

NOTES ON BIOLOGY AND DISTRIBUTION OF MEXICAN
AND CENTRAL AMERICAN SCOLYTIDAE (COLEOPTERA).
I. HYLESININAE, SCOLYTINAE EXCEPT
CRYPHALINI AND CORTHYLINI

THOMAS H. ATKINSON AND ARMANDO EQUIHUA MARTÍNEZ

Centro de Entomología y Acarología, Colegio de Postgraduados,
Chapingo 56230, México, México

ABSTRACT

New biological and/or geographical distribution data (principally in Mexico) are given for 115 species of Scolytidae in the following genera: *Hylurgops*, *Hylastes*, *Pseudohylesinus*, *Dendroctonus*, *Cnesinus*, *Pagiocerus*, *Phloeotribus*, *Phloeosinus*, *Chramesus*, *Chaetophloeus*, *Liparthrum*, *Cnemonyx*, *Scolytopsis*, *Scolytus*, *Pycnarthrum*, *Gymnochilus*, *Scolytodes*, *Pseudothysanoes*, *Thysanoes*, *Phloeocleptus*, *Micracis*, *Micracisella*, *Hylocurus*, *Cactopinus*, *Ips*, *Dendrocranulus*, *Coccotrypes*, *Premnobius*, *Dryocoetoides*, *Xylosandrus*, *Theoborus*, and *Xyleborus*.

For the past several years we have been collecting bark and ambrosia beetles extensively from a wide variety of habitats, mostly in Central Mexico. While most of this effort has been directed towards local faunistic and ecological studies in selected areas, which will be published separately, a large number of collection records have been obtained that are of interest to students of the group due to range extensions, new host associations, or observations on the biology and ecology of these species. Due to the large number of records and species involved, the tribes Cryphilini and Corthylini (Scolytinae) will be treated in a later publication. New host plants and state or country distribution records are indicated. New host plants of polyphagous species in the tribe Xyleborini are not specifically indicated nor are species of *Pinus* for pine-inhabiting species. Observations are grouped by country, state, and locality; these data are not repeated in subsequent records; records are separated by semicolons. Abbreviations of Mexican state names are those in common use in Mexico (CHIH = Chihuahua, CHIS = Chiapas, COAH = Coahuila, DGO = Durango, GRO = Guerrero, GTO = Guanajuato, HGO = Hidalgo, JAL = Jalisco, MEX = México, MICH = Michoacán, NAY = Nayarit, NL = Nuevo León, OAX = Oaxaca, PUE = Puebla, QRO = Querétaro, QR = Quintana Roo, TAB = Tabasco, TAMPS = Tamaulipas, TLAX = Tlaxcala, VER = Veracruz). Collection numbers are listed where given with a letter prefix (S = Scolytidae, Colegio de Postgraduados; UACHB = Depto. de Bosques, Universidad Autónoma Chapingo; SM = Scolytidae of Morelos, Universidad Autónoma del Estado de Morelos; AB = Armando Burgos S.). Detailed collection data are filed on cards in the UACHB or in notebooks in the insect collection of the Colegio de Postgraduados (all other prefixes). The names of the authors (THA, AEM) are abbreviated when given as collectors. All material cited is deposited in the insect collection of the Centro de Entomología y Acarología, Colegio de Postgraduados.

SUBFAMILY HYLESININAE

Tribe Hylastini

Hylurgops incomptus (Blandford). MEXICO: **CHIH**: Area experimental INIF, Cd. Madera, 24-VIII-80, 2,360 m, *Pinus arizonica*, J. Castro C.; **MICH** (new state): Carr. Patzcuaro-Ario de Rosales, Km 34, 31-X-80, 2,340 m, S-135, **THA & AEM**; **MEX**: Carr. Toluca-Morelia, Km 49 (near Villa Victoria), 30-X-80, 2,520 m, *P. montezumae*, S-124, **THA & AEM**; **HGO**: Zacualtipan, 16-X-81, 1,800 m, *P. patula*, S-177, **AEM**. GUATEMALA: Momostenango, 11-VII-80, 2,800 m, *P. pseudostrobus*, F. Jeronimo M.; 14-VII-80, 2,900 m, *Pinus* sp., F. Jeronimo M.; Tonicapán, 26-VII-80, 2,700 m, *P. pseudostrobus*, F. Jeronimo M.; Sibilia, 4-VII-80, 2,800 m, *P. rudis*, F. Jeronimo M.; Cajolás, 5-VII-80, 2,550 m, *P. rudis*, F. Jeronimo M. Wood (1982) listed the locality, Mesa del Huracán, from the state of Chiapas because the state abbreviation on the label was given as "Chs." The locality is actually in the state of Chihuahua.

Hylurgops planirostris (Chapuis). MEXICO: **MICH**: Carr. Patzcuaro-Ario de Rosales, Km 32, 31-X-81, 2,360 m, *Pinus leiophylla*, S-131, **THA & AEM**; Carr. Patzcuaro-Ario de Rosales, Km 34, 31-X-81, 2,340 m, *P. montezumae*, S-135, **THA & AEM**; **MEX**: Carr. Toluca-Morelia, Km 54 (near Villa Victoria), 30-X-81, 2,520 m, *P. montezumae*, S-124, **THA & AEM**; **HGO**: Zacualtipan, VII-80, 1,900 m, *P. patula*, M. E. Guerrero & C. Pineda; **VER**: Cofre de Perote, 7-VI-83, 2,950 m, *Pinus* sp., S-890, **THA & AEM**; 5 km W of Acajete, 7-VI-83, 2,150 m, *P. patula*, S-891, **THA & AEM**; **CHIS**: San Cristobal de las Casas, 26-IX-61, H. Bravo M.; 7-VIII-65, A. Ortiz. GUATEMALA: Chiantla, 10-VII-80, 3,160 m, *P. rudis*, F. Jeronimo M.; Momostenango, 28-VIII-80, 2,450 m, *P. pseudostrobus*, F. Jeronimo M.

Hylurgops longipennis (Blandford). MEXICO: **HGO** (new state): Zacualtipan, 17-IX-80, 1,800 m, *Pinus patula*, S-177, **AEM**; 16-X-80, 1,800 m, *P. patula*, **THA**; **PUE** (new state): San Juan Tetla, 27-I-82, 3,390 m, J. Morales O. This species was previously known only from the Valley of Mexico; it is apparently much more widespread in its distribution.

Hylurgops subcostulatus alternans (Chapuis). MEXICO: **VER** (new state): Cofre de Perote, 6-VI-83, 2,950 m, *Pinus* sp., S-889, **THA & AEM**; **CHIS**: San Cristobal de las Casas, 16-IV-84, 2,740 m, *Pinus* sp., SM-257, E. Saucedo C.

Hylastes fulgidus Blackman. MEXICO: **CHIH**: Area semillera Madera (near Cd. Madera), 24-VII-80, 2,360 m, *Pinus arizonica*, J. Castro C.; **MICH**: No-cuaro, 9-VII-73, *Pinus* sp., UACHB-120, D. Cibrian T.; Ario de Rosales, 31-X-80, 1,640 m, *P. pseudostrobus*, S-139, **THA & AEM**.

Hylastes flohri (Eggers). MEXICO: **MEX**: Carr. Toluca-Morelia, Km 54, 30-X-80, 2,520 m, *Pinus montezumae*, S-124, **THA & AEM**; **HGO**: Zacualtipan, 16-X-80, 1,800 m, *P. patula*, S-177, **AEM**.

Hylastes mexicanus Wood. MEXICO: **MICH** (new state): Carr. Patzcuaro-Ario de Rosales, Km 34, 31-X-80, 2,340 m, *Pinus montezumae*, S-135, **THA & AEM**.

Hylastes niger Wood. MEXICO: **HGO**: Zacualtipan, 16-X-80, 1,800 m, *Pinus patula*, S-177, **AEM**.

Hylastes gracilis LeConte. MEXICO: **HGO**: Zacualtipan, 16-X-80, 1,800 m, *Pinus patula*, S-177, **AEM**; 17-IX-80, 1,800 m, *P. patula*, M. E. Guerrero & C. Pineda.

Tribe Tomicini

Pseudohylesinus variegatus (Blandford). MEXICO: **MEX**: Mexicapa, 6-IV-83, *Abies religiosa*, J. Morales O.; **VER** (new state): Cofre de Perote, 8-VI-83, 3,380 m, *A. religiosa*, S-897, THA & AEM.

Dendroctonus vitei Wood. MEXICO (new country): **CHIS**: San Cristobal de las Casas, 12-VIII-80, *Pinus michoacana*, UACHB-577, D. Cibrian T. This identification was verified by S. L. Wood.

Dendroctonus mexicanus Hopkins. MEXICO: **MICH**: Zacan, 20-II-80, 2,600 m, *Pinus leiophylla*, S-32, THA; **MEX**: Carr. Toluca-Morelia, Km 54, 30-X-80, 2,520 m, *P. montezumae*, S-124, THA & AEM; Villa del Carbon, 7-I-82, 2,490 m, *P. teocote*, S-259, THA & AEM; **HGO**: Zacualtipan, 16-X-80, 1,800 m, *P. patula*, S-177, AEM; **PUE**: Puebla, 17-I-80, 2,200 m, *P. leiophylla*, S-9, THA; Atlixco, 14-VII-63, F. Pacheco M.; **VER**: El Palmar, 13-VI-63, F. Pacheco M.; **GRO**: Teloloapan, 12-VIII-57; **OAX** (new state): Teojomulco, 27-IX-75, *P. pseudostrobus*, B. Silva T.; **CHIS**: San Cristobal de las Casas, 12-VIII-80, *P. michoacana*, UACHB-577, D. Cibrian T.; Altamirano, 12-VIII-80, *P. oocarpa*, UACHB-579, D. Cibrian T.

Dendroctonus approximatus Dietz. MEXICO: **COAH** (new state): La Siberia (near Arteaga), III-81, *Pinus hartwegii*, D. Flores F.

Dendroctonus adjunctus Blandford. MEXICO: **COAH** (new state): La Siberia (near Arteaga), III-81, *Pinus hartwegii*, D. Flores F.; **VER** (new state): Cofre de Perote, 8-VI-83, 3,650 m, *P. hartwegii*, S-895, THA & AEM. GUATEMALA: Totonicapan, 13-V-77, M. Dix; 9-VI-77, *P. rudis*, M. Dix; 26-VII-80, *P. pseudostrobus*, F. Jeronimo M.; 13-VII-80, 2,850 m, *P. rudis*, F. Jeronimo M.; 19-VII-80, 2,900 m, *P. ayacahuite*, E. Franco; 24-VII-80, 2,600 m, *Pinus* sp., F. Jeronimo M.; Momostenango, 28-VII-80, 2,450 m, *P. pseudostrobus*, E. Franco; 17-VII-80, 2,445 m, *P. pseudostrobus*, F. Jeronimo; Sibilia, 4-VII-80, 2,850 m, *P. rudis*, E. Franco; 7-IV-80, 2,800 m, *P. rudis*, F. Jeronimo M.; Cajolas, 5-VII-80, 2,550 m, *P. rudis*, F. Jeronimo M.; Chiantla, 10-VII-80, 3,160 m, *P. rudis*, F. Jeronimo M.

Dendroctonus parallellocollis Chapuis. MEXICO: **MICH**: Carr. Patzcuaro-Ario de Rosales, Km 32, 31-X-80, 2,340 m, *Pinus montezumae*, S-135, THA & AEM; **MEX**: Carr. Toluca-Morelia, Km 54, 30-X-80, 2,520 m, *P. montezumae*, S-124, THA & AEM.

Dendroctonus valens LeConte. MEXICO: **CHIH**: Area Experimental INIF, Cd. Madera, 24-VII-80, 2,360 m, *Pinus arizonica*, J. Castro C.; **MICH**: Carr. Patzcuaro-Ario de Rosales, Km 32, 31-X-80, 2,340 m, *P. montezumae*, S-135, THA & AEM; Cd. Hidalgo, 1-VIII-61, *Pinus* sp.; **TLAX**: Tlaxco, 10-VII-61; **PUE**: San Nicolas Romero, 16-XII-61, W. E. Rose; Atlixco, 17-VII-63; Manzanillo, 20-VIII-64; Puebla, 17-I-80, 2,200 m, *P. leiophylla*, S-9, THA; **VER**: Cofre de Perote, 8-VI-83, 3,650 m, *P. hartwegii*, S-895, THA & AEM; Las Vigas, 9-VI-83, 2,400 m, *P. patula*, S-900, THA & AEM. GUATEMALA: Totonicapan, 26-VII-80, 2,700 m, *P. pseudostrobus*, F. Jeronimo M.; Tecpan, 27-VII-80, 2,800 m, *P. filifolia*, F. Jeronimo M.

Dendroctonus rhizophagus Thomas & Bright. MEXICO: **GRO** (new state): Chilapa, 23-II-82, 2,040 m, *Pinus oocarpa*, S-331, THA, AEM, M. M. Furniss, & S. L. Wood.

Tribe Bothrosternini

Cnesinus electinus Wood. MEXICO: **JAL** (new state): El Tuito, 28-V-82, 640 m, Lauraceae, S-706, THA & AEM. **GRO** (new state): Santa Teresa Pilcaya,

21-II-82, 1,130 m, *Persea americana* (new host), S-324, THA & AEM; Palo Blanco (near Chilpancingo), 22-II-82, 1,200 m, *P. americana*, S-329, THA & AEM.

Cnesinus myelitis Wood. MEXICO: PUE: Zacapoaxtla, 6-V-81, 1,600 m, *Persea americana* (new host), S-228, THA & AEM.

Cnesinus garrulus Schedl. MEXICO: PUE (new state): Tepexco, 1-X-82, 1,200 m, cucurbit vine, AB-66, A. Burgos S.

Cnesinus costulatus Blandford. MEXICO: PUE (new state): Zacapoaxtla, 6-V-81, 1,600 m, *Persea americana* (new host), S-228, THA & AEM.

Cnesinus prominulus Wood. MEXICO: GRO (new state): Chilapa, 23-II-82, 1,800 m, *Senecio* sp. (new host), S-572, A. Burgos S.

Cnesinus carinatus Wood. MEXICO: MEX (new state): Mexicapa, 13-II-82, 2,325 m, Compositae, S-314, AEM.

Cnesinus setulosus Blandford. MEXICO: JAL: Puerto Vallarta, 6-III-82, 10 m, S-386 and S-387, AEM; GRO (new state): Chilapa, 23-II-82, 1,640 m, *Ardisia revoluta* (new host), S-345, THA & AEM.

Pagiocerus frontalis (Fabricius). MEXICO: MEX: Malinalco, 20-XII-56, H. Moreno; PUE: Atlixco, 24-X-80, seed of *Persea americana*, S-116, N. Bautista M.; Tianguismanalco, 19-I-83, 2,150 m, seed of *P. americana*, S-850, THA; GRO (new state): Chilpancingo, 12-XII-58, J. Rivera.

Tribe Phloeotribini

Phloeotribus pruni Wood. MEXICO: MEX: Villa del Carbon, 7-I-82, 2,540 m, *Prunus serotina*, S-297, THA & AEM; PUE (new state): Carr. Zacapoaxtla-Cuetzalan, 5-V-81, 1,600 m, *Prunus persica*, S-225, THA & AEM; Tianguismanalco, 19-I-83, *P. persica*, S-849, THA; VER (new state): Landero y Coss, 20-VII-83, 1,870 m, S-927, *P. serotina*, THA & AEM; GRO (new state): Chilapa, 23-II-82, 1,800 m, *P. serotina*, S-340, THA & AEM.

Phloeotribus destructor Wood. MEXICO: GRO (new state): Chilapa, 23-II-82, 1,800 m, *Prunus serotina*, S-297, THA & AEM; Barranca de Mayuca, 11-VI-57, Oliva A.

Phloeotribus perniciosus Wood. MEXICO: MICH: Carr. Patzcuaro-Ario de Rosales, 31-X-80, 2,240 m, *Prunus serotina*, S-137, THA & AEM. The type series of this species was collected from a partially broken off branch (1-3 cm diam.) of a live tree. The species is monosynous and constructs biramous horizontal galleries typical of the genus. Young adults move about freely and feed on remnants of phloem under the bark prior to emergence.

Phloeotribus demessus Blandford. MEXICO: JAL (new state): El Tuito, 28-V-82, 640 m, *Croton draco* (new host), S-709, THA & AEM. Collected in trunk of felled tree in diameters ranging from 10-40 cm. Galleries are typically biramous and horizontal. As in the case of the previous species, young adults move about freely and feed prior to emergence.

Phloeotribus furvus Wood. MEXICO (new country): VER: El Bastonal, 5-VII-80, 800 m, R. M. Murillo.

Tribe Phloeosinini

Phloeosinus deleoni Blackman. MEXICO: MICH: Cd. Hidalgo, 30-X-80, 1,900 m, *Juniperus flaccida*, S-127, THA & AEM; HGO: Cardonal, 27-III-81, 2,250 m, *J. flaccida*, S-204, THA & AEM.

Phloeosinus serratus (LeConte). MEXICO: CHIH: Chorro del Agua, 26-XI-77, *Cupressus* sp., UACHB-446, D. Cibrian T. This species attacks species of *Juniperus*; the host on the label is probably an error.

Phloeosinus cristatus (LeConte). MEXICO: **DGO** (new state): Los Altos, 7-XI-73, *Cupressus lindleyi* (new host), UACHB-168.

Phloeosinus tacubayae Hopkins. MEXICO: **MICH** (new state): Uruapan, 19-II-80, 1,800 m, *Cupressus lindleyi*, S-33, THA. GUATEMALA: San Miguel Dueñas, 11-IX-77, *Cupressus* sp. R. López.

Chramesus exilis Wood. MEXICO: **JAL**: El Tuito, 28-V-82, 640 m, *Smilax* sp., S-707, THA & AEM. This species makes biramous galleries in the fibrous outer layers of stems of its host plant, a woody vine. The 2 branches are inclined obliquely upwards and spiral around the stem in opposite directions and are similar to those of *Chramesus annectans*. The type series was collected in stems ranging in diameter from 1–2 cm.

Chramesus annectans (Wood). MEXICO: **PUE** (new state): San Luis Atotitlan, 27-VI-82, inflorescence of *Agave lechugilla*, S-753, AEM.

Chramesus subopacus Schaeffer. MEXICO: **VER** (new state): Moro de la Mancha, 19-VII-83, sea level, S-921, THA & AEM.

Chramesus atkinsoni Wood. MEXICO: **NL**: Cerro Chipinque, 30-I-80, 1,350 m, *Carya* sp., S-21, THA. The type series of this species was collected in small, broken branches (1–2 cm diam.) of an uncultivated hickory in oak-pine forest. The type series reported by Wood (1981) was inadvertently labeled with *Persea* sp. as host. The gallery is uniramous and longitudinal.

Tribe Hypoborini

Chaetophloeus lasius Wood. MEXICO: **GRO** (new state): Cuauhtenango (near Chilapa), 23-II-82, 1,640 m, *Rhus* sp., S-342, THA & AEM. This species was collected in broken branches of its host ranging from 1–3 cm diam. As is typical for the genus a large nuptial chamber or central "cave" is excavated with 2 or 3 very short egg galleries in which the eggs are very tightly packed. This species is apparently capable of completing more than one generation in the same host material since infested branches held in the laboratory for several months after collection showed recently established, apparently thriving attacks by beetles which had emerged.

Chaetophloeus sulcatus Wood. MEXICO: **HGO**: El Cardonal, 27-III-81, 2,250 m, *Flourenzia resinosa* (new host), S-209, THA & AEM. Collected from thicker stems (3 cm diam.) of a small desert composite shrub.

Chaetophloeus minimus Wood. MEXICO: **JAL**: El Tuito, 28-V-82, 1,050 m, *Clethra* sp. (new host), S-705, THA & AEM.

Chaetophloeus penicillatus (Bruck). MEXICO: **HGO** (new state): 27-III-81, 2,250 m, *Rhus* sp., S-207, THA & AEM.

Liparthrum pruni Wood. MEXICO: **MICH**: Aranza, 10-VII-82, *Prunus serotina*, S-756, AEM.

Liparthrum mexicanus Wood. MEXICO: **JAL**: El Tuito, 28-V-82, 640 m, S-720, THA & AEM. Galleries were small "cave" type excavations in the bark of the host (suspected to be a species of *Ficus*) with egg niches cut into the margins of the chamber. Judging from larval mines several eggs are placed in each niche.

SUBFAMILY SCOLYTINAE

Tribe Scolytini

Cnemonyx liratus Wood. MEXICO: **GRO** (new state): San Juan Tetelcingo, 22-II-82, unidentified shrub of the Euphorbiaceae, S-328, THA & AEM. In small diameter branches of host plant (0.5–1.0 cm). The gallery is transverse.

Scolytopsis puncticollis Blandford. MEXICO: VER: Mandinga, 12-III-80, *Laguncularia racemosa*, S-47, THA.

Scolytus mundus Wood. MEXICO: TLAX (new state): Villarreal, 28-I-78, *Abies religiosa*, D. Cibrian T.; Terrenate, II-81, *A. religiosa*, C. Pineda; MEX: Mexicapa, 6-IV-83, *A. religiosa*, J. Morales O.

Tribe Ctenophorini

Pycnarthrum hispidum (Ferrari). MEXICO: QRO: Queretaro, IV-83, *Ficus* sp.; VER: Rancho Tepetates (30 km from Veracruz on highway to Jalapa), 12-VI-79, 15 m, *Ficus* sp., S-43, THA; CHIS: Tapachula, 3-II-81, 250 m, *Ficus* sp., THA. This species is most commonly found in thick-barked limbs and trunks of *Ficus* spp.; smaller diameter material is usually infested by *Gymnochilus* spp. or *Scolytodes* spp. Frequently the galleries are entirely in the phloem, without coming in contact with the sapwood. In very thick phloem separate gallery systems may be at different depths. The gallery is transverse and biramous. More than one generation may be completed in the same host material if decomposition is not rapid. Occasionally this species is found in injured trees near live tissues.

Gymnochilus reitteri Eichhoff. MEXICO: JAL: El Tuito, 27-IV-82, 600 m, *Ficus* sp., S-381, AEM; MICH: Zirimicuaro, 2-XI-80, 1,350 m, *Ficus* sp., S-155, THA & AEM. PANAMA: Los Santos, Cerro Canajagua, 4-I-81, 800 m, *Ficus* sp., THA. This species is commonly found in branches of *Ficus* spp. ranging in diameter from 3–15 cm. Material of larger diameter is normally occupied by *Pycnarthrum* spp., smaller diameter by *Scolytodes* spp. The gallery is biramous and transverse.

Gymnochilus alni Wood. MEXICO: MICH (new state): Carr. Toluca-Zitacuaro, Km 80, 30-X-80, 2,560 m, *Alnus acuminata*, S-126, THA & AEM. This species makes a biramous gallery in the phloem of alders. The egg galleries are transverse to oblique with respect to the wood.

Scolytodes glabrescens Wood. PANAMA: Los Santos, Cerro Canajagua, 4-I-82, 800 m, petiole of *Cecropia* sp., S-168, THA. This species was collected in the pith of the basal portion of fallen petioles in a very moist, shaded site.

Scolytodes maurus (Blandford). MEXICO: VER: Catemaco, 13-VI-79, petioles of *Cecropia* sp., THA; Coatepec, 13-III-80, 1,000 m, *Cecropia* sp., S-49, THA. PANAMA: Los Santos, Cerro Canajagua, 4-I-82, 800 m, *Cecropia* sp., S-168, THA. This species breeds only in the fallen petioles of leaves of *Cecropia*. Galleries are excavated in the pithy center of the petioles and may be found along its entire length, though most commonly in the base. It is the most commonly collected species of *Scolytodes* in this habit in Mexico and tolerates drier and more exposed conditions than *S. atratus* and *S. parvulus*, the other 2 species with which it is often associated.

Scolytodes atratus (Blandford). MEXICO: VER: Catemaco, 13-VI-79, *Cecropia* sp., THA. PANAMA: Los Santos, Cerro Canajagua, 4-I-82, 800 m, *Cecropia* sp., THA. As is *S. maurus*, this species is restricted to fallen petioles of *Cecropia* spp. It also bores in the pith, but is generally restricted to the thicker basal portion, probably due to its larger size. It is less commonly collected than *S. maurus*, although the 2 species are frequently collected in the same petioles; *S. maurus* appears to be restricted to very shaded, moist sites.

Scolytodes plumeriae Wood. MEXICO: PUE: Between Cuetzalan and Paso del Jardin, 5-V-81, 550 m, *Plumeria rubra*, S-222, THA & AEM. A small host

tree growing on the edge of a coffee farm was heavily infested. From the condition of the branches and old galleries it was apparent that several generations had been completed in the same branches, moving downwards in each subsequent generation, slowly killing the tree. At the time of collection, young adults, teneral adults, and pupae were found in the portions of the attacked area closest to living tissues. Young but fully pigmented adults seemed to have passed directly from the areas where they developed into the unattacked portions of the branches without having emerged. These made long, basically longitudinal galleries in the phloem. Galleries interconnected in many places and contained many adults of both sexes. No oviposition was apparent. This may represent maturation feeding on the part of the new adults.

Scolytodes clusiacolens Wood. MEXICO: JAL (new state): El Tuito, 28-V-82, 950 m, *Clusia salvinii* (new host), S-702, THA; MICH: Ario de Rosales, 31-X-80, 1,720 m, *Clusia salvinii*, THA & AEM.

Scolytodes parvulus Wood. MEXICO: VER: Catemaco, 13-VI-79, *Cecropia* sp., THA; OAX (new state): La Esperanza, Sierra de Juárez, 6-VII-82, 2,600 m, *Cecropia* sp., SM-15, E. Martinez F. This is the smallest of the 3 species of *Scolytodes* that are known from *Cecropia* petioles in Mexico. Unlike *S. maurus* and *S. atratus*, *S. parvulus* excavates a transverse, biramous gallery in the fibrous tissue immediately beneath the epidermis of the petioles similar to the true bark beetles.

Scolytodes schwarzi (Hopkins). MEXICO: JAL (new state): El Tuito, 6-III-82, 600 m, *Ficus* sp., S-381, AEM; VER: Mandinga, 6-III-80, sea level, *Ficus* sp., S-48, THA. This species is found in small shaded-out branches of live trees. It is polygynous and adults excavate radiate galleries, often grooving the wood.

Scolytodes reticulatus (Wood). MEXICO: MICH: La Gallina, 1-XI-80, 1,000 m, *Ficus goldmani* (new host), S-146, THA & AEM; Zirimicuaro, 2-XI-80, 1,350 m, *Ficus* sp., S-155, THA & AEM. This species is found in shaded-out branches of *Ficus* spp. and does not appear to attack cut or fallen branches.

Scolytodes tenuis Wood. MEXICO: JAL: Puerto Vallarta, 6-III-82, 10 m, *Ficus* sp., S-385, AEM; MICH (new state): Zirimicuaro, 2-XI-80, 1,350 m, *Ficus* sp., S-155, THA & AEM. As is the case in the preceding 2 species, *S. tenuis* is found in twigs of shaded-out branches of *Ficus* spp.

Tribe Micracini

Pseudothysanoes furvatus Wood. MEXICO: JAL: 28-V-82, 1,050 m, *Phoradendron* sp., S-703, THA & AEM. Collected in small dead mistletoe on broken oak branch.

Pseudothysanoes fimbriatus Wood. MEXICO: PUE: Zacapoxtla, 6-V-81, 2,150 m, *Phoradendron* sp., S-231, THA & AEM. The type series of this species was collected in a dead mistletoe on a dead oak branch. The galleries were longitudinal, biramous and in the phloem tissues.

Pseudothysanoes tenellus Wood. MEXICO: MICH: Carr. Patzcuaro-Ario de Rosales, Km 32, 31-X-80, 2,360 m, *Psittacanthus* sp., S-130, THA & AEM. Collected from mistletoe on dead branch of *Cratogeomys mexicanus* in branches ranging from 0.5–1 cm diam. in longitudinal biramous galleries.

Pseudothysanoes yuccavorus Wood. MEXICO: PUE (new state): Oriental, 4-V-81, 2,370 m, leaves of *Yucca* sp., S-214, THA & AEM.

Pseudothysanoes perseae Wood. MEXICO: NL: Cerro Chipinque, 30-I-80,

1,350 m, *Carya* sp., S-21, THA. The type series of this species was collected in small (1–2 cm diam.) broken branches of an uncultivated hickory in an oak-pine forest. The galleries are biramous, longitudinal, and in the phloem. Wood (1981) reported the host as *Persea* in his description of the species because of an error in labeling the type series.

Thysanoes inornatus Wood. MEXICO: JAL: El Tuito, 28-V-82, 1,050 m, *Struthanthus* sp. (new host), S-704, THA & AEM.

Phloeocleptus plagiatus Wood. MEXICO: MICH (new state): Uruapan, 19-II-80, 1,600 m, *Persea americana* (new host), S-27, THA; 1-XI-80, 1,600 m, *P. americana*, S-148, THA & AEM. Collected in phloem of broken branches and cut trunks in material ranging from 5–30 cm diam.

Phloeocleptus atkinsoni Wood. MEXICO: MICH: Uruapan, 17-II-80, 1,600 m, *Persea americana*, S-26, THA. The type series of this species was collected in the bark of dead twigs (0.5–1 cm diam.) on live trees.

Phloeocleptus cristatus Wood. MEXICO: PUE (new state): Atlixco, 19-I-83, 1,830 m, *Persea americana*, S-847, THA; Tianguismanalco, 19-I-83, 2,150 m, *P. americana*, S-848, THA.

Phloeocleptus caudatus Wood. MEXICO: PUE: Apulco, 6-V-81, 1,600 m, *Persea americana* (new host), S-228, THA & AEM. Attacks were found in shaded-out branches of several trees inspected. Broken branches on the ground, however, had attacks of *Cnesinus* spp., but none by *P. caudatus*.

Phloeocleptus spicatus Wood. MEXICO: NL: Cerro Chipinque, 30-I-80, 1,300 m, *Persea* sp., S-20, THA.

Phloeocleptus ardis Wood. MEXICO: NL: Cerro Chipinque, 30-I-80, 1,300 m, *Persea* sp., S-20, THA. This species was collected in the same broken branches as *P. spicatus*, but was found in the larger portions.

Micracis lignatos Blackman. MEXICO: NL (new state): Cerro Chipinque, 30-I-80, 1,300 m, *Quercus* sp., S-27, THA; JAL (new state): El Tuito, 6-III-82, 1,100 m, *Quercus* sp., S-384, AEM; GRO (new state): Chilapa, 23-II-82, 1,800 m, *Quercus* sp., S-339, THA & AEM.

Micracis amplinis Wood. MEXICO: MICH (new state): Carr. Toluca-Morelia, Km 197, 3-XI-80, 2,640 m, S-157, THA & AEM; HGO: Zacualtipan, 7-XI-80, 1,800 m, *Quercus* sp., AEM; 7 km east of Tlahuelumpa, 16-X-80, 2,050 m, *Quercus* sp., THA.

Micracis burgosi Wood. MEXICO: GRO (new state): Chilpancingo, 23-II-82, 1,250 m, trunk of leguminous tree, S-343, THA & AEM.

Micracisella nitidula Wood. MEXICO: VER (new state): Las Vigas, 9-VI-83, 2,400 m, *Arbutus xalapensis*, S-901, THA & AEM.

Hylocurus dilutus Wood. MEXICO: MICH: Zirimicuaro, 2-XI-80, 1,350 m, S-154, THA & AEM.

Hylocurus femineus Wood. MEXICO: MICH: Carr. Patzcuaro-Ario de Rosales, Km 34, 31-X-80, 2,360 m, *Quercus* sp., S-129, THA & AEM. This species was attacking a green, recently cut fence post with attacks concentrated in debarked areas.

Hylocurus equidens Wood, MEXICO: PUE: Coxacatlan, 27-VI-82, *Acacia farnesiana*, S-752, AEM.

Hylocurus elegans Eichhoff. MEXICO: VER (new state): Rancho Tepetates (near Paso de Ovejas), 12-III-80, 15 m, *Phoradendron* sp. (new host), S-40, THA.

Hylocurus dissidens Wood. MEXICO: GRO (new state): Chilapa, 28-II-82, 1,800 m, S-338, THA & AEM.

Tribe Cactopinini

Cactopinus burgosi Wood. MEXICO: PUE: Tepenene, 1-X-82, 1,240 m, *Neobuxbaumia mejea*, AB-70, A. Burgos S. This species was collected in a blackened, decaying (but not deliquescing) portion of cactus in contact with the soil.

Cactopinus granulatus Wood. MEXICO: JAL: Autlan, 28-V-82, 80 m, *Pachycereus* sp., S-497, AEM. The type series was collected in a dried-out, yellowish portion of a rib of a fallen stem of cactus.

Tribe Ipinini

Ips mexicanus (Hopkins). MEXICO: MICH: Zaguas, 26-VII-60; Carr. Patzcuaro-Ario de Rosales, Km 34, 31-X-80, 2,340 m, *Pinus montezumae*, S-135, THA & AEM; HGO: Zacualtipan, 16-X-80, 1,800 m, *P. patula*, S-177, AEM; 2-VII-82, 2,050 m, *P. patula*, S-74, THA; VIII-81, *P. patula*, C. Pineda; MEX: Villa del Carbon, 7-I-82, 2,490 m, *P. teocote*, S-259, THA & AEM; PUE: Puebla, 15-VII-61, *Pinus* sp., H. Bravo M.; Carr. Mexico-Zacatlan, Km 210, 7-III-62; VER: El Palmar, 13-VI-63, F. Pacheco M.; Las Vigas, 11-VI-79, *Pinus* sp.; THA; Almilanga, 1-IV-63, F. Pacheco M.; Cofre de Perote, 7-VI-83, 2,950 m, *Pinus* sp., S-890, THA & AEM. GUATEMALA: Totonicapan, 19-XI-77, M. Dix.

Ips bonanseai (Hopkins). MEXICO: CHIH (new state): Ejido El Largo, Mpio. Madera, 23-VIII-80, 2,300 m, *Pinus duranguensis*, O. Estrada; TAMPS (new state): Cd. Victoria, 12-III-63, *Pinus* sp., R. Balderas; HGO: Zacualtipan, 2-VII-82, 2,050 m, *P. patula*, S-74, THA; MEX: Carr. Toluca-Morelia, Km 54, 30-X-80, 2,520 m, *P. montezumae*, S-124, THA & AEM; PUE: Puebla, 15-VII-61, *Pinus* sp.; CHIS: San Cristobal de las Casas, 26-IX-61, H. Bravo M. GUATEMALA: Sibilia, 4-VIII-80, 2,810 m, *P. rudis*, E. Franco; Totonicapan, 26-VII-80, 2,700 m, *P. pseudoctobus*, F. Jeronimo M.

Ips integer (Eichhoff). MEXICO: CHIH: Area experimental INIF, La Laja (Mpio. Bocoyna), 24-VII-80, 2,430 m, *Pinus arizonica*, J. Castro C.; El Vergel, 14-VIII-80, 2,650 m, *P. arizonica*, J. Castro C.; Area Semillera Madera (Mpio. Madera), 19-III-81, 2,360 m, *P. arizonica*, J. Castro C.; TAMPS (new state): Cd. Victoria, 12-III-63, R. Balderas; MICH: Zaguas, 26-VII-60; Las Cocinas, 20-II-80, 2,200 m, *P. montezumae*, S-30, THA; Carr. Patzcuaro-Ario de Rosales, Km 34, 31-X-80, 2,340 m, *P. montezumae*, S-135, THA & AEM; Carr. Patzcuaro-Ario de Rosales, Km 32, 31-X-80, 2,360 m, *P. leiophylla*, S-131, THA & AEM; HGO: Zacualtipan, 16-X-80, 1,800 m, *P. patula*, S-177, AEM; PUE: Zacatlan, 15-V-74, *P. pseudoctobus*; VER: Cofre de Perote, 7-VI-83, 2,950 m, *Pinus* sp., S-888, THA & AEM; CHIS (new state): San Cristobal de las Casas, 26-IX-61, H. Bravo M.

Ips calligraphus (Germar). MEXICO: JAL: El Tuito, 6-III-82, 650 m, *Pinus* sp., S-380, AEM; MICH: Ario de Rosales, 31-X-80, 1,640 m, *P. pseudoctobus*, S-139, THA & AEM; MEX: Valle de Bravo, 9-III-62; Temascaltepec, 17-VIII-60, *P. oocarpa*; GRO (new state): Taxco, 22-II-82, 1,900 m, *Pinus* sp., S-325, THA & AEM; Chilapa, 23-II-82, 2,040 m, *P. oocarpa*, S-332, THA & AEM. GUATEMALA: Chichicastenango, 23-VII-80, 2,850 m.

Ips grandicollis (Eichhoff). MEXICO: CHIH: Ejido El Largo (near Cd. Madera), 23-VIII-80, 2,300 m, *Pinus duranguensis*, O. Estrada; MICH: Tacambaro, IX-49; Las Cocinas, 20-II-80, 2,200 m, *P. leiophylla*, S-30, THA; Carr. Patzcuaro-Ario de Rosales, Km 34, 31-X-80, 2,340 m, *P. montezumae*, S-135, THA & AEM; HGO: Zacualtipan, 2-VII-82, 2,050 m, *P. patula*, S-74, THA;

MEX: Villa del Carbon, 9-I-82, 2,490 m, *P. teocote*, S-259, THA & AEM; **PUE:** Puebla, 17-I-80, 2,200 m, *P. leiophylla*, S-9, THA; **VER** (new state): Cordoba, 2-IV-63, F. Pacheco M.; El Palmar, 13-VI-63, F. Pacheco M.; **GRO** (new state): Teloloapan, 12-VIII-57; Chilapa, 23-II-82, 2,040 m, *P. oocarpa*, S-332, THA & AEM; **CHIS:** Guayaquil, XI-61, *Pinus* sp.; San Cristobal de las Casas, 26-IX-61, H. Bravo M. **GUATEMALA:** Guatemala, 17-XI-77, C. MacVean; Santa Rosa, Baja Verapaz, 7-VIII-77, *P. oocarpa*, M. Dix.

Ips lecontei Swaine. **MEXICO:** **CHIH:** Ejido El Largo (near Cd. Madera), 23-VIII-80, 2,300 m, *Pinus duranguensis*, O. Estrada; El Vergel, 14-VIII-80, 2,650 m, *P. arizonica*, J. Castro C.

Ips confusus Swaine. **MEXICO:** **HGO:** El Cardonal, 27-III-81, 2,250 m, *Pinus cembroides*, S-206, THA & AEM.

Tribe Dryocoetini

Dendrocranulus consimilis Wood. **MEXICO:** **CHIS** (new state): Tapachula, 20-IV-83, 100 m, cucurbit vine, SM-141, E. Martinez F. and E. Saucedo C.

Dendrocranulus cucurbitae (LeConte). **MEXICO:** **MICH:** Gabriel Zamora, 1-XI-80, 650 m, *Luffa acutangula*, S-141, THA & AEM; Uruapan, 16-V-81, 1,600 m, *Sechium edulis*, AEM.

Dendrocranulus declivis (Schedl). **MEXICO** (new country): **VER:** Veracruz, 2-IV-82, 8 m, *Luffa acutangula*, J. F. Duran.

Dendrocranulus sobrinus Wood. **MEXICO:** **VER:** Veracruz, 2-IV-82, 8 m, *Luffa acutangula* (new host), J. F. Duran.

Dendrocranulus gracilis Wood. **MEXICO:** **MICH** (new state): Uruapan, 16-V-81, 1,600 m, *Sechium edulis* (new host), AEM.

Coccotrypes rhizophorae (Hopkins). **MEXICO:** **VER:** Mandinga, 12-III-80, *Rhizophora mangle*, S-46, THA. This species was found in elongating tips of aerial prop roots and hypocotyls of the host plant. When the tips of elongating roots were killed, the plant responded by branching below the point killed. Attacks were never observed in the older, lignified portions of these roots.

Coccotrypes cyperi (Beeson). **PANAMA** (new country): Cd. Panama, 19-XII-80, 15 m, branch of *Spondias mombin*, S-159, THA; 19-XII-80, 15 m, seed of *Mangifera indica*, S-162, THA.

Coccotrypes carpophagus (Hornung). **MEXICO:** **MICH** (new state): La Gallina, 1-XI-80, 880 m, seeds of *Sabal pumos* (new host), S-144, THA & AEM.

Coccotrypes dactyliperda (Fabricius). **MEXICO:** **MICH** (new state): Jiquilpan, 26-V-82, 1,550 m, seeds of *Phoenix canariensis*, S-466, THA & AEM.

Tribe Xyleborini

Premnobius cavipennis Eichhoff. **MEXICO:** **MICH** (new state): Patuan, 1-XI-80, 1,300 m, *Spondias mombin*, S-147, THA & AEM; **GRO** (new state): Palo Blanco (near Chilpancingo), 22-II-82, 1,200 m, S-330, THA & AEM.

Dryocoetoides capucinus (Eichhoff). **MEXICO:** **JAL** (new state): Puerto Vallarta, 6-III-82, 10 m, S-388, AEM; El Tuito, 28-V-82, 640 m, *Inga* sp., S-711, THA & AEM; **MICH:** Zirimicuaro, 2-XI-80, 1,350 m, *Inga* sp., S-153, THA & AEM; **GRO** (new state): Palo Blanco (near Chilpancingo), 22-II-82, 1,200 m, *Inga* sp., S-330, THA & AEM. This species is mostly encountered in branches from 5–10 cm in diameter, seldom in larger material. The gallery consists of one to several irregularly shaped brood chambers, each of which lies between adjacent growth rings. These chambers are connected by short

radial tunnels. This species requires high humidity and appears to be absent from drier tropical areas.

Xylosandrus morigerus (Blandford). MEXICO: **QR** (new state): Campo Experimental Forestal INIF, San Felipe Bacalar, 22-V-81; **TAB**: Camacalco, 4-II-83, *Theobroma cacao*, J. Eden de la Cruz; **CHIS**: Tapachula, 9-VII-82, *Coffea canephora* var. *robusta*, E. Aranas.

Xylosandrus zimmermanni (Hopkins). MEXICO: **CHIS**: Tapachula, 21-VIII-82, *Coffea canephora* var. *robusta*, E. Aranas.

Theoborus theobromae Hopkins. MEXICO (new country): **TAB**: Boquiapa, 25-I-82, J. A. Morales.

Theoborus solitariceps (Schedl). MEXICO: **VER**: Rancho Tepetates (near Paso de Ovejas), 11-III-80, 15 m, S-43, **THA**; **TAB** (new state): Cardenas, XII-79, *Erythrina* sp.; Boquiapa, 25-I-82, J. A. Morales. This species restricts its attacks to branches of small diameter (3–5 cm), either in standing trees or in cut or fallen material.

Xyleborus horridus Eichhoff. MEXICO: **TAMPS** (new state): Cd. Victoria, 12-III-63; **VER**: Campo Experimental El Palmar, 1-VI-68.

Xyleborus pseudotenius Schedl. MEXICO: **TAB** (new state): Boquiapa, 26-I-82, J. A. Morales.

Xyleborus guatemalensis (Hopkins). MEXICO: **PUE** (new state): Cuetzalan, 5-V-81, 960 m, *Inga* sp., S-221, **THA** & **AEM**.

Xyleborus rugicollis (Blandford). MEXICO (new country): **PUE**: Carr. Talcoxman-Tetela de Ocampo, 12-VII-78, *Quercus* sp.

Xyleborus spinulosus Blandford. MEXICO: **VER**: Rancho Tepetates (near Paso de Ovejas), 12-III-80, 50 m, *Mangifera indica*, S-45, **THA**; Morro de la Mancha, 19-VII-83, *Nectandra* sp., S-922, **THA** & **AEM**; **GRO** (new state): Palo Blanco (near Chilpancingo), 22-II-82, 1,200 m, S-330, **THA** & **AEM**. This species has only been collected from host material less than 10 cm in diameter.

Xyleborus posticus Eichhoff. MEXICO: **TAB** (new state): Cardenas, 24-II-82, J. A. Morales; Huimanguillo, 12-VI-81, *Erythrina* sp., J. A. Morales.

Xyleborus ferrugineus (Fabricius). MEXICO: **TAMPS**: Cd. Victoria, 12-III-63; **VER**: Campo Experimental El Palmar, 13-VI-63; 1-IV-68; Santiago Tuxtla, 26-VI-66, A. Ortiz; **GRO**: Chilpancingo, 23-II-82, 1,230 m, legume tree, S-343. **THA** & **AEM**; **TAB**: Cardenas, XII-79, *Erythrina* sp.; 4-III-81, *Erythrina* sp., J. A. Morales; Huimanguillo, 12-VI-81, *Erythrina* sp., J. A. Morales; Nacajuca, 4-III-81, *Erythrina* sp., J. A. Morales; **CHIS**: Cacaohoatan, 2-II-80, 640 m, **THA**; Tapachula, 3-II-80, 250 m, *Ficus* sp., **THA**. **SAN SALVADOR**: Puerto La Libertad, 1-VII-66, A. Ortiz. This species and *X. volvulus* are the most widespread species of this genus in tropical and subtropical Mexico. Both tolerate an extremely wide range of hosts and ecological conditions and are of the species most commonly found in urban and agricultural habitats. They are among the few xyleborines found in the tropical deciduous forest.

Xyleborus affinis (Eichhoff). MEXICO: **MICH**: Patuan, 1-XI-80, 1,300 m, *Spondias mombin*, S-147, **THA** & **AEM**; **PUE**: Apulco, 2-V-80, 1,380 m, **THA** & **AEM**; **TAB**: Cardenas, XII-79, *Erythrina* sp., R. Campos; **CHIS**: Ruinas de Palenque, 7-VIII-81, 90 m, *Persea* sp., A. Burgos S.; Tapachula, 3-II-80, 250 m, **THA**. Like *Xyleborus ferrugineus* and *X. volvulus*, this species is extremely common, polyphagous and frequently associated with man-made environments. It differs from them in that its range of environmental tolerance with respect to humidity seems to be much more limited and the species is virtually absent from drier tropical and subtropical areas within Mexico.

Xyleborus volvulus (Fabricius). MEXICO: TAMPS: Cd. Victoria, 17-III-63; NAY: San Blas, 22-III-62; MICH: Putuan, 1-XI-80, 1,300 m, *Spondias mombin*, S-147, THA & AEM; Zirimicuaro, 2-XI-80, 1,350 m, *Inga* sp., S-153, THA & AEM; VER: Campo Experimental El Palmar, 1-IV-63; 13-VI-60; GRO: Teloapan, 12-VIII-57; Copala, 5-VII-81, *Cocos nucifera*; TAB: Cardenas, 4-III-81, *Erythrina* sp., J. A. Morales; CHIS: Tapachula, 3-II-81, 250 m, THA; Ruinas de Palenque, 26-IV-82, 310 m, A. Burgos S.; Agua Azul, 8-VII-82, 160 m, E. Martinez F.

Xyleborus morulus Blandford. MEXICO: MICH: Patuan, 1-XI-80, 1,300 m, *Spondias mombin*, S-147, THA & AEM.

Xyleborus intrusus Blandford. MEXICO: MICH (new state): Ario de Rosales, 31-X-80, 1,640 m, *Pinus pseudostrobus*, S-139, THA & AEM; MEX: Carr. Toluca-Morelia, Km 54, 30-X-80, 2,520 m, *P. montezumae*, S-124, THA & AEM; PUE: Puebla, 17-I-80, 2,200 m, *P. leiophylla*, S-9, THA; GRO (new state): Chilapa, 23-II-82, 2,040 m, *Pinus oocarpa*, S-332, THA & AEM; CHIS: San Cristobal de las Casas, 26-IX-61. This species attacks all species of pines growing at low and intermediate altitudes. It is seldom found above 2,500 m.

ACNOWLEDGMENTS

We thank Emily J. Lott, Instituto de Biología, Universidad Nacional Autónoma de Mexico, and Thomas L. Wendt, Centro de Botanica, Colegio de Postgraduados, for identifications of host plants. We also thank David Cibrian T., Armando Burgos S., Eduardo Saucedo C., and Edgar Martinez F. for permission to cite collection data. This research was wholly supported by the Centro de Entomología y Acarología, Colegio de Postgraduados.

LITERATURE CITED

- WOOD, S. L. 1981. Nomenclatorial changes and new species in Platypodidae and Scolytidae. Great Basin Nat. 41:121-128.
 ———. 1982. The bark and ambrosia beetles of North and Central America (Coleoptera: Scolytidae): a taxonomic monograph. Great Basin Nat. Mem. No. 6:1359 pp.

(Received 12 October 1984; accepted 8 February 1985)

LITERATURE NOTICES

- MONNÉ, M. A., AND S. A. FRAGOSO. 1984. Notas sobre Onciderini (Coleoptera, Cerambycidae, Lamiinae). Pesq. agropec. bras. (Brasília) 19:925-933.
 ISRAELSON, G. 1983. An *Olisthopus* from the Azores, with a key to the Macaronesian species. Bocagiana (Funchal), No. 69:1-4.
 AIKEN, R. B., AND F. L. LEGGETT. 1984. A unique collection of two *Rhantus wallisi* in the body cavity of a female *Dytiscus alaskanus* (Coleoptera: Dytiscidae). Ent. News 95:200-201.
 SUMMLIN, W. D. 1984. Studies on the Australian Cicindelidae. III: observations on the Australian members of the genus *Cicindela* L. (Coleoptera). Ent. News 95:189-199.
 BÍLÝ, S. 1984. A revision of *Anthaxia* (*Melanthaxia*) *conradti* and *corsica* species-groups (Coleoptera, Buprestidae). Acta ent. bohemoslov. 81:434-447.
 RAKOVIĆ, M. 1984. A review of the genus *Tesarius* Rakovič (Coleoptera, Scarabaeidae, Aphodiinae). Acta ent. bohemoslov. 81:448-452.