

**THE AMBROSIA BEETLE GENUS
INDOCRYPHALUS EGGERS
(COLEOPTERA: SCOLYTIDAE):
A NEW SPECIES FROM PENINSULAR
MALAYSIA, NEW SYNONYMY AND
A KEY TO SPECIES**

R. A. Beaver

161/2 Mu 5, Soi Wat Pranon, T.Donkaew, A.Maerim,
Chiangmai, Thailand 50180

ABSTRACT

Indocryphalus pasohensis, n. sp., is described from Peninsular Malaysia. The following new synonymy is proposed: *Indocryphalus aceris* (Nijima) (= *Xyloterus dainichiensis* Murayama), *I. sordidus* (Blandford) (= *Trypodendron sinense* Eggers), *I. majus* (Eggers) (= *Xyloterus ashuensis* Murayama). *Xyloterus pulchellus* Murayama is correctly placed in *Trypodendron* Stephens and not *Indocryphalus* Eggers. Lectotypes are designated for *Indocryphalus intermedius* (Sampson), *I. pubipennis* (Blandford) and *Xyloterus ashuensis* Murayama. A key is given to the species of *Indocryphalus*.

Key words: Coleoptera, Scolytidae, *Indocryphalus*, new species, new synonymy, lectotypes, key to species, Peninsular Malaysia.

ABSTRAK

Indocryphalus pasohensis, n. sp., diperihalkan dari Semenanjung

Malaysia. Sinonim baru berikut adalah dicadangkan: *Indocryphalus aceris* (Nijima) (= *Xyloterus dainichiensis* Murayama), *I. sordidus* (Blandford) (= *Trypodendron sinense* Eggers), *I. majus* (Eggers) (= *Xyloterus shuensis* Murayama). *Xyloterus pulchellus* Murayama adalah betul ditempatkan dalam *Trypodendron* Stephens dan bukannya dalam *Indocryphalus* Eggers. Lektotip didesignasikan untuk *Indocryphalus intermedius* (Sampson), *I. pubipennis* (Blandford) dan *Xyloterus ashuensis* Murayama. Satu kunci disediakan untuk spesies *Indocryphalus*.

Kata kunci: Coleoptera, Scolytidae, *Indocryphalus*, spesies baru, sinonim baru, lektotip, kunci untuk spesies, Semenanjung Malaysia.

INTRODUCTION

Eggers (1939) erected the monotypic genus *Indocryphalus* for his new species *malaisei* from Northeast Burma. Browne (1970) pointed out that Eggers' species was synonymous with *Xyloterus intermedius* Sampson (1913), and that the genus *Dendrotrypum* Schedl (1951) was a synonym of *Indocryphalus*. Browne (1970) transferred to *Indocryphalus* seven species described in the genus *Trypodendron* Stephens (or its synonym *Xyloterus* Erichson). Wood & Bright (1992) include nine species in the genus. Eggers (1939) originally placed *Indocryphalus* in the 'Cryphaliden' (Cryphalini), but it is correctly placed in the tribe Xyloterini (Schedl 1963, Wood & Bright 1992). Wood (1986) keys the genus from the other two xyloterine genera, *Trypodendron* and *Xyloterinus* Swaine, although it should be noted that the long axis of the mycangial opening on the proepimeron can be either longitudinal or vertical in *Indocryphalus*, and is not always longitudinal as his key suggests. The sexes are most easily distinguished by the presence of the mycangia in the female only, but the shape of the frons, the eyes and the pronotum also differ between male and female.

The majority of species occur in a band from Northern India and Nepal to Japan, with one species described from Peninsular Malaysia. Like other xyloterines (Wood 1986), they are monogamous ambrosia beetles, constructing their gallery systems in the wood of recently dead trees, and using ambrosia fungi introduced into the gallery by the female as food for both adults and larvae. The gallery system

has few branches, and the larvae develop in separate cradles arranged in series above and below the main gallery. The cradles are enlarged by the larvae as they grow. Pupation occurs in the cradle, and the young adult leaves through the parental gallery. Like most ambrosia beetles, they are not taxonomically very host selective, and most species are able to breed in hosts of several different plant families.

Schedl (1951) in his revision of palaearctic Xyloterini provided a key to five species of *Indocryphalus* (as *Dendrotrypum*), and Murayama (1957) a key to five species (included by him in the genus *Xyloterus*) occurring in Japan. These keys are based largely on the proportions of the body, colouration and the relative steepness of the elytral declivity. These are characters that tend to be variable intraspecifically, and sometimes between the sexes. This paper provides a key, based largely on alternative characters, to all species now considered to belong in the genus, except *I. machili* Wood from the Himalayan foothills. It also describes a second species from Peninsular Malaysia. New synonymy is proposed, and lectotypes are designated for three species. The paper is based on type material and other specimens in the Natural History Museum, London (BMNH), the United States National Museum, Washington (USNM), the Zoologisches Forschungsinstitut und Museum Alexander Koenig, Bonn (ZFMK), the Zoological Museum of Lund University (ZMLU), and the National Institute of Agro-Environmental Sciences, Tsukuba (NIAS), and on specimens collected by K. Maeto in Peninsular Malaysia, and by A. Floren in Sabah (East Malaysia), and in my own collection (RAB).

TAXONOMY

Indocryphalus pasohensis Beaver, new species (Figs 2, 3)

Female: 1.4 - 1.5 mm long, 2.0 times as long as wide, subnitid, the head yellowish brown, the remainder of the body flavous, the pronotum slightly darker above, the base paler than anterior slope. Frons narrow, about one-third width of head, convex, finely, rather sparsely punctured, vertex with longitudinal striations, slightly angularly separated from frons; eyes extending well onto front of

head (Fig. 2), upper and lower parts of eye narrowly separated, the space between with short, closely -placed setae; antennal club pubescent to base, rounded apically. Pronotum 1.3 times wider than long, the base transverse, finely margined, the margin extending onto the side of the pronotum, basal angles slightly obtuse, sides convex, widest just behind middle, apex almost semicircular, anterior margin with four teeth, the median pair larger, anterior slope strongly convex, quite densely asperate, the asperities weaker towards the summit and sides, summit a little behind the middle, basal part of disc weakly rugose, the sides smooth, finely punctate, vestiture of short, fine, semi-erect, posteriorly-directed hairs. Mycangial opening longitudinally elongate, wider posteriorly, with a weak elliptical carina dorsal to it on the side of the pronotum. Scutellum large, triangular, wider than long. Elytra as wide as pronotum and 1.1 times as long, the sides subparallel to the apical third, the apex broadly, subangulately rounded, declivity beginning just before middle, obliquely convex, slightly flattened on either side of suture, disc and declivity finely, densely punctured, striae and interstriae not distinguishable on disc, the punctures bearing short, appressed hairs, the declivity in addition with scattered, longer, semi-erect hairs. Apical half of protibia with 5 - 6 fine teeth on outer margin. Posterior margin of fourth abdominal sternite with a series of minute spines medially, the spines reduced to setiferous granules laterally.

Male: Resembling female, but head narrower, eyes larger, and frons occupying only about one-fifth the width of the head (Fig. 3). Pronotum much less strongly convex, obliquely sloping and more narrowly rounded anteriorly, slightly constricted apically, the four teeth on the anterior margin usually of similar size, the asperities on the anterior slope very weak and scattered, the summit poorly defined. Mycangia absent. Elytra more elongate, 1.8 times as long as pronotum, the declivity very densely setose, with long, often spinose hairs arising from interstitial granules, the ground vestiture longer than in female. Postero-lateral margin of fourth sternite with an area of dense, long hairs, similar to but weaker than those on declivity.

HOLOTYPE. Female. MALAYSIA, Pen[insular] Malaysia, Negeri Sembilan, Pasoh forest reserve, 18.iv.1993, K.Maeto. In Forest

Research Institute of Malaysia, Kepong (FRIM).

ALLOTYPE. Male. data as holotype, except 11.iv.1993 (FRIM).

PARATYPES. (9 males, 9 females): data as holotype, 2 males (FRIM), 2 males (BMNH), 1 females (NIAS), 1 female (RAB); data as allotype, 2 females (FRIM), 2 females (BMNH), 1 female, 2 males (NIAS), 2 females, 2 males (RAB); data as holotype, except 27 Nov. - 18 Dec. 1993, 1 male (RAB).

Remarks. The new species is clearly more closely related to *I. tropicus* than to any of the other species of *Indocryphalus*. The female can be distinguished by its larger size, pale yellow elytra, narrow frons, shorter elytra, the presence of scattered longer setae on the elytral declivity, and the minute spines rather than serrations on the fourth abdominal sternite. The male can be further distinguished by its large eyes and very narrow frons, and the dense covering of spinose hairs on the declivity. No host trees are known, but the species was collected in ethanol traps on towers in the rain forest, and may be a largely canopy-based species.

Key to species of *Indocryphalus*

1. Very small species, 0.8 - 1.5 mm long. (Malaysia and Indonesia) 2
Larger species, more than 3 mm long. (India to Japan)..... 3
2. Frons more than half width of head in both sexes (Fig.1). Elytral declivity without longer setae or spinose hairs. Length 0.8 - 1.05 mm..... *tropicus* (Browne)
Frons one-third (female) or one-fifth (male) width of head (Figs. 2, 3). Male elytral declivity with dense, long, spinose hairs; female declivity a few longer setae. Length 1.4 - 1.5 mm. *pasohensis* Beaver, n.sp.
3. Proepimeron with a mycangial opening (Figs. 4, 5). Anterior slope of pronotum strongly convex. Upper margins of eyes widely separated on frons, the inner corner of the upper section of the eye never acute. Frons convex. Females..... 4
Proepimeron without a mycangial opening. Anterior slope of pronotum more flattened. Upper margins of eyes closer together

- on frons, the inner corner of the upper section of the eye often acute. Frons weakly concave with an impression on either side of midline. Males..... 8
4. Mycangial opening vertical, elongate dorso-ventrally, triangular with base of triangle dorsal (Fig. 4)..... 5
Mycangial opening longitudinal, elongate antero-posteriorly (Fig. 5), triangular or oval..... 6
5. Pronotum dark except for paler, narrow, basal, and sometimes lateral bands; anterior margin with 4 - 6 small teeth, the median pair not markedly larger. Striae distinguished by slightly coarser, more closely placed punctures than on interstriae. Declivity weakly but clearly impressed between sutural and third interstriae. Length 4.1 - 4.7 mm *majus* (Eggers)
Pronotum broadly paler basally and at sides; anterior margin with median pair of teeth clearly larger than outer pair. Strial and interstitial punctures of equal size, and striae not distinct when viewed from above. Declivity with striae 1 and 2, but not interstriae 2 very weakly impressed. Length 3.4 - 3.8 mm *sordidus* (Blandford)
6. Mycangial opening short, oval. Anterior margin of pronotum with median four teeth of similar size. Elytral declivity steep (Fig. 7), finely, very densely granulate-punctate *aceris* (Nijima)
Mycangial opening more elongate, triangular. Anterior margin of pronotum with two median teeth clearly larger than outer pair. Elytral declivity more obliquely curved (Fig. 6), with scattered granules, but not densely granulate-punctate..... 7
7. Striae clearly distinct on elytral disc, more strongly punctured than interstriae. Vestiture on elytral declivity fairly short, not woolly. Body uniformly dark brown..... *intermedius* (Sampson)
Striae 1 clearly marked and slightly impressed, but other striae less distinct from interstriae and with punctures of similar size. Vestiture on elytral declivity, dense, long and rather woolly. Body with base and sides of pronotum and base of elytra paler..... *pubipennis* (Blandford)

8. Protibia with 5 - 6 moderately large socketed teeth on apical half, and an acute tooth on inner edge. Anterior slope of pronotum with very weak, small asperities. Body uniformly dark brown..... *intermedius* (Sampson)
Protibia with 8 - 15 small, closely placed socketed teeth, and without an acute tooth on inner edge. Anterior slope of pronotum usually with stronger asperities. Body with at least base of pronotum and parts of elytra paler..... 9
9. Anterior margin of pronotum with median pair of teeth of similar size to next lateral pair. Striae distinct on disc, the punctures coarser than those of the interstriae. Inner corner of upper part of eye drawn out into an acute point..... 10
Anterior margin of pronotum with median pair of teeth clearly larger than lateral pair. Striae not distinct on disc, the punctures similar in size to those of the interstriae. Inner corner of upper part of eye more obtusely rounded..... 11
10. Larger species, 4.1 - 4.5 mm long. Elytral declivity obliquely curved (Fig. 6), weakly but clearly impressed between interstriae 1 and 3, not granulate-punctate..... *majus* (Eggers)
Smaller species, 3.0 - 3.5 mm long. Elytral declivity steep (Fig. 7), finely, very densely granulate-punctate, not impressed between interstriae 1 and 3..... *aceris* (Nijima)
11. Elytral declivity with vestiture dense, long and rather woolly. Striae 1 and 2 not impressed on declivity..... *pubipennis* (Blandford)
Elytral declivity with vestiture less dense, shorter and not woolly. Striae 1 and 2 impressed on declivity..... *sordidus* (Blandford)

(*Indocryphalus machili* Wood is omitted from the key, since I have been unable to see specimens. According to Wood's (1988) description, it is closely related to *I. pubipennis*, but can be distinguished by its smaller size, the larger, less strongly confused elytral punctures, the very steep declivity, on which the interstriae bear several small, rounded granules, and the more broadly rounded apex to the elytra.)

New synonymy and notes on species

Indocryphalus aceris (Nijjima)

Xyloterus aceris Nijjima, 1910, Trans.Sapporo Nat.Hist.Soc. 3: 4.
Dendrotrypum aceris (Nijjima): Schedl, 1951,

Mitt.Forstl.Bundesvers.Mariabrunn, 47: 82.

Indocryphalus aceris (Nijjima): Browne, 1970, J.Nat.Hist. 4: 562.

Xyloterus dainichiensis Murayama, 1954, Bull.Fac.Agr.Yamaguti Univ. 5: 191. **New Synonymy**

Remarks. I have examined the holotype, which is apparently the only known specimen, of *X. dainichiensis* (USNM), and compared it with series of *I.aceris* in BMNH and NIAS. I regard it as an aberrant specimen of *I.aceris* in which the interstrial punctures are a little larger than usual, the granules on the posterior part of the elytra are reduced, and the hairs of the elytral declivity intercross each other. These characters are insufficient to distinguish a separate species. It should be noted that there are some contradictions between the characters given for *X. dainichiensis* by Murayama (1954) and Murayama (1957) to distinguish the species from *I.aceris*. Thus Murayama (1954) gives the number of teeth on the anterior margin of the pronotum as four; Murayama (1957) gives '4-6', although he gives no indication that he had collected further specimens. The holotype clearly shows six teeth. Other distinguishing characters given by Murayama (1954, 1957), such as the form of the antennal club, and the weak (Murayama 1954) or absent (Murayama 1957) longitudinal frontal elevation overlap with *I. aceris*.

The species is known from the mountains of Japan and from Eastern Siberia (Kurenzov 1941, Stark 1952). It has been recorded from *Fagus crenata* (Fagaceae), eight species of *Acer* (Aceraceae) and *Aesculus turbinata* (Hippocastanaceae) (Murayama 1954, 1957). It clearly has a preference for the latter two families which are related.

Indocryphalus intermedius (Sampson)

Xyloterus intermedius Sampson, 1913, Ann.Mag.Nat.Hist.ser.8,

12: 445.

Indocryphalus intermedius (Sampson): Browne, 1970, J.Nat.Hist. 4: 562.

Indocryphalus malaisei Eggers, 1939, Ark.Zool. 31(A)(4): 6.
 Synonymy: Browne, 1970, J.Nat.Hist. 4: 562.

Remarks. Sampson (1913) did not specify the number of syntypes that he had before him. I have examined a series of two male and four female specimens in BMNH, three of which (1♂ 2♀) are certainly part of the type series. A female specimen with the following labels: Type [red-bordered circular label]// 2// Darjeeling/ E.P.Stebbing/ 1902-13// Am. letter/ No.2657 30.II.01 [handwritten in red ink]// *Xyloterus intermedius* / Type ♀ Samp./ silver fir [handwritten in black ink] is designated as lectotype. The male paralectotype bears the labels: Type// 2// Darjeeling/ E.P.Stebbing/ 1902-13// *Xyloterus/ intermedius* / Samp./ ♂ type. The female paralectotype is badly damaged lacking both elytra and abdomen. It bears the labels: 2// Darjeeling/ E.P.Stebbing/ 1902-13// *Trypodendron/ intermedium* / co-type Samps. Sampson (1913) described the species from Bashahr State, N.W. Himalayas, not from Darjeeling. However, it appears that the type series was later mislabelled when printed labels were added by the museum. A female specimen from the Sampson collection, not labelled as a type, bears a note in Sampson's handwriting: Wrongly labelled/ Darjeeling/ Stebb. tells me. A further specimen, again not labelled as a type, is from the type locality and is labelled: ♂// Bashahr State/ N.W.H./ 8000 ft// Silver fir/ *Abies webbiana*/ Lindl. [labels handwritten, probably by Stebbing]// *Trypodendron/ intermedium* (Samps.)/ det. F.G.B. [handwritten determination label by F.G.Browne]. Sampson (1913) does not mention the host from the species was taken. Both these specimens probably formed part of the type series, but since they are not labelled as types, I have not designated them as paralectotypes. Stebbing (1914) records the species from *Abies webbiana* (a synonym of *A.spectabilis* (Pinaceae)), and gives a brief account of its biology. Beeson (1961) records the species from *Persea* (*Machilus*) *edulis* (Lauraceae), *Quercus lamellosa* (Fagaceae) and *Symplocos theaeifolia* (Symplocaceae), suggesting a polyphagous species.

Indocryphalus majus (Eggers)

Trypodendron majus Eggers, 1926, Ent.Blätt.Biol.Syst.Käfer, 22: 148.

Indocryphalus majus (Eggers): Browne, 1970, J.Nat.Hist. 4: 562.

Xyloterus ashuensis Murayama, 1950, Trans.Shikoku Ent.Soc. 1:

51. **New Synonymy**

Remarks. Schedl (1964) discussed the original description of *Xyloterus ashuensis*, which describes the female frons as 'excavated largely in middle', and suggested that either the female was really a male, and the species belonged in *Dendrotrypum*, or, if the female frons was correctly described, to a new genus. The species is listed by Wood and Bright (1992) under *Trypodendron*. I have examined the two syntypes (USNM) mounted on a single pin, and find that both of them are male, not male and female as described by Murayama (1950). The characters of the antennae, male frons and pronotum are typical of *Indocryphalus*. The frons of the supposed female is not 'largely excavate' as given by Murayama (1950), but shallowly excavate. There are further errors in Murayama's description. There are 5 - 6 small asperities on the anterior margin of the pronotum. The elytra are 1.75-1.8 times as long as the pronotum, not twice as long, and so on. The upper male syntype on the pin bearing the labels: 23, iv, 1940/ *Ashiu* [sic]/ Takeuchi// *Xyloterus/ ashuensis/* Murayama/ Det. 9.I.1950/ Murayama, type/ / [red unmarked square label]// J.Murayama/ Collection/ 1976, is here designated lectotype, and the lower male syntype paralectotype. Murayama (1950) gives the collection date as May 23, but the type label clearly shows the previous month. The lectotype is 4.1 mm long, not 3.85 mm as given by Murayama.

The male of *I. majus* was described by Schedl (1951). The types of *I. ashuensis* agree very well with Schedl's description, and there can be no doubt that Murayama (1950) described the male of *I. majus*. The two species are, therefore, synonymous. The species is known only from Japan, where it has been recorded from *Acer* sp. (Aceraceae) and *Hamamelis japonica* (Hamamelidaceae) (Murayama 1957).

Indocryphalus pubipennis (Blandford)

Trypodendron pubipenne Blandford, 1894, Trans.Ent.Soc.Lond. 1894: 125.

Dendrotrypum pubipenne (Blandford): Schedl, 1951, Mitt.Forstl.Bundesvers.Mariabrunn 47: 77.

Indocryphalus pubipennis (Blandford): Browne, 1970, J.Nat.Hist. 4: 562.

Remarks. I have examined Blandford's type series of one female and three male syntypes (BMNH). The female specimen bearing the labels: Japan/ G.Lewis// F.W.Sampson Coll./ B.M.1926-482// *Trypodendron pubipenne* Bd. [the last label in Blandford's handwriting], is designated lectotype, and the three male specimens paralectotypes. The species is recorded from Japan, Korea, Taiwan, Eastern Siberia, Sakhalin and the Kurile Islands. It is evidently not host-specific having been recorded from ten species in eight families of angiosperms.

Indocryphalus sordidus (Blandford)

Trypodendron sordidum Blandford, 1894, Trans.Ent.Soc.Lond. 1894: 577.

Dendrotrypum sordidum (Blandford): Schedl, 1951, Mitt.Forstl.Bundesvers.Mariabrunn, 47: 80.

Indocryphalus sordidus (Blandford): Browne, 1970, J.Nat.Hist. 4: 562.

Trypodendron sinense Eggers, 1941, Ent.Blätt.Biol.Syst.Käfer, 37: 225. **New Synonymy**

Remarks. I have compared the female holotype of *I. sordidus* (BMNH) and a female specimen determined by Dr.A.Nobuchi (NIAS) with the female holotype, the only recorded specimen, of *T. sinense* (ZFMK). The two species are conspecific. The species is known from China (Fukien) and Japan. It is recorded by Murayama (1957) from three species in three different families of angiosperm trees (Rosaceae, Illiciaceae, Theaceae) in Japan.

Indocryphalus tropicus (Browne)

Trypodendron tropicum Browne, 1950, Ann.Mag.Nat.Hist. ser. 12, 3: 648.

Indocryphalus tropicus (Browne): Browne, 1970, J.Nat.Hist. 4: 562.

Remarks. The following records extend the known distribution of the species, which has been previously recorded only from Peninsular Malaysia (contra Murayama (1957) who cites Sumatra): Sabah, Poring Spring, >650 m., lower montane mixed dipterocarp f[ore]st, 19.iii.1993 (A.Floren) [from insecticidal fogging of *Aporosa* sp. (Euphorbiaceae)] (RAB); Sabah, Sipitang, Mendolong, 19.iv.1988, 11.v.1988 (S.Adebratt) (ZMLU, RAB). Indonesia, Sulawesi Utara, Gng. Ambang F.R., nr. Kotamabagu, 1200 m., 18.ii.1985. [from insecticidal fogging of forest canopy] (BMNH).

The only known host of *I.tropicus* is *Castanopsis sumatrana* (Fagaceae). The records from the canopy of both *I.tropicus* and *I.pasohensis*, and the paucity of records from ground level suggest that these two small, tropical species of ambrosia beetle breed primarily in the canopy, probably in small, dying branches.

Trypodendron pulchellum (Murayama)

Xyloterus pulchellus Murayama, 1957, Bull.Fac.Agr.Yamaguti Univ. 8: 585.

Remarks. This species is mentioned here because it was placed in *Indocryphalus* by Nobuchi (1985). I have examined the holotype male and three paratypes (1♂ 2♀) all mounted on a single pin (USNM). The species clearly belongs in *Trypodendron* and not *Indocryphalus*, and is listed under the former genus by Wood and Bright (1992). I consider the topmost specimen on the pin, a male, to be the holotype. The species is known only from Japan, where it is recorded from *Styrax japonica* (Styracaceae) (Murayama 1957).

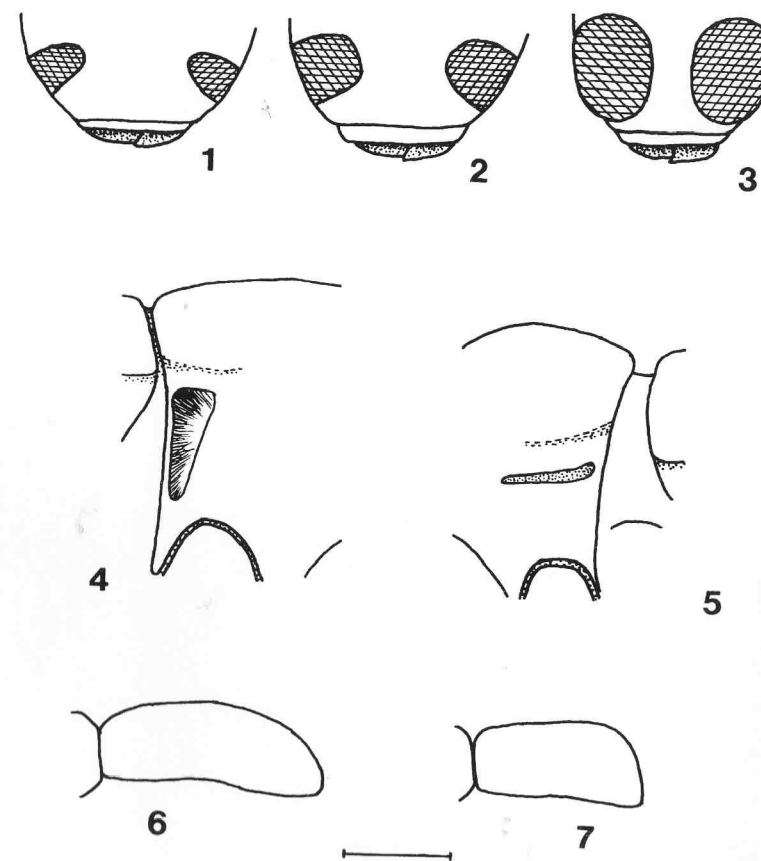
ACKNOWLEDGEMENTS

I am most grateful to the following for the loan of types and other specimens: Dr.C.H.C.Lyal and Ms. J.Beard (Natural History Museum, London), Dipl.-Biol.K.Heidersbach (Zoologisches Forschungsinstitut und Museum Alexander Koenig, Bonn), Dr.K.Maeto (Forestry & Forest Products Research Institute, Kochi), Dr.T.Matsumura (National Institute of Agro-Environmental Sciences, Ibaraki), Dr.A.Floren (Theodor-Boveri-Institut, Würzburg), Dr.D.Furth and Ms.G.House (United States National Museum, Washington), Dr.R.Danielsson (Zoological Museum, Lund University).

REFERENCES

- Beeson, C.F.C., 1961. *The ecology and control of the forest insects of India and the neighbouring countries*. Second edition. Government of India, New Delhi. 767 pp.
- Blandford, W.F.H., 1894, The rhynchophorous Coleoptera of Japan. Part III. Scolytidae. *Transactions of the Entomological Society of London*, 1894: 53-141.
- Browne, F.G., 1950, New Scolytidae and Platypodidae (Coleoptera) from Malaya. *Annals and Magazine of Natural History*, series 12, 3: 641-650.
- Browne, F.G., 1970, Some Scolytidae and Platypodidae (Coleoptera) in the collection of the British Museum. *Journal of Natural History*, 4: 539-583.
- Eggers, H., 1939, Entomological results from the Swedish Expedition 1934 to Burma and British India. *Arkiv für Zoologi*, 31A, no.4: 1-14.
- Eggers, H., 1941, Neue Borkenkäfer (Ipidae, Col.) aus China. *Entomologische Blätter für Biologie und Systematik der Käfer*, 37: 222-226.
- Kurenzov, A.I., 1941, *Bark beetles of the Far East, USSR*. Izdatel'stvo Akademii Nauk SSSR, Moskva-Leningrad. 234 pp. (in Russian)
- Murayama, J., 1950, A new genus and some new species of Scolytidae from Japan (Coleoptera). *Transactions of the Shikoku Entomological Society*, 1: 49-53.
- Murayama, J., 1954, Scolytid-fauna of the Northern half of Honshu with a distribution table of all the scolytid-species described from Japan. *Bulletin of the Faculty of Agriculture, Yamaguti University*, 5: 149-212.

- Murayama, J., 1957, Studies in the scolytid-fauna of the Northern half of the Far East. II. Xyloterinae. *Bulletin of the Faculty of Agriculture, Yamaguti University*, 8: 569-586.
- Niiijima, Y., 1910, Die Borkenkäfer Nord- und Mittel-Japans. *Transactions of the Sapporo Natural History Society*, 3: 1-18.
- Nobuchi, A., 1985, Family Scolytidae. *Checklist of Coleoptera of Japan*, no.30: 1-32.
- Sampson, F.W., 1913, Some hitherto undescribed Ipidae and Platypodidae from India and Burma. *Annals and Magazine of Natural History, series 8*, 12: 443-452.
- Schedl, K.E., 1951, Bestimmungstabellen der Paläarktischen Borkenkäfer. Teil V. Tribus Xyloterinae. *Mitteilungen der Forstlichen Bundesversuchsanstalt Maria-Brunn*, 47: 74-100.
- Schedl, K.E., 1963, Zur Synonymie der Borkenkäfer XI. 215 Beitrag. *Koleopterologische Rundschau*, 40/41: 60-66.
- Schedl, K.E., 1964, Zur Synonymie der Borkenkäfer XIV. 223 Beitrag. *Reichenbachia*, 2: 209-223.
- Stark, V.N., 1952, *Fauna of the USSR. Coleoptera 31. Bark beetles*. Zoologicheskii Institut Akademii Nauk SSSR, N.S. no.49, 462 pp. (in Russian)
- Stebbing, E.P. 1914, *Indian forest insects of economic importance*. Eyre & Spottiswoode, London. 648 pp.
- Wood, S.L., 1986, A reclassification of the genera of Scolytidae (Coleoptera). *Great Basin Naturalist Memoirs*, 10: 1-126.
- Wood, S.L., 1988, Nomenclatural changes and new species of Scolytidae (Coleoptera), part III. *Great Basin Naturalist*, 48: 196-201.
- Wood, S.L. and Bright, D.E., 1992, A catalog of Scolytidae and Platypodidae (Coleoptera). Part 2. Taxonomic index. *Great Basin Naturalist Memoirs*, 13: 1-1553.



Figs 1-7. *Indocryphalus* species. 1-3. Face: 1, *I. tropicus* female; 2, 3, *I. pasohensis*, n. sp. female, male. 4-5. Lateral view of female pronotum with mycangial opening: 4, *I. majus*; 5, *I. pubipennis*. 6-7. Lateral view of elytron: 6, *I. majus* male; 7, *I. aceris* female. Scale line = 0.2 mm (figs 1-3); 0.4 mm (figs. 4-5); 1.3 mm (figs. 6-7).