i>Metacorthylus</i>	770
<i>tectus</i> Eggers, <i>Camptocerus</i>	206	<i>truncatus</i> Eichhoff, <i>Bothrosternus</i>	105
<i>tenellus</i> (Schedl), <i>Gnatholeptus</i>	618	<i>truncatus</i> Wood, <i>Corthyloxiphus</i>	791
<i>tenuis</i> Blandford, <i>Amphicranus</i>	699	<i>truncatus</i> Wood, <i>Corthylus</i>	865
<i>tenuis</i> Hopkins, <i>Hypothenemus</i> , (= <i>eruditus</i>)	519	<i>truncatus</i> Wood, <i>Phloeotribus</i>	129
<i>tenuis</i> Schedl, (<i>Xyleborus</i>), <i>Coptoborus</i> (= <i>pseudotenuis</i>)	396	<i>trypanaeoides</i> , Wollaston, (<i>Tomicus</i>), <i>Xyleborus</i> , (= <i>ferrugineus</i>) ..	449
<i>terebella</i> Blandford, <i>Amphicranus</i>	698	<i>Trypanophellos</i> Bright, (= <i>Liparthrum</i>)	183
<i>terebrans</i> Schedl, <i>Pityophthorus</i>	648	<i>Trypocranus</i> Eichhoff, (= <i>Monarthrum</i>)	713
<i>teres</i> Blandford, <i>Cnesinus</i>	80	<i>tsugae</i> Swaine, <i>Xyleborinus</i> , (= <i>saxeseni</i>)	473
<i>teretis</i> Wood, <i>Cnesinus</i>	79	<i>tuberculatum</i> Wood, <i>Monarthrum</i>	747
<i>teretis</i> Wood, <i>Hypothenemus</i>	521	<i>tuberculatus</i> (Chapuis), (<i>Rhopalopleurus</i>), <i>Chramesus</i>	179
<i>terminalis</i> Wood, <i>Monarthrum</i>	764	<i>tuberculatus</i> (Eggers), (<i>Dryotomus</i>), <i>Phloeotribus</i>	125
<i>ternatensis</i> Eggers, (<i>Dendrugus</i>), <i>Coccotrypes</i> , (= <i>advena</i>)	358	<i>tuberculatus</i> (Eggers), (<i>Hylurgus</i>), <i>Hylurgonotus</i>	62
<i>tersus</i> Wood, <i>Phelloterus</i>	621	<i>tuberculatus</i> Bright, (<i>Neodryocoetes</i>), <i>Araptus</i> , (= <i>macer</i>)	596
<i>tetricus</i> Wood, <i>Phloeotribus</i>	139	<i>tuberculatus</i> Eggers, <i>Sternobothrus</i> , (= <i>bicaudatus</i>)	112
<i>texanus</i> Hopkins, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>seriatus</i>) ..	515	<i>tuberculatus</i> Schedl, <i>Cladoctonus</i>	151
<i>Thamnophthorus</i> Schedl, (= <i>Araptus</i>)	547	<i>tuberculifer</i> (Eggers), (<i>Brachyspartus</i>), <i>Corthylocorus</i>	802
<i>Thamnurgides</i> Hopkins, (= <i>Coccotrypes</i>)	356	<i>tuberculifer</i> Wood, <i>Corthylus</i>	849
<i>Thaumaslinulus</i> Reitter, (= <i>Chramesus</i>)	156	<i>tuberculifer</i> Wood, <i>Microcorthylus</i>	777
Theoborus	386	<i>tuberculifer</i> Wood, <i>Xylechinus</i>	55
<i>theobromae</i> Hopkins, <i>Theoborus</i>	388	<i>tuberculiferum</i> Wood, <i>Pycnarthrum</i>	243
<i>theobromae</i> Nunberg, <i>Corthylus</i>	827	<i>tuberculosis</i> Hagedorn, <i>Hypothenemus</i> , (= <i>eruditus</i>)	518
<i>therondi</i> Hoffmann, <i>Scolytus</i> , (= <i>multistriatus</i>)	222	<i>tuberosus</i> Wood, <i>Corthylus</i>	849
<i>thoracicus</i> Chapuis, <i>Scolytus</i>	236	<i>Tubuloscolytus</i> Butovitsch, (= <i>Scolytus</i>)	214
<i>thoracicus</i> Erichson, <i>Amphicranus</i>	711	<i>tucumanensis</i> Wood, <i>Pityophthorus</i>	645
<i>thoracicus</i> Hopkins, <i>Hypothenemus</i> , (= <i>californicus</i>)	517	<i>tucumani</i> Wood, <i>Scolytodes</i>	274
<i>thrinaci</i> Hopkins, <i>Coccotrypes</i> , (= <i>carpophagus</i>)	362	<i>tulcanus</i> Hagedorn, <i>Corthylus</i>	839
<i>thunisi</i> Wood, <i>Amphicranus</i>	706	<i>tumidulus</i> Blandford, <i>Chramesus</i> , (= <i>pumilus</i>)	166
<i>Thylurcos</i> Schedl, (= <i>Brachyspartus</i>)	796	<i>tumucensis</i> Hagedorn, <i>Xyleborus</i>	445
<i>tigrensis</i> Schedl, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>eruditus</i>) ..	519	<i>turbiculus</i> Schedl, <i>Pityophthorus</i>	644
<i>toba</i> Wichmann, <i>Scolytopsis</i>	213	<i>turbinatum</i> Schedl, (<i>Pterocyclon</i>), <i>Monarthrum</i> , (= <i>fimbri-</i> <i>ticorne</i>)	740
<i>tolimana</i> (Schedl), (<i>Prionosceles</i>), <i>Scolytodes</i>	295	<i>tutuilensis</i> Beeson, (<i>Thamnurgides</i>), <i>Coccotrypes</i> , (= <i>advena</i>) ..	358
<i>tolimanus</i> (Eggers), (<i>Xyleborus</i>), <i>Coptoborus</i>	399	<i>ulmi</i> Redtenbacher, <i>Scolytus</i> , (= <i>multistriatus</i>)	222
<i>tolimanus</i> (Schedl), (<i>Prionosceles</i>), <i>Scolytodes</i> , (<i>tolimana</i>)	295	umbraticus (Schedl), (<i>Neodryocoetes</i>), <i>Araptus</i>	613
<i>tomentosus</i> Schedl, <i>Corthylus</i> , (= <i>papulans</i>)	854	<i>umbratus</i> Wood, <i>Microcorthylus</i>	786
<i>Tomicini</i> , Tribe	25, 45	<i>uncatus</i> Schedl, <i>Xyleborus</i>	443
Tomicus	64	<i>uncinatus</i> (Eichhoff), (<i>Xylocleptes</i>), <i>Dendrocranulus</i>	354
<i>tonsus</i> Eggers, <i>Hypothenemus</i> , (= <i>seriatus</i>)	516	<i>uncinatus</i> Wood, (<i>Mimips</i>), <i>Acanthotomicus</i> , (= <i>granulatus</i>)	339
<i>tonsus</i> (Hagedorn), (<i>Dryocoetes</i>), <i>Xyleborus</i>	424	<i>undulatus</i> Wood, <i>Tricolus</i>	689
<i>toranio</i> (Danathione), (<i>Byrrhus</i>), <i>Hylesinus</i>	30	<i>unicolor</i> Hopkins, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>eruditus</i>) ..	519
<i>torquatus</i> Eichhoff, <i>Xyleborus</i> , (= <i>volculus</i>)	451	<i>unidentatus</i> Fabricius, (<i>Bostrichus</i>), <i>Taurodemus</i> , (= <i>varians</i>) ..	461
<i>torulus</i> Wood, <i>Scolytus</i>	232	unimodus (Schedl), (<i>Cryptocleptes</i>), <i>Pseudothysanoes</i>	306
<i>toxicodendri</i> Hopkins, (<i>Hypothenemus</i>), <i>Trischidias</i> , (= <i>atoma</i>) ..	527	<i>unipunctata</i> (Blandford), (<i>Hexaculus</i>), <i>Scolytodes</i>	276
<i>transatlanticus</i> Eggers, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>plumeriae</i>)	521	<i>unipunctatus</i> (Blandford), (<i>Hexaculus</i>), <i>Scolytodes</i> . (= <i>unipunctata</i>)	276
<i>transitus</i> (Schedl), (<i>Cnesinus</i>), <i>Sternobothrus</i>	111	<i>uniseriatum</i> Schedl, <i>Pycnarthrum</i>	245
<i>transversalis</i> Eggers, <i>Scolytus</i>	236	<i>uniseriatus</i> Eggers, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>crudiae</i>)	513
<i>transversum</i> Blandford, <i>Pycnarthrum</i> , (= <i>hispidum</i>)	242	uniseriatus Eggers, <i>Phloeotribus</i>	138
<i>transversus</i> Chapuis, <i>Phloeotribus</i>	144		
<i>transversus</i> Eichhoff, <i>Corthylus</i>	850		

SCOLYTIDAE OF SOUTH AMERICA

<i>uniseriatus</i> Schedl, <i>Camptocerus</i> , (= <i>major</i>)	210	<i>vicinus</i> (Eggers), (<i>Prionosceles</i>) <i>Scolytodes</i> , (= <i>vicina</i>)	298
<i>urichi</i> Sampson, (<i>Xyleborus</i>), <i>Dryocoetoides</i> , (= <i>cristatus</i>)	384	<i>vicinus</i> Eichhoff, <i>Xyleborus</i>	459
<i>uruguayensis</i> Wood, <i>Araptus</i>	574	<i>vicinus</i> (Schedl), (<i>Pterocyclon</i>), <i>Metacorthylus</i>	768
<i>usticus</i> Wood, <i>Corthyloxiphus</i>	793	<i>victoris</i> (Mulsant & Rey), (<i>Bostrichus</i>), <i>Dryocoetes</i> , (= <i>auto-</i> <i>graphus</i>)	355
<i>usticus</i> Wood, <i>Xyleborus</i> , (= <i>discretus</i>)	437	<i>vietus</i> Wood, <i>Microcorthylus</i>	777
<i>ustus</i> (Schedl), (<i>Corthyicyclon</i>), <i>Corthylus</i>	826	<i>villifrons</i> Wood, <i>Hylocurus</i>	323
<i>usurpatus</i> Wood, <i>Sampsonius</i>	372	<i>villosulus</i> (Blandford), (<i>Xyleborus</i>), <i>Theoborus</i>	389
<i>uter</i> Eggers, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>birmanus</i>)	508	<i>villosus</i> Eggers, <i>Corthylus</i>	831
<i>vafer</i> Blandford, <i>Hypothenemus</i> , (= <i>arecae</i>)	522	<i>villosus</i> (Herbst), (<i>Bostrichus</i>), <i>Dryocoetes</i> , (= <i>autographus</i>)	355
<i>vafer</i> (Schedl), (<i>Gnathotrichus</i>), <i>Gnathotrupes</i>	669	<i>villosus</i> Schedl, (<i>Xyleborus</i>), <i>Theoborus</i> , (= <i>villosulus</i>)	389
<i>vagabundus</i> Blandford, <i>Hylocurus</i>	314	<i>vinealis</i> Wood, <i>Chramesus</i>	169
<i>vagabundus</i> Schedl, (<i>Cosmocorynus</i>), <i>Monarthrum</i> , (= <i>scrobiceps</i>)	735	<i>virentis</i> Hopkins, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>seriatus</i>)	516
<i>valdivianus</i> (Eggers), <i>Xylechinosomus</i>	48	<i>viriosa</i> Wood, <i>Phrixosoma</i>	68
<i>validus</i> Blandford, <i>Hypothenemus</i> , (= <i>erectus</i>)	507	<i>virolae</i> Wood, <i>Araptus</i>	593
<i>validus</i> (Eichhoff), (<i>Xyleborus</i>), <i>Eucallalcea</i>	409	<i>virolae</i> Wood, <i>Hypothenemus</i>	509
<i>validus valens</i> Sampson, <i>Hypothenemus</i> , (= <i>birmanus</i>)	508	<i>virolavorus</i> Wood, <i>Araptus</i>	601
<i>validum</i> (Ferrari), (<i>Corthylus</i>), <i>Monarthrum</i>	729	<i>virtus</i> (Schedl), (<i>Pityophthorus</i>), <i>Araptus</i>	584
<i>varia</i> Wood, <i>Scolytodes</i>	296	<i>vismiacolens</i> Wood, <i>Cnemonyx</i>	196
<i>variabilis</i> Schedl, <i>Xyleborus</i> , (= <i>caraibicus</i>)	434	<i>vismiae</i> Wood, <i>Xyleborus</i>	443
<i>varians</i> (Fabricius), (<i>Bostrichus</i>), <i>Taurodemus</i>	461	<i>vitosus</i> Schedl, <i>Xyleborus</i>	436
<i>variegatus</i> (Chapuis), (<i>Phloeosinus</i>), <i>Xylechinus</i>	59	<i>vittatus</i> Schedl, <i>Xylechinus</i>	58
<i>variegatus</i> Eggers, <i>Chramesus</i>	162	<i>vittifrons</i> Blandford, <i>Dendrosinus</i>	148
<i>varius</i> Wood, <i>Araptus</i>	581	<i>vitulus</i> Wood, <i>Micracis</i>	330
<i>varius</i> Wood, <i>Scolytodes</i> , (= <i>varia</i>)	296	<i>vochysiae</i> Wood, <i>Corthylus</i>	847
<i>varulus</i> (Wood), (<i>Xyleborus</i>), <i>Taurodemus</i>	462	<i>volastos</i> (Schedl), (<i>Thamnophthorus</i>), <i>Araptus</i>	585
<i>velatus</i> Schedl, <i>Gnathotrupes</i>	665	<i>volutus</i> Wood, <i>Xyleborus</i>	452
<i>velutinus</i> Wood, <i>Dryocoetoides</i>	384	<i>volulus</i> (Eichhoff), (<i>Pterocyclon</i>), <i>Metacorthylus</i>	770
<i>velutinus</i> (Wood), (<i>Paracorthylus</i>), <i>Metacorthylus</i>	767	<i>volulus</i> (Fabricius), (<i>Bostrichus</i>), <i>Xyleborus</i>	451
<i>venezuelensis</i> (Schedl), (<i>Phloeophthorus</i>), <i>Phloeotribus</i>	127	<i>vulgaris</i> Schauffuss, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>seriatus</i>)	515
<i>venezuelensis</i> Schedl, <i>Pityophthorus</i>	639	<i>webbi</i> Hopkins, <i>Hypothenemus</i> , (= <i>eruditus</i>)	519
<i>venezuelensis</i> Wood, <i>Scolytus</i>	231	<i>whitfordiendrus</i> Schedl, (<i>Xyleborus</i>), <i>Eucallalcea</i> , (= <i>fornicatus</i>)	409
<i>venustus</i> (Schedl), (<i>Thylurcos</i>), <i>Corthylus</i>	835	<i>willei</i> Schedl, <i>Phloeotribus</i>	142
<i>veritus</i> Wood, <i>Araptus</i>	597	<i>willei</i> Wood, <i>Corthyloxiphus</i>	791
<i>vernaculum</i> Schedl, (<i>Pterocyclon</i>), <i>Monarthrum</i> , (= <i>minutum</i>)	754	<i>willei</i> Wood, <i>Phloeoborus</i>	35
<i>vernaculus</i> (Schedl), (<i>Brachyspartus</i>), <i>Corthylocurus</i>	801	<i>woytkowskii</i> Wood, <i>Amphicranus</i>	708
<i>verrucosus</i> Wood, <i>Hylocurus</i>	319	<i>woytkowskii</i> Wood, <i>Hylocurus</i>	324
<i>verrucosus</i> Wood, (<i>Xyleborus</i>), <i>Dryocoetoides</i>	383	<i>woytkowskii</i> Wood, <i>Phloeotribus</i>	126
<i>versutus</i> Wood, <i>Dryocoetoides</i>	379	<i>Xenophthorus</i> Wood & Yin (= <i>Pseudopityophthorus</i>)	624
<i>vescula</i> Wood, <i>Scolytodes</i>	287	<i>Xyleborini</i> , Tribe	26, 364
<i>vesculus</i> Wood, <i>Phloeotribus</i>	131	<i>Xyleborinus</i>	470
<i>vesculus</i> Wood, <i>Scolytodes</i> , (= <i>vescula</i>)	287	<i>Xyleboripis</i> Reitter, (= <i>Monarthrum</i>)	713
<i>vescus</i> Wood, <i>Pityophthorus</i>	654	<i>Xyleborus</i>	410
<i>vespatorius</i> (Schedl), (<i>Xyleborus</i>), <i>Coptoborus</i>	393	<i>Xylechinops</i> Browne (= <i>Xylechinus</i>)	51
<i>vestitus</i> Eggers, <i>Cnesinus</i>	92	<i>Xylechinosomus</i>	46
<i>vestitus</i> (Eggers), (<i>Loganius</i>), <i>Cnemonyx</i>	190	<i>Xylechinus</i>	51
<i>vestitus</i> Eggers, <i>Phloeotribus</i>	137	<i>xylocranellus</i> (Schedl), (<i>Xyleborus</i>), <i>Premnobius</i> , (= <i>cavipennis</i>)	367
<i>vestitus</i> (Eggers), (<i>Problechilus</i>), <i>Gymnochilus</i>	248	<i>Xylocryptus</i> Schedl, (= <i>Scolytogenes</i>)	486
<i>vexans</i> (Schedl), (<i>Xyleborus</i>), <i>Dryocoetoides</i>	383	<i>Xylosandrus</i>	464
<i>vexator</i> (Schedl), (<i>Cnesinus</i>), <i>Sternobothrus</i>	109	<i>xylotrupes</i> (Eichhoff), (<i>Pityophthorus</i>), <i>Araptus</i>	585
<i>vianai</i> Schedl, <i>Cnemonyx</i> , (= <i>flavicornis</i>)	190	<i>zeae</i> Eggers, <i>Pagiocerus</i> , (= <i>frontalis</i>)	99
<i>vianai</i> Schedl, (<i>Conophthocranulus</i>), <i>Spermophthorus</i> , (= <i>apuliae</i>)	622	<i>zeae</i> Schedl, (<i>Stephanoderes</i>), <i>Hypothenemus</i> , (= <i>californicus</i>)	517
<i>vianai</i> Schedl, <i>Hylocurus</i>	314	<i>zimmermanni</i> Hopkins, (<i>Anisandrus</i>), <i>Xylosandrus</i> , (= <i>curtulus</i>)	467
<i>vianai</i> Schedl, <i>Hypothenemus</i> , (= <i>eruditus</i>)	519	<i>zonatus</i> Eichhoff, <i>Gymnochilus</i>	248
<i>vianai</i> Schedl, <i>Pseudochramesus</i>	155	<i>zulmae</i> Wood, <i>Corthylus</i>	842
<i>vicarius</i> Beeson, (<i>Thamnurgides</i>), <i>Coccotrypes</i> , (= <i>advena</i>)	358		
<i>vicarius</i> Eichhoff, <i>Xyleborus</i> , (= <i>pfeili</i>)	453		
<i>vicina</i> (Eggers), (<i>Prionosceles</i>), <i>Scolytodes</i>	298		