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**A Revision of the Superfamily Histeroidea of Japan
(Coleoptera)¹**

(日本産エンムムシ上科(鞘翅目)における分類学的研究)

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* Newly recorded from Japan.

** Introduced to Japan.

1. Introduction

The superfamily Histeroidea is composed of three families, Sphaeritidae, Synteliidae and Histeridae. The Sphaeritidae and the Synteliidae are small families, comprising 3 and 5 known species, respectively. The Histeridae or histerid beetles form a fairly large group, containing about 3800 described species, and are broadly distributed over the world. The vast majority of the beetles are predators and found in most kinds of decaying organic matter, such as droppings, decomposing bodies of animals, compost piles and other decaying plant materials. Some species of histerid beetles have been well known as predacious cadavericolous insects controlling populations of dipterous flies and other insects (Summerlin et al., 1981, 1982, 1984, 1989a, b; Bornemissza, 1968).

In spite of their importance in biological control in nature, the histerids had long been neglected in Japan except in catalogues and faunal insect lists until modern revisions of some tribes and genera started to appear in the late 1980s (Ôhara and Nakane, 1986, 1989; Ôhara, 1989, 1991a, b, 1992a, b, 1993a). The present review is therefore the first comprehensive study of the superfamily in Japan; 115 species are dealt with taxonomically, with scattered pieces of biological and distribution information summed up. The Japanese species have generally been difficult to identify. It is hoped that this review makes them easily identifiable and stimulates further studies on their habitats, life histories, distributions and applied importance.

2. Methods

General. This study is based mainly on dried specimens collected by me during 1980 - 1991 and by Dr. Takehiko Nakane; many further pinned specimens were borrowed from other institutions listed under Museum acronyms.

In this study were examined about 3,000 specimens from Japan and, in addition, about 300 specimens from Taiwan, 100 from Europa, and 100 from the rest of the world. I tried to examine the types of some Japanese species, especially of problematic species, and have succeeded to borrow the types of the following species: *Plegaderus shikokensis*, *Hypocaccus vrians hatsune*, *Anapleus semen*, *A. japonicus*, and *Hister simplicisternus*.

Specimens were collected under carrion or dung, or often in bait traps using chicken, or sometimes under bark.

General observations and dissection were carried out under the stereoscopic microscope Olympus SD (magnification: up to x160) and Olympus SZH-131 (magnification: up to x128). Some structures were also observed in a SEM (Hitachi S-2000A).

Genitalia were removed from dried specimens, and then 1) heated in 10 % KOH at 60°C for about 1 hour or more according to the size; 2) washed and dissected in 70% ethyl alcohol (remaining muscles are removed), 3) transferred into lactic acid containing acid fuchsin and heated at 60°C for 3 hours, 4) transferred into a mixture of glacial acetic acid 1 part and methyl salicylate 1 part and left there for 30 minutes, and 5) observed in α -terpineol in a small glass dish.

Description format. For each described species, bibliographic and nomenclatural information is given first. Description includes measurements of body length and width (Fig. 1). Measurements of some body parts, with mean, ranges, standard error and sample size, all in mm, are given in tables. Whenever possible, at least 20 specimens were measured for each sex. Abbreviations used in the measurements are as follows:

PPL:	length between anterior angles of pronotum and apex of pygidium.
PEL:	length between anterior angles of pronotum and apices of elytra.
HOW:	width between hones (projections) of epistoma.
HW:	width of head.
APW:	width between anterior angles of pronotum.
PPW:	width between posterior angles of pronotum.
PL:	length of pronotum along mid line.
EL:	length of elytron along sutural line.
EW:	maximal width between outer margins of elytra.
ProW:	maximal width of propygidium.
ProL:	length of propygidium.
PyL:	length of pygidium.
PTL:	length of protibia.
MSTL:	length of mesotibia.
MTTL:	length of metatibia.

Museum acronyms. Specimens were borrowed from the following institutions. The people responsible for the loans are given after the names of the institutions.

BSM	Bishop Museum, Honolulu; G. A. Samuelson.
EIHU	Entomological Institute (now Laboratory of Systematic Entomology), Hokkaidô University, Sapporo; M. Suwa.
ELKU	Entomological Laboratory, Kyûshû University, Fukuoka; O. Tadauchi.
HFFP	Hokkaidô Research Center, Forestry and Forest Products Research Institute; K. Maetô.
IJ	Collection of Mr. K. Ijima, Shibecha, Hokkaidô.
NA	Collection of Dr. T. Nakane, Chiba.
NHM	Natural History Museum, London; E. De Boise.
NSMT	Natural Science Museum, Tôkyô; S.-I. Uéno and A. Shinohara.

Survey areas. The present study covers the islands and regions shown in Table 1 and Figure 2. The Japanese suffixes -ken, -to, and -fu are applied to prefectures.

Table 1. Names of Islands and regions in Japan under investigation.
See Fig. 2.

No.	Main Islands, put in braces [] in Specimens examined.	Islands or prefectures, put in brackets < > in Specimens examined.
I	Chishima Isles.	Etorofu Is., Kunashiri Is., Shikotan Is., Habomai Isles.
II-1	Hokkaidô	proper
II-2		Rishiri Is., Rebun Is. (located close to Wakkanai)
II-3		Teuri Is., Yagishiri Is. (located close to Haboro)
II-4		Okushiri Is. (located close to Setana)
II-5		Oshima Isles. (located close to Matsumae)
III-1-a	Honshû	Aomori-ken
III-1-b		Iwate-ken
III-1-c		Miyagi-ken
III-1-d		Akita-ken
III-1-e		Yamagata-ken
III-1-f		Fukushima-ken
III-1-g		Ibaraki-ken
III-1-h		Tochigi-ken
III-1-i		Gumma-ken
III-1-j		Saitama-ken
III-1-k		Chiba-ken
III-1-l		Tôkyô-to
III-1-m		Kanagawa-ken
III-1-n		Niigata-ken
III-1-o		Toyama-ken
III-1-p		Ishikawa-ken
III-1-q		Fukui-ken
III-1-r		Yamanashi-ken
III-1-s		Nagano-ken
III-1-t		Gifu-ken
III-1-u		Shizuoka-ken
III-1-v		Aichi-ken
III-1-w		Mie-ken
III-1-x		Shiga-ken
III-1-y		Kyôto-fu
III-1-z		Ôsaka-fu
III-1-aa		Hyôgo-ken
III-1-bb		Nara-ken
III-1-cc		Wakayama-ken
III-1-dd		Tottori-ken
III-1-ee		Shimane-ken
III-1-ff		Okayama-ken
III-1-gg		Hiroshima-ken
III-1-hh		Yamaguchi-ken
III-2		Izu Isles.
III-3		Sado Is., Awa-jima Is.
III-4		Hegura Is.
III-5		Oki Isles.
IV-1-a	Shikoku	Tokushima-ken
IV-1-b		Kagawa-ken
IV-1-c		Ehime-ken
IV-1-d		Kôchi-ken
V-1-a	Kyûshû	Fukuoka-ken
V-1-b		Saga-ken
V-1-c		Nagasaki-ken
V-1-d		Kumamoto-ken
V-1-e		Ôita-ken

Table 1. Continued.

V-1-f Kyūshū	Miyazaki-ken
V-1-g	Kagoshima-ken
V-2	Tsushima Is.
V-3	Iki Is.
V-4	Gotō Isles.
V-5	Amakusa Isles.
V-6	Koshiki Isles.
VI-1-a Nansei Isles.	Yaku-shima Is.
VI-1-b	Tane-ga-shima Is.
VI-1-c	Tokara Isles.
VI-1-d	Amami-Ōshima Is.
VI-1-e	Tokuno-shima Is.
VI-1-f	Okinoerabu Is.
VI-1-g	Yoron Is.
VI-1-h	Okinawa-Hontō Is.
VI-1-i	Kume-jima Is.
VI-1-j	Kerama Isles.
VI-1-k	Miyako Is.
VI-1-l	Tarama Is.
VI-1-m	Ishigaki Is.
VI-1-n	Iriomote Is.
VI-1-o	Hateruma Is.
VI-1-p	Yonakuni Is.
VII Ogasawara Isles.	Haha-jima Is., Chichi-jima Is.

3. Historical review

Classification of the family Histeridae

In the following lines main prominent studies in the higher classification of the family Histeridae are summarized. Detailed reviews are found in Marseul (1857), Kryzhanovskij and Reichardt (1976), and Vienna (1980).

1758. Linné described the genus *Hister* for 6 new species.
1811. Paykull proposed a new genus, *Hololepta*. He firstly classified the histerids into two genera, *Hister* and *Hololepta*.
1817. Leach added four genera, *Platysoma*, *Dendrophilus*, *Abraeus* and *Onthophilus*.
1834. Erichson divided the family into 3 major groups, and 2 of them into 5 subgroups, as follows:
- I: Hololepta, Phylloma, Oxysternus
 - II: A. a) Plaesius, Placodes, Platysoma, Omalodes, Cypturus
 - b) Hister, Hetaerius, Epierus, Tribarus
 - B. Dendrophilus, Paromalus
 - III: A. Saprinus, Pacylopus, Trypaneus
 - B. Teretrius, Plaegaderus, Onthophilus, Abraeinae

He used the following character states in the classification: 1. head retractile or not (II, III) (I); 2. prosternal lobe present or absent (II) (III);

3. club of antenna in repose is situated on anterior margin (IIA) or on middle of surface (IIB) of prosternum; 4. articulation of club of antenna is distinct on both ventral and dorsal sides (a) or not distinct on one or both sides (b); 5. antennae articulate on margin of front of head (IIIA) or on frontal disk (IIIB).

1854. Lacordaire recognized two tribes and two subtribes.

I: Hololeptides

II: Histerides

(i) Histerides

(ii) Saprinides

His system is based on the following character states: 1. head retractile or not (II) (I); 2. prosternum with prosternal lobe or without it (i) (ii).

1857. Marseul proposed a new classification of the family.

I: Hololeptiens

II: Trypanéens

III: Histériens

IV: Hétériens

V: Sapriniens

VI: Abréens

His classification consisted of 6 tribes. He used the following characters to divide the family into the tribes: 1. head retractile or not (I, II) (III, IV, V, VI); 2. mandible long or short (I) (II); 3. prosternal lobe present or not (III, IV) (V, VI); 4. articulation of club of antenna is clearly distinct or not, and shape of the club is oval or cylindrical (III) (IV); 5. antennal fossette situated on disk or margin of prosternum, and antennal furrow of head present under the lateral margin of head or in emargination on the anterior margin (V) (VI).

1899. Ganglbauer almost agreed with Marseul (1857), but he did not distinguish between the Histerinae and the Hetaerinae and the latter was included in the former. He provided four tribes for European histerids, and did not mention the tribe Trypanaeini.

1909. Reitter divided the family into 7 tribes.

I: Hololeptini

II: Histerini

III: Paromalini

IV: Dendrophilini

V: Hetaerinini

VI: Saprini

VII: Abraeini

- 1916-17. Bickhardt's classification.

I: Hololeptinae

II: Trypanaeinae

III: Trypeticinae

IV: Tereetriinae

- V: Abareinae
- VI: Saprinae
- VII: Dendrophilinae
- VIII: Histerinae
 - 1. Tribalini
 - 2. Platysomini
 - 3. Histerini
 - 4. Exosternini
- IX: Hetaerinae
 - 1. Hetaeriomorphini
 - 2. Hetaerini
 - 3. Chlamydopsini

1941. Reichardt's classification was as follows:

- I: Niponiinae
- II: Trypeticinae
- "II": Trypaeinae
- III: Teretriinae
- IV: Abraeinae
- V: Saprinae
- VI: Dendrophilinae
- VII: Hololeptinae
- "VII": Histerinae
- "X": Hetaerinae

In this work the Trypaeinae, Histerinae and Hetaerinae are erroneously numbered. He provided a key to the 10 subfamilies, which is quite artificial and does not reflect his classification. In his "Klassifikation" (p. 346) the following notes are given: 1) the genus *Niponius* is a member of the family Histeridae, because the paramera of the male genitalia are free and similar to those of the Trypeticinae and Trypaeinae, representing a primitive condition [in my observation, however, the paramera of these taxa are not free]. 2) The retractile or non-retractile condition of the head has been traditionally regarded as a primarily important character state in the family, but Reichardt did not adopt this view. According to him the retractile head originated independently in some groups, e. g., in *Spelaeacritus*, *Hololepta* and the Trypaeinae. The first genus is allied to the *Acritus*-group; *Hololepta* is related to the Histerinae (therefore, the subfamily Histerinae was placed next to the Hololeptinae; in fact, the male genitalia and the hind wing vein are very similar between them); the Trypaeinae close to the Trypeticinae. 3) The Saprinae is highly specialized group and allied to the Abraeinae and Dendrophilinae based on many characters (however, no detailed explanation was given by him).

1944. Wenzel proposed a new system, which remarkably differs from the traditional classification. He divided the Histeridae into two divisions, "Saprinomorphae" and "Histeromorphae", and changed the ranks of some

taxa as follows: 1) The Hololeptinae (sensu Reichardt, 1941) was reduced to a tribe in the Histerinae. 2) The Chlamydopsinae was treated as a subfamily and placed next to the Abraeinae. 3) The Teretriinae (sensu Reichardt, 1941) is ranked as a tribe in the Abreinae. 4) The tribe Tribalini included in the Histerinae (Bickhardt, 1916) was risen in rank to the subfamily Tribalinae. His system has been adopted by most recent authors. See also Section 5 (Phylogeny) for a detailed discussion. His system is summarized as follows:

I: Saprinomorphae

- I: Chlamydopsinae
- II: Abraeinae
 - 1: Abraeini
 - 2: Plegaderini
 - 3: Acritomorphini
 - 4: Acritini
 - 5: Teretriini
- III: Niponiinae
- IV: Trypanaeinae
- V: Trypeticinae
- VI: Saprinae

II: Histeromorphae

- VII: Dendrophilinae
- VIII: Tribalinae
- IX: Histerinae
 - 1: Histerini
 - 2: Omalodini
 - 3: Platysomini
 - 4: Hololeptini
 - 5: Exosternini
- X: Hetaeriinae
 - 1: Hetaeriomorphini
 - 2: Hetaeriini

- 1976. Kryzhanovskij and Reichardt proposed a new taxon, the tribe Bacaniini.
- 1980. Vienna elevated the Onthophilina (Thomson, 1862) to the subfamily rank.
- 1982. Olexa proposed a new tribe, the Anapleini.
- 1984. Mazur is mainly followed Wenzel. See also in the Section 5 (Phylogeny).

I: Sapriniomorphae

- I: Abraeinae
 - 1. Abrareini
 - 2. Plegaderini
 - 3. Acritomorphini
 - 4. Acritini
 - 5. Teretriini

- II: Niponiinae
- III: Trypanaeinae
- IV: Trypeticinae
- V: Saprinae
- VI: Chlamydopsinae

II: Histeromorphae

- VII: Dendrophilinae
 - 1. Dendrophilini
 - 2. Anapleini
 - 3. Bacaniini
 - 4. Paromalini
- VIII: Onthophilinae
- IX: Tribalinae
- X: Histerinae
 - 1. Histerini
 - 2. Omalodini
 - 3. Platysomatini
 - 4. Hololeptini
 - 5. Exosternini

XI: Hetaeriinae

1989. Helava. Tribes in the Hetaerinae were not discriminated.

Japanese Histeroidea

1854. Marseul described a new species, *Hister japonicus*. +1+0=12
1860. Motschulsky described a new species, *Hister japonus*, which was later synonymized under *Margarinotus striola*. +1+0=2
1873. Marseul described 7 new species, *Platysoma lewisi*, *P. lineicolle*, *Hister pirithous*, *H. depistor*, *Dendrophilus xavieri*, *Paromalus musculus* (= *Pachylomalus musculus*), and *Abraeus bonzicus* (= *Chaetabraeus bonzicus*), and newly recorded from Japan *H. jekeli*, *H. 14-striatus* (= *Atholus duodecimstriatus quatuordecimstriatus*), *H. punctulatus*, *H. cadaverinus* (= *Margarinotus weymari* or its allied species), *H. navus* (= *Margarinotus niponicus*), *Carcinops pumilio*, *Saprinus speciosus* (= *S. splendens*), *S. pecuinus*, *S. nitidulus* (= *S. planusculus*), *S. siniae* and *Saprinus (Gnathoncus) rotundatus*. +7+11=20
1877. Reitter described a new species, *Plegaderus marseuli*. +1+0=21
1878. Harold recorded a species, *Onthophilus striatus*. +0+1=22
1879. Lewis described four new species, *Hister marginepunctatus*, *Hister simplicisternus*, *Bacanius niponicus*, and *Acritus komai*. +4+0=26
1882. Lewis erected a new genus for a new species, *Syntelia histeroides*. +1+0=27
1884. Lewis described twenty-one new species, *Hololepta depressa*, *H.*

2** $\pm A \pm B = C$. +A: Number of new species described; -A: no. of sp. synonymized; +B: no. of sp. newly recorded; -B: no. of sp. deleted; C: sum.

- parallela* (nec Sturm, 1868), *Platysoma pini*, *P. vagans*, *P. rasile*, *P. celatum*, *Hister aino*, *H. concolor*, *H. boleti*, *H. agnatus*, *H. sutus*, *Epielus lucus*, *Notodoma fungorum*, *Hetaerius gratus*, *H. optatus*, *Triballus semen*, *Triponaeus fagi*, *T. venator*, *Onthophilus flavicornis*, *O. silvae*, and *O. arboreus* (= *Epechinus arboreus*), and newly recorded *Hololepta amurensis* and *Onthophilus ostreatus*. *Onthophilus flavicornis* is, however, the same with *O. striatus* in Harold (1879). +21(+2-1)=49
1885. Schmidt described a new species, *Hister congener*. +1+0=50
1885. Lewis described a new species, *Pachylopus ripae*. +1+0=51
1885. Lewis described a new genus *Niponius* for four new species, *impressicollis*, *furcatus*, *obtusiceps*, and *osorioceps*. +4+0=55
1888. Lewis described a new species, *Paromalus persimilis*. +1+0=56
1890. Schmidt described *Saprinus lewisii*, *S. subaenus*, and *S. varians*. Later, they were transferred to *Hypocaccus*. +3+0=59
1892. Lewis described *Paromalus mendicus*, *P. viaticus*, *P. fujisanus*, *P. vernalis*, *P. tardipes*, *P. omineus*, *P. montivagus*, *Acritus shogunus* (= *A. homoeopathicus*), and *Abraeus mikado*, and recorded *Paromalus parallelepipedus* and *P. complanatus*; the last was, however, corrected later by himself (see 1899). +9+2=70
1893. Schmidt transferred *Abraeus mikado* into the correct genus *Bacanius*.
1894. Lewis proposed a new name, *higoniae*, for his *Hololepta parallela*.
1895. Lewis described a new species, *Hister niponicus*, which was recorded as *H. navus* by Marseul (1873). +1-1=70
1899. Lewis described three new species, *Platysoma satzuma*, *Hypocaccus aniu*, and *Paromalus niponensis*, the last for the misidentified *P. complanatus* in Lewis (1892), and synonymized *Hister japanus* under *H. striola*. +2-1=72
1904. Lewis transferred *Hister congener* into the new genus *Pachylister*.
1905. Lewis transferred *Tryponaeus venator* and *fagi* into the correct genus *Trypeticus*.
1906. Lewis described a new species, *Platylister niponensis*. +1+0=73
- 1906b. Lewis recorded a species, *Platysoma deplanatum*. +0+1=74
1907. Lewis transferred *Paromalus parallelepipedus*, *P. omineus*, and *P. vernalis* into the new genus *Microlopalrus*.
- 1907b. Lewis described a new species, *Onthophilus niponensis*. +1+0=75
1911. Lewis described a new species, *Hypocaccus asticus*. +1+0=76
1914. Lewis described a new species, *Hister togouii*. +1+0=77
1918. Bickhardt treated *Hister aino* as a synonym of *jekeli*. +0-1=76
1920. Bickhardt treated *Hister togouii* as a synonym of *H. simplicisternus*. +0-1=75
1920. Bickhardt treated *Platysoma niponensis* as a synonym of *P. cambojense*.
1926. Reichardt transferred *Pachylopus ripae* into the new genus *Eopachylopus*.
1930. Adachi described a new species, *Onthophilus kamiyai*. +1+0=76

1941. Cooman described a new species, *Binhister chujoi*. +1+0=77
1944. Wenzel described a new species, *Margarinotus weymarni*, which may be the same with *Hister cadaverinus* in Marseul (1873), and transferred *Hister agnatus*, *H. marginepunctatus*, *H. niponicus*, *H. sutus*, *H. striola*, and *H. boleti* into the new genus *Margarinotus*. +1-1=77
1948. Cooman described the new genus *Platylomalus*, and transferred *Paromalus mendicus* to it.
1948. Cooman described a new species, *Platysoma oberthuri*. +1+0=78
1952. Ôsawa described a new species, *Hister impunctatus* and a new form, *rufofasciatus*, of *Eopachylopus ripae*. +1+0=79
1955. Chûjô described a new species, *Niponius itoi*. +1+0=80
1961. Nakane described a new species, *Anapleus japonicus*. +1+0=81
1962. Dahlgren described a new species, *Saprinus niponicus*. +1+0=82
1962. Adachi and Ohno newly recorded a species, *Spaherites politus*.
..... +0+1=83
1963. Nakane newly recorded two species, *Peranus bimaculatus* and *Platysoma unicum*. +0+2=85
1964. Nakane transferred *Triballus semen* into the correct genus *Anapleus*.
1976. Kryzhanovskij and Reichardt described a new species, *Hypocaccus axeli*, transferred *Paromalus niponensis*, *P. fujisanus*, and *P. viaticus* into the correct genus *Platylomalus*, and newly recorded *Hister unicolor opimus* (= *leonhardi*). +1+1=87
1977. Nakane described a new subspecies, *Hypocaccus varians hatsune* and newly recorded *Saprinus auricollis* (= *S. cyaneus auricollis*) from Bonin Is. +0+1=88
1984. Mazur described a new genus, *Australomalus*, and transferred *Platylomalus montivagus* to it.
1984. Mazur transferred *Paromalus persimilis* into the correct genus *Platylomalus*, and *Paromalus tardipes* into *Eulomalus*. *Anapleus japonicus* is synonymized under *A. semen*. +0-1=87
1984. Hisamatsu and Kusui newly recorded *Atholus coelestis*. +0+1=88
1984. Kusui recorded *Cylister elongatus*. Because this species is undoubtedly an introduced species, it is excluded from the fauna.
1985. Hisamatsu described a new species, *Plegaderus shikokensis*, and newly recorded *Apobletes tener*. +1+1=90
1985. Hisamatsu newly recorded *Gnathoncus nannetensis*, *Eulomalus lombokanus*, *Platylister atratus* and *P. horni*. +0+4=94
1986. Ôhara revised the genus *Platysoma* from Japan, and added two new species, *takehikoi* and *tsushimae*. +2+0=96
1986. Ôhara and Nakane revised the genus *Onthophilus* from Japan, and added a new species, *aonoi*, and newly recorded *ordinatus*. +1+1=98
1987. Mazur synonymized *Acritus shogunus* under *Acritus (Pacnacritus) homoeopathicus*.
1989. Ôhara and Nakane redescribed two species of the tribe Exosternini,

- Notodoma fungorum* and *Binhister chujoi*.
1989. Ôhara reviewed the genus *Margarinotus* from Japan, described a new species, *M. (Ptomister) yezoensis*, and newly recorded two species, *cadavericola* and *reichardti*. *M. (P.) marginepunctatus* was transferred from subgenus *Promethister* to subgenus *Ptomister*. +1+2=101
1991. Ôhara revised the genus *Hololepta* from Japan.
1992. Ôhara revised the genus *Merohister* from Japan, revitalized *aino*, and added a new species, *uenoi*. +1+1=103
1992. Ôhara revised the genus *Atholus* from Japan.
1993. Ôhara recorded a species, *Margarinotus (Ptomister) karbatovi*. +0+1=104
1994. In this paper, I describe 9 new species, *Hypocaccus akanensis*, *Eucuritopsis japonicus*, *Anapleus nakanei*, *A. nomurai*, *A. hagai*, *Platylomalus kusuii*, *Epierus uenoi*, *Hetaerius otaruensis*, *H. kubotai* and newly recorded from Japan *Chaetabraeus cohaeres* and *Gnathoncus communis*. +9+2=115

In conclusion, 115 species of the Histeroidea are now known to occur in Japan.

4. Morphology and terms

Because of the diversity in external structure of Coleoptera, descriptive terms often need to be clarified for each superfamily, family, or even lower category under study. In the Histeroidea, many papers in English published after 1950 follow the style and descriptive terms in Wenzel and Dybas (1936). The present paper also mainly follows Wenzel and Dybas's system of terms. Most of the terms used are illustrated in Figure 3.

Head

No detailed comparative morphological study of the head has been made for members of the superfamily Histeroidea. Because in dried specimen the head is usually retracted in the prothorax, many past authors, except Marseul (1853 - 1862), did not describe the details of the head sutures and mouthparts, which are observable on the ventral side.

In this section the head sutures and various parts of the cranium are dealt with.

Situation and general appearance of head

Head is generally prognathous in the Coleoptera. In the families Sphaeritidae and Synteliidae and the subfamily Niponiinae of the Histeridae, the head is prognathous as in many other Coleoptera. But in other Histeridae the head is almost deflexed except in several members (e. g., Trypanaeinae and *Hololepta*). Usually the posterior half of the head retracts into the anterior margin of the pronotum. The states of the prognathous in the several members is probably secondary in association with a changed living style.

Head in dorsal view is short, broad, convex, and oval or oblong-oval in general. In *Trypeticus* (Fig. 5E, F) the head shows a triangular shape in dorsal view, the lateral margins being convergent apically. In the majority of Histeridae, the anterior half of the head is generally narrowed to form the frontoclypeal region.

Head is usually narrower than the prothorax except in the Synteliidae and *Niponius*, in which the head is as broad as the prothorax.

Head suture (Fig. 4 - 6)

In the Histeroidea, the following sutures are observed on the head (Fig. 4A, B): frontoclypeal, hypostomal, occipital and postoccipital suture; midcarinal suture (cornal suture of Blackwelder, 1936) absent.

Frontoclypeal suture (clypeofrontal suture in Cook, 1943)

This suture runs arcuately between the anterior tentorial pits in Coleoptera, but the pits are obscure in the Histeroidea. The suture is present only in the Sphaeritidae; in *Shpaerites* the suture is very distinct and gently arcuate (Fig. 4C).

Occipital suture (infraorbital ridge of Smetana, 1971; premandibular suture of Cook, 1943)

This suture crosses dorsally the hind part of the head, continues to the ventral side and terminates on each side anteriorly to the posterior articulation of the mandible; it demarcates the vertex from the occipital region in generalized Coleoptera, for example, a group of Adephaga (Cook, 1943) and the Staphilinidae (Naomi, 1987). In the Histeroidea, the suture is lost in the majority, and is found only in *Epielus* as a short one along the posterior margin of each eye (Fig. 6D).

Hypostomal and postoccipital sutures

The hypostomal and postoccipital sutures are united with each other at the posterior tentorial pit to form a line in general Coleoptera. In the Histeroidea, however, it is usually difficult to discriminate between the two sutures, because the pit is absent in major groups and obscure in *Spaerites* and *Syntelia* (Fig. 4D, G). Part of the postoccipital suture between the gula and postgena is usually called "gular suture".

The hypostomal suture is distinct and found in the majority of the Histeroidea.

The gular sutures are variable in the Histeroidea: sometimes they are separated, running parallel to each other, but in other species they are fused partly or even completely to form a straight line. See also under Gula plate.

The postoccipital suture between the postocciput and postgena is variable in the Histeroidea, and is discussed under Postocciput.

Eyes and ocelli (Fig. 4 - 6)

The eyes are present in a pair and located laterally in general. They are usually well developed and oblong, the posterior margin is often inwardly arcuate. They are usually kidney-shaped or round in lateral view.

The eyes are, however, lost in a cave-inhabiting species, *Geocollus caecus*

Wenzel.

The ocelli are absent in the Histeroidea.

Cranium (Fig. 4 - 6)

Cranium is usually composed of the frontoclypeal region, vertex, postgena, ventral plate of the parietals, postocciput and gula in the Histeroidea.

Frontoclypeal region

In the majority of the Histeroidea, the region is nearly square, its lateral margins being often gradually convergent apically, or parallel. This is not true of the Histerinae (Fig. 6F, I) and Paromalini (Fig. 5C), in which the region is short with the anterior margin gently arcuate.

Epicranial modification

Epicranium is usually weakly convex or subflat. In the Niponiinae, there are projected structures in a pair, which are well developed and corrugated (Fig. 42A, 43A, 45A, 46A). Hornlike structure is developed in some species of the subfamily Tribalinae. The majority of the Onthophilinae have costae.

Frontal and supraorbital striae on the disk of epicarum are useful character for classifying the Histeroidea. The frontal stria usually appears in the Saprininae, Tryptecitinae, Dendrophilinae, and Histerinae; it is variable from a feebly impressed to a deep one, often interrupted at anterior middle or latero-apical angles, and also from a gently arcuate to a hexagonal line. The supraorbital stria is found in the Saprininae (Fig. 5G). The posterior end of the frontal and the lateral end of the supraorbital are usually united with each other.

Occiput

Occiput is equal to the so-called "neck" in Coleoptera. In the Histeroidea the occipital constriction is absent. Only in *Trypeticus* the portion is separated by a distinct ridge (Fig. 5E, F).

Ventral plates consisting of postgenae and ventral parts of parietals

The postgena and ventral part of the parietal on one side are usually fused into a plate because of the absence of the occipital suture. The plate are weakly convex or flat, usually with small or large punctures. However, a modified structure, known as antennal furrow, is found in major groups.

Antennal furrows on the ventral plates are developed in the following groups: *Syntelia*, *Pachylomalus*, *Onthophilus*, *Hololepta* (Fig. 4G, 5D, 6B, J) and *Niponius* (Fig. 42B, 43B, 45B, 46B); in the last taxon they are deeply foveate.

Gular plate

Gula is a median ventral plate of the head behind the posterior tentorial pit, but it is not separated from the submentum by a suture. In the Histeroidea, the gula is important for phylogenetic study, and is classified into the following types on the basis of the shape.

1. Gula is trapezoid. The gular sutures are distinct in a pair, not fused with each other, and are convergent apically.
2. Gula is a small triangular plate. The gular sutures are fused on anterior part.
3. Gula is reduced, being represented by a tiny triangular or transverse quadrangular plate. The gular sutures are almost fused with each other, and are forming a straight line.
4. Gula is absent. The gular sutures are completely fused, forming a straight line.

The 1st type is the most primitive state and is found in the Spheritidae, Synteliidae and *Pachylomalus* (Fig. 4D, G, 5D). The 2nd is present in the Dendrophilinae and Sapriniinae (Fig. 4J, 5H). The 3rd is found in the Trypeticinae, Onthophilinae and Abraeinae (Fig. 5F, L, 6B). The last type is the most derived state and is found in the Tribalinae and Histeridae (Fig. 6E, G, J). It is difficult to determine which of the 2nd and 3rd is more primitive.

Postocciput

Postocciput is a ring-shaped structure of the cranium and is usually reddish or yellowish brown in general. It is situated behind occiput and is separated from the latter by the postoccipital suture.

The postocciput is very important for phylogenetic study in the Histeroidea. In the most primitive state the postocciput is represented by a narrow and small plate and is situated along the lateral margin of the cavity. This state is found in the majority of the Histeroidea. In the Sapriniinae, the plate is elongate anteriorly along the gular suture, and is moderately narrow (Fig. 5H). In the Histerinae, the postocciput is enlarged on basal half of the ventral plate (Fig. 6G, J). This is the most derived state.

Antennae (Fig. 7 - 8)

Antennae are clavate and composed of the scape, pedicels and flagella. The base of the antenna is attached to the ventral side of the anterolateral margin of the forehead near the eye. Segments are numbered 11, except in *Trypteticus*, of which the antennae are 10-segmented (Fig. 7H). Scape is robust and geniculately connected with the pedicel. In the Hetaeriinae and the Chlamydopsinae, the scape is expanded and strongly angulate. Pedicel is usually short, small, and is usually narrower than the scape, but sometimes it is oval and broader in the Sapriniinae and Trypetitinae (Fig. 7H, 8A). Flagella are the 3rd to 11th segments of the antenna. In *Trypteticus*, they are the 3rd to 10th. In the Histeroidea, the apical three (usually 9th to 11th) are comprised in a "club" and the rest are called "funicle". The club is usually oval, condensed and more or less densely covered with hair; rarely it is cylindrical in the Heateriinae. In the Sapriniinae, the club is with "Reichardt's organ" (De Marzo and Vienna, 1982a, b) on the ventral surface, which is a particular sense apparatus (Fig. 7I, 8A). The articulation of the club is variable from a complete to an obscure one. The apicalmost segment of the funicle is usually expanded laterally to form a fringe.

Mouthparts (Fig. 9)

The mouthparts are composed of labrum, mandibles, maxillae, labium and

their appendages. In the Histeroidea, the morphology of the mouthparts has not been sufficiently studied. My comparative studies are still incomplete. Here, I describe their morphologies based only on two species, *Notodoma fungorum* and *Hololepta amurensis*.

Labrum (Fig. 9A, E) is an unpaired plate, situated before the clypeus and is separated from the latter by a distinct suture at the adult stage. It is transverse oblong, and the anterior margin is arcuate in *Notodoma*. The anterior margin is emarginate at middle and the lateral margins are also emarginate anteriorly in *Hololepta*. The lateral margin is furnished with hairs. In the Histerinae the surface of the labrum is not setiferous, while with a pair of setae in the Synteliinae, Sphaeritidae and other Histeridae.

Mandibles (Fig. 9D, H) are in a pair and well developed in the Histeroidea. The inner margin is usually provided with denticles. In *Notodoma* and *Hololepta*, there is no denticle.

Maxillae (Fig. 9B, F) consists of cardines, stipites, palpifers, laciniae, subgaleae, galeae and palpi all in pairs. The palpi is four-segmented, but may appear three-segmented because of the minute first segment. The galea is long in *Hololepta*.

Labium (Fig. 9C, G) is composed of the submentum, mentum, prementum, ligula and a pair of labial palpi. Mentum is nearly rectangular in *Notodoma*, while in *Hololepta* the anterior margin is strongly and acutely emarginate. Labial palpus consists of three segments.

Thorax

Cervix

The cervical elements are much reduced and composed of two pairs of lateral sclerites in the Histeroidea. They are situated ventrolaterally on the membrane between the cranium and the prothorax. The 1st (basal) sclerite is connected with the side of the anterior margin of the composite ventral plate of the prothorax by membrane. It is small, longitudinal oblong or triangular. The 2nd (apical) sclerite is much longer than the 1st.

Prothorax (Fig. 10 - 12)

The prothorax is separated into pronotum and prosternum in dorsal and ventral plates. The lateral side of pronotum is inflexed ventrally. The inflexed part is separated from the dorsal part of the pronotum by a distinct notohypomeran ridge or suture. Elements of the tergum of the prothorax are completely fused to form a well-sclerotized plate. Line of demarcation between the hypomeran and the composite ventral plate is tentatively called "tergopleural suture" (Naomi, 1988). The presternum is present in about half members of the Histeroidea, and is called "prosternal lobe". The furcasternum is a pair of semiglobulate plates, but they are difficult to observe in normal condition, forming the anterior wall or bottom of the fore coxal cavity which is concealed under the fore coxa.

General shape and modifications of pronotum

The pronotum is nearly rectangular, usually transverse and broadest near the

base, its sides usually being convergent apically. The anterior foramen is small, but that of *Syntelia* is larger than the posterior foramen (Fig. 10C). The posterior margin of the pronotum is obtusely angulate at middle or gently arcuate. The surface is often punctate, striate, and/or costate.

The following modifications are observed on the pronotum in the Histeroidea. The pronotal sides are convergent basally in *Syntelia* (Fig. 10C). It is subquadrangular in shape in the Niponiinae (Fig. 45D), Trypteticinae (Fig. 12F) and Plegaderini (Fig. 11H). The pronotum is impressed by a marginal pronotal stria which runs along the notonypomeroal ridge and anterior margin in all Histeroidea. In *Plegaderus* (Fig. 113A), a transverse stria and longitudinal striae are present near the middle and on lateral third, respectively. There are other striae, an outer lateral pronotal stria and an inner lateral pronotal stria, in the subfamily Histerinae. The former is usually represented only on lateral portion, while the latter is complete on lateral and anterior portion except for an interruption behind the head. One to four pairs of costae are present on the pronotum in *Onthophilus*. A transverse stria is found along the posterior margin of the pronotum in *Bacanius*, *Australomalus* (Fig. 83A) and *Acritus*. A pair of longitudinal impressions is present on medioposterior area in *Pachylomalus* (Fig. 101A).

Punctuation of the pronotum is very various in the Histeroidea. The pronotum is shining and smooth in some species of *Hister*, *Margarinotus*, *Hypocaccus* and so on. In most species of the Histeroidea, the punctuation covers the whole surface of the pronotum, the punctures being fine to coarse, and dense to sparse, sometimes in various combinations of them. The punctuation is often coarser and denser on the lateral region in *Atholus*, *Merohister*, some *Hypocaccus*, etc. A pair of large foveae are present at the lateromedian sides in *Niponius impressicollis* (Fig. 43D, E).

Hypomera

The hypomeron is strongly inflexed ventrally and extends from the anterior to the posterior margin of the pronotum. The posterior third of inner margin is usually strongly projects mesially. The apex of the projection is united with the posterior apex of the furcasternum in *Syntelia* (Fig. 10C). In all other members of the Histeroidea its apex is pointed and not united with the furcasternum. The notohypomeral ridge is distinct in all groups. The tergopleural suture is distinct in the majority of the Histeroidea, but is indistinct or completely lost in *Trypteticus* (Fig. 12F). In *Onthophilus* (Fig. 10G), the apical third of the hypomera is provided with an antennal cavity which is at least partly closed beneath by lateral region of composed ventral plate (prosternal alae).

Presternum

A transverse triangular, subquadrangular, or semicircular plate is present just before the composite ventral plate in the Synteliidae, Tribarinae, Onthophilinae, Histerinae, and Dendrophilinae. It is called "prosternal lobe" and distinctly separated from the composite ventral plate by a suture between prosternal keel and lobe. In other histeroids the presternum is reduced. The presternum is triangular and strongly

acute in *Syntelia* (Fig. 10C). There is a semicircular or obtuse triangular plate in the Histerinae, Dendrophilinae, and Tribainae. In the Onthophilinae (Fig. 10G), it is not projected anteriorly, being transverse quadrangular. Presternum is usually impressed along the anterior margin by a marginal stria of prosternal lobe.

Composite ventral plate

The composite ventral plate is usually transverse and about 1/3 as long as wide. It is very variable in shape in the Histeridae and useful and important for phylogenetic study as shown below:

1. Plate flat, the median portion weakly convex. The medioposterior portion is projected as a narrow intercoxal process. This state may be the most primitive and is observed in *Sphaerites* (Fig. 10E).

2. Plate flat, the median portion weakly convex. The medioposterior portion projected, but not produced as a process, being concealed under the fore coxae. This state may be second primitive and is observed in *Syntelia* (Fig. 10C).

3. The median portion of the plate is elevated as a broad process, while the medioposterior portion is represented by the intercoxal process (prosternal keel or process). The anterior margin of the plate is not produced into the antennal cavity on each side. The medio-apical portion of the plate is connected with the presternum, and the anterior margin of the united plate (presternum + composed ventral plate) is nearly straight. This state is observed in the Niponiinae (Fig. 42C, 43F, 45E, 46F).

4. As in 3, but the anterior margin of the plate is produced into the antennal cavity on each lateral portion. The cavity is a transverse fovea, of which the posterior ridge is formed by an oblique running anterior margin of the presternum, and at least partly closed beneath by the presternum or the anterior margin of the composed ventral plate (prosternal alae). This state is observed in the Tribarinae and Histerinae (Fig. 11A, B, C).

5. Similar to the preceeding type, but the anterior cavities are very deep and connected with foveae of the hypomeron. In this state, the lateral margin of the plate is deeply interrupted transversely on each side by the cavity. This state is observed in *Onthophilus* (Fig. 10G).

6. The median portion of the plate is elevated as a broad process, and the basal portion is represented by the intercoxal process. The anterior margin of the plate is produced to form the antennal cavity on each lateral portion. The cavity is situated in front of the procoxa, and is represented by a longitudinal deep furrow, of which the inner ridge is strongly costate and formed by a longitudinally running anterior margin of the presternum. This state is observed in the Dendrophilinae (Fig. 11F).

7. Very similar to the 6th type. The median portion of the plate is strongly elevated as a process or a narrow keel. The presternum is absent. This state is observed in the Sapriniinae (Fig. 12A, C), Trypeticinae (Fig. 12F) and Abrareinae (Fig. 12H).

A pair of striae called lateral marginal prosternal striae are present on the basal half of the median area of the composite ventral plate along the median elevated process. The intercoxal process (prosternal process or keel) is often impressed by a pair of carinal striae.

Furcasternum

The furcasternum is longitudinal and narrow in *Syntelia*, the basal apex being united with the projections of hypomeron. In *Sphaerites*, it is transverse and broad. In Histeridae, the furcasternum forms the anterior wall of the fore coxal cavity and is composed of a pair of semiglobular plates.

Fore coxal cavities

The fore coxal cavity is transverse, broad and situated on the basal half of the prothorax. Its anterior wall is composed of the composite ventral plate and the anterolateral part of the furcasternum, its outer lateral wall belongs to the hypomeron, and its inner lateral wall is the posterolateral part of furcasternum. The posterior wall is usually partially closed by the hypomerall projection, but is absent in *Plegaderus* (Fig. 12H). In *Syntelia*, the posterior wall is completely closed by the hypomerall projection, of which the inner apex is continuous with the intercoxal process (Fig. 10C).

Mesothorax

The mesothorax is composed of mesosternum, anepisterna, epimera, trochantins, prepectus and composite ventral plate. The mesosternum is much smaller than the pro- and metasternum. The anapleural suture is usually present between the anepisternum and the composite ventral plate. The trochantin is difficult to recognize as a distinct sclerite in the mesothorax. The presternum is not found in the Histeroidea.

Mesonotum

The mesonotum is usually called scutellum and its parts are almost concealed under the elytra. The exposed part of the mesothorax in dorsal view is usually triangular, but it is often invisible in minute histerids. The mesonotum is composed of anterior phragma, prescutum, scutum+scutellum and postnotum. The anterior phragma is well developed in the Histeroidea, and is represented by a pair of large deflexed lateral plates. The scutum and scutellum are amalgamated into a triangular plate in various degree in the Brachelytra. In *Syntelia* (Fig. 14A, B, C, 39B), the plate is longitudinal triangular. In the Histeridae, the scutum is well developed, lobulate, represented by a pair of lateral hanging structures (Fig. 14F, G).

Anepisterna and epimera (Fig. 13, 14)

The anepisterna and epimera are distinctly separated, and recognized in ventral view in the Synteliidae and Sphaeritidae. These plates are amalgamated in the Histeridae (Fig. 13). The anepisternum is usually not recognized in dorsal view, because it is situated under the mid coxae. The pleural suture is often absent in the Histeridae (e.g. *Saprinus*, *Hololepta*, and *Plaesus*).

Prepectus

The prepectus is absent in the Synteliidae and Sphaeritidae. It is present as

arcuate collars inside the anterior margin of the anepisterna in the Histeridae.

Composite ventral plate (Fig. 15, 16)

The composite ventral plates of the Histeroidea represents two types.

Type 1. The plate is rather even, its anterior margin is thin. The sides of the plate are convergent apically. The median longitudinal ridge is developed on the posterior area. This type is present in the Synteliidae and Sphaeritidae (Fig. 15A, B, C), and more primitive than the type 2. In *Sphaerites*, the ridge is quadrangular and highly elevated.

Type 2. The median portion of plate is strongly elevated, its anterior margin is very thick. The portion is called "intercoxal disk of mesosternum". The anterolateral side is connected with the anepisternum on the anterior side. The posterior margin of the median portion is straight or angulate, not produced into a longitudinal ridge. This type is found in all members of the Histeridae (Fig. 15D, 16A, B).

Marginal mesosternal stria is present on the intercoxal disk of mesosternum. Another transverse stria is often found on median area in the Sapriniinae and some members of the tribe Exosternini. The stria of the Sapriniinae is usually strongly crenate and impressed along meso-metasternal suture, and called "meso-metasternal stria". The intercoxal disk has a transverse and subrectangular impression on the median area in the Paromalini.

Mesocoxal cavities (Fig. 15, 16)

The mesocoxal cavities are variable in accord with the types of the composite ventral plate. The cavities are narrowly separated by an intercoxal ridge, and closed anteriorly by the posterior margin of the plate in Type 1. On the other hand, the cavities are broadly separated by the "intercoxal disk of mesosternum", and open anteriorly in Type 2.

Metathorax (Fig. 15, 16, 17)

The metathorax is composed of metanotum, anepisterna, katepisterna, epimera and composite ventral plate. The trochantin is difficult to recognize as a distinct sclerite in the metathorax.

Metanotum

The metanotum is composed of acrotergite, anterior phragma, prescutum, scutum, scutellum, postnotum and posterior phragma. The antecostal suture is distinct in *Onthophilus*. The plate before the antecosta is acrotergite. The acrotergite projects anteriorly and deeply emarginate at the middle in *Onthophilus*, while it is elevated as costa at the middle in *Saprinus*.

Anepisterna and epimera (Fig. 17)

The anepisternum and epimeron are longitudinal quadrangular in shape. They are situated nearly parallel to each other in the Synteliidae and Sphaeritidae (Fig. 15A, C), while in the Histeridae the anepisternum is situated before the epimeron (Fig. 17). In the first two families they are long in the exposed area, while in the last they are rather short. The anepisternum is usually exposed completely. The anterior

margin of the anepisternum is usually connected with the posterior margin of the epimeron of the mesothorax. It is not connected with the epimeron in *Chaetabraeus*, of which the anepisternum is very short and situated next to the hind coxa. The epimeron is more or less covered by the elytral epipleuron, its dorsal part is membranous and separated from the lateral part by a suture which may occur secondarily.

Composite ventral plate (Fig. 15, 16)

The composite ventral plate is usually transverse, and represents two types.

Type 1. The anterior margin of the intercoxal process between the mid coxae is narrower than the width of the midcoxal cavity. This type is found in the Synteliidae and Sphaeritidae (Fig. 15A, B).

Type 2. The anterior margin of the intercoxal process between the mid coxae is broader than the width of the midcoxal cavity. This type is found in the Histeridae (Fig. 15D, 16A, B). The median area is called "intercoxal disk of metasternum" and the lateral area "lateral disk of metasternum". The plate is impressed by the lateral metasternal and posterior mesocoxal striae.

The discriminial line (median longitudinal line or metasternal longitudinal suture) of the composite ventral plate is usually found in the Histeroidea; however, it is lost in *Sphaerites* (Fig. 15A), and is invisible in *Chaetabraeus*.

The following modifications are found on the plate. A deep fovea present behind each lateral anterior angle in *Epiechinus* (Fig. 53A). The male of some species of *Onthophilus* is furnished with a long hair. A small tubercle is found on the mid line in *Acritus*.

Position of hind coxae

The hind coxae are continuous to each other in the Synteliidae and Sphaeritidae (Fig. 15A, B), while they are broadly separated from each other in the Histeridae (Fig. 15D, 16A, B). These states are in accord with the condition of the composite ventral plate of the metathorax.

Metendosternite (Fig. 18)

The metendosternite is composed of an unpaired basal stalk and the anterior and furcal arms in pairs. The anterior arms are rudimentary in the Sphaeritidae and lost in the other groups of the Histeroidea. In *Sphaerites*, the metendosternite is Y-shaped, with the anterior arms short and the furcal arms extended obliquely and strengthened by broad and subtransparent laminae (Fig. 17A). In *Syntelia*, it is similar to that of *Sphaerites*, but the anterior arms are absent and the furcal arms are shortly developed mediolaterally (Fig. 17B). In the Histeridae, the metendosternite is U-shaped (Fig. 17C, D, E), the basal stalk is very short and transverse, and the furcal arms are broadly separated and extended obliquely.

Elytra (Fore wing)

The elytra are strongly sclerotized, usually black, sometimes maculate medianly with red or yellow, and having many striae, costae or tubercles, which are

useful for species identification.

The elytra are usually oval in the majority of the Histeridae, but variable in length and width. They are elongate quadrangular elytra are present in the Synteliidae, Niponiinae and Trypeticinae. In the Sphaeritidae, the elytra are elongate oval.

The side margins of elytra are usually round and slightly convergent apically, and sometimes parallel. The anteromesial margin of the elytron fits to the lateral margin of mesonotum. The apical margin is usually truncate, exposing the last two abdominal tergites, except in *Bacanius* and related genera and also *Sphaerites*. The sutural margins of elytra always meet along the median line, forming a straight elytral suture. The cross section of the elytral suture is illustrated in Vienna (1980).

The elytra are variously striate and punctate on the upper surface.

The length and situation of the striae and costae are very useful for species identification, and terminology for these characters has been proposed (Wenzel, 1944; Arnett, 1962; Ôhara, 1989). Basically the elytron has eleven striae, which are named from the outside to inside as follows: marginal epipleural, marginal elytral, external and internal subhumeral, oblique humeral, first to tenth dorsal, and sutural. The order of numbering in the Histeridae is opposite to that in most other Coleoptera, because the striae are frequently reduced from the inside in the Histeridae.

In the Sphaeritidae, the elytra are longitudinal rectangular, the outer lateral sides being moderately arcuate. The surface is completely striate and the striae are finely and densely punctate.

In the Synteliidae, the elytra are longitudinal rectangular. The surface is deeply striate, and the striae are crenate and often interrupted.

In the Histeridae, the elytral upper surface represents the following types.

1. The surface with striae.

1-a. All striae are nearly straight. Ends of 4th or 5th dorsal and sutural striae are not united with each other. Probably this type represents the most primitive state, being found in the Dendrophilinae, Tribalinae, and some groups of the Exosternini.

1-b. Fifth dorsal stria is absent. Ends of 4th and sutural striae are usually united with each other by an arc in basal area of elytron. Interstice between 4th dorsal and sutural striae very broad. This state is observed in Saprininae and some groups of Exosternini.

1-c. Interstice between 5th dorsal and the sutural striae not very broad. Basal ends of 5th dorsal and sutural striae are sometimes united with each other. This state is observed in the Histerinae.

2. The surface of elytra without stria or costa, only punctate variously. This type is often found in the small-sized histerids (e.g., *Bacanius*, *Acritus*, and some groups of the Paromalini).

3. The surface with strong costae. This type is found in the Onthophilinae.

4. The surface with many tubercles. A rare type, being limited to some species of *Margarinotus*.

Hind wing (Fig. 19 - 27)

Studies of the hind wing are very poor in the Histeroidea, a few studies having been made by Forbes, 1922 (*Hister inaequalis*), Kryzhanovskij and Reichardt, 1976 (*Merohister jekeli*, *Hololepta amurensis*, *Epierus comptus*, *Plegaderus* sp. *Tryponaeus* sp. *Sphaerites glabratus*, and *Syntelia histeroides*), Ôhara and Nakane, 1989 (*Notodoma fungorum* and *Binhister chujoi*), and Ôhara, 1991 (*Hololepta amurensis*).

The hind wing are functional in all examined species, but reduction rarely occurs (Crowson, 1974). The wing is usually transverse oblong and hyaline, and the veins are dark brown to yellow.

The veins of the hind wing in the Histeroidea are frequently and variously reduced. It is difficult to determine the homology of the veins with those of general insects. Veins recognizable in the Histeridae and their names and abbreviations adopted are given below. In terminology I follow Snodgrass (1935) with some reference to Morimoto (1983) and Naomi (1989), who proposed terms on the basis of relationships between the axillary sclerites and the veins (Fig. 19).

HP: Humeral plate.

C: Costa runs on anterior margin of the wing and is unbranched; connected at the base with the antero-distally projection of the 1st axillary sclerite.

Sc: Subcosta arises from the 1st axillary sclerite and is unbranched.

R: Radius usually arises from the 2nd axillary sclerite in general insects. In the Histeridae, the base of radius is reduced and not attached to the 2nd axillary.

M: Media is connected with the median plate.

Cu: Cubitus is also connected with the median plate

Pcu: Post-cubitus is divided from near the base of the cubitus.

A: Anal vein is connected with the 3rd axillary sclerite.

There is no peculiarity in the other veins and axillary plates. No study has been made on folding patterns in repose.

Following notes are probably important for the phylogenetic study of the Histeroidea.

1. A definite M-Cu loop is present in the middle area of the wing. This state is primitive (Crowson, 1955), and is found in the Sphaeritidae, Synteliidae, all genera of Saprinae and the following genera of the Histeridae: *Onthophilus*, *Dendrophilus*, *Anapleus*, *Epiechilus*, *Epierus* (Fig. 20C, D, E, 21A, B, 22B, C, D, E, 23A, B).
2. Wings of all the observed members of the tribe Histerini are fairly uniform in venation and shape; the M-Cu loop is situated basally (Fig. 25A - E, 26A - C); the anal lobe is bilobulate (represented by two lobules).
3. Hind wings of the Saprinae and *Dendrophilus* are very similar, and share a characteristic and unique anal vein which is situated close to the Pcu and with a clear curve at its middle (Fig. 22B - E, 23A).

In insect wings, some general trends correlated with the absolute body size have been known. In histerids the following generalizations are recognized.

4. The veins are strongly reduced in the majority of small-sized histerids (e.g., *Bacanius*, *Platylomalus*, *Chaetabraeus*, *Plegaderus*, etc.), which are only

about 1 mm long (Fig. 21E, 22A, 24B).

5. Large histerids (e.g., *Merohister* and *Pactolinus*, about 20 mm long) have slender and oblong wings. In small histerids the wings are oval, except in *Bacanius*, which has slender wings.

In Fig. 28, ratios of lengths between the several points on the hind wing are provided.

Legs

The legs (Fig. 29, 30) are composed of coxae, trochanters, femora, tibiae, tarsi and pretarsi (including claws) in the Histeridae.

Coxae

Fore coxae

The fore coxa is subcylindrical and elongate. A deep and narrow furrow is present on apical area in *Syntelia* (Fig. 29D), apparently in association with the closely set fore coxal cavities.

Mid coxae

The mid coxa is spherical and ovate in ventral view.

Hind coxae

The hind coxa is transverse triangular and subflat in the Synteliidae and Sphaeritidae, while in the Histeridae it is small and thick, and triangular in ventral view. The former type represents a more primitive state than the latter.

Trochanter

The fore trochanter is small and subconical, and subtriangular in ventral view. The mid and hind trochanters are similar to it. Usually with setae in the posterior margin, but often without them in the hind trochanter.

Femora

The fore, mid and hind femora are baculiform and thick, often with setae on the anterior (fore femur) or posterior margin (mid and hind femora). There are robust truncate setae on the fore femur of *Saprinus*. A longitudinal stria (profemoral stria) is present along the posterior margin of the fore femur on the ventral side in the tribe Histerini; in the tribe Platysomatini, the ventral surface is corrugated.

Tibiae

The shape of the tibia is subject to various modifications, which may vaguely be classified into the following 3 types.

1. The tibiae is slenderer than the femur and baculiform. Denticles on the margin of the tibiae are very small.
2. The tibiae is somewhat expanded apically, and wider than the femur. The denticles are large and well developed.
3. The tibiae is strongly dilated, thus more or less round in outline. The

denticles are weakly developed.

The 1st type may be the most primitive and found in the Sphaeritidae and some groups of the Histeridae, that is, Onthophilinae, Niponinae, Trypeticinae and some genera of the Exosternini (Fig. 29A, G). The 2nd type is common in the Histeridae. The 3rd type is present in some species of the Hetaerini and *Dendrophilus* (Fig. 30D, E, F). The last type is often found in the members of myrmecophilous histerids.

The tarsal groove is present on the dorsal surface of the fore tibia in the Synteliidae and Histeridae. In the Hololeptini and the Platysomatini, the groove is very deep and shaped like an S. It is situated on the apical margin in the tribe Dendrophilinae and Anapleini. The ventral surface of the tibiae is densely covered with robust or long hairs or setae in some members of the *Hypocaccus*, *Eopachylopus* (Fig. 155) and *Philothis*. This condition is often associated with their habitats in sand on beach.

Tarsi

The tarsus is composed of five tarsomeres in general, but in *Acritus*, four-segmented in the hind leg, thus the tarsal formula is 5-5-4. The relative lengths of the tarsomeres are rather uniform, the 1st to 4th tarsomeres being short and the 5th long. In *Saprinus*, the mid tarsus shows a sexual dimorphism, being furnished with long setae in the male.

Abdomen

General structure

The abdomen is fundamentally composed of 10 segments in the Histeroidea. The elytra are truncate, and the 6th and 7th abdominal terga are exposed and strongly sclerotized in the Histeridae. On the other hand, in the Sphaeritidae and Synteliidae, the dorsum of the abdomen is almost covered by elytra and only the 7th abdominal tergite is exposed. The 1st and 2nd sterna are completely lost. The 3rd to 7th sterna are exposed and strongly sclerotized. The 8th, 9th and 10th segments are almost telescoped into the 7th.

Abdominal segments (Fig. 31)

Each of the 3rd to 7th terga is transversely rectangular in shape, and a transverse tergal suture runs along the basal margin.

The basal margin of the 3rd sternum is longitudinally carinated medially and the sides are shallowly concave for receiving hind coxa in the Synteliidae and Sphaeritidae. In the Histeridae, the carina is not present and the sides of the basal margin are roundly and deeply emarginate for receiving hind coxae, the emarginate portions being broadly separated from each other. The disk of the 3rd sternum is usually with one or two pairs of striae on each side of the median area. In taxonomic descriptions the disk of the 3rd is often called "1st abdominal sternum" and the striae "1st abdominal striae", because the true 1st and 2nd disks are absent and the 3rd appear to be the 1st. The 4th to 7th sterna are convex and a little broader than the terga, and each of them is transversely trapezoidal in shape in ventral view. The lateral sides of sterna are usually convergent posteriorly. The posterior margin of the

7th sternum is arcuately emarginate for receiving the posterior margin of the 7th tergite (pygidium).

Genital segments

The 8th, 9th and 10th abdominal segments are called genital segments. These segments are not exposed, and weakly sclerotized and pigmented.

Male

The 8th tergite is usually rectangular to subrectangular in shape in dorsal view and often divided into two plates by a longitudinal mid line. A pair of short or long processes are usually present at the anterolateral corners of the tergite. The 8th sternum is more variously modified than the tergum. For example, it is divided into two plates by a longitudinal mid line, and each plate is elongated posteriorly and rounded apically in the Sphaeritidae (Fig. 38), *Carcinops* (Fig. 92), some members of the tribe Platysomatini (Fig. 58, 59, 60) and Histerini. The ventral surface is strongly sclerotized and densely covered with hairs in *Saprinus* (Fig. 133, 135, 136) and most Saprininae. The 8th sternum is oblong in ventral view, and the caudal disk with a round disk or some small oblong disks in the tribe Paromarini (Fig. 95, 98, 101, 104, 106, 109, 111, 113, 116).

The 9th tergum is often divided longitudinally. This state is found in *Gnathoncus*, *Carcinops*, *Anapleus*, *Epiechinus* and *Platysoma* (Fig. 126, 129, 130, 92, 83, 90, 54, 58, 59, 60, 62, 65). The anterolateral corner is projected. In *Trypeticus*, the projection is very long (Fig. 160). The posterior margin is connected with the 10th tergum and nearly straight, but often emarginate arcuately or acutely for fitting the anterior margin of the 10th. The 10th tergum is present in the Histeroidea, but, in my examination, not in *Trypeticus*.

The 9th sternum is composed of an unpaired plate, and is called "spicule". It is a thin plate, longer than broad, and may be longitudinal and oblong in its primitive state as represented by the Sphaeritidae and Synteliidae, *Plegaderus*, and Niponiinae (Fig. 38E, 40E, 114F, 44E, 47E). The anterior apex is strongly sclerotized in a V in *Epiurus* (Fig. 51E) and *Niponius*. In most Histeridae, the 9th sternum is modified variously. The posterior apex is expanded and produced into a triangular disk in *Anapleus* (Fig. 83G, 90G), *Platylomalus* (Fig. 106F) and *Dendrophilus* (Fig. 79F). The lateral angles of the posterior apex are elongated posterolaterally, thus the sternum is T-shaped in the tribe Histerini and Platysomatini. In the Saprininae too, it is often shaped like a T, the anterior apex often expanded (Fig. 128I, J, 129I, 130I, 133I, J, 134I, 135I, 135H, 143G, 144G, 145G, 146G, 150G, 152G, 156H). The projections of the posterior apex are united together on dorsal side to form a ring, into which the basal piece is fitted.

Female

The female genital segments have not been studied enough to make a revision. They are out of scope in this study.

Male genitalia

Male genitalia consist of 3 parts: basal piece, a pair of parameres, and median lobe. Sharp (1800) firstly made comparative study of coleoptera. In Histeridae, the male genitalia are considered to be the most useful character for the classification at species level, because they are usually different in shape from species to species and morphologically stable within a species.

Basal piece

The basal piece is usually a ring surrounding the basal part of the median lobe, and the posterior margin is connected with basal margin of paramere. In *Syntelia*, *Sphaerites* and *Anapleus*, it is an incomplete ring, being not closed on dorsal or lateral side (Fig. 38A, B, 40A, B, 83A, B, 85A, B, 90A, B). This condition may be the most primitive in the Histeroidea. It is absent in some unrelated taxa: *Acrilus*, *Bacanius* and part of Heteriinae. The basal piece is variable in length in the Histeroidea. It is usually half as long as the paramere, but, in *Niponius* (Fig. 44A, 47A), members of the tribe Paromalini (Fig. 92A, 95A, 98A, 101A, 104A, 106A, 109A, 111A, 113A, 116A, 118A), *Epierus* (Fig. 51A), *Trypeticus* (Fig. 151A) and some members of the tribe Platysomatini (Fig. 65A), it is as long as or much longer than the paramere.

Parameres

The parameres are principally represented by a pair of slender and lobate structures in the Coleoptera. In the Histeroidea, the parameres are usually fused basally on the ventral side to form a tube structure. Their dorsal side is usually provided with a slit. The basal margin of the parameres is connected with the posterior margin of the basal piece. The most primitive state of the parameres is found in *Sphaerites* and *Syntelia* (Fig. 38A, 40A): the parameres are not fused dorsally and also separated in their apical halves ventrally; the median lobe is extruded from the ventral side. In the majority of the Histeridae, the parameres are partly fused in the basal half and moderately separated in the apical half; the median lobe is extruded from the dorsal side. The median lobe is, however, extruded from the ventral side in *Hololepta* and members of the tribe Exosternini (Ôhara and Nakane, 1989). The parameres are various in shape and length: they are usually slender and convergent apically; in *Platysoma* (Fig. 58A, 59A, 60A), the apical part is lobate, elongate apically and convergent apically; especially in *Apobletes* (Fig. 65A) the lateral side is strongly emarginate; in members of the Paromalini, it is short.

Median lobe

The median lobe is usually slender and is surrounded by the parameres and the basal piece. It is various in shape, varying from a flat and weakly sclerotized lobe to a strongly sclerotized one with armature. Their shapes may tentatively be classified into the following types.

1. A weakly sclerotized and flat lobe is found in *Syntelia*, *Sphaerites*, *Niponius*, *Trypeticus*, *Epierus* and most members of the Saprininae. This condition is the most primitive state.

2. The lobe is moderately sclerotized and flat, with a slender process on the basal angle. This condition is found in the following taxa: *Onthophilus*, *Epiechinus*, most members of the Dendrophilinae, Exosternini, Platysomatini and some members of the Histerini.

3. The lobe is strongly sclerotized and provided with armatures, a condition probably derived from Type 2. This is found in some members of the tribe Histerini: *Hister*, *Atholus*, *Zabromorphus*, *Merohister*, *Margarinotus* and so on (Ôhara, 1989, 1992a, 1992b, 1992c, 1993).

Female genitalia

Spermatheca

The spermatheca is the sperm receptacle of the female. Marzo and Vienna (1982) first made a careful morphological study of the organ in the Histeridae, and recognized two fundamental patterns: I) spermatheca including 1 receptacle, a more or less long duct and a distinct gland; II) spermatheca including 4 to 9 sessile receptacles, without distinct spermathecal gland. The second pattern is found in the tribe Histerini, while the first widely in other groups. In this study, I have also recognized both the patterns, which may be subdivided into the following 6 types:

- I). Spermatheca shape like a globe, strongly sclerotized.
 1. Without projection or invagination.
 2. With a developed invagination.
 3. With a developed external projection.
 4. With developed internal projections.
- II). Spermatheca consisting of several small sacs each with slender tube basally.
 5. The sacs are attached to the wall of the vagina, the tubes being not coiled.
 6. The sacs are attached to the wall of the bursa copulatrix, usually small and globe-shaped; the basal tubular part is often coiled.

The 1st type is probably the most primitive state, being common in various groups.

The 2nd type is found in the Sapriniinae (Fig. 32H, I) and *Plegaderus* (Fig. 32G). The spermatheca of the Sapriniinae is strongly vaginate around the area connected with the duct of spermatheca and also around the area connected with the spermathecal gland. *Plegaderus* has a pear-shaped spermatheca feebly invaginate apically.

The 3rd type is found in *Niponius* (Fig. 32D) and *Platylomalus* (Fig. 32K). Probably this type has independently appeared in these genera.

The 4th type is found in the Dendrophilinae, with one internal projection in *Carcinops* and two in *Platylomalus* (Fig. 32J) and *Eulomalus* (Fig. 32L).

The 5th and 6th types are present only in the tribe Histerini, the former is observed in *Hister*, *Atholus*, *Merohister*, *Zabromorphus*, and *Pactolinus* (Fig. 33E, F, G, H, I), while the latter is found only in *Margarinotus* (Fig. 33J, K, L).

The spermathecal gland is usually a small saccule, weakly sclerotized and with a long straight or coiled spermathecal duct, but is sometimes absent.

5. Pylogeny

Phylogenetic Relationships of the Families

The superfamily Histeroidea was adumbrated by Sharp and Muir (1912), with the remark that "four families Histeridae, Synteliidae, Sphaeritidae and Niponiidae are so closely related by the aedeagus, that they might form one family". The group was adopted by a majority of the histerid systematists (Reichardt, 1941; Wenzel, 1944; Crowson, 1955; 1974; Kryzhanovskij and Reichardt, 1976; Mazur, 1984; Hisamatsu, 1985).

The superfamily Histeroidea is included in the Staphyliniform lineage, which is often divided into three superfamilies: the aquatic Hydrophiloidea, and the terrestrial Histeroidea and Staphyloidea. The Histeroidea have been considered the most closely related to the superfamily Hydrophiloidea by some authors (Böving and Craighead, 1931; Reichardt, 1941; Morimoto, 1986). On the contrary Crowson (1955; 1974) insisted that the Histeroidea are more closely allied to Staphyloidea than to the Hydrophiloidea. But recent works tend to refute Crowson's hypothesis. Discoveries of larvae of the primitive histeroid families Sphaeritidae and Synteliidae (Nikitsky, 1975; Mamayev, 1976) have shown that these larvae share numerous specializations common to Histeridae and Hydrophilidae.

The Histeroidea and Hydrophiloidea are united by the following derived larval character states: 1) labrum fused to head capsule and without tormae, 2) mandible falcate with reduced molar lobe, 3) basal segment (palpifer) of maxillary palp complete and bearing articulated appendage, 4) tentorium with posterior arm attached directly to head, with a short bridge attached well above venter of head, 5) spiracle biforous with an elateroid molting process, 6) abdomen largely membranous with scattered small sclerites, and 7) final instar without ecdysial line on head. Known pupae lack functional spiracles on the first abdominal segment. Adult antennae are short, usually with a sharply differentiated club composed of three densely pubescent segments; abdominal segment seven is invaginated at least ventrally; and the seventh or seventh and eighth spiracles are atrophied. Nearly all larvae are carnivorous with mouthparts adapted for extraoral digestion. Recently Lawrence and Newton (1982) have proposed to include the Histeroidea in the Hydrophiloidea (excluding Hydraenidae). According to them there are no sufficient differences between these taxon to divided into the superfamilies. In this study, however, I adopt the superfamily Histeroidea as a good taxon because of sufficient differences in life habit between these groups.

The superfamily Histeroidea consists of three families, Sphaeritidae, Synteliidae and Histeridae, and is characterized in adult by the compact antennal club, very prominent, acute mandibles, truncate elytra covering six abdominal segments at most, ovipositor with scoop-like gonocoxites bearing mesal styli, and carnivorous feeding habit. There is a general agreement on the monophyly of this group and on the derived position of the highly compact Histeridae.

Some authors treated the Niponiinae as distinct family (Gardner, 1926; Nakane, 1963; Hisamatsu, 1985). Since Reichardt (1941), however, the majority of the histerid systematists has adopted a system consisting of the three families. Studies of the phylogenetic relationships among these families have been written fragmentally by

some authors. Crowson (1955) stated that the families Sphaeritidae and Synteliidae are more primitive than the Histeridae.

Phylogenetic Relationships of the Subfamilies

Many authors have proposed infrafamilial classification of the Histeridae (see Historical review), but no cladograms have yet been published and no studies have been presented with specific intent to distinguish between apotypic and plesiotypic character states.

Since Wenzel (1944) proposed a new system, most authors (Hatch, 1962; Mazur, 1981; Vienna, 1981; Yélamos, 1985 and Hisamatsu, 1985) have followed him. Mazur (1984) refined the Wenzel's system in his world catalogue. This revised system, here called "Wenzel-Mazur System", adopts traditional and important character states for constructing phylogeny without evaluating their atypic-plesiotypic relationships.

The subfamilies are so diverse and distinct, that it has been difficult to find other characters which can be used to construct morphoclines through them. In this section, the character states used in the Wenzel-Mazur System are evaluated first. Then I propose a new cladogram for the subfamilies of the Histeridae.

Wenzel and Mazur System

Wenzel (1944, 1962) and Mazur (1984) did not distinguish between primitive and derived states of their characters. Hence details of the phylogenetic relationship within the family Histeridae are not clear in their system. I have tried to determine polarities (primitive-derived relationships) for their character states, and then applied them to the key branching diagram of the Wenzel-Mazur System.

The character states are given in Table 2. They have been picked up from key in Wenzel (1944 in Arnett, 1962) and also from a diagnosis given by Olexa (1982). Out-group comparisons have been made to determine polarities between paired states, which are given 0 (primitive) and 1 (derived), sometimes also 2 (more derived), in the table. The out-groups adopted Synteliidae (*Syntelia histeroides*) and Sphaeritidae (*Sphaerites politus*). However, character 2, 5 and 14 could not be determined as to the polarities of their states, though these are arranged with code number. Character 5 has five states (Code 0 - 4), which may not be in a linear relationship. Character 1, 6, 10 and 13 includes negative or reductive states, which are interpreted as derived.

The diagram thus constructed is shown in Fig. 35. It includes five cases of homoplasy, three of reversal, and two of parallelism.

However, I do not think that two of the indicated case of reversal are real: Character 2AnCa and 9HeSt in the Niponiinae. The other indicated case is 9HeSt in the Tryponaeinae. Parallelism is indicated for 2 and 14AnCa and 3 and 12AnSc. The case of AnCa may not represent real parallelism. The derived state of AnSc is apparently associated with the myrmecophilous habit in the Chlamydopsinae and Hetaerinae.

Proposed cladogram

In Section 4 (Morphology and structure and terms), I examined and compared many external characters, but I could not find any additional states useful in phylogeny reconstruction at the subfamily level except the mesosternal width.

Table 2. Character states used in Wenzel-Mazur System and their presumed polarities.

No.	Mnemonic	Code	State
1	PsLo	0	Prosternal lobe present (Histeromorphae).
		1	Prosternal lobe absent (Saprinomorphae).
2	AnCa	0	Antennal cavities absent.
		1	Antennal cavities closed beneath by the prosternal alae.
		2	Antennal cavities [if present] open beneath.
3	AnSc	0	Antennal scape normal, the club usually a little, but never three times, large than broad.
		1	Antennal scape strongly angulate and usually greatly expanded, the club greatly elongated, at last three times as long as broad.
4	Form	0	Form round, oval or oblong-oval.
		1	Form cylindrical, sometimes stoutly so.
5	AnCa	0	Antennal cavities absent.
		1	Antennal cavities situated in anterior prothoracic angles, at least partly closed beneath by prosternal alae.
		2	Antennal cavities situated in anterior prothoracic angles, wholly closed beneath by prosternal alae.
		3	Antennal cavities situated in front of procoxae, next to and nearly always encroaching upon prosternal keel.
		4	Antennal cavities situated in anterior prothoracic angles, or in front of procoxae.
6	ElSt	0	Dorsal elytral striae rarely absent, if so, then at least sutural stria present.
		1	Dorsal elytral stria never present though rather vague impression may be evident.
7	HeHn	0	Head not produced into two horns, though it may be produced as a long pointed rostrum in the female.
		1	Head produced anterior into two horns of variable length.
8	Mand	0	Mandibles moving in the same plane as the long axis of the head.
		1	Mandibles deflexed, moving in a plane at right angles to the long axis of the head.
9	HeSt	0	Head horizontal in repose.
		1	Head vertical in repose.
10	AnSe	0	Antennal consisting of eight segments and a club.
		1	Antennal consisting of seven segments and a club.
11	PrAl	0	Anterior margin of prosternal alae without reception of antennal funicle.

Table 2. Continued.

	1	Anterior margins of prosternal alae with rather deep longitudinal incisions for the reception of the antennal funicle in repose.
	2	Anterior margin of prosternal alae at most with only very slight notch. Antennal cavities not defined.
12 AnSc	0	Antennal scape normal, neither expanded nor strongly angulate.
	1	Antennal scape expanded and strongly angulate.
13 LaSe	0	Labrum with setigerous punctures
	1	Labrum without setigerous punctures.
14 AnCa	0	Antennal cavities absent.
	1	Antennal cavities situated in anterior prothoracic angles, at least partly closed beneath by prosternal alae.
	2	Antennal cavities completely open, usually situated just anterior to procoxae at middle of hypomera.
15 PtDe	0	Protibiae multidenticulate.
	1	Protibiae oligodenticulate.
16 DoCo	0	Dorsal surface normal, without costae.
	1	Dorsal surface with distinct costae.

In Table 3, the mesosternal width and the characters mentioned in Table 2 are arranged against subfamilies, and their states are indicated by code numbers, which are the same as those given in Table 2 (for codes for the mesosternal width see under Table 3). Character 2, 5 and 14 in Table 2 are represented by Character 5, and Character 3 and 12 by Character 3, in Table 3. Based on this data matrix, a cladogram is constructed (Fig. 36). The new cladogram is characterized by the erection of three major groups instead of two (the Saprinomorphae and the Histeromorphae) in the Wenzel-Mazur System. It is also remarkable in the following interpretations:

1) The Niponiinae are the most primitive subfamily (Character HeSt: Code 0). The two supposed reversal states in Fig. 35 are cleared in the new cladogram.

2) Wenzel (1944) recognized the two major groups on the basis of Character PsLo. However, the prosternal lobe is present (PsLo: 0) in the Niponiinae, which were erroneously included in the Saprinomorphae by Wenzel. Moreover, Character AnCa is more weighed than PsLo in the new cladogram; the Dendrophilinae, therefore, are not a histeromorph but a saprinomorph subfamily. In the new cladogram it is postulated that the prosternal lobe was lost in the common ancestral taxon of the Abraeinae, Saprinae, Trypanaeinae and Trypeticinae, and the supposed parallel evolution of 14AnCa Code 3 and 2AnCa 3 is not accepted. After all, the Saprinomorphae and the Histeromorphae, as composed in the Wenzel-Mazur System, are rejected.

3) The Chlamydopsinae are highly adapted to myrmecophilous habit. Their prosternal structures are diversified and sometimes reduced, and it is difficult to

conform them to a transformation series. However, their antennal cavities are closed beneath by the prosternal alae, and there is no distinct prosternal keel. They should be placed next to the Onthophilinae and the Tribalinae.

4) The parallel evolution of Character Form (Code 1) may be associated with living in the gallery of scolid beetles, the concerned histerid preying on them.

In the Saprininae and Dendrophilinae the anal vein of the hind wing is distinctly curved at basal one-third. This may be a common derived state in these subfamilies, supporting the new cladogram. (In the Abraeinae, Trypanaeinae and Trypeticinae the veins of the hind wing are strongly reduced in association with their small body size.) These two subfamilies also agree in having a large and triangular gular plate.

Table. 3. Data matrix.

No.		Anc	Nip	Chl	Ont	Tri	His	Het	Den	Abr	Sap	Tpa	Tpe
0	MsWi	0	1	1	1	1	1	1	1	1	1	1	1
9	HeSt	0	0	1	1	1	1	1	1	1	1	0*	1
7	HeHn	0	1	0	0	0	0	0	0	0	0	0	0
8	Mand	0	1	0	0	0	0	0	0	0	0	0	0
5	AnCa	0	0	2	2	1	1	1	3	4	3	3	3
1	PsLo**	0	0	1	0	0	0	0	0	1	1	1	1
11	PrAl	0	0	0	0	0	0	0	1	1	1	2	1
3	AnSc**	0	0	1	0	0	0	1	0	0	0	0	0
4	Form**	0/1	1	0	0	0	0	0	0	0	0	1	1
6	ElSt	0	0	0	0	0	0	0	0	1	0	0	0
10	AnSe	0	0	0	0	0	0	0	0	0	0	0	1
13	LaSe	0	0	0	0	0	1	0	0	0	0	0	0
16	DoCo	0	0	0	1	0	0	0	0	0	0	0	0

Anc: Synteliidae and Sphaeritidae; Nip: Niponiinae; Chl: Chlamydopsinae; Ont: Onthophilinae; Tri: Tribalinae; His: Histerinae; Het: Hetaeriinae; Den: Dendrophilinae; Abr: Abraeinae; Sap: Saprininae; Tpa: Trypanaeinae; Tpe: Trypeticinae.

* Reversal; ** Parallelism.

No. 0, MsWi, code 0: mesosternum between mesocoxae narrower than mesocoxal cavity; code 1: mesosternum between mesocoxae broader than the mesocoxal cavity.

6. Systematics

Key to the families of the Histeroidea

- 1(4) Hind coxae not separated from each other. Anterior margin of intercoxal disk of mesosternum between mid coxae is narrower than the width of the mid coxal cavity. Mid coxa closed anteriorly by mesothorax. Only last abdominal tergite exposed.
- 2(3) Body oblong-oval. Prosternal process short. Striae of elytra finely punctate,

- not deeply impressed.Family Sphaeritidae
- 3(2) Body oblong. Prosternal keel almost absent, but a tubercle present posteriorly between fore coxae. Striae of elytra deeply impressed. Family Synteliidae
- 4(1) Hind coxae broadly separated from each other. Anterior margin of intercoxal disk of mesosternum between mid coxae is broader than the width of the mid coxal cavity. Mid coxae broadly separated by mesosternal intercoxal disk and opened anteriorly. Anepisterna of mesothorax concealed under mid coxa, not visible in ventral view. Last 2 abdominal tergites exposed. ...Family Histeridae

6. 1. Family Sphaeritidae (Heer, 1841)

Thomson, 1862: 23 [type genus: *Sphaerites* Duftschmid, 1805]; Ganglauber, 1899: 412; Ganglauber, 1903: 305; Jakobson, 1915: 658, 869; Schenkling, 1913: 1-2; Reichardt, 1941: 1-10; Crowson, 1955: 13, 24; 1974: 133; Arnett, 1962: 385; Adachi and Ohno, 1962: 148; Witzgall, 1971: 189.

English name: the false clown beetles.

Genus *Sphaerites* Duftschmid, 1805

Diagnosis by Arnett (1962). "These beetles superficially resemble a hister, but somewhat loosely articulated, not compact, legs not tightly co-adapted to body; they lack the strongly geniculate antennae and the external teeth on the tibiae. The elytra, although still truncate, cover all but the last abdominal tergite, and more loosely cover the abdomen.

Shape oval, convex; size about 6 mm. in length; color dark greenish-metallic; vestiture absent except on the tarsi, antennae, and around the mouthparts.

Head much narrower than the pronotum, deflexed, surface punctate. Antennae eleven-segmented, strongly capitate, the club three-segmented, not strongly geniculate; inserted under a slight frontal ridge close to the margin of the eyes and the base of the mandibles. Labrum very short, transverse; mandibles very large, curved apices very acute, almost hook-like with stout tooth; maxillary palpus four-segmented, the first segment very small, the remaining segments stout, the apical segment the largest, cylindrical, somewhat depressed; labial palpus three-segmented, the segments stout, cylindrical. Eyes lateral, moderate, oval.

Prothorax freely movable; pronotum much broader than the head; anterior border emarginate for the insertion of the head; sides evenly acute, broader posteriorly; posterior border sinuate, sides and anterior border margined; surface punctate more so laterally; pleural region broad, explanate; procoxal cavities narrowly open. Mesosternum narrow; metasternum broad. Legs with front trochantins exposed; anterior coxae transverse; contiguous, prominent; middle coxae small, globular; hind coxae transverse; trochanters small; femora swollen; anterior tibia with external spines, but without teeth. Tarsal formula 5-5-5, the segments slender, fringed with numerous setae; claws prominent with a bisetose empodium between. Scutellum moderate, triangular. Elytra convex, truncate, exposing only the pygidium; striae represented by a row of punctations; epipleural fold moderate. Wing venation with m-cu loop relatively

large and distinct, radial cell distinct, stigma reduced.

Abdomen with five visible sternites, surface slightly punctate. Penis thin; parameres nearly completely fused, large; pars basalis small, asymmetrical, forming a band. Female genitalia undescribed."

Larvae: Nikitsky (1976) described the larva of *Sphaerites glabratus*.

***Sphaerites politus* Mannerheim, 1846**

(Fig. 37, 48, 41)

Sphaerites politus Mannerheim, 1846: 514; Kryzhanovskij and Reichardt, 1976: 22; Adachi and Ohno, 1962: 149; Nakane, 1963: 67, pl. 34, no. 1; Matsumoto, 1981: 6 [Mt. Hidaka]; Yasuda, 1982: 76 [Mt. Daisetsu]; Hisamatsu, 1985: 219, pl. 40, no. 1; Yasuda, 1988: 25.

Japanese name: Emma-mushi-damashi.

Description. Body length, PPL, 4.56 - 5.63 mm (5.14 ± 0.12 , n=9), PEL, 4.38 - 5.31 mm (4.99 ± 0.10 , n=9). Width, 2.94 - 3.56 mm (3.28 ± 0.07 , n=9). Body oblong (Fig. 37A). Cuticle shining and bronze; tarsi and antennae dark rufopiceous. Biometric data are given in Table 4.

Anterior margin of head narrowly marginate laterally between basal corner of epistoma and eye just behind antennal cavity. Surface of head coarsely and densely punctate, the punctures becoming finer and sparser on central area and epistoma.

Anterior margin of pronotum (Fig. 37A) evenly emarginate; lateral sides weakly arcuate on apical half, and nearly straight on basal half; posterior margin strongly arcuate outwards in median third; marginal stria complete laterally, its apical end curved behind apical corner, extended inwards, and attaining to near the lateral third of pronotum, the stria somewhat distantly present from the pronotal margin; surface sparsely and coarsely punctate laterally, and with other fine punctures intermingled, the fine punctures progressively finer inwardly; on median area of the surface clothed with microscopic punctures.

Epipleura narrow. Marginal epipleural stria complete and carinate. Marginal elytral stria strongly carinate and complete. Area between the margin of epipleura and the marginal elytral stria shining and sparsely clothed with several microscopic punctures. Elytra (Fig. 37A) with 10 rows which are nearly complete and consist of coarse and round serial punctures, which are separated by their own diameter to twice the diameter but irregularly scattered on apical sixth; intervals among the rows sparsely clothed with microscopic punctures.

Pygidium (Fig. 37B) with marginal stria along lateroposterior margin, the basal end not attaining to the basal corner, curved before the corner and shortly extended inwards; surface of disk densely covered with coarse punctures which are a little coarser than in elytral rows; other fine punctures intermingled among them, becoming sparser apically.

Antennal grooves present on apical area of underside of head, the grooves running obliquely from apex of eyes to middle of head.

Anterior margin of prosternum evenly emarginate, and with long hairs; median area of disk densely covered with coarse setiferous punctures, the setae being somewhat long.

Mesosternum small and quadrangular, its disk densely covered with coarse punctures. Meso-metasternal suture distinctly present. Anterior margin of metasternum behind mesocoxae strongly carinate and marginate; intercoxal disk sparsely covered with fine punctures, the punctures becoming coarser laterally; lateral disk sparsely covered with large, round and shallow punctures. Metepisternum densely punctate, the punctures as large as those of lateral disk of metasternum; on area along the posterior margin transverse stria present, but broadly interrupted on median third, the median end of the stria densely with coarse punctures.

Protibia (Fig. 37D, C) slender, not expanded, usually with 7 denticles on outer margin.

Male genitalia as shown in Fig. 38A - F.

Female genitalia: spermatheca as shown in Fig. 38G.

Specimens examined. [Hokkaidô] 1♂3♀♀, 1 ex., Mt. Kurodake (Alt. 1900m), Mt. Daisetsu, 18/vii/1981, N. Yasuda leg. (NA); 7 exs., Ditto, 23/vii/1981, N. Yasuda leg.; 4 exs., Ditto, 28/vii/1982, N. Yasuda leg.; 2 exs., Akadake, 16-23/vii/1975, M. Suwa, M. Furukawa, M. Kiuchi and T. Sunose leg. <Rishiri Is.> 1 ex., Rishiri Is., 24/vii/1963, Y. Shibata leg. (NSMT); 1 ex., Oniwaki trail, Mt. Rishiri, 7/viii/1992, M. Satô leg.

Distribution (Fig. 41). Japan (Hokkaidô, Rishiri Is.); North America.

Remarks. *Sphaerites politus* can rather easily be recognized by the characters given in the key to the families.

Little is known about the habitat of this species. This species occurs at high altitudes. Yasuda (1982, 1988) collected it by using pit-fall traps in the forest of *Pinus pumila* at alt. 1800 m to 1980 m on Mt. Kurodake, Daisetsu, Hokkaidô.

6. 2. Family Synteliidae Lewis, 1882

Synteliidae Lewis, 1882: 137-138 [type genus: *Syntelia* Westwood, 1864]; Sharp, 1891: 438; 1899: 229; Ganglbauer, 1899: 415; Ganglbauer, 1903: 282, 305; Kolbe, 1901: 134-135; 1908: 121, 122; Jakobson, 1915: 658, 869; Handlirsch, 1923: 527, 596; Hetschko, 1926: 13; Yuasa, 1930: 253; Crowson, 1955: 24, 25.

Table 4. Biometric data of *Sphaerites politus* Mannerheim.

APW	1.31-1.63 (1.47±0.03) 9
PPW	2.38-2.81 (2.65±0.05) 9
PL	1.25-1.56 (1.48±0.04) 9
EL	2.75-3.75 (3.41±0.09) 9
EW	2.94-3.56 (3.28±0.07) 9
PyW	1.63-2.00 (1.85±0.04) 9
PyL	0.88-1.25 (1.05±0.05) 9
PTL	1.13-1.50 (1.33±0.04) 9
MSTL	1.25-1.56 (1.35±0.03) 9
MTTL	1.50-1.94 (1.72±0.05) 9

Genus *Syntelia* Westwood, 1864

Syntelia Westwood, 1864: 11 [type species: *Syntelia indica* Westwood, 1864]; Reitter, 1876: 18; Sharp, 1891: 439, t. 14, fig. 1, 1b; Kolbe, 1901: 108; Jakobson, 1915: 869; Hetschko, 1926: 13; Yuasa, 1930: 253.

Syntelia histeroides Lewis, 1882 (Fig. 39, 40, 41)

Syntelia histeroides Lewis, 1882: 137 [Japan: Yashiu, Southern Hokkaidô, Kumakawa in Higo, Sado]; Waterhouse, 1882-1890: t. 133, fig. 8; Redtenbacher, 1886: 216, t. 19, fig. 122; Sharp and Muir, 1912: 511, t. 55, fig. 77, 438; Sharp, 1899: 229; Ganglbauer, 1899: 415; Jakobson, 1915: 869; Hetschko, 1926: 13; Mastumura, 1931: 16; Yuasa, 1930: 257; Kryzhanovskij and Reichardt, 1976: 414; Nakane, 1963: 67, pl. 34, no. 2; Hisamatsu, 1985: 219, pl. 40, no. 2. Japanese name: Emma-mushi-modoki.

Original description. "Black, shining: head with a few large scattered punctures; thorax, disc smooth with some deep punctures at the sides, lateral edge and base emarginate, elytra smooth with deep punctate striae, four dorsal more or less broken, one outer and one sutural complete, the last continuous, running round both the apex and base of elytra and joining the outer elytral margin. The pygidium is evenly and coarsely punctured, convex in the middle, with lateral depressions deepening and ending before the base. Beneath, the segments of the abdomen are sparsely punctured in the middle, more thickly at the sides, mesosternum behind the middle coxae smooth in the medial region, and in front of coxae thickly and somewhat strigosely punctate.

This species differs much from *S. indica*, the chief points of variance being colour, punctuation of pygidium, the more convex and quadrate thorax, and the deep irregular elytral striae. The spines on the tibiae correspond in both species. The elongation of the thorax in Westwood's figure of *indica* is somewhat exaggerated. Length 6. 1/2 - 7. 1/2 lines. "

Description. Body length (length between apex of head and apex of pygidium), 11.00 - 16.00 mm (13.60 ± 0.31 , $n=20$). Width, 3.25 - 4.75 mm (4.09 ± 0.08 , $n=20$). Biometric data are given in Table 5. Body (Fig. 39A) cylindrical, somewhat stout. Cuticle shining, black; tarsi and antennae dark rufopiceous.

Head (Fig. 39A) coarsely punctate on a transverse narrow band between eyes and near around eyes, the punctures irregularly scattered and sometimes present posteriorly; surface among the coarse punctures sparsely and evenly clothed with microscopic punctures.

Anterior margin of pronotum (Fig. 39A) densely with short hairs and its median portion slightly arcuate outwards. Sides of pronotum clearly convergent posteriorly, carinate and marginate, the marginal stria curved behind anterior angles and shortly extended inwards, and the posterior ends of the marginal stria extending inwards along posterior margin and united with each other. Surface of pronotum coarsely and densely

punctate on a narrow area along the marginal stria, the punctures a little coarser than those of head and several ones scatteringly present on broad lateral area; remain of surface of disk smooth, evenly clothed with microscopic punctures, the punctures being separated by five to ten times their diameter.

Scutellum (Fig. 39B) longitudinally oblong.

Epipleura of elytra narrow. Marginal epipleural stria feebly carinate and complete. Marginal elytral stria complete, strongly carinate and crenate, and inwardly sinuate on basal fourth; its basal and apical ends extended inwardly along basal and apical margins of elytra, and the ends united with basal and apical end of sutural stria respectively; area between marginal epipleural and elytral striae with three rows of setiferous punctures on dorsal fourth, the setae being long and stout. External subhumeral stria (Fig. 39A) complete and densely covered with coarse punctures. Internal subhumeral stria usually present on basal third, but absent on humeral area (nearly basal sixth). First dorsal stria nearly complete, but abbreviated on basal sixth (humeral area) and apical fourth. Second dorsal stria complete, usually abbreviated on apical sixth. Third dorsal stria present on apical half, but shortened on apical sixth, and short rudiments present at base and on median third of apical half. Fourth dorsal stria absent, sometimes with a short rudiment which consists of two or three punctures occurring on apical sixth. Fifth dorsal stria present on about median third, but sometimes shortened apically, and a short rudiment present on apical fifth. Sutural stria complete. All striae deeply impressed and coarsely punctate. Intervals among the striae sparsely clothed with microscopic punctures.

Pygidium (Fig. 39C) deeply depressed on each lateral side, the basal end of the depression not attaining to the base; its sides strongly carinate; surface densely covered with coarse and deep punctures, and other fine punctures intermingled among coarse ones, these punctures becoming denser and finer basally.

Antennal grooves present on anterior area of underside of head, the grooves strongly carinate basally and running obliquely from anterior margin of eye to apical third of head on mid line.

Anterior margin of prosternal lobe outwardly acute at middle, and with long hair; disk of the lobe impunctate. Prosternal process divided into anterior and posterior parts by procoxae; apical two-thirds of the anterior part elevated and with smooth disk, and the basal third triangular, its basal margins strongly convergent along procoxae, the apical margin of process with two or three long setiferous punctures; the posterior part short, oblong and impunctate.

Mesosternum moderately convex on median area; surface densely covered with coarse punctures, the punctures becoming denser medially, producing many rugae; area of these rugae clothed with other dense and fine microscopic rugae; area before posterior corner and between mesocoxae impunctate.

Meso-metasternal suture shortly present. Metasternum deeply with arcuate depression between mesocoxae; intercoxal disk shallow and longitudinally sulcate on longitudinal mid line, and impunctate; lateral disk densely covered with coarse and shallow punctures which are shallower, sparser and finer posteriorly. Metepisternum somewhat sparsely covered with coarse, transversely oblong and shallow punctures which are a little coarser than those of lateral disk of metasternum.

Table 5. Biometric data of *Syntelia histeroides* Lewis.

APW	3.00-4.38 (3.64±0.08) 20
PL	2.50-3.75 (3.15±0.07) 20
EL	4.88-6.63 (5.84±0.10) 20
EW	3.25-4.75 (4.09±0.08) 20
PyW	2.00-3.13 (2.61±0.05) 20
PyL	2.13-3.13 (2.61±0.05) 20
PTL	1.75-2.50 (2.19±0.05) 20
MSTL	1.88-2.50 (2.11±0.04) 20
MTTL	1.88-2.75 (2.30±0.05) 20

First abdominal sternum densely and coarsely punctate except on medioposterior area. Second - 5th abdominal sterna densely and coarsely punctate laterally.

Protibia (Fig. 39E, D) with 5 denticles on outer margin. Mesotibia with 4 denticles on outer margin, the basal one small. Metatibia with two denticles on apical third of outer margin.

Male genitalia as shown in Fig. 40A - G.

Female genitalia: spermatheca as shown in Fig. 40H.

Specimens examined. [Hokkaidô] 8 exs., Nopporo, 19, 20, 22, 26/vi, 24/vii/1987, M. Ôhara leg.; 1 ex., Ditto, 30/vi/1987, S. Kudô leg.; 10 exs., Eniwa, Isarigawa, 16/vi/1986, M. Mori leg.; 1 ex., Maruyama, Sapporo, 3/vii/1985, M. Ôhara leg.; 1 ex., Ditto, 22/vi/1940, B. Nishio leg.; 1 ex., Mt. Moiwa, Sapporo, 5/vii/1978, T. Fujisawa leg.; 2 exs., Ditto, 15/vi/1904, no collector's name (NSMT); 1 ex., Heiwa-no-taki, Sapporo, 2/viii/1977, T. Fujisawa leg.; 2 exs., Ditto, 1/vi/1966, N. Ueda leg.; 1 ♀, Sapporo, 31/v/1976, M. Furukawa leg.; 5 exs., Hakkenzan, Jôzankei, 7/vi/1976, 16/vi/1982, M. Mori leg.; 3 exs., Ditto, 11, 24/vi/1978, T. Fujisawa leg.; 1 ex., Misumai, Sapporo, 10/vi/1979, A. Shinohara leg. (NSMT); 3 exs., Jôzankei, 17/vi, 13/vii/1985, M. Ôhara leg.; 1 ex., Shikotu-ko, 6/viii/1971, Y. Doi leg. (NSMT); 1 ex., Enshûrin, Tomakomai, 3/viii/1974, A. Kashizaki leg.; 1 ex., Ditto, 18-30/viii/1978, H. Detani leg.; 2 exs., Okusawa, Otaru, 29/vii/1955, Y. Watanabe leg.; 5 exs., Mt. Yotei, Hirafu, Kutchan, 15-16, 22/vii/1991, M. Ôhara leg.; 1 ex., Daisengen, 17/vii/1973, T. Ichikawa leg.

[Honshû] <Miyagi-ken> 1 ex., Moriyasu, Akiu-mura, 24/vi/1951, no collector's name (NSMT). <Tochigi-ken> 1 ex., Chûzenji, 14/viii/1917, E. Gallois leg. (NSMT). <Gumma-ken> 1 ex., Hôshi-onsen, 6/vi/1953, Y. Kurosawa leg. (NSMT). <Saitama-ken> 1 ex., Oku-Chichibu, 24/vii/1940, K. Kojima leg. (NSMT). <Nagano-ken> 1 ex., Mt. Yatsu-ga-take, 25/vii/1957, S. Nomura leg. (NSMT); 1 ex., Mt. Chausu-dake, Yokokubo-zawa, 1600m, S. Jap. Alps, 24/vii/1940, S. Uéno leg. (NSMT).

Distribution (Fig. 41). Japan (Hokkaidô, Honshû, Kyûshû).

Remarks. *Syntelia histeroides* is a distinctive species within the superfamily due to its shape and rather large size. It cannot be confused with any other species of the histerids.

This species frequents in sap of elm and under bark. Larva is found under bark.

6. 3. Family Histeridae Gyllenhal, 1808

Key to the Japanese subfamilies of Histeridae

- 1(2) Prosternum without antennal grooves or cavities. Ventral side of head with large foveae for reception of antennae. Mandible vertically connected with head. Subfamily Niponiinae
- 2(1) Prosternum with antennal grooves or cavities. Ventral side of head without foveae (except in Tribes Hololeptini and Histerini, which have shallow and narrow longitudinal grooves). Mandibles porrect, horizontally connected with head.
- 3(12) Antennal grooves or cavities on prosternum transverse, occurring on anterior side, and usually closed beneath by the prosternal alae.
- 4(9) Labrum with a few setiferous punctures.
- 5(6) Lateral sides of elytra strongly elevated. Prosternal lobe absent, not distinctly separated by prosternal suture. Subfamily Chlamydopsinae
- 6(5) Lateral sides of elytra not elevated. Prosternal lobe present.
- 7(8) Elytra without costa, usually with normal striae or punctures. Subfamily Tribalinae
- 8(7) Elytra with costae. Subfamily Onthophilinae
- 9(4) Labrum without setae.
- 10(11) Antennal scape expanded and strongly angulate. Subfamily Hetaeriinae
- 11(10) Antennal scape normal, neither expanded nor strongly angulate. Subfamily Histerinae
- 12(3) Antennal grooves on prosternum longitudinal, usually situated next to prosternal keel, and open beneath.
- 13(14) Prosternal lobe present. Subfamily Dendrophilinae
- 14(13) Prosternal lobe absent.
- 15(18) Body oval or oblong-oval.
- 16(17) Dorsal elytral striae absent though sometimes represented by rather vague impressions. Subfamily Abraeinae
- 17(16) Dorsal elytral striae present. Subfamily Sapriniinae
- 18(15) Body cylindrical.
- 19(20) Antennae consisting of eight segments and a club. Head horizontal in repose. Anterior margin of prosternal alae at most with only very slightly notched. Antennal cavities not distinct. Subfamily Trypanaeinae
- 20(19) Antennae consisting of seven segments and a club. Head vertical in repose. Anterior margin of prosternal alae with rather deep longitudinal incisions for reception of the antennal funicles in repose. Subfamily Trypeticinae

6. 3. 1. Subfamily Niponiinae Fowler, 1912

Genus *Niponius* Lewis, 1885

Niponius Lewis, 1885: 333 [type species: *Niponius impressicollis* Lewis, 1885b: 333. Designated by Gandner, 1935: 4]; Marseul, 1888: 1489; Jakobson, 1911: 638, 642; Gardner, 1926: 194; 1935: 2; Reichardt, 1926: 274; 1941: 66; Schenkling, 1931: 1; Kryzhanovskij and Reichardt, 1976: 76.

<Larva> Gardner, 1930: 15, 17, t.1, fig. 1; Hayashi, 1986: pl. 10.

Gardner's (1935) description. "Cylindrical, slender to moderately stout, shining. Head exserted, nearly as wide and thick at base as, and subequal in length to, prothorax; produced anteriorly into two horn of variable length, each horn carinate at apex and usually with one or two postapical carinae; a groove passing back just below each eye, receives the antennal scape when at rest. Eyes small, entire, finely faceted, well removed from anterior margin of prothorax. Antenna geniculate, the scape about as long as remaining segments together; funicle with six segments, the first angled, longer than wide, remaining segments transverse, gradually increasing in size towards the club; club compact, flattened, more or less circular, apparently four-segmented, the three sutures pale, curved, each with a fringe or setae; basal segment of club large, the others strongly transverse; in addition a fourth row of setae, very near the apex, might be interpreted as defining an extremely narrow fifth segment of the club. Labrum small, vertical, triangular. Mandibles stout, ventrally directed, inwardly curved, each with two small teeth near the middle. Maxillae with lacinia rather extending far beyond lacinia, slender, tapering to apex, densely ciliate. Maxillary palps four-segmented, the apical segment about equal in length to the three preceding segments together; the palp is borne on a segment-like palpifer which is distinctly longer than wide. Submentum a sclerotized transverse plate, the anterior margin with a rather wide emargination at the base of which are two teeth or angulations of variable size. Labial palp with three segments, the apical as long as the other two together; each palp at the apex of a parallel-sided palpiger which incurves and approaches its fellow on the buccal surface of submentum; attached to the palpigers are the widely separated membranous, ciliate paraglossae; ligula not distinct.

Prothorax margined, cylindrical, anterior margin straight with no projection over ventral part of head; slightly transverse to longer than wide; coxal cavities very narrowly closed posteriorly, separated from one another by a prosternal process which bears two longitudinal grooves or striae. Mesosternum very short, with median channel. Metasternum large, with median channel; posterior coxal cavities moderately widely separated. Elytra truncate, abbreviated, exposing two posterior abdominal terga, longer than prothorax and usually longer than their combined width; often with lines of punctures giving the appearance of more or less distinct striae. Pygidium and propygidium usually with two to four foveae. Abdomen with five apparent sterna. Legs with slender five segmented tarsi, the apical segment very long; tibiae with two apical spurs, one much larger than the other and especially strong on anterior tibiae. Anterior leg with transverse coxa; tibia with outer margin rather strongly expanded on distal

half, usually with two teeth, each borne in a socket, one near apex and one near middle; with a longitudinal groove for reception of tarsus. Mesothoracic tibia less strongly expanded, with three socketted teeth on outer margin, two near apex and one nearer the middle. Posterior tibia slightly and gradually widened from base to apex, with a pair of subapical socketted teeth and sometimes a minute tooth near middle. Male genitalia as described by Sharp and Muir (loc. cit.): ((Median lobe tubular, slender and long; lateral lobes longer than median lobes and enveloping them. Basal piece forming a long tube, constricted near its base and bent. Internal sac undifferentiated))".

Key to the Japanese species of the genus *Niponius*

- 1 (2) Body 4.8 - 5.5 mm long. Pronotum with a deep excavation on each side. Foveae on propygidium four. *N. impressicollis* Lewis, 1885
- 2(1) Body 3.5 - 4.7 mm long. Pronotum with no deep excavation.
- 3(4) Projection of epistoma short and stout (Fig. 45A). Propygidium without fovea. *N. obtusiceps* Lewis, 1885
- 4(3) Projection of epistoma long and slender (Fig. 42A, 46A). Propygidium with several excavations.
- 5(6) Projections of epistoma divergent anteriorly. Surface of elytra wholly with rows of punctures. Propygidium with 4 foveae. Antennal grooves very deep under the eyes, and other longitudinal foveae present on basal half of head *N. furcatus* Lewis, 1885
- 6(5) Projections of epistoma parallel to each other. A row of punctures on elytral surface present along sutural line, others not clear. Propygidium with 2 to 4 foveae. Antennal grooves confined to under the eyes, without longitudinal deep foveae on basal half of head. *N. osoriocepus* Lewis, 1885

Niponius furcatus Lewis, 1885

(Fig. 42, 48)

Niponius furcatus Lewis, 1885b: 333 [Japan, Yuyama]; Gardner, 1926: 3 1935: 5 [catalogued]; Kryzhanovskij and Reichardt, 1976: 77 [key]; Hisamatsu, 1985: 219, pl. 40, fig. 4.
Japanese name: Fushi-tsuno-hoso-emma-mushi.

Original description. "Cylindricus, angustatus, niger, punctatus, antennis, pedibusque piceis, thorace grosse punctato, sine fovea, propygidio quadrisulcato pygidio biimpresso. Long. 4.1/4 mm.

The narrow form of this species, the divergent direction of the projection on the epistoma, and the different form of the abdominal sulci separate it from the others."

Description. Biometric data are given in Table 6. Body cylindrical, slender. Cuticle shining, black; tarsi, antennae and projection of epistoma dark rufopiceous.

Projections of epistoma moderately stout, long and divergent anteriorly (Fig. 42A, E), its apex strongly carinate and dorsal surface with two transverse carinae. Head densely covered with moderate punctures and with several weakly rugae on base of the projection, the punctures becoming coarser on basal two-thirds, where they are

separated by two to three times their diameter.

Pronotum completely with marginal stria on lateral side, the stria well carinate; surface densely covered with punctures, the punctures various in size from fine to large (the large punctures are five times as large as the fine ones) and becoming finer around margin.

Marginal elytral stria on epipleura of elytra complete and carinate, its basal end extending inwardly along anterior margin of elytron and united with basal end of sutural stria, its apical end attaining to the apical fifth of elytron. All dorsal striae absent, but there are rows of coarse and dense punctures; intervals among the rows sparsely covered with coarse punctures, the punctures becoming denser apically.

Propygidium (Fig. 42D) with four large, longitudinal oblong, shallow and transversely placed foveae, sometimes these foveae fused; surface sparsely covered with punctures, which are as coarse as elytral ones and separated by two to three times their diameter. Pygidium (Fig. 42D) with a large, round and shallow fovea behind each basal corner; inside of the fovea sparsely covered with coarse punctures; surface coarsely punctate, the punctures separated by their diameter and becoming finer and denser apically and laterally.

Antennal grooves deep under the eyes, and deep and longitudinal foveae on basal half of underside of head (Fig. 42B). Mid line strongly impressed on apical half, but not impressed near the apical margin of the head. Surface of underside of head evenly scattered with fine punctures on apical half; on basal half very sparsely clothed with fine punctures, the punctures becoming coarser and denser near the basal margin.

Prosternal lobe (Fig. 42C) transverse and narrow, its anterior margin densely with hair. Prosternal keel narrow, with carinal stria on basal three-fourths, the striae deeply impressed and slightly convergent basally; surface of keel evenly and finely punctate.

Mesosternum longitudinally sulcate on mid line; surface sparsely covered with moderate punctures which are separated by two to three times their diameter, and with large punctures near basal margin. Meso-metasternal suture well impressed and complete. Metasternum shallowly sulcate on mid line; lateral metasternal striae strongly carinate and divergent posteriorly. Intercoxal disk of metasternum sparsely covered with moderate sized punctures. Lateral disk densely covered with large, round and shallow punctures on basal third, the punctures becoming finer and sparser posteriorly.

Intercoxal disk of 1st abdominal sternum striate on basal two-thirds on each lateral side, and evenly and moderately punctate, the punctures separated by two to three times their diameter.

Protibia slender and with two denticles on outer margin.

Specimens examined. [Kyûshû] <Kagoshima-ken> 1 ♀, Kirishima-Jingû, 9/vi/1981, T. & T. Nakane leg. (NA).

[Nansei Isles.] <Tokuno-shima Is.> 1 ♀, Mikyô, 25/vii/1963, Y. Kurosawa leg.

<? Shikoku, Kôchi-ken> 1 ex., Wada, Taishô-mura, 4/x/1936, no collectors name, collected from *Tsuga sieboldi*. (NSMT: Kôno collection, No. NSMT-C-23669).

Table 6. Biometric data of *Niponius furcatus* Lewis.

| | | | |
|------|-----------|--------------|---|
| HOW | 0.44-0.48 | (0.45±0.010) | 2 |
| HW | 0.73-0.76 | (0.75±0.010) | 2 |
| PW | 0.79-0.85 | (0.82±0.021) | 2 |
| PL | 1.14 | (1.14) | 2 |
| EL | 1.14-1.24 | (1.19±0.036) | 2 |
| EW | 0.85-0.89 | (0.87±0.016) | 2 |
| ProW | 0.50 | (0.50) | 2 |
| ProL | 0.26 | (0.26) | 2 |
| PyL | 0.44-0.48 | (0.45±0.010) | 2 |
| PTL | 0.56-0.57 | (0.56±0.005) | 2 |
| MSTL | 0.48-0.50 | (0.49±0.005) | 2 |
| MTTL | 0.47-0.50 | (0.48±0.010) | 2 |

Distribution (Fig. 48). Japan (Shikoku, Kyûshû, Amami-Ôshima Is., Tokunoshima Is.).

Remarks. *Niponius furcatus* is characterized by the narrow body, the diverse projections of the epistoma and the four foveae on the propygidium.

***Niponius impressicollis* Lewis, 1885**
(Fig. 43, 44, 48)

Niponius impressicollis Lewis, 1885b: 333 [Japan, Yuyama, in Higo to Junsai in Yezo (= Kyûshû to Hokkaidô)]; Gardner, 1926: 2; Reichardt, 1929b: 274, 273; Gardner, 1935: 5; Reichardt, 1941: 69; Nakane, 1963: 67, pl. 34, fig. 3; Kryzhanovskij and Reichardt, 1976: 77 [key, description]; Hisamatsu, 1985: 219, pl. 40, fig. 3.
Japanese name: Hosô-emma-mushi.

Original description. "Cylindricus, sat elongatus, robustus, niger, punctatus. Antennis pedibusque, nigro-piceis, clava tarsisque rufis; epistomo cornuto, piceo, transversim bicarinato, thorace grosse punctato, utrinque profunde impresso. Elytris striis 1 validis et caeteris punctiformibus vel obsoletis. Propygidio quadri foveolate. Pygidio profunde bisulcato. Long. 5 - 5.1/2 mm."

Description. Biometric data are given in Table 7. Body cylindrical, moderately stout. Cuticle shining, black; tarsi, antennae and projection of epistoma dark rufopiceous.

Projection of epistoma (Fig. 43A, C) moderately stout and long, its apex strongly carinate and dorsal surface with two or three transverse carinae. Head densely with transverse rugae on apical third; median third of the surface sparsely covered with moderate punctures, the punctures separated by two to five times their diameter, with other fine punctures intermingled; basal third finely and sparsely punctate; depression on mid line deeply present on apical half.

Pronotum completely with marginal stria on lateral side, the stria strongly

carinate; surface with an excavation (Fig. 43D, E) on each mediolateral side, and sparsely covered with large, round and deep punctures which are irregularly scattered, and with other fine punctures sparsely intermingled among the large ones.

Epipleura of elytra completely with marginal elytral stria, which is carinate and of which the apical end attains to the apical fifth; area between epipleural margin and elytral marginal stria impunctate and extremely finely strigate. First dorsal stria present on basal fourth and strongly carinate, its basal end deeply excavate. Second to 5th dorsal striae almost obsolete, being represented by rows of coarse punctures. Sutural stria strongly impressed and represented by a row of longitudinal coarse punctures on basal two-thirds. Surface of elytra somewhat convex on humeral area, and deeply and transversely excavated near the basal margin; represented by rows of coarse punctures; intervals among the rows sparsely clothed with fine punctures on basal half, and densely on apical half, the punctures becoming coarser on apical third, and in lateral area these punctures somewhat much denser.

Propygidium (Fig. 43G) with four large, round, shallow and transversely placed foveae which become shallower posteriorly; surface sparsely covered with coarse punctures, which are as coarse as elytral ones, and other fine punctures densely intermingled among the coarse ones. Pygidium (Fig. 43G) with a large, round, and somewhat deep fovea behind each basal corner; inside of the fovea sparsely and moderately punctate; surface coarsely punctate on median area, the punctures separated by three to four times their diameter and becoming finer anteriorly, and other fine punctures sparsely intermingled among coarse ones, the fine ones becoming denser apically and laterally.

Antennal grooves (Fig. 43B) deep under eyes. Mid line of underside of head deeply excavate, its basal end beyond transverse line. Surface of underside of head shining, sparsely and finely punctate on apical half, and evenly clothed with fine punctures which are separated by two to three times their diameter on basal half.

Table 7. Biometric data of *Niponius impressicollis* Lewis.

| | |
|------|--------------------------|
| HOW | 0.57-0.70 (0.65±0.021) 5 |
| HW | 1.09-1.25 (1.19±0.026) 5 |
| PW | 1.30-1.56 (1.46±0.042) 5 |
| PL | 1.27-1.66 (1.51±0.067) 5 |
| EL | 1.61-1.93 (1.77±0.061) 5 |
| EW | 1.40-1.66 (1.54±0.051) 5 |
| ProW | 0.83-0.94 (0.88±0.021) 5 |
| ProL | 0.57-0.42 (0.48±0.028) 4 |
| PyL | 0.73-0.57 (0.64±0.023) 5 |
| PTL | 1.01-0.88 (0.96±0.025) 4 |
| MSTL | 0.83-0.78 (0.79±0.011) 4 |
| MTTL | 0.96-0.78 (0.88±0.033) 4 |

Prosternal lobe (Fig. 43F) transverse and narrow, its anterior margin densely with hair. Prosternal keel completely with two carinal striae, of which the basal ends are united with each other in an arch; surface of keel evenly punctate as basal half of head.

Mesosternum longitudinally and shallowly sulcate on median third; lateral third evenly punctate as basal half of head and extremely finely strigate; sometimes lateral marginal stria present on basal half at each anterior corner. Meso-metasternal suture well impressed and complete. Metasternum longitudinally and shallowly sulcate on mid line; lateral metasternal striae strongly carinate and divergent posteriorly. Intercostal disk of metasternum sparsely and coarsely punctate, the punctures twice as coarse as mesosternal punctures, and other fine ones sparsely intermingled among them. Lateral disk sparsely covered with large punctures, the punctures becoming finer apically.

Intercostal disk of 1st abdominal sternum deeply striate on basal three-fourths on each lateral side, and punctate as intercostal disk of metasternum, but the punctation is much denser.

Protibia slender and with two denticles on outer margin.

Male genitalia as shown in Fig. 44.

Specimens examined. [Honshû] <Fukushima-ken> 2 exs., Yunohana, Tateiwa V. Minami-Aizu, 19/vi/1947, Y. Kurosawa leg.; 4 exs., Onozawa, Egawa, Minami-Aizu, 17/vi/1950, Y. Kurosawa leg. (NSMT). <Mie-ken> 2 exs., Mimune, 18-21/vi/1955, H. Ôhira leg. <Hiroshima-ken> 2♂♂, Sandankyô, Aki, 7-8/viii/1966, S. Ôsawa leg.

Distribution (Fig. 48). Japan (Hokkaidô, Honshû, Shikoku, Kyûshû); Taiwan; Ussuriyskiy Kray; China.

Remarks. *Niponius impressicollis* is the largest species of the genus in Japan. It can easily be recognized by its size and the presence of excavations on the pronotum.

This species is found from the galleries of a scolid beetle, *Hylesinus striatus* Egg. on ash, *Fraxinus mandchuria* (Kryzhanovskij and Reichardt, 1976).

Niponius itoi Chûjô, 1955

Niponius itoi Chûjô, 1955: 57 [Japan, Adera, Ôkuwa-mura, Nishichikuma-gun, Nagano pref., Honshû]; Hisamatsu, 1985: 220 [=? *Niponius osorioceps* Lewis].

Japanese name: Itô-hoso-emma-mushi.

Specimens examined. No specimens of the species have been available for my study.

Distribution. Japan (Honshû).

Remarks. Judging from the original description this species is apparently similar to *N. osorioceps*, but it is distinguished from latter by the smaller body size. I have been unable to trace it in the Chûjô collection. According to Hisamatsu (1985) this species is probably a synonym of *N. osorioceps*.

Niponius obtusiceps Lewis, 1885

(Fig. 45, 48)

Niponius obtusiceps Lewis, 1885b: 334 [Japan, Oyayama near Kumamoto in Higo, and Ishikari river in Yezo in 1883]; Gardner, 1926: 3; Reichardt, 1929b: 275; Gardner, 1935: 5, t. 1, fig. 2; Reichardt, 1941: 69; Kryzhanovskij and Reichardt, 1976: 78; Hisamatsu, 1985: 220 [key].
Japanese name: Tsuno-buto-hoso-emma-mushi.

Original description. "Cylindricus, elongatus, brunneus, punctatus. Antennis pedibusque fufis, epistomo obtuso subfurcato, thorace grosse necnon minute punctato. Elytris fasciis transversis medio nigris. Propygidio punctato, pygidio bisulcato. Long. 4 mm."

Description. Body cylindrical, moderately stout. Cuticle shining, black; tarsi, antennae and projection of epistoma dark rufopiceous.

Projection of epistoma (Fig. 45 A, C) stout and long, its dorsal surface with two transverse carinae. Apical third of head densely covered with fine punctures and weakly transverse rugae, the punctures becoming sparser and coarser posteriorly; median third of the surface coarsely punctate, the punctures being separated by their own diameter to twice the diameter; basal third with much smaller punctures than on median third, the punctures being separated by three to five times their diameter; depression on mid line deep on apical fourth.

Pronotum completely with marginal stria on lateral side, the stria strongly carinate; surface irregularly scattered with deep, large and somewhat longitudinal oblong punctures (Fig. 45D) and other fine punctures intermingled among the large ones.

Epipleura of elytra completely with marginal elytral stria, which is carinate and of which the apical end attains to near the posterior margin of elytron; area between epipleural margin and elytral marginal stria impunctate and extremely finely strigate. All dorsal and sutural striae represented by rows of large punctures, the rows obsolete and their punctures becoming finer on apical third; intervals among the rows impunctate on basal two-thirds, but sometimes sparsely with several fine punctures, which are as large as the pronotal fine ones, separated by their own diameter to twice the diameter and become denser and finer posteriorly. Surface of elytra with weakly convex on humeral area, and deeply transverse excavation on near the basal margin.

Propygidium (Fig. 45F) without large foveae, and sparsely covered with coarse punctures which are twice as large as fine punctures of elytra, and other fine punctures densely intermingled among the coarse ones. Pygidium (Fig. 45F) with large, semicircular and deep foveae on basal two-thirds on lateral area; area inside fovea sparsely and finely punctate; surface between foveae sparsely covered with coarse punctures and intermingled fine ones among the coarse ones; fine punctures present also on apical third and along the margin.

Antennal grooves divided two parts; a deep furrow under eyes, and an oblong fovea on basal half of underside of head (Fig. 45B); surface of the groove densely clothed with fine punctures on apical half, the punctures much sparser on basal half.

Prosternal lobe (Fig. 45E) transverse and narrow, its anterior margin densely furnished with hair. Prosternal keel completely with two carinal striae, of which the basal ends are united with each other in an arch; surface of keel sparsely clothed with fine punctures.

Mesosternum longitudinally and shallowly sulcate on median third; area of lateral third sparsely clothed with several fine punctures. Meso-metasternal suture absent. Metasternum longitudinally, broadly and shallowly sulcate on mid line; lateral metasternal stria strongly carinate, its apical end extending posteriorly, and attaining to near apical fourth of metasternum. Intercoxal disk of metasternum sparsely covered with coarse and longitudinal oblong punctures. Lateral disk densely covered with coarse and round punctures, which are a little coarser than those of intercoxal disk, the punctures becoming sparser along the lateral metasternal stria.

Intercoxal disk of 1st abdominal sternum deeply striate on each lateral side, the striae nearly complete, but not attaining to the apical margin; surface densely and finely punctate, the punctures progressively sparser and finer posteriorly.

Protibia slender and with three denticles on outer margin.

Specimens examined. [Honshû] <Tôkyô-to> 1 ex., Mt. Takao, 19/ii/1981, K. Horie leg. <Fukui-ken> 1 ♀, Ikegahara, Ôno-shi, 20/vi/1988, M. Saitô leg.

Distribution (Fig. 48). Japan (Honshû).

Remarks. *Niponius obtusiceps* can readily be recognized by the absence of fovea on the propygidium and the short and stout projections of the epistoma.

No details are known about the habitat of this species. Specimens were collected under the bark. Hisamatsu (1985) noted that this species was found in tunnels made by cossonine beetles, Curculionidae.

Niponius osorioceps Lewis, 1885 (Fig. 46, 47, 48)

Niponius osorioceps Lewis, 1885b: 333 [Japan, Higo, Yuyama and Konose], pl. 8, fig. 12-14; Gardner, 1935: 3; Nakane, 1963: 67, pl. 34, fig. 4 [noted, photo]; Hisamatsu, 1985: 219, 220, pl.40, fig. 5.

Niponius osorioceps (sic): Jakobson, 1911: 642; Reichardt, 1929: 274; Kryzhanovskij and Reichardt, 1976: 78.

Japanese name: Hime-hoso-emma-mushi.

Original description. "Cylindricus, elongatus, niger, punctatus, pedibus nigro-brunneis, epistomo piceo transversim tricarinato, thorace grosse punctato utrinque obsolete impresso. Elytris striis N. impressicollis simillimis. Propygidio pygidioque profunde bifoveolatis. Long. 4.1/2 mm."

Description. Biometric data are given in Table 8. Body cylindrical, moderately stout. Cuticle shining, black; tarsi, antennae and projection of epistoma dark rufopiceous.

Projection of epistoma (Fig. 46A, C, D) moderately stout and long, its apex strongly carinate and dorsal surface with two transverse carinae. Apical third of head

densely covered with transverse rugae; median third evenly and coarsely punctate, the punctures being separated by their diameter; basal third densely covered with coarse punctures, which are a little coarser than the median ones; depression on mid line present and shallow on apical third.

Pronotum completely with marginal stria on lateral side, the stria strongly carinate; surface covered with coarser punctures which are as coarse as those on the basal third of the head, the punctures being separated by their own diameter to twice the diameter.

Epipleura of elytra completely with marginal elytral stria, which is strongly carinate and of which the apical end attains to near the apical fifth; area between epipleural margin and elytral marginal striae impunctate and extremely finely strigate. All dorsal striae represented by rows of moderate punctures, the rows obscure and not clear, and their punctures a little finer than the pronotal ones and irregularly intermingled with punctures of intervals; intervals among the rows sparsely covered with moderate punctures, the punctures becoming denser laterally and apically. Sutural stria represented by a row of coarse and deep punctures, the row being somewhat clear. Surface of elytra with a deeply transverse excavation on near the basal margin.

Propygidium (Fig. 46E) with two large, transverse oblong, or four longitudinal oblong, and shallow foveae which become shallower posteriorly; surface densely covered with moderate punctures, the punctures becoming sparser on area between the foveae. Pygidium (Fig. 46E) with large, longitudinal oblong and deep foveae behind each basal corner; area inside foveae sparsely covered with moderate punctures; surface between foveae coarsely punctate, the punctures being separated by two to three times their diameter, and other moderate punctures sparsely intermingled among the coarse ones, these punctures becoming finer and denser apically and laterally.

Antennal grooves (Fig. 46B) deep under eyes. Surface of underside of head sparsely clothed with fine punctures, the punctures separated by two to four times their diameter and becoming denser basally and laterally.

Prosternal lobe (Fig. 46F) transverse and narrow, its anterior margin densely with hair. Prosternal keel completely with two carinal striae, which are strongly carinate and slightly convergent basally.

Mesosternum longitudinally and shallowly sulcate on mid line, its disk sparsely and finely punctate. Meso-metasternal suture clearly impressed. Metasternum longitudinally, shallowly and completely sulcate on mid line; lateral metasternal striae strongly carinate and divergent posteriorly, its apical end extending to near the hind coxa. Intercoxal disk of metasternum sparsely clothed with fine punctures, the punctures being separated by two to five times their diameter, and becoming denser and a little coarser on apical fourth. Lateral disk irregularly scattered with large, round and deep punctures on basal third, the punctures becoming finer apically and along the metasternal lateral stria.

Intercoxal disk of 1st abdominal sternum deeply striate on lateral sides, the striae nearly complete and strongly divergent posteriorly; surface densely and moderately punctate, the punctures as large as those on apical fourth of intercoxal disk of metasternum and separated by their own diameter to twice the diameter; surface among the punctures extremely finely strigate.

Table 8. Biometric data of *Niponius osorioceps* Lewis.

| | |
|------|---------------------------|
| HOW | 0.58-0.50 (0.53±0.006) 18 |
| HW | 0.96-0.75 (0.89±0.012) 19 |
| PW | 1.15-0.92 (1.04±0.015) 18 |
| PL | 1.29-1.02 (1.15±0.017) 19 |
| EL | 1.61-1.20 (1.43±0.024) 19 |
| EW | 1.24-0.96 (1.14±0.019) 18 |
| ProW | 0.75-0.53 (0.65±0.013) 18 |
| ProL | 0.41-0.26 (0.35±0.009) 17 |
| PyL | 0.61-0.44 (0.53±0.013) 17 |
| PTL | 0.73-0.61 (0.67±0.012) 15 |
| MSTL | 0.70-0.53 (0.64±0.013) 15 |
| MTTL | 0.76-0.58 (0.68±0.012) 17 |

Protibia slender and with three denticles on outer margin.

Male genitalia as shown in Fig. 47.

Specimens examined. [Hokkaidô] 2 exs., Gamushi, 10/v/1956, A. Nobuchi leg.

[Honshû] <Fukushima-ken> 1 ♀ and 7 exs., Yunohana, Tateiwa, Minami-Aizu, 15/vi, 18-20/vii/1947, Y. Kurosawa leg.; 2 exs., Ditto, 9/vii/1948, T. Nakane leg.; 1 ex., Onozawa, Egawa, Minami-Aizu, 2/vi/1951, Y. Kurosawa leg. (NSMT); 1 ex., Ditto, 17/vi/1950, Y. Kurosawa leg. (NSMT). <Yamagata-ken> 1 ex., Ôwisawa, 28/vi/1960, Y. Kurosawa leg. (NSMT); 1 ex., Ôishi, Oguni, 9/vi/1969, K. Shirahata leg. (NSMT). <Gumma-ken> 1 ex., Utsunomiya, 6/v/1968, H. Takizawa leg. <Saitama-ken> 1 ex., Chichibu, Musashi, 17/vi/1913, H. Takabayashi leg. <Tôkyô-to> 2 exs., Hikagesawa, Mt. Takao-san, 4/v/1975, K. Kawada leg.; 1 ex., Hikawa, Okutama, 13/v/1951, K. Umeya leg. (NSMT); 1 ex., Mt. Takao, 21/vi/1963, S. Nomura leg. (NSMT). <Kanagawa-ken> 11 exs., Mt. Ôyama, 5/v/1989, H. Takizawa leg.; 1 ex., Sôun-zan, 29/v/1988, H. Takizawa leg. <Nagano-ken> 1 ex., Yatsu-ga-take, 14/vii/1951, J. Suzuki leg. (NSMT). <Shizuoka-ken> 1 ex., Izu, Inatori, 6/v/1973, H. Takizawa leg.; 1 ex., Mt. Amagi-san, 5/v/1956, S. Tsuyuki leg. (NSMT). <Niigata-ken> 1 ex., Kurokawa, northern Echigo, 9/vi/1963, K. Baba leg. <Gifu-ken> 1 ex., Naratoge, 4/vii/1953, H. Torigai leg. <Shiga-ken> 1 ex., Bomura, 15/vi/1957, T. Nakane leg. <Kyôto-fu> 1 ex., Serio, 29/v/1954, T. Nakane leg. <Tottori-ken> 1 ex., Daisen, 9/vii/1951, N. Yato leg.

[Kyûshû] <Kagoshima-ken> 1 ex., Iriki, Aira-gun, 10/v/1984, T. & T. Nakane leg. (NA).

Distribution (Fig. 48). Japan (Hokkaidô, Honshû, Kyûshû); Ussuriyskiy Kray.

Remarks. *Niponius osorioceps* is characterized by the long and slender projections of the epistoma and the presence of two to four foveae on the propygidium.

This species is known as a predator of the bark beetle *Phloeosinus perlatus* Chapuis, Scolytidae.

6. 3. 2. Subfamily Chlamydopsinae Bickhardt, 1917

Genus *Eucuritopsis* Silvestri, 1926

Description. Characterized by unique shape of pronotum and elytra. Medio-apical portion of pronotum strongly elevate. Elytral lateral ridge strongly elevate and interrupted transversely medially; the inside of the interrupted portion furnished densely with waxed hairs.

Comments. The genus is a fairly small one containing two species, *E. mirabilis* Silvestri, 1926 from Taiwan and *E. japonicus* sp. nov. from Japan. Species of this genus occur in the nest of ants. *E. mirabilis* is collected from the nest of *Formica legi*.

Eucuritopsis japonicus M. Ôhara et Nakane, sp. nov. (Fig. 49)

Japanese name: Arinosu-kobu-emma-mushi.

Description. Body oblong, reddish brown, shining and furnished with yellow hairs. Body length, width and biometric data are as follows (male: M, n=1; female: F, n=1): PPL, M 1.84, F 2.06; PEL, M 1.79, F 1.88; APW, M 0.69, F 0.71; PPW, M 0.86, F 0.91, PL, M 0.74, F 0.66, EL, M 1.10, F 1.23, EW, M 1.37, F 1.39, ProW, M 0.66, F 0.71, ProL, M 0.34, F 0.39, PyL, M 0.34, F 0.39, PTL, M 0.54, F 0.49, MSTL, M 0.51, F 0.46, MTTL, M 0.54, F 0.49.

Frontal lateral margins (Fig. 49A) parallel and carinate; disk densely covered with coarse, round punctures. Labrum semicircular. Mandible short and robust. Scape of antenna large, thick and triangular in frontal view, and coarsely and densely punctate.

Pronotal sides (Fig. 49B) feebly convergent apically, the basal fourth slightly emarginate to fit forefemur in repose; anterior angle strongly emarginate; disk convex, the medio-apical area strongly elevated and on the mid line feebly depressed; surface densely covered with round, large and deep punctures, sparsely intermingled with fine punctures among the large ones, and densely furnished with yellow long hairs; posterior margin angulate at middle.

Epipleura flat. Epipleural marginal stria strongly sinuate medially, the apical end extending across elytral apex to medio-apical angle of elytron and united with the apical end of the sutural stria. Elytral marginal stria absent. Elytron (Fig. 49B) with lateral margin raised into a narrow, prominent ridge on lateral third; the ridge narrowly interrupted medially; furnished with waxed hairs inside the median interrupted portion; surface of the basal half of the ridge with a narrow elevated carina; mediobasal half of the elytral disk depressed, shining and sparsely furnished with short and thick hairs basally; apical half of the disk convex and evenly covered with coarse, setiferous punctures, which are separated by about their own diameter, except inside the apical half of the lateral elevated ridge and in a longitudinal band narrowly distant from the suture, the punctured area extending basally narrowly along the suture and reaching to basal fourth. Sutural stria complete and closely impressed along the suture.

Propygidium feebly convex, densely covered with large, round and shallow

punctures which are separated by their own diameter to one-third the diameter, and sparsely intermingled with fine and setiferous punctures. Pygidium (Fig. 49C) has a punctation similar to that of the propygidium.

Anterior margin of prosternum feebly sinuate, the median portion slightly and outwardly arcuate. Disk of prosternum convex medially, densely covered with coarse, round and setiferous punctures which are separated by one-third their diameter and sparsely intermingled with fine punctures. Prosternal process elevated, its posterior margin truncate. Lateral sides of the process and anterior margins of the procoxae marginate and carinate.

Mesosternum short and coarsely punctate, its anterior margin broadly emarginate. Intercostal disk of metasternum sparsely and coarsely punctate, the punctures being variously separated by one to five times their diameter and with short setae. Lateral disk separated from basal one-third by post-mesocoxal stria; the basal area deeply excavate to fit mesotibia, impunctate and shining; the apical area has a punctation similar to that of the intercostal disk, but the punctation is much sparser and coarser, except on a triangular area before latero-apical angle, and with an oblique stria apically which extends inwardly and posteriorly from the apical third of the metasternal-metepisternal suture to the apical end of the metasternal suture.

Intercostal disk of 1st abdominal sternum sparsely covered with coarse, round and setiferous punctures which are separated by about twice their diameter and become sparser medially, and evenly intermingled with other fine punctures; anterior margin broadly and strongly carinate, the lateral end of the carina extending posteriorly and obliquely, and at apical third strongly bent outwardly. Lateral disk separated from basal two-thirds by the carina; the basal area deeply excavate to fit metatibia; the apical area impunctate and short.

Protibia narrow, its outer margin angulate medially and without denticles. Outer margins of meso- and metatibiae strongly angulate at basal third.

Specimens examined. Holotype, 1♂, Sayama-ko, Iruma, Saitama-ken, 5/x/1980, T. Syooda leg. collected from the nest of *Pheidole ferridola*. (NA). Paratype, 1♀, Susono-shi, Shizuoka-ken, 29/ix/1988, M. Mori leg. collected by bait trap.

Distribution. Japan (Honshū).

Remarks. *Eucuritis japonicus* is easy to recognize by the characters given in the key and description; it cannot be confused with any other Japanese species of the family.

This species was found in the nest of an ant, *Pheidole ferridola* Smith (Determined by Dr. Y. Itô), and also was collected by a bait trap.

6. 3. 3. Subfamily Tribalinae Bickhardt, 1917

Genus *Epierus* Erichson, 1834

Epierus Erichson, 1834: 158 [type species: *Hister fulvicornis* Fabricius, 1801: 90. Designated by Bickhardt, 1917: 123]; Marseul, 1854: 671; Schmidt, 1885: 272; Ganglbauer, 1899: 370; Jakobson, 1911: 640, 646; Bickhardt, 1917: 122; Arnett, 1962: 376, 381; Witgall, 1971: 180; Kryzhanovskij and Reichardt, 1976: 280; Vienna, 1980: 230; Mazur, 1984: 150.

Epierus lucus Lewis, 1884

Epierus lucus Lewis, 1884: 136 [Japan: Kasuga no Miya, Nara]; Bickhardt, 1917: 124; Mazur, 1984: 152.

Original description. "Ovalis, parum convexus, niger, nitidus; antennis rufis, pedibus piceis; pronoto punctulato; elytris striis 5 dorsalibus et suturali integris; propygidio pygidioque dense punctatis. L. 2.1/2 mill.

Larger and more ovate than *E. comptus*; the head is very finely punctured, with a transverse stria between the eyes. The thorax is clearly punctate, and rather thickly so at the base in front of the scutellum; the interstices of the elytral striae are all finely punctured.

The type of this species came from a rotten tree in the ground of Kasuga no Miya, at Nara, June 1881, and I believe all the species of this genus are of arboreal habits. I have only one specimen."

Remarks. No specimens of the species have been available for my study.

Distribution. Japan (Honshû).

Epierus uenoi M. Ôhara, sp. nov.

(Fig. 50, 51)

Japanese name: Amami-ana-aki-emma-mushi.

Description. Body length, width and biometric data are as follows: PPL 1.83, PEL 1.71. Width 1.32, APW 0.44, PPW 1.18, PL 0.56, EL 1.10, EW 1.32, ProW 0.61, ProL 0.20, PyL 0.34, PTL 0.47, MSTL 0.39, MTTL 0.42. Body oval, black and shining; femora, tibiae, tarsi, antennae and mouthparts castaneous.

Frontal stria (Fig. 50B) absent anteriorly, but rudimentarily present laterally on basal third; surface of head depressed medially and elevated obliquely above antennal cavity; punctation of surface fine and evenly separated by about twice their diameters. Labrum with two long setae. Club of antenna without segmentation, its apical margin truncate.

Pronotal sides (Fig. 50A) strongly convergent to apices; marginal stria complete laterally, but entirely absent anteriorly; disk finely punctate, the punctures being separated by two to four times their diameter and becoming a little coarser laterally; basal margin of pronotum obtusely angulate at middle; broadly even medially.

Epipleural marginal stria complete, sparsely crenate, feebly carinate, and running a little distant from the margin. Narrow band between the margin and epipleural marginal stria with fine punctures in a row. Elytral marginal stria deeply impressed on apical half and sparsely crenate. Epipleura sparsely and somewhat coarsely punctate and even. Subhumeral stria absent. Oblique humeral stria finely impressed on basal fourth. First dorsal stria deeply impressed on basal two-thirds, sparsely and coarsely crenate. Second and 3rd dorsal striae present on basal three-fourths, deeply and broadly impressed, and coarsely crenate. Fourth dorsal stria a little shorter than the 3rd, lightly impressed, and sparsely crenate. Fifth dorsal stria absent or sometime rudimentarily

present on medio-basal sixth. Sutural stria shortly present on median third and lightly impressed. Interstices among dorsal elytral striae sparsely clothed with fine punctures, which are separated by about four to five times their diameter; on median third and apical fifth the punctures becoming coarser and denser and being separated by two to three times their diameter except on a narrow sutural band, where the punctures are densely and finely punctate, and an extreme apical band, which is impunctate.

Propygidium (Fig. 50C) with coarse punctures which are separated by their own diameter to twice the diameter and become finer around margin. Pygidium evenly covered with coarse and round punctures which are separated by about their diameter.

Anterior margin of prosternal lobe (Fig. 50D) nearly straight medially, its marginal stria clearly impressed and carinate; apical sixth of the lobe transversely elevated; disk sparsely clothed with fine punctures. Prosternal keel feebly convex on apical half and even on basal half; carinal striae distinctly impressed, and divergent apically and basally; punctation of disk of keel similar to that of the prosternal lobe. Descending lateral striae well impressed, complete and divergent apically. Basal margin of the keel broadly emarginate.

Anterior margin of mesosternum (Fig. 50D) round, its marginal stria nearly complete laterally and broadly interrupted medially on anterior margin; disk sparsely clothed with fine punctures which are a little finer than the pronotal ones and separated by two to three times their diameter. Meso-metasternal suture strongly and sparsely crenate, carinate and arcuate anteriorly. Punctation of intercoxal disk of metasternum similar to that of the mesosternum, the punctures becoming coarser and sparser laterally. Longitudinal mid line of the disk weakly elevated on median fifth. Lateral metasternal stria extending obliquely and posteriorly on basal two-thirds. Lateral disk of metasternum covered with large and round punctures which are separated by their own diameter to half the diameter. Mesocoxal stria extending obliquely and posteriorly, its lateral end not attaining to the lateral margin of metasternum.

Intercoxal disk of 1st abdominal sternum sparsely clothed with fine punctures which are separated by four to six times their diameters; 1st abdominal stria complete on each lateral side.

Protibia (Fig. 50E, F) slender and multidentate (with 11 small denticles on outer margin).

Male genitalia as shown in Fig. 51.

Specimens examined. [Nansei Isles.] <Amami-Ôshima Is.> 1 ex., Tsunagu, 2/iii/1989, T. Ueno leg.

Distribution. Japan (Nansei Isles: Amami-Ôshima Is.)

Etymology. This species is named in honor of Mr. Teruhisa Ueno, who gave me the opportunity to study the specimen.

Remarks. *Epierus uenoi* can easily be distinguished from *E. lucus* by the striation of the elytra, in combination with its limited distribution (Amami-Ôshima, Nansei Is.).

6. 3. 4. Subfamily Onthophilinae Thomson, 1862

Key to the Japanese genus of the subfamily Onthophilinae

- 1(2) Dorsal surface without hair. Genus *Onthophilus* Leach, 1817
- 2(1) Dorsal surface with short and stout hair. Genus *Epiechinus* Lewis, 1891

Genus *Onthophilus* Leach, 1817

Onthophilus Leach, 1817: 77 [type species: *Hister striatus* Forster, 1771]; Ôhara and Nakane, 1986: 3.

Scolytus O. Müller, 1776: 22 [nec. Geoffroy, 1762: 309], synonymized by Jakobson, 1911: 641.

Orthophilus: Westwood, 1840: 22 [misspelled], corrected by Westwood, 1840: 157.

Japanese species of this genus were already revised in Ôhara and Nakane (1986). Herein I add some specimens examined.

Key to the Japanese species of the genus *Onthophilus*.

- 1(2) Pronotum with 8 costae. Body length 2.50 - 2.65 mm.
..... *O. silvae* Lewis, 1884
- 2(1) Pronotum with 4 or 6 costae.
- 3(8) EC₃ (elytral costa 3) ending just caudad of a deep transverse fossa situated within the front margin of the elytron.
- 4(5) PC₃ (pronotal costa 3) present on apical and basal half of the pronotum, and strongly developed. Body length, 3.60 - 4.68 mm.
..... *O. ostreatus* Lewis, 1879
- 5(4) PC₃ absent, or present only on basal half of the pronotum.
- 6(7) PC₃ present. Body length, 2.50 - 3.02 mm. *O. niponensis* Lewis, 1907
- 7(6) PC₃ absent. Body length, 3.28 - 3.38 mm.
..... *O. aonoi* M. Ôhara et Nakane, 1986
- 8(3) EC₃ entire upto the front margin of elytron.
- 9(10) Body longer than 2.5 mm (2.86 - 3.54) mm. Elytral costae sometimes interrupted. *O. ordinarius* Lewis, 1879
- 10(9) Body shorter than 2.5 mm. Elytral costae clear and complete.
- 11(12) Propygidium with 3 costae. Body length, 1.82 - 2.34 mm.
..... *O. flavicornis* Lewis, 1884
- 12(11) Propygidium with 1 costa. Body length 2 mm (after Adachi, 1930).
..... *O. kamiyai* Adachi, 1930

Onthophilus silvae Lewis, 1884

Onthophilus silvae: Ôhara and Nakane, 1986: 5.

Japanese name: Sinano-sesuji-emma-mushi.

Specimens examined [additional records]. [Hokkaidô] 2 exs., Yahata, Kutchan, 20, 30/viii/1993, M. Ôhara leg. collected near the nest of ant, *Lasius* (*Dendrolasius*) *fuliginosus*.

[Honshû] <Kanagawa-ken> 1 ex., Daiyû-zan, Hakone, 14/viii/1982, Y. Hirano leg. (NSMT).

Distribution. Japan (Hokkaidô, Honshû).

***Onthophilus aonoi* M. Ôhara et Nakane, 1986**

Onthophilus aonoi Ôhara and Nakane, 1986: 6; Hirano, 1988: 41 [Kanagawa, Honshû].

Japanese name: Nise-ko-sesuji-emma-mushi.

Distribution. Japan (Honshû).

***Onthophilus ostreatus* Lewis, 1879**

Onthophilus ostreatus: Ôhara and Nakane, 1986: 5.

Japanese name: Ô-sesuji-emma-mushi.

Specimens examined [additional records]. [Honshû] <Ibaraki-ken> 1 ex., Tadobe, Sakuragawa, Niiharu-gun, 3/xi/1984, K. Haga leg. <Tôkyô-to> 1 ex., Nakano, 20/xi/1923, no collector's name (NSMT); 1 ex., Tôkyô, no data and collector's name (NSMT); 5 exs., Tôkyô, 25/x/1936, T. Adachi leg. (NSMT). <Kanagawa-ken> 6 exs., Mizonokuchi, no date and collector's name (NSMT). <Hyôgo-ken> 1 ex., Harada, Kôbe, 19/xi/1914, no collector's name (BSM).

Distribution. Japan (Honshû, Shikoku, Kyûshû); Continental China; Taiwan.

***Onthophilus niponensis* Lewis, 1907**

Onthophilus niponensis: Ôhara and Nakane, 1986: 6.

Japanese name: Ko-sesuji-emma-mushi.

Specimens examined [additional records]. [Honshû] <Fukushima-ken> 6 exs., Wakamatsu, 19/iv/1947, Y. Kurosawa leg. (NSMT). <Tôkyô-to> 1 ex., Komazawa, 4/vii/1931, K. Seiki leg. (NSMT). <Gifu-ken> 1 ex., Nannou, 11/iv/1981, T. Nohira leg. (refer to Takai, 1989).

Distribution. Japan (Honshû, Kyûshû).

***Onthophilus ordinarius* Lewis, 1879**

Onthophilus ordinarius: Ôhara and Nakane, 1986: 9.

Japanese name: Ezo-sesuji-emma-mushi.

Specimens examined [additional records]. [Hokkaidô] 10 exs., Nopporo, 5/vi/1987, M. Ôhara leg.; 5 exs., Ditto, 12/vi/1987, M. Ôhara leg.; 1 ex., Ditto, 18/vii/1987, M. Ôhara leg.; 2 exs., Sapporo, 10/vi/1940, Y. Nishijima leg. (NSMT).

Distribution. Japan (Hokkaidô); Russia (Vladivostok, Baikal Sea, Novosibirsk, Irkutsk, Ussuri).

Onthophilus flavicornis Lewis, 1884

Onthophilus flavicornis: Ôhara and Nakane, 1986: 9.

Japanese name: Kinoko-sesuji-emma-mushi.

Specimens examined [additional records]. [Hokkaidô] 1 ex., Sapporo, 26/vi/1939, Y. Nishijima leg. (NSMT).

[Honshû] <Ibaraki-ken> 1 ex., Kamisaki, Sakura-mura, 4/v/1985, K. Haga leg. <Tochigi-ken> 1 ex., Nikkô, 11/v/1985, M. Kiuchi leg. <Saitama-ken> 1 ex., 20/iv/1968, H. Takizawa leg. <Tôkyô-to> 1 ex., Kakinokizaka, Meguro, 5/iv/1947, H. Watanabe leg. (NSMT). <Nagano-ken> 4 exs., Jigokudani, Yamanouchi, 29/iv/1983, M. Kiuchi leg.; 1 ex., Shiga-kôgen, 7/v/1986, H. Tanaka leg.

Distribution. Japan (Hokkaidô, Honshû, Shikoku, Kyûshû).

Onthophilus kamiyai Adachi, 1930

Onthophilus kamiyai: Ôhara and Nakane, 1986: 9.

Japanese name: Nise-kinoko-sesuji-emma-mushi.

Distribution. Japan (Honshû).

Genus *Epiechinus* Lewis, 1891

Epiechinus Lewis, 1891d: 320 [type species: *Onthophilus costipennis* Fahreus in Boheman, 1851: 549. Originally designated]; 1892: 232; Bickhardt, 1916-17: 66; 1921: 80; Desbordes, 1919: 408; Reichardt, 1941: 94; Kryzhanovskij and Reichardt, 1976: 290; Mazur, 1984: 146.

Epiechinus arboreus (Lewis, 1884)

(Fig. 52, 53, 54)

Onthophilus arboreus Lewis, 1884: 139 [Japan: Honshû: Nara].

Epiechinus arboreus: Lewis, 1891: 320; Hisamatsu, 1985: 226, pl. 4, f. 1.

Scolytus arboreus: Jakobson, 1911: 652.

Japanese name: Chibi-ke-sesuji-emma-mushi.

Original description. "Orbicularis, niger, hispidus, opacus; antennis clava ferruginea. *O. hispido* proxime affinis, sed minor. L. 1.1/2 mill."

Description. Body oval, dark brown, furnished with minute spines and usually covered with mudlike scales. Body length, PPL, 1.58 - 1.99 mm (1.82 ± 0.04 , n=7),

PEL, 1.56 - 1.91 mm (1.78 ± 0.04 , $n=7$). Width, 1.36 - 1.62 mm (1.51 ± 0.03 , $n=7$). Biometric data are given in Table 9.

Frontal lateral sides (Fig. 52D) convergent apically on basal half and strongly emarginate behind antennal sockets; anterior margin roundly arcuate. Margin of the frontal disk strongly carinate. Disk with five longitudinal costae; the median costa present on basal half; the lateral costae convergent apically through behind the antennal sockets and united with each other anteriorly; five cross costae present anteriorly between the lateral costa and the anterior marginal carina; the mediolateral costae shortly present on basal fourth. Surface of the disk sparsely furnished with minute spines.

Pronotal sides (Fig. 52A) feebly convergent forward on basal three-fourths, thence strongly convergent apically, and strongly carinate and densely furnished with minute spines. Anterior margin of pronotum broadly emarginate, the median portion nearly straight. Disk with six costae (Fig. 52E); the median four costae present on apical third and feebly elevated; the lateral costae strongly elevated, complete and interrupted at apical fourth; sides of these costae furnished with minute spines. Surface of the disk sparsely covered with coarse and round punctures which are separated by their own diameter to thrice the diameter and have minute setae in a trapezoid area on the mediobasal two-thirds; other area, except on costae, impunctate and shining.

Epipleura without stria, with a costa on margin of elytron, the costa sinuate at middle and furnished with minute spines on basal half; surface with two punctured rows, the punctures quadrate, large and shallow, the inner row complete and the outer (running close to the margin) shortly present on medio-apical fourth. Disk of elytron (Fig. 52A) with five spinal costae (excluding the costa on elytral margin); the 1st to 4th costae (naming from outside to inside) strongly elevated, complete and furnished with minute spine on their lateral sides; the sutural costa (closely present along suture) slightly elevated and furnished with minute spines only on the outer lateral side; interspace (Fig. 52F) between these costae with two punctured rows, the punctures round, large, deep and being separated by about their own diameter.

Propygidium short, depressed laterobasally and irregularly covered with coarse, round, shallow and spiral punctures, and intermingled with fine punctures among coarse ones; large, round and shallow punctures present along the anterior margin. Pygidium (Fig. 53D) irregularly covered with various sized and large punctures which are densely present medially, and other fine punctures intermingled.

Anterior margin of prosternal lobe (Fig. 52C, 53A) nearly straight; disk with a transverse punctured row on apical fifth, and sparsely with fine spines. Suture between the lobe and the keel clearly impressed. Prosternal keel feebly depressed, its carinal striae strongly elevated, convergent apically; posterior margin broadly and roundly emarginate. Lateral prosternal stria strongly carinate and divergent apically.

Anterior margin of mesosternum (Fig. 53A) sinuate, the median portion produced to fit the prosternal emargination; disk short and deeply excavate laterally (Fig. 53B); posterior margin angulate obtusely at middle; surface sparsely covered with fine spiral punctures, deeply excavate laterobasally and at apical third on lateral side, the laterobasal excavation becoming broader posteriorly and inwardly. Lateral metasternal stria carinate, extending posteriorly obliquely and angulate outwardly at basal fifth. Lateral disk with two deep excavations (Fig. 53C), the basal one present behind the mesocoxa and the apical one transverse and present on apical half; remains of the basal

half covered with large round and shallow punctures.

Intercoxal disk of 1st abdominal sternum (Fig. 53C) short, with two excavations; the basal one deeply present on each lateral area, and the apical one shallowly on each latero-apical angles.

Protibia narrow, its outer margin with ten setae and angulate medially; interspace between apical 2nd and 3rd setae broad. Mesotibia with twelve setae on outer margin. Metatibia with thirteen setae on outer margin.

Male genitalia as shown in Fig. 54.

Specimens examined. [Honshû] <Nara-ken> 1 ex., Kasuga-yama, 8/i/1954, M. Ôtake leg. (NA); 3 exs., Ditto, 19/vi, 7, 14/vii/1957, T. Shibata leg. (NA); 2 exs., Ditto, 13/vi/1958, T. Nakane leg. (NA); 1 ex., 18/iv/1965, M. Gotô leg. (NA); 8 exs., Ditto, 26/xi/1958, T. Shibata leg. (NSMT); 1 ex., Nara, 28/iii/1959, no collector's name (NSMT).

Distribution. Japan (Honshû).

Remarks. *Epiechinus arboreus* is easy to be distinguished from other Japanese species of the subfamily Onthophilinae by its small size and the presence of minute spines on the dorsal surface in combination with the distinctly developed elytral costae.

Little is known about the habitats of this species. Lewis (1884) noted that this species was residing in galleries of wood-borers, probably *Tomicus*.

Table 9. Biometric data of *Epiechinus arboreus* (Lewis).

| | |
|------|-------------------------|
| APW | 0.55-0.67 (0.62±0.01) 7 |
| PPW | 1.06-1.30 (1.21±0.03) 7 |
| PL | 0.59-0.71 (0.65±0.02) 7 |
| EL | 0.95-1.18 (1.10±0.03) 7 |
| EW | 1.36-1.62 (1.51±0.03) 7 |
| ProW | 0.51-0.67 (0.60±0.02) 7 |
| ProL | 0.16-0.26 (0.22±0.01) 7 |
| PyL | 0.39-0.47 (0.44±0.01) 7 |
| PTL | 0.47-0.63 (0.56±0.02) 7 |
| MSTL | 0.37-0.53 (0.49±0.02) 7 |
| MTTL | 0.39-0.57 (0.53±0.02) 7 |

7. 3. 5. Subfamily Histerinae Gyllenhal, 1808

Histerinae [type genus: *Hister* Linnaeus, 1758: 358].

Histeroides Gyllenhal, 1808: 74.

Histétiens Marseul, 1857: 148.

Histerina Thomson, 1862: 220.

Histeri Fauvel, 1891: 164.

Histerinae Fowler, 1912: 93.

Key to the Japanese tribes and genera of the subfamily Histerinae

- 1(4) Tarsal groove of protibia S-shaped.
- 2(3) Head porrect, horizontal in repose. Tribe Hololeptini Lacordaire, 1854
..... Genus *Hololepta* Paykull, 1811
- 3(2) Head vertical in repose. Tribe Platysomatini Bickhardt, 1917
..... Genus *Platysoma* Leach, 1817
- 4(1) Tarsal groove of protibia straight.
- 5(8) Anterior margin of mesosternum bisinuate with more or less distinct median projection which fits into basal margin of prosternum.
..... Tribe Exosternini Bickhardt, 1917
- 6(7) Body red. Genus *Notodoma* Lacordaire, 1854
- 7(6) Body darkish bronze. Genus *Binhister* Cooman, 1934
- 8(5) Anterior margin of mesosternum straight or truncate or emarginate, not bisinuate.
..... Tribe Histerini Gyllenhal, 1808
- 9(16) Anterior margin of mesosternum truncate or emarginate at middle (in *Hister simplicisternus*, the anterior margin straight).
- 10(15) External subhumeral stria of elytron not completed.
- 11(14) Pronotum with two lateral striae.
- 12(13) Pronotum and elytra without large and deep punctures.
..... Genus *Hister* Linnaeus, 1758
- 13(12) Pronotum and elytra densely covered with large and deep punctures.
..... Genus *Zabromorphus* Lewis, 1906
- 14(11) Pronotum with one lateral stria. Genus *Merohister* Reitter, 1908
- 15(10) External subhumeral stria of elytron complete.
..... Genus *Margarinotus* Marseul, 1853
- 16(9) Anterior margin of mesosternum straight or feebly arcuate outwardly, sometimes feebly emarginate at middle, but marginal stria of mesosternum not emarginate.
..... Genus *Atholus* Thomson, 1859

Tribe Exosternini Bickhardt, 1917

Exosternini Bickhardt, 1917: [type genus: *Exosternus* Lewis, 1902: 223]; Ôhara and Nakane, 1989: 284.
Exosternini Bickhardt, 1914: 308 (nom. nud.).

This tribe has already been revised in Ôhara and Nakane (1989). Herein I add some specimens examined.

Genus *Binhister* Cooman, 1934

Binhister Cooman, 1934: 122 [type species: *Binhister barbarus* Cooman, 1934. Originally designated];
Mazur, 1984: 288; Ôhara and Nakane, 1989: 290.

Binhister chujoi Cooman, 1941

Binhister chujoi Cooman, 1941: 332; Ôhara and Nakane, 1989: 290.
Japanese name: Chûjô-chibi-emma-mushi.

Specimens examined [additional records]. [Honshû] <Tôkyô-to> 3 exs., Mt. Takao, 21/vi/1963, S. Nomura leg. (NSMT). <Nagano-ken> 1 ex., Nojiri, Gaijin-mura, 25/viii/1941, T. Nakane leg. (refer to Ôsawa and Nakane (1951)). <Kyôto-fu> 1 ex., Kyôto University, 3/vii/1951, F. Takahashi leg. (NA); 1 ex., Mt. Daihi, 30/v/1959, Y. Hama leg. (NSMT).

Distribution. Japan (Honshû).

Genus *Notodoma* Lacordaire, 1854

Notodoma Lacordaire, 1854: 266; Ôhara and Nakane, 1989: 285.

Notodoma fungorum Lewis, 1884

Notodoma fungorum Lewis, 1884: 136; Ôhara and Nakane, 1989: 286.
Japanese name: Kinoko-aka-maru-emma-mushi.

Specimens examined [additional records]. [Hokkaidô] 1 ex., Sapporo, 7/vii/1955, T. Kumata leg. (EIHU).

[Honshû] <Iwate-ken> 3 exs., Matsuo, 17-19/vii/1954, S. Takagi leg. (EIHU). <Fukushima-ken> 3 exs., Yunohana, Tateiwa, Minami-Aizu, 21/vi/1947, 7/vii/1948, Y. Kurosawa leg. (NSMT); 1 ex., Yunohana, Ôuchi, Narahara, Minami-Aizu, 13/vi/1948, Y. Kurosawa leg. (NSMT). <Tôkyô-to> 24 exs., Takao, 29/v/1968, 3/vii/1969, H. Takizawa leg.; 2 exs., Ditto, 21/vi/1963, S. Nomura leg. (NSMT); 1 ex., Mt. Kuwanori, 28/v/1968, H. Takizawa leg.; 2 exs., Nippara, 26/vii/1966, Y. Kurosawa leg. (NSMT). <Yamanashi-ken> 1 ex., Torii-tôge, 10/vii/1938, Imazaki leg. (NSMT). <Nagano-ken> 2 exs., Kutsukake, Shinano, 7/viii/1941, T. Niimura leg. (NSMT); 1 ex., Amori, Nagano-

shi, 24/vii/1979, T. Fujisawa leg. <Hyôgo-ken> 2 exs., Kirihata, Takarazuka, 7/vi/1992, T. Itô leg. <Tottori-ken> 2 exs., Mt. Daisen, 14/vii/1947, H. Kôno leg. (NSMT).

[Kyûshû] <Tsushima Is.> 3 exs., Meboro, Mt. Mitake, 15-18/vii/1968, S. Miyamoto and A. Nakanishi leg. (NSMT); 2 exs., Mine, 10/vi/1969, T. Nakane leg. (NSMT).

[Nansei Isles.] <Yaku-shima Is.> 8 exs., Yaku-sugi land, 3/vii/1975, Y. Kurosawa leg. (NSMT); 2 exs., Shiratani, Yaku-shima, 20/vi/1975, Y. Kurosawa leg. (NSMT); 1 ex., Anbô, 21/vi/1975, Y. Kurosawa leg. (NSMT).

Distribution. Japan (Hokkaidô, Honshû, Shikoku, Kyûshû, Izu Isles., Tsushima Isles., Nansei Isles.); Taiwan.

Tribe Hololeptini Lacordaire, 1854

Hololeptides Lacordaire, 1854: 248.

Hololeptiens Marseul, 1857: 147.

Hololeptini Jacquelin-Duval, 1859: 98.

Hololeptina Jakobson, 1911: 638.

Hololeptinae Fowler, 1912: 92.

Plathisterinae Houlbert and Monnot, 1922: 12, synonymized by Mazur, 1984: 257.

The Japanese species of the genus, *Hololepta*, have already been revised in Ôhara (1991a, b). Herein I add some specimens examined.

Genus *Hololepta* Paykull, 1811

Hololepta Paykull, 1811: 101; Ôhara, 1991a: 102.

Key to the Japanese species of the genus *Hololepta*

- 1(4) Propygidium without stria.
- 2(3) Anterior margin of prosternal lobe outwardly arcuate. Body (head excluded) larger, 7.3 - 8.7 mm. Large fovea present on pronotal anterior angle in male. *Hololepta amurensis* Reitter, 1879
- 3(2) Anterior margin of prosternal lobe feebly emarginate. Body smaller, 5.7 - 7.0 mm. *Hololepta depressa* Lewis, 1884
- 4(1) Propygidium with stria on each side. *Hololepta higoniae* Lewis, 1894

Hololepta (Hololepta) amurensis Reitter, 1897

Hololepta amurensis Reitter, 1897: 213.

Hololepta (Hololepta) amurensis: Ôhara, 1991a: 103.

Japanese name: Ô-hirata-emma-mushi.

Specimens examined [additional records]. [Hokkaidô] 8 exs., Mt. Yôtei, Hirafu, Kutchan, 15-16, 22/vii/1991, M. Ôhara leg.

Distribution. Japan (Hokkaidô, Honshû, Shikoku, Kyûshû, Izu Isles., Tsushima Isles., Yaku-shima Is.); East Siberia; Primorskij Kray; Korea; Taiwan; Continental China.

***Hololepta (Hololepta) depressa* Lewis, 1884**

Hololepta depressa Lewis, 1884: 132.

Hololepta (Hololepta) depressa: Ôhara, 1991b: 235.

Japanese name: Hirata-emma-mushi.

Specimens examined [additional records]. [Hokkaidô] 2 exs., Mt. Yôtei, Hirafu, Kutchan, 15-16, 22/vii/1991, M. Ôhara leg.

Distribution. Japan (Hokkaidô, Honshû, Shikoku, Kyûshû); Taiwan.

***Hololepta (Hololepta) higoniae* Lewis, 1894**

Hololepta parallela Lewis, 1884: 132 (nec Sturum, 1868).

Hololepta higoniae Lewis, 1894: 174; Miwa, 1938: 84, 85; Kurosawa, 1952: 24 [Honshû].

Hololepta (Hololepta) higoniae: Ôhara, 1991b: 238; Kurosawa, 1992: 7.

Japanese name: Higo-hirata-emma-mushi.

Distribution. Japan (Honshû, Kyûshû); Laos; Viet-Nam; Taiwan; Continental China (Yunnan).

Tribe Platysomatini Bickhardt, 1917

Platysomatini Bickhardt, 1917: 131 [type genus: *Platysoma* Leach, 1817: 77].

Platysomini: Bickhardt, 1914: 307 (nom. nud.).

Platysomini: Bickhardt, 1917: 131.

Althanini Cooman, 1939b: 138, synonymized by Mazur, 1984: 227.

Platysominae: Chûjô, 1970: 8.

Platysomatini: Mazur, 1973: 51.

Key to the Japanese genera and subgenera of the tribe Platysomatini

- 1(2) Body broadly oval. Genus *Eblisia* Lewis, 1889
- 2(1) Body oblong-oval. Genus *Platysoma* Leach, 1817
- 3(4) Body strongly depressed. Interspace between coxae broad, as long as metatibia.
..... Subgenus *Apobletes* Marseul, 1860
- 4(3) Body moderately convex. Interspace between coxae not broad, as long as one-

- third of metatibia.
- 5(6) Body slender. Width of body shorter than length of sutural line of elytra.
 Subgenus *Cylister* Cooman, 1941
- 6(5) Body oval or oblong-oval. Width of body as long as sutural line of elytra.
- 7(8) Margin of pygidium strongly carinate. Subgenus *Platylister* Lewis, 1892
- 8(7) Margin of pygidium not carinate. Subgenus *Platysoma* Leach, 1817

Genus *Platysoma* Leach, 1817

Platysoma Leach, 1817: 77 [type species: *Hister depressus* Fabricius, 1787: 32. Designated by Westwood, 1840: 22].

Abbotia Leach, 1830: 155, synonymized by Waterhouse, 1868: 168. Without type species.

Part of this genus, including subgenus *Platysoma*, has already been revised in Ôhara (1986). Herein I renew a key to the Japanese species and add some specimens examined.

Subgenus *Platysoma* Leach, 1817

Key to the Japanese species of the subgenus *Platysoma*

- 1(4) Pronotum smooth, impunctate (or at most microscopically punctulate).
- 2(3) Elytra rugulose on apical third; dorsal striae 1-3 complete, 4th abbreviated at basal third, 5th and sutural are present on apical half; pygidium with a deep fovea on each side at the base; body length 3.3 - 3.65 mm.
 *P. (P.) tsushimae* M. Ôhara, 1986
- 3(2) Elytra not rugulose; dorsal stria 1-3 complete, 4th apical, 5th abbreviated at basal third, sutural stria wanting; pygidium without fovea; body length 3.05 - 3.8 mm.
 *P. (P.) unicum* Bickhardt, 1912
- 4(1) Pronotum punctate, especially densely on lateral area.
- 5(8) Body length 4.2 - 5.3 mm; prosternal process with carinal striae; lateral pronotal stria rather distant from the side margin.
- 6(7) Sutural stria on basal half, consisting of moderately coarse punctures; dorsal stria 1 - 4 complete, 5th obsolescent at base; body length 4.2 - 5.3 mm.
 *P. (P.) lewisi* Marseul, 1873
- 7(6) Sutural stria absent; dorsal striae 1 - 3 complete, 4th and 5th found on apical half; body length 5.0 mm. *P. (P.) vagans* Lewis, 1884
- 8(5) Body length 2.13 - 3.8 mm; prosternal process without carinal striae; lateral pronotal stria rather close to the margin.
- 9(12) Dorsal striae 1 - 4 complete (in *P. celatum* Lew. rarely abbreviated at the base).
- 10(11) Pygidial punctures almost as large as the coarse propygidial ones; metatibia without a spine, or with very fine spinules on outer margin; lateral pronotal stria

- complete; body length 2.13 - 2.95 mm. *P. (P.) celatum* Lewis, 1884
- 11(10) Pygidium more closely punctate than propygidium; metatibia always with a large spine on outer margin at apical two-thirds; lateral pronotal stria narrowly interrupted on each side behind the eye; body length 2.9 - 3.4 mm.
 *P. (P.) deplanatum* (Gyllenhal, 1808)
- 12(9) Dorsal striae 1 - 3 complete.
- 13(14) Sutural stria is present on apical area; lateral pronotal stria narrowly interrupted on each side behind the eye; body length 3.25 - 3.8 mm.
 *P. (P.) takehikoi* M. Ôhara, 1986
- 14(13) Sutural stria is absent; lateral pronotal stria complete; body length 2.4 - 3.1 mm. .
 *P. (P.) rasile* Lewis, 1884

***Platysoma (Platysoma) celatum* Lewis, 1884**

Platysoma celatum Lewis, 1884: 134; Ôhara, 1986: 99.

Japanese name: Hime-naga-emma-mushi.

Specimens examined [additional records]. [Honshû] <Yamagata-ken> 1 ex., Tamagawa, 7/v/1975, Y. Kurosawa leg. (NSMT). <Fukushima-ken> 1 ex., Yunohana, Tateiwa, Minami-Aizu, 21/vii/1947, Y. Kurosawa leg. (NSMT); 1 ex., Mt. Senaka-Aburi, Higashi-yama, Kita-Aizu, 13/v/1951, Y. Kurosawa leg. (NSMT); 1 ex., Suimon, Asahida, Minami-Aizu, 4/vi/1949, Y. Kurosawa leg. (NSMT); 1 ex., Jabami, Nagaino, Ônuma, 25/vi/1949, K. Nagayama leg. (NSMT). <Niigata-ken> 1 ex., Echigo-Koma-ga-take, 13-14/ix/1970, H. Takizawa leg. <Nagano-ken> 2 exs., Mt. Yatsu-ga-take, 4/x/1941, M. Hanao leg. (NSMT). <Okayama-ken> 1 ex., Mimasaka, vii/1912, J. E. A. Lewis leg. (BSM).

[Kyûshû] <Fukuoka-ken> 2 exs., Mt. Shôji, 28/iv/1964, 16/vi/1964, S. Nakao leg. (NA).

Distribution. Japan (Hokkaidô, Shikoku, Kyûshû); Continental China.

***Platysoma (Platysoma) deplanatum* (Gyllenhal, 1808)**

Hister deplanatum Gyllenhal, 1808: 85; Lewis, 1906: 340.

Platysoma deplanatum: Ôhara, 1986: 100.

Japanese name: Kita-naga-emma-mushi.

Specimens examined [additional records]. [Hokkaidô] 1 ex., Rubeshibe, 30/v/1980, H. Torikura leg.; 1 ex., Okushibetsu, Kamikawa, Teshio, 29/vi/1949, T. Hasegawa leg. (NSMT); 4 exs., Raibetsu (97), Shibechea, Kushiro, 6/vii/1972, 12/vii/1973, 15/vii/1975, K. Ijima leg. (IJ); 3 exs., Futatsu-yama, Shibechea, Kushiro, 12/vi/1956, 24/vi/1973, 12/vi/1975, K. Ijima leg. (IJ); 1 ex., Rururan, Sugano, Shibechea, Kushiro, 24/vii/1992, K. Ijima leg. (IJ).

Distribution. Japan (Hokkaidô); Europe; Siberia; Mongolia; Korea.

***Platysoma (Platysoma) lewisi* Marseul, 1873**

Platysoma lewisi Marseul, 1873: 222; Ôhara, 1986: 97.

Japanese name: Ô-naga-emma-mushi.

Specimens examined [additional records]. [Honshû] <Ôsaka-fu> 2 exs., Minô, 15/vi/1958, Y. Hama leg. (NSMT). <Hyôgo-ken> 1 ex., Kôbe, vi/1912, J. E. A. Lewis leg. (BSM).

[Kyûshû] <Fukuoka-ken> 1 ex., Mt. Shôji, 13/vii/1963, S. Nakao leg. (NA). <Kagoshima-ken> 2 exs., Takachiho-gawara, Kirishima, 5/vi/1985, Y. Takai leg.

Distribution. Japan (Hokkaidô, Honshû, Shikoku, Kyûshû, Tsushima Isles.); Continental China.

***Platysoma (Platysoma) rasile* Lewis, 1884**

Platysoma rasile Lewis, 1884: 134; Ôhara, 1986: 104.

Japanese name: Nise-hime-naga-emma-mushi.

Specimens examined [additional records]. [Honshû] <Chiba-ken> 1 ex., Mt. Kiyosumi, 24/v/1976, M. Tomokuni leg. (NSMT). <Tôkyô-to> 1 ex., Aihara, 16/v/1987, H. Takizawa leg.; 1 ex., Kinuta, Setagaya, 30/iv/1967, Y. Kurosawa leg. (NSMT).

[Kyûshû] <Fukuoka-ken> 1 ex., Mt. Shôji, 30/v/1971, S. Nakao leg. (NA).

Distribution. Japan (Honshû, Shikoku, Kyûshû, Tsushima Isles., Nansei Isles.).

***Platysoma (Platysoma) takehikoi* M. Ôhara, 1986**

Platysoma takehikoi M. Ôhara, 1986: 102.

Japanese name: Nakane-naga-emma-mushi.

Specimens examined [additional records]. [Nansei Isles.] <Ishigaki Is.> 1 ex., Banna-dake, Ishigaki, 31/x/1974, K. Tazoe leg. <Iriomote Is.> 1 ex., Ôhara. 12/iii/1990, Y. Okushima leg.

Distribution. Japan (Nansei Isles.).

***Platysoma (Platysoma) tsushimae* M. Ôhara, 1986**

Platysoma tsushimae M. Ôhara, 1986: 94.

Japanese name: Tsushima-naga-emma-mushi.

Distribution. Japan (Tsushima Isles.).

***Platysoma (Platysoma) vagans* Lewis, 1884**

Platysoma vagans Lewis, 1884: 133; Ôhara, 1986: 97.

Japanese name: Heri-naga-emma-mushi.

Specimens examined [additional records]. [Shikoku] <Kôchi-ken> 1 ex., Tebako, 25/vii/1962, D. Motomura leg. (NSMT).

Distribution. Japan (Hokkaidô, Honshû).

***Platysoma (Platysoma) unicum* Bickhardt, 1912**

Platysoma unicum Bickhardt, 1912: 124; Ôhara, 1986: 96.

Japanese name: Tokara-naga-emma-mushi.

Distribution. Japan (Nansei Isles.); Taiwan.

Subgenus *Platylister* Lewis, 1892

Platylister Lewis, 1892d: 103 [type species: *Platysoma ovatum* Erichson, 1834: 108. Originally designated].

Key to the Japanese species of the subgenus *Platylister*

- 1(4) Front of head strongly concave.
- 2(3) First - 4th dorsal elytral striae complete. Body small, 4.00 - 4.75 mm.
..... *P. (P.) pini* Lewis, 1884
- 3(2) First - 3rd dorsal striae complete. Body large, 4.50 - 6.06 mm.
..... *P. (P.) cambodjense* Marseul, 1864
- 4(1) Front of head flat or weakly concave.
- 5(6) Fourth dorsal elytral stria longer than or as long as 5th.
..... *P. (P.) horni* Bickhardt, 1913
- 6(5) Fourth dorsal elytral stria shorter than 5th.
..... *P. (P.) atratum* Erichson, 1834

***Platysoma (Platylister) atratum* Erichson, 1834**

(Fig. 55, 56, 57, 58)

Hister parallelepipedus Dejean, 1821: 48 (nom. nud.), homonymized by Marseul, 1857: 472.

Platysoma parallelepipedum (sic): Dejean, 1837: 143.

Platysoma atratum Erichson, 1834: 110.

Platylister atratus: Lewis, 1905b: 13; Hisamatsu, 1986: 229; Sawada, 1988: 40 [Miyake-jima, Izu Isles.].

Platysoma buteanum Desbordes, 1922: 7, synonymized by Cooman, 1948: 132.

Japanese name: Indo-naga-emma-mushi.

Original description. "Oblongum, subdepressum, atrum, thorace laevi, elytris stria dorsali prima nulla, secunda tertiaque valde abbreviatis. -- Long. 3 lin. -- Aus Bengalen.

Verhältnismäßig etwas schmaler als die vorigen Arten, flach gewölbt, tief schwarz, mit matsigem Glanze. Der Kopf ist dicht und fein punktiert, mit einem schwachen Langseindruck auf dem Scheitel; die Stirn ist vorn sanft eingedrückt. Die Fühler schwarz, mit etwas greis schillerndem Knopfe. Das Halsschild ist nicht voll doppelt so breit als lang, nach vorn ein wenig verschmälert, an den Seiten sehr sanft gerundet fein punktiert; die Randlinie ist an den Seiten sehr stark, vorn fein und ununterbrochen. Die Flügeldecken sind fast etwas schmaler als das Halsschild, nach hinten unmerklich verengt, sehr fein punktiert; der erste Streif fehlt ganz, der zweite und dritte nach vorn stark abgekurzt, die übrigen ganz, stark; die Zwischenräume eben. Das vorletzte obere Hinterleibssegment ist an dem Hinterrande auf jeder Seite eingedrückt, mit einzelnen starken Punkten besetzt; das letzte Segment ist stark punktiert, auf jeder Seite eingedrückt, am Rand kaum etwas erhaben. Die Beine schwarz."

Description. Body somewhat convex, oblong, black and shining; tibiae dark brown; tarsi and antennae reddish brown. Body length, PPL, 4.69 - 6.25 mm (5.62 ± 0.11 , $n=14$), PEL, 4.06 - 5.56 mm (4.99 ± 0.10 , $n=14$), Width, 2.69 - 3.56 mm (3.16 ± 0.07 , $n=14$). Biometric data are given in Table 10.

Surface of head (Fig. 57A) even but feebly depressed on apical half; frontal stria usually interrupted at each apical angle behind eye, and well impressed and carinate; disk evenly clothed with fine punctures which are separated by about three times their diameter. Labrum transverse oblong, its anterior margin strongly emarginate at middle. Mandibles stout, short, and with longitudinal impression on dorsal surface.

Pronotal sides (Fig. 55A) parallel on basal third, convergent to apices on apical two-thirds, but strongly convergent on apical sixth; emarginated portion of anterior margin bisinuate with distinctly acute angle at middle (Fig. 55A). Marginal pronotal stria complete and weakly impressed, its apical end curved at apical angle and shortly extending inwardly. Pronotal lateral stria somewhat deeply impressed and complete laterally, and narrowly interrupted at middle on anterior portion; disk densely clothed with fine punctures which are denser than those of the head.

Epipleural and elytral marginal stria weakly impressed and complete, the apical end of the elytral stria extending along apical margin of elytra and attaining until lateral half of elytron. Epipleura even and sparsely clothed with fine punctures. Subhumeral stria absent. Oblique humeral stria (Fig. 55A) present on basal third. First to 3rd elytral dorsal striae complete and well impressed, the 3rd weakly bent inwardly on basal half. Fourth dorsal stria short and present on apical sixth. Fifth often reduced basally, but usually

present on apical third. Disk of elytra evenly and densely covered with fine punctures which are as dense as on the pronotum.

Propygidium (Fig. 57B) irregularly covered with large punctures, which become finer along posterior margin and on a narrow longitudinal median band; interspace among the large punctures evenly and densely covered with fine punctures. Surface of propygidium even. Pygidium densely covered with large punctures which are separated by one-third their diameter; interspace among the large punctures sparsely clothed with fine punctures; narrow band along posterior margin feebly elevated.

Anterior margin of prosternal lobe (Fig. 56A) round; marginal stria of lobe deeply impressed, its lateral end strongly curved inwardly; disk flat, densely covered with coarse punctures which are separated by their own diameter. Prosternal keel narrow and without carinal stria; disk evenly covered with coarse punctures; basal apex round. Lateral stria and lateral marginal stria deeply impressed and carinate.

Anterior margin of mesosternum strongly emarginate at middle; marginal stria well impressed and complete, rarely interrupted at middle of anterior portion; disk densely and finely punctate. Meso-metasternal suture weakly impressed. Punctuation of intercoxal disk of metasternum slightly finer than metasternal ones. Lateral metasternal stria deeply impressed, extending obliquely and posteriorly, its apical end attaining near metacoxa. Lateral disk densely covered with large and shallow punctures, which are usually fused with each other on apical half.

Intercoxal disk of 1st abdominal sternum with a punctuation similar to that of intercoxal disk of metasternum; two lateral striae present on each lateral side.

Protibia (Fig. 57C) with 4 denticles on outer margin. Mesotibia with 4 denticles, the median 2 denticles large. Metatibia with 4 denticles, the basal one very small.

Male genitalia as shown in Fig. 58.

Specimens examined. [Nansei Isles.] <Tokara-Nakano-shima Is.> 1 ex., Nakano-shima, 22/vii/1986, H. Fujita leg.

Distribution. Japan (Izu Isles.; Nansei Isles.); India; Burma; Viet-Nam; Laos; Taiwan; East China.

Remarks. *Platysoma atratum* resembles superficially *P. horni*; however, the former can easily be distinguished by the different striation of the elytra and the pronotal stria which is interrupted behind the head.

Little is known about the habitat of this species. It frequently occurs in decaying pineapple and banana; it was sometimes collected also under bark and in rotting wood, and, according to Sawada (1988), under decaying Taro, *Colocasia esculenta*.

Table 10. Biometric data of *Platysoma (Platylister) atratum* Erichson

| | |
|------|--------------------------|
| APW | 1.31-1.81 (1.52±0.03) 14 |
| PPW | 2.50-3.44 (3.05±0.06) 14 |
| PL | 1.50-2.19 (1.90±0.04) 14 |
| EL | 2.25-3.00 (2.74±0.05) 14 |
| EW | 2.69-3.56 (3.16±0.07) 14 |
| ProW | 1.69-2.25 (1.97±0.04) 14 |
| ProL | 0.44-0.69 (0.59±0.02) 14 |
| PyL | 0.63-0.94 (0.80±0.03) 14 |
| PTL | 0.94-1.25 (1.17±0.03) 14 |
| MSTL | 0.81-1.19 (1.03±0.03) 14 |
| MTTL | 1.00-1.31 (1.21±0.03) 14 |

***Platysoma (Platylister) cambodjense* Marseul, 1864**
(Fig. 55, 56, 57, 59)

Platysoma cambodjense Marseul, 1864: 300 [Cambodia].

Platylister cambodjensis : Lewis, 1905b: 13.

Platylister niponensis Lewis, 1906c: 398 [Japan: Kioto (=Kyôto)]; 1907: 98 [Kyûshû], synonymized by Bickhardt, 1920b: 61.

Japanese name: Oni-naga-emma-mushi.

Original description. "Long, 6.5 mill. Larg, 3.5 mill. Allongé, parallèle, assez convexe, noir luisant. Antennes et pattes d'un brun ferrugineux. Tête large; mandibules saillantes; front et épistome très-concaves, séparés par une strie bien marquée, non interrompue, subsinuée. Pronotum transverse, droit à la base, largement échancré en devant avec les angles abaissés arrondis; strie latérale très-forte, assez rapprochée du bord, continuée en devant sans coudes post-oculaires; marginale ne dépassant pas l'angle. Ecusson en petit triangle. Elytres aussi larges, de 1/3 plus longues que le pronotum, tronquées droit au bout, avec les angles arrondis; bord infléchi creusé d'un sillon interne fort et presque droit et d'un externe faible fortement coudé à l'épaule; strie humérale fine, oblique; dorsales fortes, 1 - 3 entières, parallèles, 4^e raccourcie au tiers, 4^e apicale. Pygidium subtriangulaire, fortement rebordé, couvert de gros points ocellés, assez serrés. Prosternum assez large, arrondi à la base; mentonnière aplatic fort avancée, rebordée d'une strie dont les branches se rapprochent posteieurement. Mesosternum sinue, avec une fine marginale non interrompue. Jambes antérieures 4-dentées; postérieures garnies de 3 fortes épines, l'extrême bifide.

Diffère peu de l'*Odiosum*, seulement par l'absence de suturale, la brièveté des 3 - 4 dorsales et le pronotum moins large et moins déprimé.

Indes or., Cambodje."

Description. Body somewhat convex, oblong, black and shining; tibiae, tarsi, antennae and mouth parts dark brown. Body length, PPL, 4.50 - 6.06 mm (5.34 ± 0.14 , $n=8$), PEL, 4.19 - 5.44 mm (4.88 ± 0.13 , $n=8$), Width, 2.81 - 3.75 mm (3.33 ± 0.09 , $n=8$). Biometric data are given in Table 11.

Head (Fig. 57D) broad, and deeply and broadly excavate; frontal stria weakly impressed, complete and sinuate behind antennal cavity; disk evenly clothed with fine punctures which are separated by two to four times their diameter. Labrum transverse oblong, its anterior margin feebly emarginate inwardly. Mandible stout, well developed and with a denticle on inner margin.

Pronotal sides (Fig. 55B) slightly convergent on basal two-thirds, then strongly convergent to apices. Apical angles acute. Marginal pronotal stria complete laterally and its apical end united with lateral pronotal stria. Lateral pronotal stria strongly carinate and complete; lateral portion of the stria with a broad sinus. Disk of pronotum densely covered with fine punctures which are separated by about four times their diameter. Antescutellar area with a longitudinal puncture which is lightly impressed.

Epipleura of elytron shining and scattered with microscopic punctures. Marginal epipleural stria well impressed and usually complete, sometimes interrupted at middle. Marginal elytral stria deeply impressed, carinate and complete. Interval between these striae with a short stria medially. Subhumeral stria absent. Oblique humeral stria (Fig. 55B) lightly impressed on basal third. First to 3rd dorsal striae complete, and deeply and broadly impressed. Fourth dorsal stria present on apical half. Fifth dorsal on apical third, its basal half often represented by several punctures. Sutural stria represented by several punctures and present on medio-apical fifth. Surface of elytra sparsely clothed with microscopic punctures.

Propygidium (Fig. 57E) densely covered with large, deep and longitudinal oblong punctures which are absent along margin. Pygidium densely covered with large, deep and hexagonal punctures which are as large as twice the punctures of the propygidium; surface feebly convex medially and posterior margin strongly elevated.

Anterior margin of prosternal lobe (Fig. 56B) broadly truncate. Marginal stria of lobe well impressed, narrowly interrupted at middle, and its basal ends strongly bent inwardly. Disk of lobe irregularly and finely punctate, the punctures being separated by their own diameter to five times the diameter. Prosternal keel broad, without carinal stria; punctuation of surface similar to that of the lobe. Lateral stria and lateral marginal stria deeply impressed and carinate.

Anterior margin of mesosternum (Fig. 56B) strongly emarginate medially; marginal stria complete and carinate; disk densely and moderately punctate, the punctures being separated by about their diameter. Meso-metasternal suture lightly impressed and obtusely angulate at middle. Punctuation of intercoxal disk of metasternum similar to that of mesosternum. Lateral metasternal stria deeply impressed, extending obliquely and posteriorly, its apical end attaining at apical sixth of metepisternal suture. Lateral disk densely covered with large, shallow and round punctures, which are usually fused with

each other medio-apically.

Intercoxal disk of 1st abdominal sternum with a punctation similar to that of the intercoxal disk of the metasternum; one lateral stria present on each lateral side.

Protibia (Fig. 57F) with 4 large denticles on outer margin; interval between 2 median denticles broad. Mesotibia with 4 denticles. Metatibia with 3 denticles.

Male genitalia as shown in Fig. 59.

Specimens examined. [Nansei Isles.] <Yaku-shima Is.> 1 ex., Kosugi-dani, 14/vii/1970, T. Watanabe leg. (NSMT).; 2 exs., Ôkawa, 22/vii/1975, M. Akiyama leg. (NSMT). <Tokara-Nakano-shima Is.> 1 ex., Nakano-shima, 26/iv/1975, H. Irie leg. (NSMT); 1 ex., Ditto, 24/vi/1973, H. Makihara leg. <Amami-Ôshima Is.> 1 ex., Ikari, 29/v/1960, T. Shibata leg. (NSMT). <Okinawa-Hontô Is.> 1 ex., Yona, Kunigami, 13/vi/1973, Y. Kurosawa leg. (NSMT).

Distribution. Japan (Kyûshû, Nansei Isles.).

Remarks. *Platysoma cambojense* is a relatively large species, but rare small specimens of this species resemble *P. pini*; however, they can easily be distinguished mainly by the striation of the elytra (see also the key and the description).

Little is known about the habitat of this species. It frequently occurs under the bark.

Platysoma (Platylister) horni Bickhardt, 1913

(Fig. 55, 56, 57)

Platysoma horni Bickhardt, 1913: 169; Mazur, 1984: 230 [catalogued].

Platylister horni: Lewis, 1915: 55.

Japanese name: Horun-naga-emma-mushi.

Original description. "Ovato-parallelum, parum convexum, nigrum, nitidum. Fronte antice paullum impressa, stria forti, subrecta. Pronoto stria laterali integra, post oculos haud angulata. Elytris striis 1. - 3. integris, 4. - 5. apicalibus, subaequalibus, suturali nulla; propygidio sat dense fortiter, pygidio densissime grosse punctatis, hoc margine elevato. Prosterno haud striato; mesosterno emarginato, stria marginali antice haud interrupta. Tibiis anticis 4-dentatis. Long. 4 1/4 - 4 3/4 mm.

Mit *Pl. Doriae* Lew. nahe verwandt, jedoch etwas schmaler und kleiner. Der 5. Dorsalstreif ist kürzer als der vierte. - Vor allen Dingen ist aber die Punktierung des kraftig gerandeten Pygidiums bedeutend grober und ausserordentlich dicht. Die grossen und tiefen Punkte liegen wabenartig so dicht aneinander gedrängt, dass ihre Zwischenraume noch nicht halb so breit sind als der Durchmesser der Punkte, teilweise erscheinen die Zwischenraume nur als kielformige Ränder. Bei *P. Doriae* sind die Punkte kaum halb so gross als bei *Horni* und die Zwischenraume sind eben und etwa so breit wie der Durchmesser der Punkte."

Table 11. Biometric data of *Platysoma (Platylister) cambodjense* Marseul

| | |
|------|-------------------------|
| APW | 1.50-2.00 (1.74±0.05) 8 |
| PPW | 2.75-3.63 (3.20±0.08) 8 |
| PL | 1.63-2.06 (1.88±0.05) 8 |
| EL | 2.31-3.00 (2.72±0.07) 8 |
| EW | 2.81-3.75 (3.33±0.09) 8 |
| ProW | 1.56-2.19 (1.88±0.06) 8 |
| ProL | 0.44-0.56 (0.52±0.02) 8 |
| PyL | 0.63-0.94 (0.83±0.03) 8 |
| PTL | 1.00-1.50 (1.23±0.05) 8 |
| MSTL | 0.94-1.25 (1.13±0.04) 8 |
| MTTL | 1.19-1.69 (1.41±0.06) 8 |

Description. Body somewhat oblong, black and shining; tarsi and antennae reddish brown. Body length, PPL, 4.63 - 4.81 mm (4.72 ± 0.07 , n=2), PEL, 4.06 - 4.44 mm (4.25 ± 0.13 , n=2), Width, 2.63 - 2.81 mm (2.72 ± 0.07 , n=2). Biometric data are given in Table 12.

Frontal stria of head (Fig. 57G) deeply impressed, carinate and complete, the lateral portions convergent basally; the disk feebly depressed on apical half and evenly with fine punctures which are separated by about four times their diameter. Labrum transverse, its anterior margin feebly curved inwardly.

Pronotal sides (Fig. 55C) nearly straight and weakly convergent apically on basal three-fourths, thence strongly arcuate and convergent to apices. Apical angles acute. Marginal pronotal stria complete laterally. Pronotal lateral stria complete and subcarinate, the lateral and medio-apical portions somewhat distant from the pronotal margin. Disk densely clothed with fine punctures which are separated by two to three times their diameter.

Epipleural marginal stria weakly impressed and complete. Elytral marginal stria straight and deeply carinate. Oblique humeral stria (Fig. 55C) present on basal third. First - 3rd dorsal striae deeply impressed and complete, the 2nd basal end being somewhat shortened. Fourth stria impressed on apical third, its basal end often abbreviated. Surface of elytra with a punctation similar to that of the pronotum.

Propygidium (Fig. 55H) irregularly covered with coarse, round and deep punctures which are separated by half their diameter; interspace among the coarse punctures finely and sparsely punctate, the punctures becoming denser along the posterior margin. Pygidium densely covered with coarse, round and deep punctures which become somewhat larger than those of the propygidium and are separated by one-third their own diameter; interspace among the coarse punctures and a narrow band along the posterior margin scattered with fine punctures, the band feebly elevated.

Prosternal lobe (Fig. 56C) broad and even; apical margin truncate; marginal stria

well impressed and somewhat distant from the margin, its basal ends convergent basally; disk irregularly and finely punctate, the punctures being separated by their own diameter to five times the diameter. Prosternal keel even; disk finely clothed with fine punctures which become sparser than those of the lobe; lateral stria and lateral marginal stria deeply impressed and carinate.

Anterior margin of mesosternum (Fig. 56C) feebly emarginate medially; marginal stria complete laterally and narrowly interrupted at middle on anterior portion; disk evenly clothed with fine punctures which are separated by about three times their diameter. Meso-metasternal suture absent. Punctuation of intercoxal disk of metasternum similar to that of the mesosternum; lateral metasternal stria deeply impressed, extending obliquely and posteriorly, its apical end irregularly curved and attaining near the metacoxa. Lateral metasternal disk with oblique, oval and shallow punctures on medio-basal half, otherwise with semicircular, large and shallow punctures, which become smaller apically, with moderate punctures intermingled.

Intercoxal disk of 1st abdominal sternum with a punctuation similar to that of the mesosternum; two lateral striae present on each side, the outer one abbreviated on basal third.

Protibia (Fig. 57I) with 4 denticles on outer margin; interval between 2nd and 3rd denticles broad. Mesotibia with 4 denticles. Metatibia with 3 denticles.

Specimens examined. [Nansei Isles.] <Ishigaki Is.> 1 ♂, Ishigaki Is., xi-xii/1952, G. E. Bohart leg. (BSM); 1 ex., Banna-dake, 5/vii/1974, H. Takizawa leg.

Distribution. Japan (Nansei Isles.: Ishigaki Is.); Taiwan.

Remarks. *Platysoma horni* is easily recognized by the striation of the elytra.

Table 12. Biometric data of *Platysoma horni* Bickhardt

| | |
|------|-------------------------|
| APW | 1.19-1.31 (1.25±0.04) 2 |
| PPW | 2.50-2.75 (2.63±0.09) 2 |
| PL | 1.50-1.63 (1.56±0.04) 2 |
| EL | 2.31-2.56 (2.44±0.09) 2 |
| EW | 2.63-2.81 (2.72±0.07) 2 |
| ProW | 1.56-1.75 (1.66±0.07) 2 |
| ProL | 0.44 (0.44) 2 |
| PyL | 0.75-0.81 (0.78±0.02) 2 |
| PTL | 0.88 (0.88) 2 |
| MSTL | 0.81-0.94 (0.88±0.04) 2 |
| MTTL | 1.00-1.06 (1.03±0.02) 2 |

Platysoma (Platylister) oberthuri Cooman, 1948

Platysoma oberthuri Cooman, 1948: 132; Mazur, 1984: 230 [catalogued].

Platysoma mimicum: Desbordes, 1932: 235, synonymized by Cooman, 1948: 132.

Japanese name: Amami-naga-emma-mushi.

Specimens examined. No specimens has been available for my study.

Distribution. Japan (Nansei Isls: Amami-Ōshima Is.).

Platysoma (Platylister) pini Lewis, 1884
(Fig. 55, 56, 57, 60)

Platysoma pini Lewis, 1884: 133 [Japan].

Platylister pini: Hisamatsu, 1984: 229, pl. 41, no. 29.

Japanese name: Matsu-naga-emma-mushi.

Original description. "Ovale, subconvexum, nigrum, laeve; fronte clypeoque concavis, stria transversa integra; pronoto stria non interrupta; elytris striis 1 - 4 integris, 5 breviori, 6 nulla; propygidio biimpresso pygidio margine elevato, grosse punctatis; antennis pedibusque brunneis. L. 5 mill.

Closely allied to *H. odiosum* (Marseuli, Cand.), but smaller; with a different system of dorsal striation.

Occurs under pine-bark in the warmer parts of Japan; Higo and Isei are the chief localities for it."

Description. Body oblong-oval, black and shining; tibiae, tarsi, mouth parts and antennae rufopiceous. Body length, PPL, 4.00 - 4.75 mm (4.36 ± 0.05 , $n=17$), PEL, 3.63 - 4.31 mm (4.03 ± 0.04 , $n=17$). Width 2.44 - 2.75 mm (2.60 ± 0.02 , $n=17$). Biometric data are given in Table 13.

Frontal stria of head (Fig. 57J) feebly carinate and complete; the disk strongly depressed on apical half and densely covered with fine punctures which are separated by their own diameter to twice the diameter. Labrum transverse, its anterior margin feebly emarginate inwardly.

Pronotal lateral sides (Fig. 55D) weakly convergent on basal five-sixths, thence strongly arcuate and convergent to apices. Apical angles acute. Marginal pronotal stria complete laterally. Pronotal lateral stria complete and strongly carinate, the lateral portion broadly distant from the margin and the anterior portion densely carinate. Disk densely and finely punctate, the punctures being separated by two to five times their diameter.

Epipleural marginal stria deeply impressed and carinate, and present on basal half. Elytral marginal stria complete, deeply impressed and carinate, the apical end extending along anterior margin and attaining to apical end of the 2nd dorsal stria. Another stria complete and deeply carinate between epipleural and elytral marginal striae. Oblique

humeral stria (Fig. 55D) present on basal fourth. First - 4th dorsal elytral striae complete and deeply impressed, the basal portion of 4th being a little shortened. Fifth dorsal stria abbreviated by basal sixth. Sutural stria represented by several coarse punctures on medio-apical fourth. Disk densely and finely punctate, the punctures being much sparser than those of the pronotum.

Propygidium (Fig. 57K) irregularly covered with ocelloid, large, oblong and shallow punctures; interspace among the ocelloid ones sparsely clothed with fine punctures. Pygidium densely covered with ocelloid, large, round and shallow punctures, which are separated by about half their diameter; interspace among the ocelloid ones sparsely and finely punctate; sparsely and finely punctate and strongly elevated narrowly along the posterior margin.

Anterior margin of prosternal lobe (Fig. 56D) truncate, its marginal stria well impressed and complete, the basal end extending inwardly and attaining to suture between prosternal keel and lobe; disk evenly covered with fine punctures which are separated by about four diameter. Prosternal keel broad, even and sparsely and finely punctate; lateral stria and lateral marginal stria deeply impressed and carinate.

Anterior margin of mesosternum (Fig. 56D) feebly emarginate medially; marginal stria complete laterally and absent medially on anterior portion; punctation of disk similar to that of the prosternal keel. Meso-metasternal suture lightly impressed. Punctation of intercoxal disk of 1st abdominal sternum similar to that of the mesosternum; lateral metasternal stria deeply impressed, extending obliquely and posteriorly; lateral metasternal disk densely covered with large and shallow punctures, which are often fused together on each other.

Intercoxal disk of 1st abdominal sternum with a punctation similar to that of the mesosternum; 1st abdominal stria present on each lateral side.

Table 13. Biometric data of *Platysoma (Platylister) pini* Lewis.

| | |
|------|--------------------------|
| APW | 1.31-1.50 (1.41±0.02) 17 |
| PPW | 2.38-2.75 (2.57±0.03) 17 |
| PL | 1.38-1.63 (1.50±0.02) 17 |
| EL | 2.00-2.44 (2.22±0.03) 17 |
| EW | 2.44-2.75 (2.60±0.02) 17 |
| ProW | 1.38-1.75 (1.54±0.03) 17 |
| ProL | 0.38-0.56 (0.44±0.01) 17 |
| PyL | 0.63-0.81 (0.70±0.01) 17 |
| PTL | 0.81-1.13 (1.02±0.02) 16 |
| MSTL | 0.81-1.19 (0.93±0.02) 16 |
| MTTL | 1.00-1.25 (1.15±0.02) 16 |

Protibia (Fig. 57L) with 4 denticles on outer margin. Mesotibia with 4 denticles on outer margin, the apical two set close near the apical angle of tibia. Metatibia with 3 denticles on outer margin, the apical two present on the apical angle of tibia.

Male genitalia as shown in Fig. 60.

Specimens examined. [Hokkaidô] 1 ex., Mt. Kariba, Shimamaki, 6-8/viii/1988, M. Ôhara, T. Tanabe and K. Sayama leg.

[Honshû] <Aomori-ken> 1 ex., Rangan-no-mori, Nishi-Tsugaru, 24/vii/1977, A. Abe leg. (NA). <Miyagi-ken> 3 exs., Akiu, Moriyasu, 24/vi/1951, no collector's name (NSMT). <Tôkyô-to> 1 ex., Takao-san, 27/vi/1971, K. Masumoto leg. <Gifu-ken> 1 ex., Hokiwaki, Mino-shi, 23/vi/1979, Y. Takai leg. <Kyôto-fu> 2 exs., Mt. Daihi, 15/vi/1941, K. Sakaguchi leg. (NA). <Ôsaka-fu> 2 exs., Katsuno-ji, Minô, 2/viii/1949, K. Sawada leg. (NA). <Hyôgo-ken> 1 ex., Hataganaru, 24, 25/v/1955, T. Nakane leg. (NA).

[Kyûshû] <Miyazaki-ken> 1 ex., Takachiho-no-mine, 10/vii/1984, M. Ôhara leg.

Distribution. Japan (Hokkaidô, Honshû, Shikoku, Kyûshû); Taiwan. New to Hokkaidô.

Remarks. *Platysoma pini* resembles *P. cambojense*, but differs from the latter externally by the smaller average size and the different striation of the elytra (see the description).

Little is known about the habitat of this species. *P. pini* is frequently collected under the bark of the pine tree.

Subgenus *Cylister* Cooman, 1941

Cylister Cooman, 1941: 307 [type species: *Hister elongatus* Olivier, 1786: 16, nec Thunberg, 1787: 33. Originally designated.]

Platysoma (*Cylister*) *lineicollis* Marseul, 1873

(Fig. 61, 62, 63)

Platysoma lineicollis Marseul, 1873: 223 [Kiu-Siu et Nippon].

Clistosoma lineicolle: Lewis, 1905b: 18.

Cylister lineicolle: Cooman, 1948: 309.

Japanese name: Naga-emma-mushi.

Original description. "Long. 3.5 a 5 mill.; larg. 2 a 2.3 mill. Allonge, subcylindrique, peu convexe, noir de poix luisant, pattes, antennes et bord de la mentonniere et des segments abdominaux ferrugineux. Tete densément pointellée, concave en devant; front entouré d'une strie peu profonde, surtout au-devant de l'épistome. Pronotum en carré transverse, coupe droit à la base, subparallèle; segment échancré en devant, avec les angles courts, un peu rentres; très-finement pointillé, latérale très-rapprochée de la marginale, continuée en devant, subinterrompue anguleusement

derriere les yeux. Elytres aussi larges et d'un tiers plus longues que le pronotum, subattenuées par derriere, tronquées droit au bout; epipleures bisillonnes; stries dorsales sulciformes, fortes, paralleles, un peu affaiblies vers le bout, ou l'on remarque quelques points epars; 1 - 4 entieres, 5^e decomposee en points, un peu raccourcie en devant, ainsi que la suturale, avec un point basal chacune. Pygidium avec de gros points ecartes. Prosternum obtusement arrondi a la base; mentonniere longue et largement arrondie au bout. Mesosternum reborde et sinue en devant. Jambes mediocrememnt elargies, anterieures 4-dentees, les autres munies de denticules, dont l'apical est bifide, 3 aux intermediaires et 2 aux posterieures.

Ressemble bien au *lineare*, mais il est plus cylindrique, son pygidium a points beaucoup plus gros, et son mesosternum entierement reborde en devant.

Kiu-Siu et Niphon; abundant sous les ecorces des pins; 10 exemplaires."

Description. Body oblong, black and shining; femora, tibiae, tarsi and antennae rufopiceous. PPL, 2.84 - 3.50 mm (3.28 ± 0.04 , n=20); PEL, 2.52 - 3.17 mm (2.97 ± 0.04 , n=20). Width, 1.34 - 1.64 mm (1.55 ± 0.02 , n=20). Biometric data are given in Table 14.

Frontal stria of head (Fig. 61A) deeply impressed, carinate and complete. Disk of head depressed on apical half and sparsely covered with coarse punctures which are separated by three to four times their diameter; interspace among the coarse punctures evenly and finely punctate; these coarse and fine punctures becoming denser and finer apically. Labrum transverse, its anterior margin feebly curved inwards.

Table 14. Biometric data of *Platysoma (Cylister) lineicollis* Marseul

| | |
|------|----------------------------------|
| APW | 0.82-1.01 (0.95 ± 0.01) 20 |
| PPW | 1.34-1.64 (1.52 ± 0.02) 20 |
| PL | 0.98-1.24 (1.15 ± 0.01) 20 |
| EL | 1.34-1.83 (1.62 ± 0.03) 20 |
| EW | 1.34-1.64 (1.55 ± 0.02) 20 |
| ProW | 0.82-1.11 (1.00 ± 0.02) 20 |
| ProL | 0.33-0.52 (0.44 ± 0.01) 20 |
| PyL | 0.46-0.62 (0.53 ± 0.01) 20 |
| PTL | 0.59-0.72 (0.64 ± 0.01) 20 |
| MSTL | 0.46-0.69 (0.60 ± 0.01) 20 |
| MTTL | 0.62-0.78 (0.70 ± 0.01) 20 |

Pronotal sides (Fig. 61B) straight on nine-tenths, thence strongly arcuate and convergent to apices. Apical angles acute. Marginal pronotal stria complete laterally. Pronotal lateral stria carinate and complete, the anterior portion nearly straight, interrupted behind eyes, and sometimes interrupted at middle; the lateral end of the portion often extending obliquely and posteriorly. Disk evenly covered with coarse punctures which become coarser and somewhat more oblong on lateromedian sixth, and finer narrowly along lateral stria; median third with fine punctures intermingled.

Epipleura even, not concave. Epipleural marginal stria lightly impressed, complete and broadly distant from outer margin. Elytral marginal stria complete and deeply impressed. Subhumeral striae absent. Oblique humeral stria (Fig. 61B) present on basal third. First to 4th dorsal striae deeply impressed and complete. Fifth dorsal stria present on two-fifths, its basal portion usually represented by several punctures. Sutural stria present on apical half, its apical portion somewhat shortened. Surface of elytra evenly clothed with fine punctures which are separated by about three times their diameter; apical transversal band sparsely and coarsely punctate.

Propygidium (Fig. 61C) irregularly covered with coarse, round and shallow punctures; interspace among the coarse punctures finely and sparsely punctate. Pygidium densely covered with coarse, round and somewhat deep punctures on basal half, which are separated by their own diameter to half the diameter; interspace among the coarse ones and apical half of disk clothed with fine punctures which are separated by four to six times their diameter.

Prosternal lobe (Fig. 61D) broad and even; its apical margin round; marginal stria carinate and impressed, its basal ends inwardly bent and convergent medially; disk densely covered with moderate punctures which are separated by their own diameter. Prosternal keel narrow and elevated, its top even; carinal striae wanting.

Anterior margin of mesosternum (Fig. 61D) broadly and deeply emarginate; marginal stria complete and strongly carinate; disk shining, and sparsely and finely punctate. Meso-metasternal suture lightly impressed. Punctuation of intercoxal disk of metasternum similar to that of the mesosternum; lateral metasternal stria deeply impressed, extending posteriorly and obliquely, its apical end attaining to near the metacoxal cavity; another lateral stria (post-mesocoxal stria) present outside the lateral stria; lateral disk densely covered with large, round and shallow punctures and with moderate ones intermingled, these punctures becoming finer apically.

Punctuation of intercoxal disk of 1st abdominal sternum similar to that of the intercoxal disk of the mesosternum; two lateral striae present, the outer stria abbreviated on basal half.

Protibia (Fig. 61E, F) with 4 denticles on outer margin. Mesotibia with 3 denticles on outer margin, the most apical one bearing 2 spinules. Metatibia with 2 denticles, the most apical one with 2 spinules.

Male genitalia as shown in Fig. 62.

Specimens examined. [Honshû] <Iwate-ken> 1 ex., Matsuo, 17-19/vii/1954, S. Takagi leg. (EIHU). <Fukushima-ken> 1 ex., Oyama, Wakamatsu, 14/v/1947, no

collector's name. (NA); 4 exs., Mt. Aoki, northern Aizu, 1/xi/1948, K. Nagayama leg. (NA); 3 exs., Kawanuma, Nozawa, 21/iii/1949, K. Nagayama leg. (NA); 2 exs., Akaidani, 5/v/1949, K. Nagayama leg. (NA); 3 exs., Yanaizu, Ônuma, 18/iv/1948, K. Nagayama leg. (NA); 2 exs., Niizuru, Ônuma, 31/iv/1948, 6/iv/1949, K. Nagayama leg. (NA); 1 ex., Takizawa-pass. Ikki, Wakamatsu, 14/iii/1948, Y. Kurosawa leg. (NSMT); 1 ex., Yunohana, Tateiwa, Minami-Aizu, 6/v/1949, Y. Kurosawa leg. (NSMT); 1 ex., Oyama, Wakamatsu, 14/v/1947, Y. Kurosawa leg. (NSMT). <Tôkyô-to> 1 ex., Mt. Takao, 26/vi/1960, S. Nomura leg. (NSMT). <Niigata-ken> 15 exs., Kurokawa, northern Echigo, 21/i, 2/iv, 20/v, 24/ix/1956, 1/xi/1957, 28/xii/1958, K. Baba leg. (NA); 2 exs., Ditto, 1/vi/1958, H. Koike leg. (NA). <Sado Is.> 1 ex., Takachi V., 27/vii/1947, M. Iga leg. (NSMT). <Yamanashi-ken> 5 exs., Kiyosato, no date, Y. Kishii leg. (NA); 1 ex., Agematsu, Mt. Koma, 12/vi/1949, A. Nagatomi leg. (NA). <Gifu-ken> 1 ex., Sekishi, 13/xii/1976, Y. Takai leg.; 1 ex., Yôrô-kôen, Yôrô, 6/v/1979, Y. Takai leg.; 2 exs., Tachibana, Mino-shi, 16/iii/1979, Y. Takai leg. <Shizuoka-ken> 1 ex., Mt. Amagi, Izu, 30/iii/1952, J. Aoki leg. (NA). <Aichi-ken> 4 exs., Nagoya, 4/v/1944, S. Ôsawa leg. (NA); 1 ex., Nagoya, Owari, 4/v/1944, S. Ôsawa leg. (NA); 2 exs., Okehazama, i/1946, M. Yasuda leg. (NA). <Ôsaka-fu> 1 ex., Hirano, 22/viii/1950, F. Takahashi leg. (NA); 3 exs., Minô, 30/iv/2605 (=1945), no collector's name. (NA). <Kyôto-fu> 1 ex., Sugitôge, 4/v/1983, H. Ashida leg. <Hyôgo-ken> 2 exs., Mikage, Kôbe, 5, 6/i/1940, no collector's name. (NA); 1 ex., Kôbe, 27/iii/1930, J. E. A. Lewis leg. (BSM); 1 ex., Motoyama-mura, near Kôbe, 27/x/1941, K. Suzuki leg. (NA); 1 ex., Rokkô, 17/iii/1935, T. Nakane leg. (NA). <Wakayama-ken> 1 ex., Kii-Ôsima, 21-24/v/1964, T. Kumata leg. (EIHU); 1 ex., Mt. Kôya, Kii, 4/viii/1940, T. Okada leg. (NA). <Okayama-ken> 1 ex., Tengu-yama, Tamano, 13/viii/1975, T. Aono leg. (NA). <Tottori-ken> 1 ex., Daisen, 18/vii/1952, T. Nakane leg. (NA); 1 ex., Ditto, 18/x/1987, H. Daidô leg.

[Shikoku] <Ehime-ken> 2 exs., Omogo, 9/xi/1953, T. Nakane leg. (NA). <Kôchi-ken> 1 ex., Mikazuki, Tosa, 10/iv/1938, M. Okamoto leg. (NA).

[Kyûshû] <Fukuoka-ken> 1 ex., Moji, 29/v/1947, C. Watanabe leg. (EIHU); 2 exs., Ditto, 27/vii/1936, M. Uno leg. (NA); 2 exs., Shimo, Hirokawa, no date, Y. Miyake leg. (NA); 1 ex., Hakozaki, 27/iii/1945, Y. Kurosawa leg. (NA); 1 ex., Ditto (NSMT); 2 exs., Togamori, 28/v/1956, N. Gyôtoku leg. (NA); 1 ex., Hôman-zan, 2/iv/1980, S. Ohmomo leg. (NSMT); 1 ex., Wakasugi, 29/iii/1933, T. Shirozu leg. (NSMT); 1 ex., Mt. Shôji, 19/iv/1964, S. Nakao leg. (NA). <Miyazaki-ken> 1 ex., Shiiba-mura, 1/viii/1970, A. Nagai leg. (NA). <Kagoshima-ken> 2 exs., Kaimon-chô, 4/xi/1980, Y. Takai leg.

Distribution (Fig. 63). Japan (Honshû, Shikoku, Kyûshû); Taiwan.

Remarks. Being the only representative of the subgenus *Cylister* in Japan, *C. lineicollis* can easily be recognized by the subgeneric characters.

This species occurs under the bark of the pine tree.

***Platysoma (Cylister) elongatum* (Thunberg, 1787)**

Hister elongatus Thunberg, 1787: 33.

Hister oblongus Fabricius, 1792: 75 [South Sweden]; Thunberg, 1794: 63, synonymized by Kannar, 1979: 25.

Plstysoma oblongusi: Leach, 1817: 79.

Cylister oblongum: Kryzhanovskij, 1965: 103.

Cylister oblongus: Kusui, 1984: 7.

Kusui (1984) recorded a specimen collected from an imported larch wood at Naoetsu harbor, Jôetsu, Niigata-ken, Honshû.

Distribution. Japan (introduced to Honshû); Europe; Siberia; Mongolia; Amurskiy Kray.

Subgenus *Apobletes* Marseul, 1860

Apobletes Marseul, 1860: 852 [type species: *Apobletes tener* Marseul, 1860: 857. Designated by Bickhardt, 1917: 136].

***Platysoma (Apobletes) schaumei* Marseul, 1860
(Fig. 64, 65)**

Apobletes schaumei Marseul, 1860: 857 [Burma].

Apobletes tener Marseul, 1860: 859, synonymized by Reichardt, 1932: 114.

Apobletes schaumii (sic): Marseul, 1864: 290.

Apobletes schaumii var. *tener*: Cooman, 1932b: 99.

Platysoma (Apobletes) schaumei: Mazur, 1984: 235.

Japanese name: Hirata-naga-emma-mushi.

Original description. "Ovalis, planatus, niger nitidus; antennis pedibusque brunneis; fronte punctulato, stria semi circulari integra; clypeo impresso; pronoto stria laterali valida sinuata, pone oculos angulata, interrupta, extus punctulato; elytris striis dorsalibus 1 - 3 integris, 4^a apicali; subhumerali interna brevi arcuata; externa integra; margine inflexo bisulcato; propygidio utrinque impresso grosse punctato; pygidio parce punctato marginato; pronoto plano, basi sinuato; mesosterno bisinuato marginato; tibiis anticis 4 - denticulatis, posticis bi aut trispinosis. -- Long. 5 mill; lat. 2, 1/2 mill."

Description. Body length, PPL, 3.37 - 4.12 mm (3.74 ± 0.15 , n=4); PEL, 2.84 - 3.40 mm (3.11 ± 0.10 , n=4). Width, 1.90 - 2.32 mm (2.08 ± 0.08 , n=4). Body strongly depressed (Fig. 64A), oblong-oval, shining and black; fomora, tibiae and tarsi reddish-brown. Biometric data are given in Table 15.

Frontal stria (Fig. 64B) usually narrowly interrupted at each apical angle,

sometimes complete, the anterior portion nearly straight and the lateral portion regularly curved. Disk of head excavate on apical half and evenly covered with fine punctures which are separated by about twice their diameter; interspace among the fine punctures evenly clothed with microscopic punctures. Labrum transverse oblong, its anterior margin emarginate medially. Mandible short, stout, with a large denticle on inner side.

Pronotal sides (Fig. 64C) feebly arcuate and convergent apically on basal five-sixths, thence strongly arcuate and convergent to apices. Marginal stria complete and carinate laterally. Pronotal lateral stria complete and narrowly interrupted at middle on anterior portion. Disk of pronotum sparsely clothed with microscopic punctures which are separated by three to four times their diameter and become larger on lateral sixth; the large punctures dense on lateral fourth of basal margin.

Epipleural and elytral marginal striae deeply carinate and complete. Epipleura somewhat excavate medially. Subhumeral stria deeply impressed on basal half. Oblique humeral stria (Fig. 64C) present on basal third. First and 2nd dorsal striae complete and sparsely crenate; 3rd dorsal stria broadly interrupted medio-apically, the interrupted portion as long as half of elytron; 4th shortly present on apex; 5th and sutural striae absent. Disk of elytra evenly clothed with microscopic punctures which are separated by about fifth times their diameter and become larger along apical margin.

Propygidium (Fig. 64E) with large and ocelloid punctures on anterolateral area, the punctures being separated by one-third their diameter and becoming sparser medially; with microscopic punctures sparsely intermingled; surface feebly convex on lateral fourth. Pygidium coarsely and deeply punctate, the punctures irregularly separated by their own diameter to one-third the diameter; surface feebly depressed on each angle.

Prosternal lobe (Fig. 64D) broad and even, its anterior margin round; marginal stria complete, the basal end inwardly extending at lateral half; disk of lobe sparsely clothed with microscopic punctures, and on lateral fourth of disk coarsely and densely punctate. Prosternal keel even and broad, without carinal stria; lateral stria and lateral marginal prosternal stria clearly impressed, the former complete and abbreviated laterally on apical half; disk of keel with a punctation similar to that of the lobe; posterior margin nearly straight.

Anterior margin of mesosternum feebly bisinuate (Fig. 64D), its marginal stria straight, present only anteriorly, and narrowly interrupted medially; punctation of disk similar to that of prosternal keel. Meso-metasternal suture complete, obtusely angulate at middle. Intercostal disk of metasternum broad, even and clothed with microscopic punctures which become finer and sparser than those of the prosternal keel. Lateral metasternal stria extending obliquely and posteriorly, and nearly complete but sometimes interrupted at apical one-third, the apical end attaining near the metacoxa. Posterior mesocoxal stria wanting. Lateral metasternal disk densely covered with large, shallow and semi-circular punctures which are rounded basally; interspace among the large punctures intermingled with fine punctures.

Table 15. Biometric data of *Platysoma (Apobletes) shaumeri* Marseul

| | |
|------|-------------------------|
| APW | 0.95-1.14 (1.01±0.04) 4 |
| PPW | 1.86-2.26 (2.04±0.08) 4 |
| PL | 0.92-1.14 (1.02±0.04) 4 |
| EL | 1.50-1.80 (1.67±0.06) 4 |
| EW | 1.90-2.32 (2.08±0.08) 4 |
| ProW | 1.11-1.31 (1.19±0.04) 4 |
| ProL | 0.36-0.43 (0.39±0.02) 4 |
| PyL | 0.46-0.49 (0.47±0.01) 4 |
| PTL | 0.59-0.72 (0.63±0.03) 4 |
| MSTL | 0.49-0.62 (0.55±0.03) 4 |
| MTTL | 0.62-0.78 (0.70±0.03) 4 |

Intercostal disk of 1st abdominal sternum sparsely clothed with microscopic punctures which are separated by three to five times their diameter; with two striae on each side, the outer stria present on apical half. Lateral disk with 8 - 9 longitudinal and large punctures. Lateral area of 2nd - 4th abdominal sterna coarsely and densely punctate.

Protibia (Fig. 64F, G) with 4 denticles on outer margin; interval between the 2nd and 3rd denticles broad. Mesotibia without denticle, but the apex expanded outwardly and with 2 spines.

Male genitalia as shown in Fig. 65.

Specimens examined. [Nansei Isles.] <Okinawa-Hontô Is.> 2♂♂ 1♀, Yona, 30/vi/1976, H. Makihara leg.

Distribution. Japan (Nansei Isles.); Burma; Oriental Region.

Remarks. The only Japanese representative of the subgenus *Apobletes*, *A. shaumeri* can easily be recognized by the subgeneric characters.

Little is known about habitat of this species. It occurs under the bark.

Genus *Eblisia* Lewis, 1889

Eblisia Lewis, 1889: 280 [type species: *Phelister lunaticus* Marseul, 1864: 316].

Eurylister Bickhardt, 1920: 213, synonymized by Mazur, 1990: 748.

Chronus Lewis, 1914: 285, synonymized by Mazur, 1990: 748.

Eblisia satsumae (Lewis, 1899)

Platysoma satsumae Lewis, 1899: 8.

Eblisia satsumae: Ôhara, 1993c: 5.

Japanese name: Satsuma-naga-emma-mushi.

Distribution. Japan (Kyûshû, Nansei Isles.).

Tribe Histerini Gyllenhal, 1808

Histerini Gyllenhal, 1808: 74 [type genus: *Hister* Linnaeus, 1758: 358].

Histeroides Gyllenhal, 1808: 74.

Histrini: Horn, 1873: 276.

Histerini: Seidlitz, 1875: 29.

Genus *Hister* Linnaeus, 1758

Hister Linnaeus 1758: 358 [type species: *Hister unicolor* Linnaeus, 1758: 358. Designated by Westwood, 1840: 22].

Histeranus Rafinesque, 1815: 112 (emend.).

Humister Houlbert et Monnot, 1923: 23, synonymized by Vienna, 1980: 257. Without type species.

Rhabdister Houlbert et Monnot, 1923: 35 (emend.).

Spilister Houlbert et Monnot, 1923: 22 synonymized by Cooman, 1947: 428. [type species: *Hister quadrimaculata* Linnaeus, 1758: 358].

Diagnosis. Body oval or oblong-oval, somewhat convex, usually shining and black, but rarely its elytra with red maculata. Anterior margin of labrum usually nearly straight, but rarely projecting slightly and outwardly. Frontal stria of head usually entire and carinate, sometimes interrupted at middle of anterior portion. Pronotum with one or two lateral striae which are usually crenulate; outer lateral stria usually complete on side, sometimes reduced posteriorly, and broadly interrupted behind head; inner lateral stria usually entire. Marginal stria complete on side, and shortly or broadly interrupted behind head; area inside apical angles without excavation or coarse punctation. Epipleura of pronotum even or concave, often furnished with hair. Antennal cavity not deep or moderately deep. Elytra completely with three to four dorsal striae, other usually reduced, rarely two or five striae complete. Degree of development of subhumeral striae variable; external subhumeral stria usually present, not entire, and sometimes absent, the stria usually deeply impressed, rarely formed as an arc and strongly crenulate; internal subhumeral stria usually impressed, but not complete. Epipleura of elytron more or less concave, smooth and rarely punctate. Propygidium and pygidium with variable punctures, feature of which are useful for species definition. Anterior margin of mesosternum usually clearly emarginate, rarely nearly straight; its marginal stria usually well impressed and complete. Protibia moderately expanded; denticles on outer margin three to five. Outer margin of meso- and metatibiae with two row of setae. Aedeagus of male genitalia slender cylindrical, usually depressed, and slitted on midline of dorsal surface; the anterior portion of dorsal surface often with small lobes along midline; median lobe without sclerotized median armature. Spermatheca of female genitalia consisting of several (4 to 8) receptacles on vagina, the receptacles slender, not coiled; bursa copulatrix usually sclerotized with no

function as a sack.

Remarks. The genus *Hister* Linnaeus contains about 240 nominal species worldwide. In Japan 6 species are recorded. As the genus *Hister* is the oldest erected of the family, many related genera have been separated from the *Hister*; for example, *Athlous* Thomson, 1859, *Macrohister* Lewis, 1904, *Margarinotus* Mars., 1853, *Merohister* Reitter, 1909, *Pachylister* Lewis, 1904. The genus, however, still contains a number of species and is not having unique and clearly discriminating characters, that is, a large complex genus. Kryzhanovskij and Reichardt (1976) were indicated that necessity of separating the *Hister* complex into several discriminating subgroups. Olexa (1982) recently discussed the systematics of the genus and its allied genera occurring the Palaearctic Region. He divided the genus into two subgroups based on the state of profemoral stria. But pylogenetic survey of the genus, as regards species of the world, is not satisfactory and needs for detail redescrptions.

Key to the Japanese Species of the Genus *Hister*

- 1(2) Subhumeral stria absent. *H. impunctatus* Ôsawa, 1952
- 2(1) Subhumeral stria present.
- 3(6) Ventral surface of profemur with nearly complete stria.
- 4(5) First - 2nd dorsal striae of elytra complete. *H. japonicus* Marseul, 1854
- 5(4) First - 3rd dorsal striae of elytra complete. *H. congener* Schmidt, 1885
- 6(3) Ventral surface of profemur with a stria shortly present on apical third.
- 7(8) Pronotal anterior margin emarginate, the median portion of the emargination outwardly arcuate. *H. simplicisternus* Lewis, 1879
- 8(7) Pronotal anterior margin emarginate, the median portion not outwardly arcuate.
- 9(10) Pygidium with fine punctures which are separated by their own diameter. *H. unicolor leonhardi* Bickhardt, 1910
- 10(9) Pygidia densely with coarse punctures which are separated by one-third their diameter to their own diameter. *H. concolor* Lewis, 1884

Hister impunctatus Ôsawa, 1952

Hister (Hister) impunctatus Ôsawa, 1952: 6 [Japan: Myôken, Ôsaka, Honshû].

Hister impunctatus: Mazur, 1984: 190 [catalogued].

Japanese name: Tsuya-emma-mushi.

Original description. "Oval convex, black and shining; head somewhat convex; frontal stria complete and impunctate; mandibles feebly concave; prothorax, striae impunctate except frontal part, inner stria complete, outer abbreviated behind the middle; striae of elytra neither punctured nor crenulated, striae 1-3 complete, 4 shortened at the base, 5 apical, sutural dimidiate but reached at the middle of elytra, humeral very feeble and sulciform, subhumeral wanting; mesosternum marginate and very feebly sinuous in

front; anterior tibiae 4-dentate, apical tooth bifurcate.

Body length: 4 mm.

This species is somewhat similar to *Hister sutus* Lewis in sculpture, but may be distinguished from the latter by the shortened stria of thorax, absence of subhumeral stria and very feebly sinuated frontal margin of mesosternum.

Type: 1 ex., Myoken, Osaka-fu, Honshû, Japan, 14.VI.1943, S. Eda leg.

Distribution: Japan (Honshû)."

Remarks. No specimens of the species have been available for my study.

Hister japonicus Marseul, 1854

(Figs. 66, 67, 70 and 71)

Hister japonicus Marseul, 1854: 201, t. 6, f. 22 [Japon]; Marseul, 1873: 220 [Nippon et Kiu-siu (= Japan and Kyûshû); commun dans le fumier].

Hister (Hister) japonicus: Bickhardt, 1918: 229 [China]; Desbordes, 1919: 387 [Japon; Chine; Indochine; Tonkin].

Japanese name: Yamato-emma-mushi.

Original description. "Ovatus, convexiusculus, niger, laevis, nitidus; stria frontali integra; pronoto ciliato, stria interna integra, externa pone medium abbreviata; elytris striis 1-2 dorsalibus integris; 3^a late interrupta 4-5 apicalibus; margine inflexo bisulcato, fossa punctata; propygidio pygidioque punctulatis; mesosterno emarginato stria haud interrupta; tibiis anticis 3-dentalis, posticis biserialim multispinosis. Long. 11 mill.; larg. 8 mill."

Description. Male and female. Body length, PPL, male, 8.74 - 10.17 mm, female, 9.50 - 11.59 mm, PEL, male, 7.89 - 8.74 mm, female, 7.70 - 9.41 mm. Width, male, 6.65 - 7.51 mm, female, 6.56 - 8.17 mm. Biometric data is given in Table 16. Body oblong-oval, black and shining; tibiae, tarsi and antennae reddish brown.

Frontal stria of head (Fig. 66A) deeply impressed, carinate and usually complete, the anterior portion usually straight, but sometimes narrowly interrupted and feebly and inwardly arcuate at middle; surface even, sparsely and finely punctate. Labrum short, transverse oblong.

Pronotal sides (Fig. 66B) rather strongly convergent to apices on basal nine-tenths. Apical angles round. Marginal pronotal stria complete laterally and broadly interrupted behind head. Outer lateral pronotal stria clearly impressed, carinate and its length variable, usually complete, sometimes abbreviated on basal half. Inner lateral pronotal stria complete, the anterior portion regularly and coarsely crenate. Disk of pronotum sparsely covered with fine punctures which are separated by ten to more times their diameter, and wholly covered with coriaceous ground sculptures; lateral half of narrow band along posterior margin coarsely punctate. Antescutellar area with a short longitudinal punctures.

Epipleural fossette of elytra feebly excavate and sparsely and coarsely punctate. Marginal epipleural stria lightly impressed on apical half. Marginal elytral stria carinate

and complete. Oblique humeral stria (Fig. 66B) lightly impressed on basal half. External subhumeral stria absent. Internal subhumeral stria deeply impressed and present on apical half. First and 2nd dorsal striae complete, well impressed, the basal third inwardly bent. Third dorsal stria present on basal half, and its apical rudiment present on apical eighth. Fourth and 5th dorsal striae usually short, occurring apically, sometimes wanting. Sutural stria absent. Disk of elytra wholly covered with coriaceous ground sculptures and sparsely and finely punctate.

Propygidium with a slight depression on each side, and sparsely covered with coarse, round and rather deep punctures which are unevenly separated by one to ten times their diameter; area between the coarse punctures sparsely scattered with fine punctures, and wholly covered with alutaceous ground sculptures. Punctuation of pygidium similar to that of propygidium, but much denser and coarser than that.

Anterior margin of prosternal lobe (Fig. 66C) regularly round; marginal stria deeply impressed, carinate and complete; another short stria present on lateral area between margin and the marginal stria; disk densely and coarsely punctate, the punctures becoming finer and sparser medially. Suture between prosternal keel and lobe interrupted medially. Surface of prosternal keel even, impunctate, but lateral descending area on anterior half coarsely and densely punctate; carinal stria wanting; posterior margin of keel outwardly arcuate. Descending lateral stria deeply impressed and complete. Epipleura of prothorax densely furnished with long hair.

Anterior margin of mesosternum deeply emarginate medially; marginal stria complete and deeply impressed; a short stria present behind antero-lateral angle on each side; disk wholly covered with coriaceous ground sculpture, and sparsely and finely punctate. Meso-metasternal suture lightly impressed and feebly angulate at middle. Post-mesocoxal stria of metasternum extended along posterior margin of mesocoxa, and becoming a little further distant from the margin outwards. Lateral metasternal stria deeply impressed, strongly carinate, obliquely and posteriorly extending, and united with oblique stria which is strongly carinate and inwardly extends from the middle of metasterno-metepisternal suture. Intercoxal disk of metasternum punctate as that of mesosternum. Lateral disk densely covered with large, round, shallow and setiferous punctures on basal half, the hairs very long; the apical half of disk sparsely covered with moderate punctures which are separated by five to more times their diameter.

Intercoxal disk of 1st abdominal sternum wholly covered with coriaceous ground sculptures, and sparsely clothed with microscopic punctures; lateral stria deeply impressed and completely striate on each side.

Protibia with 4 denticles on outer margin, the apical two appressed together on apical angle; 4 small denticles on apical margin. Profemoral stria nearly complete, usually shortened basal eighth, and broadest distant from posterior margin from at middle to apical third. Mesotibia with 3 rows consisting strong spines on outer margin; the median one composed of 14 spines; dorsal surface evenly with long hairs. Metatibia with 3 rows consisting of strong spines. Meso- and metatibiae somewhat dilated.

Male genitalia as shown in Fig. 67.

Table 16. Biometric data for *Hister japonicus* Marseul.

| | Male | Female |
|------|---------------------------|---------------------------|
| APW | 2.66-2.95 (2.80±0.023) 20 | 2.57-3.33 (2.90±0.036) 20 |
| PPW | 6.08-6.84 (6.39±0.049) 20 | 5.89-7.41 (6.75±0.075) 20 |
| PL | 2.76-3.23 (2.99±0.030) 20 | 2.71-3.42 (3.14±0.036) 20 |
| EL | 4.09-4.75 (4.44±0.038) 20 | 4.09-5.23 (4.68±0.051) 20 |
| EW | 6.65-7.51 (7.03±0.053) 20 | 6.56-8.17 (7.52±0.081) 20 |
| ProW | 3.71-4.66 (4.19±0.048) 20 | 3.90-5.13 (4.55±0.064) 20 |
| ProL | 1.38-1.71 (1.53±0.022) 20 | 1.33-1.81 (1.65±0.030) 20 |
| PyL | 1.71-2.28 (1.94±0.033) 20 | 1.85-2.28 (2.07±0.025) 20 |
| PTL | 1.90-2.47 (2.19±0.027) 20 | 2.09-2.76 (2.29±0.035) 20 |
| MSTL | 1.90-2.28 (2.05±0.024) 20 | 2.00-2.38 (2.14±0.024) 20 |
| MTTL | 2.38-2.95 (2.74±0.030) 20 | 2.57-3.04 (2.84±0.025) 20 |

Female genitalia as shown in Fig. 66G.

Specimens examined. [Honshû] <Yamagata-ken> 1 ex., Tôgô-mura, Kitamaruyama-gun; 18/vi/1944, K. Shirahata leg. (NA). <Fukushima-ken> 2 exs., Yunohana, Tateiwa, Minami-Aizu, 16, 9/viii/1949, K. Nagayama leg. (NA); 1♂ 1♀, Ditto, 10/vi/1950, T. Nakane leg. (NA); 1 ex., Ditto, 8/vii/1948, Y. Kurosawa leg. (NSMT); 2 exs., Numayama, Narahama, 6/vi/1948, Y. Kurosawa leg. (NA); 1 ex., Ôyama, Monden, Wakamatsu, 11/v/1984, Y. Kurosawa leg. (NA); 1 ex., Aizu-Wakamatsu, 9/vi/1951, Y. Kurosawa leg. (NSMT); 1 ex., Fukiya-yama, Wakamatsu, 8/vi/1947, Y. Kurosawa leg. (NA); 1 ex., Senaka-aburi, Higashi-yama, Kita-Aizu, 13/vi/1948, K. Ikarashi leg. (NSMT). <Ibaraki-ken> 1 ex., Yoshida, Higashi-Ibaraki, 19/v/1935, T. Tani leg. (NSMT). <Chiba-ken> 1♂ 1♀, Ôami, 22/vi/1984, M. Ôhara leg.; 1 ex., Mt. Kiyosumi, 24/v/1976, M. Tomokuni leg. (NSMT); 1♀, Kashiwa, 21/v/1985, N. Kobaysahi leg. <Tôkyô-to> 1♀, Tôkyô, no date and collection's name (EIHU). <Kanagawa-ken> 1 ex., Mt. Ôyama, 5/v/1975, H. Takizawa leg.; 1 ex., Yamakita, 20/ix/1968, M. Ishida leg.; 1♀, Matsuda-yama, Tanzawa, 14/ix/1972, M. Ishida leg.; 1♂, Akuwa-chô, Yokohama, 27/v/1984, K. Wada leg. <Niigata-ken> 1♂, Yoshigahira, northern Echigo, 25/vi/1954, K. Baba leg.; 1♂, Sarusawa, northern Echigo, 26/ix/1985, K. Baba leg. <Yamanashi-ken> 1 ex., Koike, 31/vi/1967, T. Kocha leg. (EIHU); 1 ex., Masutomi, 12/vi/2603 (=1943), no collector's name (NSMT). <Nagano-ken> 1 ex., Shimashima, 22/vii/1924, no collector's name. (NSMT); 1 ex., Fujimi-dai, 27/viii/1943, S. Ôsawa leg. (NA); 1♀, Nojiri, 21/viii/1943, T. Nakane leg. (NA); 1 ex., Fukushima, Kiso, 23/vii/1947, T. Nakane leg. (NA); 1♂, 5 exs., Kamikôchi, Shinano, 21-8/vii/1947, S. Osawa leg. <Shizuoka-ken> 1♀, Gotenba,

10/viii/1934, K. Nakamura leg. (NA); 1 ♀, Kida, 6/vi/1951, K. Kojima leg. (NA). <Aichi-ken> 1 ♀, 3 exs., Higashi-yama, Nagoya, 10/ix/1946, vi/1948, S. Ôsawa leg. (NA). <Mie-ken> 1 ex., Yunoyama, Ise, 31/v/1948, S. Ôsawa leg. (NA); 1 ♀, Ôsugi Valley, 5/vi/1952, T. Horio leg. (NA). <Shiga-ken> 1 ex., Hiei-zan, Ôtsu, 10/x/1989, T. Itô leg. <Kyôto-fu> 3 ♂♂, 1 ex., Mizuho, Tozu River, 10/v/1986, S. Nomura leg. (NA). <Ôsaka-fu> 1 ♂ 1 ♀, Iwawaki-san, southern Ôsaka, 2/vii/1980, T. Itô leg.; 1 ♂ 1 ♀, 1 ex., Minô, 24/v/1936, K. Sakaguchi leg. (NA); 1 ♂, Kongô-san, Chihaya-akasaka, Kawachi, 11/vi/1988, T. Itô leg. <Hyôgo-ken> 1 ex., Nose, 20/ix/1945, F. Takahashi leg. (NA); 1 ♂, Nitani-bokujô, Taka, 16/ix/1984, T. Itô leg. <Nara-ken> 1 ♂ 1 ♀, Nara, 3/viii/1946, S. Ôsawa leg. (NA); 1 ex., Kasuga, 10/vi/1950, N. Y leg. (NA). <Wakayama-ken> 1 ♂ 1 ♀, Shingu, southern Kii, 7/v, 11/vii/1946, S. Ôsawa leg. (NA); 2 exs., Kushimoto, 24/v, 10/vi/1957, C. Morishima leg. (NSMT); 1 ♀, Kawayu, 24/vii/1946, S. Ôsawa leg. <Okayama-ken> 1 ♂, Ginba, 29/vii/1949, T. Okutani leg.; 1 ex., Mimasaka, vi/1913, J. E. A. Lewis leg. (BSM); 1 ♂, Yuge, Kumenan, 15/vii/1989, M. Hayashi leg. <Oki Is.> 1 ♀, Saigô-chô, 13/x/1987, T. Kumata leg. <Izu Isles.> 1 ex., near Yakeyama, Kôzu-shima Is. 13/v/1983, T. Niisato and M. Nishimura leg. (NSMT).

[Kyûshû] <Fukuoka-ken> 1 ex., Fukuchi-yama, 4/viii/1951, F. Takahashi leg. (NA); 1 ex., Ditto, 31/v/1946, R. Matsuda leg. (NSMT); 1 ex., Ditto, 31/v/1946, R. Matsuda leg. (NA); 1 ex., Tashiro, 10/vi/1952, Y. Miyake leg. (NA); 1 ex., Mt. Hikosan, Buzen, 27/vii/1947, A. Yamaguchi leg. (NA). <Saga-ken> 1 ♂, Hokuan-damu, 10/viii/1973, H. Makihara leg. <Nagasaki-ken> 1 ex., Mt. Unzen, Alt. 2000 ft., 22/v/1928, J. E. A. Lewis leg. (BSM). <Kumamoto-ken> 1 ex., Touchi, Itsuki, 1/vii/1983, M. Maeda leg. <Miyazaki-ken> 1 ex., Omata, 15/vii/1954, K. Nohara leg.; 1 ♂, Mi-ike, 3/v/1983, S. Mizoguchi leg. <Kagoshima-ken> 1 ex., Sata, 18/v/1980, M. Miura leg.; 1 ♂ 1 ♀, Iriki-bokujô, 20/v/1984, M. Ôhara leg.; 1 ex., Izashiki, Ôdomari, 21/v/1955, K. Sawada leg. (NA); 1 ex., Imuta, 11/v/1984, T. and T. Nakane leg. (NA); 1 ♀, Yae-yama, 6/vii/1983, S. Sameshima leg.; 1 ex., Kushikino, 24/v/1982, M. Ôhara leg. <Tsushima Is.> 1 ♀, Sasuno, 30/v/1968, K. Suga leg. (NA); 1 ♂, Hitakatsu, 7/ix/1964, T. Nakane leg. (NA); 5 exs., Nita-Meboro, 9/vi/1968, Y. Kurosawa leg. (NSMT); 1 ex., Ôboshi-yama, 13/vi/1968, Y. Kurosawa leg. (NSMT); 5 exs., Meboro, 17/vii/1969, Y. Kurosawa leg. (NSMT); 1 ex., Meboro, Mt. Mitake, 15-18/vii/1968 S. Miyamoto & A. Nakanishi leg. (NSMT); 1 ♀, Aoumi, 24/vii/1989, F. Hirokawa leg.

Distribution (Fig. 71). Japan (Honshû, Shikoku, Kyûshû, Tsushima Is., Izu Isles., Oki Is.); Amurskij Kray; Korea; China; Viet-Nam.

Remarks. This species is allied to *Hister congener*, but separated from the latter by the striation of elytra.

***Hister congener* Schmidt, 1885**

(Figs. 68, 69, 70 and 71)

Hister congener Schmidt, 1885: 242; Nakane, 1963: 70; Kryzhanovskij and Reichardt, 1976: 312; Mazur, 1984: 186 [catalogued]; Hisamatsu, 1985: 226, pl. 41, f. 5 [noted, photo].

Hister (Pachylister) congener: Bickhardt, 1910: 38 [catalogued].

Hister (Hister) congener: Bickhardt, 1917: 180 [catalogued]; Kamiya and Takagi, 1938: 30 [listed].

Pachylister congener: Lewis, 1904: 146.

Japanese name: Ibushi-emma-mushi.

Original description. "Ovatus, subparallelus, convexiusculus, niger, nitidus; stria frontali integra, antice recta, mandibulis supra concavis, margine acuto; pronoto striis duabus lateralibus integris, subparallelis, interna pone oculos haud angulata. Elytris striis 3 dorsalibus primis subhumeralique interna integris, 4^a dorsali apicali obsoletiore, ceteris punctis paucis apicalibus, fossa marginali bisulcata; propygidio pygidioque dense sat fortiter punctatis; mesosterno emarginato, stria integra; tibiis antis 3-dentatis --- Long. 10 mill. lat. 7.5 mill.; hab. Japonia."

Description. Male and female. Body length, PPL, 9.52 - 10.48 mm, PEL, 8.25 - 9.52 mm. Width, 6.83 - 7.94 mm. Biometric data are given in Table 17. Body large, oblong-oval, black and shining; tibiae, tarsi and antennae dark reddish brown.

Frontal stria of head (Fig. 68A) feebly complete, well impressed, carinate and densely crenate, the anterior portion straight, sometimes narrowly interrupted at middle; disk of head even, sparsely clothed with fine punctures which are separated by three to ten times their diameter, and another microscopic punctures intermingled with fine ones. Labrum transversely oblong, the anterior margin feebly and outwardly angulate. Mandible well developed.

Pronotal sides (Fig. 68B) nearly parallel on basal half, and gradually and feebly convergent on apical half, the apical ninth strongly convergent to apices. Apical angles round. Margin of pronotum, except basal margin, densely covered with long hair. Marginal pronotal stria complete laterally and broadly interrupted behind head. Outer lateral pronotal stria completely impressed laterally. Inner lateral stria complete and densely and coarsely crenate. Disk of pronotum sparsely clothed with fine punctures which are separated by three to five times their diameter, and microscopic punctures intermingled among fine ones. Antescutellar are with a large longitudinal impression.

Epipleura of elytra feebly excavated. Marginal epipleural stria well impressed on apical two-thirds. Marginal elytral stria strongly carinate and complete. Subhumeral stria (Fig. 68B) stout and shallowly impressed on apical two-thirds. Oblique humeral stria lightly impressed on basal third. First to 3rd dorsal striae completely impressed and sparsely and coarsely crenate. Fourth dorsal stria present on apical half or more, the basal portion usually represented by coarse punctures. Fifth dorsal stria present on apical third.

Sutural stria variable, usually present on apical third, sometimes on apical half, or absent. Disk of elytra evenly covered with fine punctures which are separated by about four times their diameter.

Propygidium (Fig. 70B) densely covered with large, round and shallow punctures which are separated by their own diameter; interspace between the large punctures covered with moderate sized punctures which are separated by their own diameter to twice the diameter; these punctures becoming finer around margin; disk wholly clothed with alutaceous ground sculptures. Punctuation of pygidium (Fig. 70D) similar to that of propygidium but much denser; the punctures becoming minute at apex.

Anterior margin of prosternal lobe (Fig. 68C) narrowly truncate apically, its marginal stria complete and carinate; disk of lobe densely and coarsely punctate, the punctures becoming finer and sparser medially. Prosternal keel without carinal stria, its disk even on basal half; the disk sparsely and finely punctate; lateral descending area on apical half densely covered with coarse punctures. Lateral descending stria of keel complete and carinate.

Anterior margin of mesosternum (Fig. 68C) narrowly and strongly emarginate medially; marginal stria complete, sparsely and coarsely crenate; another short stria present behind anterior angle; disk sparsely clothed with microscopic punctures except the area outside the marginal stria where is coarsely and densely punctate. Meso-metasternal suture lightly but distinctly impressed and strongly angulate at middle. Post-mesocoxal stria of metasternum impressed along posterior margin of mesocoxa and becoming further distant from the margin laterally. Lateral metasternal stria well impressed and extending posteriorly and obliquely, the apical end attaining near apical one-third of metasternal disk. Intercoxal disk of metasternum similar to that of mesosternum. Lateral disk densely covered with coarse, shallow and setiferous punctures, and transversely elevated at middle.

Intercoxal disk of 1st abdominal sternum (Fig. 68C) sparsely covered with fine punctures which are separated by two to five times their diameter; the lateral stria well impressed, carinate and shortly abbreviated basally.

Protibia (Fig. 68D, E) with 3 denticles on outer margin, the apical one very large. Meso- and metatibiae with two rows consisting of about 18 spines which are stout and long. Profemoral stria nearly complete, shortened on basal eighth.

Male genitalia as shown in Fig. 69.

Female genitalia as shown in Fig. 68G.

Table 17. Biometric data for *Hister congener* (Linnaeus).

| | |
|------|-------------------------|
| APW | 3.10-3.57 (3.31±0.06) 6 |
| PPW | 6.35-7.30 (6.88±0.12) 6 |
| PL | 2.94-3.49 (3.32±0.08) 6 |
| EL | 4.44-5.08 (4.76±0.09) 6 |
| EW | 6.83-7.94 (7.45±0.15) 6 |
| ProW | 4.44-4.92 (4.60±0.07) 6 |
| ProL | 2.06-2.54 (2.28±0.06) 6 |
| PyL | 2.38-2.86 (2.63±0.06) 6 |
| PTL | 2.38-2.86 (2.63±0.06) 6 |
| MSTL | 2.22-2.70 (2.46±0.06) 6 |
| MTTL | 3.17-3.49 (3.41±0.05) 6 |

Specimens examined. [Honshû] <Aomori-ken> 1 ex., Shiriya, 5/viii/1958, A. Abe leg. (NA). <Yamagata-ken> 1 ex., Yonezawa, 16/v/1944, Y. Kurosawa leg. (NSMT); 1 ♂, Ditto, 17/v/1910, S. Matsumura leg. (EIHU). <Fukushima-ken> 1 ex., Tokusa, Tateiwa, 26/v/1991, K. Haga leg.; 1 ♂, Yunohana, Tateiwa, Minami-Aizu, 15/v/1948, W. Hoshi leg.; 1 ex., Ditto, 1/v/1948 (NSMT); 1 ex., Odayama, Monden, Kita-aizu, 26/vi/1946, Y. Ikarashi leg. (NSMT); 1 ex., Akai, Kinato, Kita-aizu, 7/vi/1948, Y. Kurosawa leg. (NA). <Nagano-ken> 1 ♂, Hokushin-bokujô, Sugadaira, 10/viii/1963, S. Kondo leg.; 1 ♂, Uminokuchi-bokujô, Yatsugatake, 18/v/1969, M. Kiuchi leg.; 1 ♀, Kuzukawa-Heraka, 4/v/1954, A. Abe leg. (NA). <Hyôgo-ken> 1 ex., Mt. Rokkô, Kôbe, vii/1928, E. R. Dickover leg. (BSM); 1 ex., Ditto, 16/vi/1929, E. R. Dickover leg. (BSM); 1 ex., Ditto, 6/vii/1928, F. C. Hadden leg. (BSM); 1 ex., Kôbe, 6/vii/1930, E. R. Dickover leg. F. C. Hadden collection. *Hister congener* Schmidt, H. Desbordes det, 1932. (BSM). <Tottori-ken> 1 ex., Hyônosen, 12/vi/1961, K. Tsuji leg. (NSMT).

[Korea] 1 ex., Mt. Kongô, 28/vii/1924, K. Satô leg. (NSMT).

Distribution (Fig. 71). Japan (Honshû); Primorskij Kray; Korea; Taiwan; northern China.

Remarks. Lewis (1904) was treated this species as a member of genus *Pachylister*, based on the following states as the generic features; protibiae with large three denticles on outer margin, and anterior margin of labrum outwardly projecting. But since Bickhardt (1917) this species has been treated a member of *Hister*, because Lewis's latter state, the anterior margin of the labrum, of this species is very slightly projecting. These generic character are unclear and problematical. This species is allied to *Hister japonicus* (see also *H. japonicus*).

Hister simplicisternus Lewis, 1879

(Figs. 72, 73, 75 and 76)

Hister simplicisternus Lewis, 1879: 461 [Japan: Higo, where it is common]; Olexa, 1982: 198 [key, figures]; Mazur, 1984: 197 [catalogued]; Hisamatsu, 1985: 227, pl. 41, no. 8 [noted, photo].

Hister simplicisternis (sic): Kryzhanovskij and Reichardt, 1976: 313 [description, figures].

Hister (*Hister*) *simplicisternus*: Bickhardt, 1910: 49 [catalogued]; Bickhardt, 1917: 186 [catalogued].

Hister togouii Lewis, 1914: 286 [Tsushima Is.], synonymized by Bickhardt, 1920: 30.

Hister togou (sic): Bickhardt, 1917: 187 [catalogued]; Bickhardt, 1920: 30.

Japanese name: Hime-tsuya-emma-mushi.

Original description. "Ovatus, niger, nitidus; fronte impressa, stria integra; pronoti stria laterali interna integra, externa abbreviata; elytria striis 1. - 3. dorsalibus integris, 4. et 5. et suturali brevibus; propygidio punctato, subfoveolato; pygidio apice subtiliter punctato; mesosterno marginato, basi non sinuato. L. 2.75 - 3 lin.

Much smaller than *sibiricus*, Mars., to which section it belongs; it may be recognized by the finer punctation of the pygidium (in some specimens almost smooth at the apex), and by the mesosternum having no notch to admit the prosternum.

Hab. Hiogo, where it is common."

Description. Male and female. Body length, PPL, male, 4.09 - 5.57 mm, female, 4.62 - 6.14 mm, PEL, male, 3.43 - 4.43 mm, female, 3.86 - 4.95 mm. Width, male, 3.05 - 4.00 mm, female, 3.33 - 4.17 mm. Biometric data is given in Table 18. Body oval, rather convex, black and shining; tibiae, tarsi and antennae rufopiceous.

Frontal stria of head (Fig. 72A) deeply impressed and carinate, the anterior portion broadly straight. Disk of head feebly depressed inside the stria where is sparsely clothed with moderate punctures which are separated by about thrice their diameter.

Pronotal sides (Fig. 72B) arcuate and strongly convergent to apices. Apical angle round. Anterior margin of pronotum broadly emarginate, the median portion of emargination feebly arcuate outwardly. Marginal pronotal stria complete laterally and broadly interrupted behind head. Outer lateral pronotal stria abbreviated on basal third; feebly and sparsely crenate. Inner lateral pronotal stria abbreviated on basal sixth, and densely and strongly crenate. Disk of pronotum sparsely clothed with fine punctures which are separated by four to ten times their diameter; narrow band along posterior margin covered with large and round punctures.

Epipleura of elytron (Fig. 72B) broad and even, and three striate; the most outer stria clearly impressed on apical half; median one (epipleural marginal stria) nearly complete and carinate, but shortly reduced basally; inner one (marginal elytral stria) complete and strongly carinate. Lateral margin of elytron strongly carinate. External subhumeral stria shortly present medially as an arc, and deeply impressed. Oblique humeral stria lightly impressed on basal third. First to 3rd dorsal striae complete, deeply

impressed and sparsely and coarsely carinate. Fourth dorsal striae present on apical fourth, with a short rudiment basally. Fifth dorsal stria present on apical eighth but indistinct. Sutural stria present on apical half. Disk sparsely clothed with fine punctures which are separated by about ten times their diameter.

Propygidium (Fig. 75A) unevenly and sparsely covered with large, round and deep punctures which are separated by half their diameter to twice the diameter; surface between large punctures sparsely and finely punctate; area between these punctures with alutaceous ground sculptures. Punctuation of pygidium (Fig. 75E) similar to that of propygidium, but much finer than that, and the punctures becoming finer apically.

Anterior margin of pronotal lobe (Fig. 72C) round, its marginal stria deeply impressed, complete and carinate; disk densely and coarsely punctate, the punctures separated by about their own diameter and becoming sparser basally. Prosternal keel rather broad, even, without carinal striae; disk coarsely punctate on basal half, the punctures separated by their own diameter to twice the diameter; basal margin of keel nearly straight. Descending lateral stria deeply impressed, carinate and complete.

Anterior margin of mesosternum (Fig. 72C) nearly straight, feebly emarginate medially; marginal stria deeply impressed, strongly carinate, sparsely and coarsely carinate, and complete; a short stria present behind the anterolateral angles on each side; disk sparsely and finely punctate, the punctures separated by ten times their diameter; another microscopic punctures intermingled with them. Meso-metasternal suture distinctly impressed, and angulate at middle. Post-mesocoxal stria of metasternum deeply impressed and carinate, and becoming further distant from posterior margin of mesocoxa to lateral side; the outer end of stria attaining at middle of suture. Lateral metasternal stria obliquely and posteriorly extending, beginning from lateral fourth of meso-metasternal suture, deeply impressed and carinate, and not united with oblique stria which is strongly carinate and inwardly extends from the middle of metasternal-metepisternal suture. Intercoxal disk of metasternum sparsely and finely punctate, the punctures separated by about eight times their diameter. Lateral disk densely covered with large, round, shallow and setiferous punctures, the punctures becoming finer apically; the hair of punctures long.

Intercoxal disk of 1st abdominal sternum (Fig. 72C) sparsely and finely punctate, the punctures coarser before apical angles; lateral stria complete, densely and coarsely crenate.

Protibia with 5 denticles on outer margin. Profemur with femoral stria shortly present on apical fourth.

Profemur with femoral stria shortly present on apical fourth.

Male genitalia as shown in Fig. 73.

Female genitalia as shown in Fig. 72G.

Specimens examined. [Honshû] <Aomori-ken> 2 exs., Higashi-dôri, Shiriya, 6/vi, 26/vii/1987, H. Saitô leg.; 2 exs., Shiriya, 5/viii/1958, A. Abe leg. (NA). <Iwate-ken> 4 exs., Kuriyagawa, 20/v/1974, H. Hayakawa leg. (NA). <Miyagi-ken> 1 ex., Mt. Saho, Sendai, 2/vi/1951, K. Nagayama leg. (NA). <Yamagata-ken> 1 ex., Sakata, 1/vii/1948, T. Nakane leg. (NA). <Fukushima-ken> 1 ex., Wakamatsu, 29/vi/1948, T.

Nakane leg. (NA); 3 exs., Ditto, 21/v/1949, Y. Kurosawa leg. (NSMT); 1 ex., Hinoemata, Aizu, 1/viii/1947, K. Nagayama leg. (NA); 1 ex., Nagurazaka, Asahidake, Minami-Aizu, 1/viii/1949, K. Nagayama leg. (NSMT); 1 ex., Aizu-Wakamatsu, 14/vi/1950, Y. Kurosawa leg. (NSMT); 1 ex., Yunohana, Tateiwa, Minami-Aizu, 10/vii/1948, Y. Kurosawa leg. (NSMT); 3 exs., Ôyama, Monden, Kita-Aizu, 21/v/1949, Y. Kurosawa leg. (NSMT); 1 ex., Tsuchiyu, no date, S. Ômomo leg. <Ibaraki-ken> 1 ex., Yatabe, 5/vii/1986, M. Kiuchi leg. <Chiba-ken> 1♂1♀, 1 ex., Ôami, 19, 22/vi/1984, M. Ôhara leg.; 1♂, Abiko, Tone-gawa, 5/v/1973, M. & K. Ishida leg.; 1 ex., Narita, 9/vi/1914, E. Gallois leg. (EIHU). <Tôkyô-to> 8 exs., Tôkyô, 29, 30, 31/v, 3/vi/1914, E. Gallois leg. (EIHU); 1 ex., Komaba, Tokyo, 24/v/1914, S. Hirayama leg. (EIHU); 1 ex., Tôkyô, no date, S. Matsumura leg. (EIHU); 1 ex., Kinuta, Setagaya, 15/v/1988, Y. Kurosawa leg. (NSMT); 1 ex., Rokugien, 9/v/1953, Y. A leg. (NSMT); 1♂, 1 ex., Ogikubo, 5/vii, 30/viii/1966, M. Ishida leg.; 1 ex., Aoyama, 27/v/1946, T. Nakane leg. (NA); 1 ex., Kawajiri, 23/vi/1940, T. Okada leg. (NA); 2♀♀, 3 exs., Toshima-ku, 19/v/1963, S. Kondo leg.; 2♀♀, Fuchû, 11/vi/1968, M. Ishida leg.; 3 exs., Sayama, 11/v/1957, M. Suwa leg. <Kanagawa-ken> 3♂♂, 2 exs., Akuwa-chô, Yokohama, 7/vi/1983, 25, 27/v, 12, 15/vi/1984, K. Wada leg.; 1♂1♀, Fuchinobe, Sagami-hara, 7/v/1973, M. Ishida leg.; 1♂1♀, Daiyû-zan, 29/v/1982, M. Nishikawa leg. <Niigata-ken> 1 ex., Maki, Matsumura, northern Echigo, 7/vii/1987, K. Baba leg. <Toyama-ken> 1 ex., Tateyama-machi, 21/vii/1954, S. Takagi leg. (EIHU). <Yamanashi-ken> 1 ex., Nirasaki, 18/v/1986, N. Kobayashi leg. <Nagano-ken> 1♀, Koma-ga-take, Kiso, 4-5/viii/1946, S. Ôsawa leg. (NA); 1♂, Nojiri, Tôyô-eiwa, 21/vii/1941, T. Nakane leg. (NA); 1 ex., Fujimi, 20/vii/1956, S. Nomura leg. (NSMT); 1 ex., Sanjirô, Utsugushi-ga-hara, 5/viii/1951, S. Uéno leg. (NA). <Gifu-ken> 2♀♀, Ôgaki, Mino, 10/v/1946, Y. Moriya leg. (NA). <Shizuoka-ken> 1 ex., Kida, 6/vi/1951, K. Kojima leg. (NA); 1♀, Asagiri-kôgen, Fuji, 800 m, 23/viii/1972, M. Ishida leg.; 1 ex., Yawatano, Itô, 15/vi/1977, M. Ishida leg. <Aichi-ken> 4♂♂1♀, 4 exs., Higashi-yama, Nagoya, 23, 27/vi/1948, S. Ôsawa leg. (NA); 1♂2♀♀, 2 exs., Shikatsu-mura, Owari, 19/viii/1945, 27/vi, 16/viii/1946, S. Ôsawa leg. (NA); 1♂1♀, Nagoya, 10/v, 4/viii/1947, S. Ôsawa leg. (NA). <Mie-ken> 1 ex., Osugi, 12/vi/1952, T. Horino leg. (NA); 1 ex., Osugidani, Ise, 10/vi/1952, Takeuchi leg. (NA). <Kyôto-fu> 1 ex., Kyôto, 1956, T. Nakane leg. (NA). <Ôsaka-fu> 1 ex., Myôken, 22/vi/1952, F. Takahashi leg. (NA); 1♀, Iwawaki-san, southern Ôsaka, 2/vii/1988, T. Itô leg. <Wakayama-ken> 1♀, Singû, Kii v/1946, S. Ôsawa leg. (NA); 1♂, Nachi, Kii, 16/vii/1946, S. Ôsawa leg. (NA). <Hyôgo-ken> 1 ex., Motoyama-mura, Kôbe, 14/v/1938, K. Sakaguchi leg. (NA); 1 ex., Kôbe, 30/vii/1916, J. E. A. Lewis leg. (BSM); 1 ex., Harada, Kôbe, 15/viii/1915, no collector's name (BSM); 1 ex., Ditto, 20/vi/1912, J. E. A. Lewis leg. (BSM); 1♀, Mitani-bokujô, Taka, 16/ix/1984, T. Itô leg.

Table 18. Biometric data for *Hister simplecisternus* Lewis.

| | Male | Female |
|------|--------------------------|--------------------------|
| APW | 1.07-1.43 (1.24±0.08) 20 | 1.00-1.43 (1.28±0.02) 20 |
| PPW | 2.57-3.52 (3.09±0.05) 20 | 2.95-3.71 (3.37±0.05) 20 |
| PL | 1.29-1.76 (1.56±0.03) 20 | 1.52-1.95 (1.70±0.02) 20 |
| EL | 1.81-2.38 (2.14±0.03) 20 | 2.05-2.67 (2.36±0.04) 20 |
| EW | 3.05-4.00 (3.56±0.06) 20 | 3.33-4.17 (3.84±0.06) 20 |
| ProW | 1.81-2.48 (2.14±0.04) 20 | 2.09-2.71 (2.39±0.04) 20 |
| ProL | 0.71-1.05 (0.89±0.04) 20 | 0.71-1.05 (0.95±0.02) 20 |
| PyL | 0.90-1.29 (1.13±0.02) 20 | 1.05-1.38 (1.23±0.02) 20 |
| PTL | 0.90-1.24 (1.09±0.02) 20 | 1.05-1.43 (1.19±0.02) 20 |
| MSTL | 0.90-1.24 (1.12±0.02) 20 | 1.09-1.38 (1.24±0.02) 20 |
| MTTL | 1.24-1.71 (1.48±0.03) 20 | 1.38-1.71 (1.57±0.05) 20 |

[Kyûshû] <Fukuoka-ken> 1 ex., Fukuchi-yama, 4/viii/1951, F. Takahashi leg. (NA). <Kumamoto-ken> 1 ♀, Komezuka, Aso, 7/vi/1981, M. Ôhara leg.; 1 ♂ 1 ♀, Mt. Maru, Takamori, Aso, 6/vi/1986, E. Matsui leg.; 1 ♂, Nabeno-daira, Aso, 5/vi/1986, E. Matsui leg. <Oita-ken> 1 ♀, Kujû, 6/v/1981, K. Sakai leg. <Kagoshima-ken> 1 ♀, Kurino, Kirishima, 25/vi/1983, K. Sugawara leg.; 1 ♀, Ditto, 1/vi/1981, M. Ôhara leg.; 1 ♂, Ditto, 3/ix/1990, M. Ôhara leg.; 1 ♂, Iriki, 20/v/1984, M. Ôhara leg.

Distribution (Fig. 76). Japan (Honshû, Shikoku, Kyûshû); Korea.

Remarks. This species is easily distinguished from all the other Japanese species of the tribe Histerini by the deeply impressed external subhumeral stria and by having a feeble and outward projection on median portion of emargination of anterior margin of pronotum.

Hister unicolor leonhardi Bickhardt, 1910

(Figs. 75)

Hister leonhardi Bickhardt, 1910b: 180 [East Siberia].

Hister unicolor ab. *leonhardi*: Reichardt, 1938: 236.

Histerunicolor opimus Reichardt in Kryzhanovskij and Reichardt, 1976: 316 [USSR: Zabaikal'e and Primorskij; Japan: Unzen], synonymized by Mazur, 1984: 199.

Hister unicolor leonhardi: Mazur, 1984: 199.

Japanese name: Nise-kuro-emma-mushi.

Original description of *Hister leonhardi*. "Ovalis, convexus, niger, nitidus; fronte stria valida semihexagona antice subrecta; antennis clava obscura, mandibulis convexis;

pronoto stria laterali interna antice haud interrupta externaque basi subabbreviatis, interstitio earum dimidio antico impresso rugose punctulato; elytris striis dorsalibus 1-3 integris, 4. suturalique vix dimidiatis, 5. apicali; subhumerali interna tenui fere dimidiata, appendice obsoleto, margine inflexo bisulcato; propygidio punctulato pygidioque punctulatis; prosterno lobo punctato, mesosterno emarginato, stria integra; tibiis anticis 3-dentatis.

Long. 6 mm. Hab. Kiachta, Sibirien."

Distribution. Japan (Kyûshû: Shimabara); East Siberia; Primorskij Kray; Mongolia; Korea; North-eastern China.

***Hister concolor* Lewis, 1884**

(Figs. 74, 75 and 76)

Hister concolor Lewis, 1884: 135 [Japan: Ishikari river, Hokkaidô].

Hister (Hister) concolor: Bickhardt, 1910a: 42 [Japan]; Bickhardt, 1917: 197; Kamiya and Takagi, 1938: 30; Ôsawa, 1952: 6.

Hister concolor: Kryzhanovskij and Reichardt, 1976: 316; Hisamatsu and Kusui, 1984: 16 [noted]; Hisamatsu, 1985: 227, pl. 41, f. 7 [noted, photo]; Ôhara and Li, 1988: 96 [China: Liaoning].
Japanese name: Kuro-emma-mushi.

Original description. "Ovalis, subconvexus, niger, nitidus; fronte stria integra; pronoto stria laterali externa valda, interna vix abbreviatis; elytris striis 1 -3 integris, 4 - 6 brevibus; propygidio subfoveolato pygidioque dense et grosse punctatis. L. 8 mill.

Table 19. Biometric data for *Hister concolor* Lewis.

| | Male | Female |
|------|--------------------------|--------------------------|
| APW | 1.69-2.06 (1.88±0.10) 20 | 1.69-2.19 (2.00±0.03) 20 |
| PPW | 4.25-5.38 (4.77±0.08) 20 | 4.19-5.69 (5.18±0.09) 20 |
| PL | 1.75-2.50 (2.17±0.04) 20 | 1.81-2.63 (2.33±0.05) 20 |
| EL | 3.06-3.88 (3.44±0.06) 20 | 3.06-4.13 (3.72±0.07) 20 |
| EW | 4.94-6.19 (5.60±0.09) 20 | 5.00-6.63 (6.10±0.10) 20 |
| ProW | 2.94-3.75 (3.33±0.05) 20 | 2.94-4.13 (3.70±0.08) 20 |
| ProL | 1.06-1.44 (1.25±0.02) 20 | 1.19-1.63 (1.40±0.03) 20 |
| PyL | 1.50-1.88 (1.64±0.03) 20 | 1.38-2.06 (1.85±0.04) 20 |
| PTL | 1.31-1.81 (1.56±0.03) 20 | 1.44-1.88 (1.69±0.03) 20 |
| MSTL | 1.31-1.88 (1.63±0.03) 20 | 1.31-2.00 (1.76±0.04) 20 |
| MTTL | 1.69-2.50 (2.08±0.04) 20 | 1.88-2.63 (2.31±0.05) 20 |

H. concolor is sculptured like *H. unicolor*, except on the two abdominal segments seen from above, which are strongly and closely punctured. In its general facies it is like *H. 4-notatus*, being wider and less convex than *H. unicolor*, and the interstice between the inner thoracic stria and the outer margin is wider and the short stria is more in the centre of this interstice.

This is also from vicinity of the Ishikari river."

Description. Male and female. Body length, PPL, male, 6.31 - 8.00 mm, female, 6.44 - 8.69 mm, PEL, male, 5.83 - 7.00 mm, female, 5.63 - 7.50 mm. Width, male, 4.94 - 6.19 mm, female, 5.00 - 6.63 mm. Biometric data is given in Table 19. Body oval and black; spines of tibiae, tarsi, antennae and mouth parts except mandibles reddish brown.

Frontal stria of head (Fig. 74A) carinate and usually interrupted at middle, sometimes complete, the anterior portion feebly and inwardly arcuate and densely and coarsely crenate; disk evenly and finely punctate, the punctures separated by three to four times their diameter, and interspace between the fine punctures sparsely and microscopically punctate. Labrum transversely oblong.

Pronotal sides (Fig. 75B) regularly arcuate, strongly convergent to apices on apical two-thirds and convergent basally on basal third. Apical angles angulate. Marginal pronotal stria clearly impressed and complete laterally, and broadly interrupted behind head. Outer lateral pronotal stria deeply impressed, crenate and abbreviated on basal third to half. Inner lateral stria deeply impressed, abbreviated on basal third, and the anterior portion complete and densely and coarsely crenate. Disk of pronotum sparsely clothed with microscopic punctures which are separated by five to more times their diameter, and wholly covered with light coriaceous ground sculptures; lateral third of narrow band along the posterior margin coarsely and densely punctate. Antescutellar area with a short longitudinal puncture.

Epipleural fossette of elytra feebly excavated. Marginal epipleural stria slightly carinate and present on apical half. Marginal elytral stria deeply impressed, carinate and complete. External subhumeral stria (Fig. 74B) present on medio-apical fourth as an arc, and broadly and shallowly impressed and crenate. Internal subhumeral stria broadly and shallowly impressed on apical half, and densely and coarsely crenate. Oblique humeral stria lightly impressed on basal half. First - 3rd dorsal striae complete, broadly and shallowly impressed and densely crenate. Fourth dorsal stria usually present on apical half, sometimes on apical two-thirds. Fifth dorsal stria variable in length, usually present on apical fourth, sometimes on apical third or fifth. Sutural stria variable, usually present apically, a little longer than 5th. Disk of elytron wholly covered with coriaceous ground sculptures and sparsely clothed with fine punctures which are separated by five to ten times their diameter, the punctures becoming coarser on apical sixth.

Propygidium (Fig. 75D) densely covered with large, round and shallow punctures, which are separated by one to half their diameter; interspace between the large punctures intermingled with moderate sized punctures which are as large as that of apical sixth of

elytron; surface except punctures wholly covered with alutaceous ground sculptures; these punctures becoming finer around margin. Punctuation of pygidium (Fig. 75H) similar to that of propygidium, but much denser than that, the punctures separated by one-third to half their diameter.

Anterior margin of prosternal lobe (Fig. 74C) round; marginal stria broadly interrupted at middle; disk sparsely and coarsely punctate, the punctures separated by about four times their diameter and becoming finer medially. Prosternal keel even and somewhat broad, and without carinal stria; the posterior margin arcuate outwards; disk evenly covered with fine punctures which are separated by about three times their diameter on median area; lateral descending area the punctures coarse and dense. Descending lateral stria strongly carinate and complete.

Anterior margin of mesosternum (Fig. 74C) strongly emarginate at middle; marginal stria complete and carinate; a short and broad stria present behind each antero-lateral angles; disk sparsely and finely punctate, the punctures separated by about three to five times their diameter and becoming coarser laterally. Meso-metasternal suture clearly impressed and angulate at middle. Post-mesocoxal stria of metasternum extending along posterior margin of mesocoxa, and becoming a little further distance from the margin, the outer end attaining at middle of metasternal-metepisternal suture. Lateral metasternal stria deeply impressed, strongly carinate, obliquely and posteriorly extending, and united with oblique stria which is strong carinate and inwardly extends from the middle of metasternal-metepisternal suture. Punctuation of intercoxal disk similar to that of mesosternum, the punctures becoming somewhat coarser laterally. Lateral disk densely covered with large, deep and round punctures which are separated by about one-third to half their diameter; interspace between large punctures usually coarsely punctate; these punctures becoming finer inwardly.

Intercoxal disk of 1st abdominal sternum evenly covered with moderate sized punctures which are separated by about three times their diameter, the punctures becoming coarser laterally; lateral stria deeply impressed, carinate and complete.

Protibia (Fig. 74D, E) with 3 denticles on outer margin. Meso- and metatibiae with 2 rows consisting 6 to 8 stout spines. Profemoral stria (Fig. 74F) present on apical third on half.

Female genitalia as Fig. 74G.

Specimens examined. [Hokkaidô] 1 ex., Sakanoshita, Wakkanai, 10/viii/1974, Y. Kusui leg.; 1 ex., Horonobe, 30/vii/1988, Y. Ishihama leg.; 7 exs., Futatsu-yama, Shibeche, Kushiro, 20/ix/1955, 15/x/1970, 26/ix/1974, 24/vi/1979, 15/viii/1981, K. Ijima leg. (IJ); 1 ex., Ikutahara, near Abashiri, 7/vii/1987, M. Ôhara leg.; 1 ex., Kenebetsu, Nemuro, 21/vii/1973, M. Nishimura leg.; 1 ex., Gensei-kaen, Abashiri, 19/vii/1986, M. Ôhara leg.; 1 ex., Naka-tonbetsu-cho, Kami-tonbetsu, 27/vii/1987, K. Haga leg.; 2 exs., Kawakami, Rikubetsu, 31/vii/1988, K. Haga leg.; 1 ex., Satsunai, 8/viii/1968, H. Torikura leg.; 2♂♂ 4♀♀, 1 ex., Hitsuji-ga-oka, Sapporo, 20/vii/1985, M. Ôhara leg.; 1♂, Moiwa, Sapporo, 4/vi/1953, T. Kumata leg. (EIHU);

1 ♀, 1 ex., Sapporo, 9/vi/1975, M. Kiuchi leg.; 2 ♀ ♀, 1 ex., Ditto, 19/v, 7/vi/1952, K. Honma leg. (EIHU); 7 exs., Nopporo, 5, 12/vi, 1/viii/1987, M. Ôhara leg.; 1 ex., Ishikari, 7/viii/1978, T. Fujisawa leg. (EIHU); 1 ex., Asari, Otaru, 18/vi/1978, T. Fujisawa leg. (EIHU); 1 ♀, 1 ex., Rokusinaï, Shakotan, 22, 23/ix/1985, M. Mori leg.; 1 ♂, 1 ex., Ootobe, 15, 22/ix/1985, M. Mori leg.; 1 ♀, 2 exs., Ditto, 2/viii/1973, T. Kumata leg. (EIHU); 1 ex., Tomakomai, 8/vi/1986, M. Mori leg.; 2 ♂ ♂ 3 ♀ ♀, Bibi, 8/vi/1986, M. Mori leg.; 3 exs., Iwanai, 9-10/vii/1990, M. Ôhara leg.; 1 ex., Toyohama, Shimamaki, 8/vii/1988, M. Ôhara, M. Satô et N. Ishihama leg.; 3 exs., Kuromatsunai, 6, 25/vi/1986, M. Mori leg.; 2 exs., Ditto, 8/viii/1988, M. Ôhara leg.; 1 ex., Kita-Hiyama, 28/v/1988, M. Ôhara leg. <Rishiri Is.> 1 ♂ 2 ♀ ♀, Oshidomari, 4/vii/1974, Y. Kusui leg.

[Honshû] <Aomori-ken> 1 ex., Shiriya, 5/viii/1958, A. Abe leg. (NA); 1 ♀, Heraka, Towada, 27/vii/1958, A. Abe leg. (NA); 1 ex., Onabe, Towada, 27/vii/1958, A. Abe leg. (NA); 1 ex., Shichinobe, 17/vi/1974, H. Hayakawa leg. (NA); 1 ♂ 2 ♀ ♀, Ôhata, Shimokita, 26/vii/1983, S. Yamauchi leg.; 3 exs., Mutsu, Nakotani, 19/vi/1987, H. Saitô leg.; 1 ♀, Ditto, K. Shimoyama leg. <Iwate-ken> 2 exs., Morioka, 18/vi/1944, no collector's name (NA); 1 ex., Nishine, 28/vi/1974, H. Hayakawa leg. (NA); 1 ♂, 1 ex., Kuriya-gawa, 20/v/1974, H. Hayakawa leg. (NA). <Fukushima-ken> 1 ex., Hinoemata, Minami-Aizu, 15/vii/1965, K. Tazoe leg. <Tochigi-ken> 4 exs., Nikkô, 23/viii/1958, M. Suwa leg.; 2 ♂ ♂, 3 exs., Ohzan River., 5/viii, 1/ix/1981, H. Tanaka leg. <Tôkyô-to> 1 ♀, Futatsu-yama, Oku-Chichibu, 2/ix/1939, K. Kojima leg. (NA). <Kanagwa-ken> 1 ex., Kashiwabara, Tanzawa, 13/viii/1920, Y. Yamamoto leg. (NA). <Niigata-ken> 1 ♀, Kurokawa, Echigo, 10/viii/1957, K. Baba leg. <Nagano-ken> 1 ♂ 1 ♀, 2 exs., Togakushi, 27/vii/1978, T. Fujisawa leg. (EIHU); 1 ex., Sugadaira, 24/vii/1978, T. Fujisawa leg. (EIHU); 1 ex., Hokushin-bokujô, Sugadaira, 15/viii/1963, S. Kondo leg.; 1 ex., Mt. Yatsu, 20/vii/1951, no collector's name (NSMT); 1 ex., Inakobokujô, Mt. Yatsu, 26/vii/2602 (=1942), no collector's name (NSMT); 1 ♂, 2 exs., Tateshina, 15/viii/1966, K. Masumoto leg.; 3 ♂ ♂ 5 ♀ ♀, 2 exs., Kita-Karuizawa, 24-25/viii/1937, K. Sakaguchi leg. (NA); 1 ex., Karuizawa, 11-15/viii/1944, H. Inoue leg. (NA); 1 ♂ 1 ♀, Kiyosato, 22, 23/vii/1981, M. Ôhara leg.; 1 ♂, Saku, Meshimori-yama, 3/x/1973, M. Ishida leg. (NA); 1 ♂ 2 ♀ ♀, Ogawa River, Kawakami Vill., 17/viii/1985, H. Tanaka leg.; 3 exs., Ditto, 21/ix/1985, K. Haga leg.; 1 ex., Hirasawa-bokujô, Meshimori-yama, 26/viii/1984, K. Haga leg.; 1 ♂, 2 exs., Nobeyama, Minami-saku, 18/viii/1972, M. Kiuchi leg.; 1 ex., Asama-kôgen, 10/viii/1967, M. Ishida leg. <Gifu-ken> 1 ♂, 1 ex., Hirayu, 23-24/vii/1946, M. Hayashi leg. <Kyôto-fu> 1 ex., Kashiwabara, Tanba, 13/viii/1950, Y. Yamamoto leg. (NA). <Hyôgo-ken> 4 exs., Mitani-bokujô, Taka, 16/ix/1984, T. Itô leg.

Distribution (Fig. 76). Japan (Chishima Isles., Hokkaidô, Honshû); Continental

China.

Remarks. This species is closely related to *Hister unicolor*. It usually occurs in fresh cow dung.

Genus *Zabromorphus* Lewis, 1906

Zabromorphus Lewis, 1906: 399 [type species: *Hister pachysomus* Ancey, 1882: 55. Originally designated].

This genus is closely related to the genus *Hister* Linnaeus in the characteristics of paramera, median lobe and spermatheca, with 21 species in the world.

Zabromorphus punctulatus (Wiedemann, 1819)

Hister punctulatus Wiedemann, 1819: 162 [Java]; Marseul, 1854: 256, t. 7, f. 60; Marseul, 1873: 220 [noted, Japan: Kyûshû]; Nakane, 1981: 9 [listed].

Hister (Hister) punctulatus: Bickhardt, 1910a: 47 [catalogued]; Desbordes, 1919: 389 [Inde, Inde-chine, Ile Quelpareert, Java].

Hister (Zabromorphus) punctulatus: Bickhardt, 1917: 177 [catalogued]; Kamiya and Takagi, 1938: 29 [listed].

Zabromorphus punctulatus: Mazur, 1984: 166 [noted of subsp. *salebrosus*]; Mazur, 1984: 204 [catalogued]; Hisamatsu, 1985: 227, pl. 41, f. 9 [noted, photo].

Japanese name: Arame-emma-mushi.

Description based on a specimen collected from Owari (=Nagoya), Honshû. Male. Body length, PPL, 6.84 mm, PEL, 5.70 mm. Width, 4.28 mm. Body oblong, black and shining.

Frontal stria of head complete. Disk within the stria densely and coarsely punctate. Clypeus densely covered with coarse punctures. Mandible well developed, its surface feebly concave.

Pronotal marginal stria interrupted behind head, complete laterally. Outer lateral stria complete, close to lateral margin. Inner lateral stria complete, strongly and inwardly sinuate at apical third on lateral side, close to the margin behind head. Punctuation of surface strong, dense and deep, lacking on posteromedian area, the punctures occurring anteriorly on the median area dense, round and deep, these on lateral area dense, continued with each other and rugose. Antescutellar area of disk with a longitudinal puncture.

Epipleural fossette of elytra densely punctate. Marginal epipleural stria present on apical two-thirds. Marginal elytral stria complete. External subhumeral stria consisting of deep punctures and present on basal half. Internal subhumeral stria deep, present on apical two-thirds. Oblique stria indistinctly impressed on basal third. First - 4th dorsal stria complete, the 1st and 2nd strongly sinuate at basal third. Fifth dorsal stria present on

apical third. Sutural stria present on apical half, the basal half of the stria represented by large punctures. Disk of elytra densely covered with large and deep punctures inside internal subhumeral stria, except on a basal two-thirds between 4th dorsal and sutural stria, a basal humeral area, a median area between 1st and 2nd dorsal striae, a basal and apical areas between the 2nd and 3rd, and an apical area between the 4th and 5th. These impunctated areas often reduced or broadened.

Propygidium densely covered with coarse punctures, which are absent in the middle of the apical area. Pygidium densely covered with large and round punctures which become finer along the lateroposterior margin and on an oblong apical area on the meson.

Prosternal lobe round anteriorly, its marginal stria complete. Prosternal keel rather narrow, without carinal stria. Epipleura of prothorax with long hairs.

Anterior margin of mesosternum feebly emarginate at middle. Marginal stria of mesosternum complete, its basal end united with the lateral metasternal stria. A short stria between the marginal stria and anterolateral angle of mesosternum on each side. Disk of mesosternum coarsely punctate laterally. Meso-metasternal stria complete, strongly angulate at middle. Lateral mesosternal stria extending posteriorly, united with the oblique stria which inwardly extends from the middle of the metasternal-metepisternal suture. Lateral disk of metasternal sparsely with large and round punctures, and with hairs. Intercoxal disk of 1st abdominal sternum completely striate on each side.

Protibia with 4 spinules on outer margin, its 2 apical teeth large, and apical margin without spinule. Dorsal surface of protibia with a stria along the base of teeth, the outside stria densely punctate. Profemural stria complete and carinate.

Specimens examined. [Honshû] <Aichi-ken> 1♂, Shikatsu-mura, Owari, 27/vi/1948, S. Ôsawa leg. <Ôsaka-fu> 1 ex., Ôsaka Air Port, Ôsaka, 6/vi/1991, Y. Kusui leg. (introduced ?)

[Taiwan] 1♀, 1 ex., Taizhong, 5/iv/1907, S. Matsumura leg. (EIHU).

[Philippines] <Luzon Is.> 1 ex., Asin hot spring, Luzon, Philippines, 18/viii/1976, K. Matsuda leg.

Distribution. Japan (Honshû, Kyûshû); Taiwan; Inde-chine; Java, Philippines. New to the Philippines.

Remarks. This species is easily recognized by having a dense and coarse punctation on the elytra and pronotum, and by the dorsal surface of the protibia with a short stria on the base of teeth. A specimen collected in Ôsaka Air Port may be an introduced individual, because the specimen is small in size (Table 20), strongly metallic blue and slightly different in the punctation of the pronotum. The punctational pattern is very similar to that of specimens from Taiwan and the Philippines.

Table. 20. Biometric data of *Zabromorphus puncturatus* (Weidermann).

| | Owari | Ôsaka A. P. | Taiwan (n=2) | Philippines |
|------|-------|-------------|--------------|-------------|
| APW | 2.00 | 1.62 | 2.09 | 1.90 |
| PPW | 4.66 | 3.99 | 4.92-5.23 | 4.37 |
| PL | 2.85 | 2.38 | 3.33 | 2.85 |
| EL | 4.28 | 3.33 | 3.33-3.61 | 4.66 |
| EW | 5.04 | 4.28 | 5.23-5.61 | 4.66 |
| ProW | 2.95 | 2.66 | 3.33-3.52 | 2.95 |
| ProL | 1.33 | 1.05 | 1.43 | 1.24 |
| PyL | 1.71 | 1.43 | 1.90 | 1.62 |
| PTL | 1.90 | 1.90 | 1.90-2.09 | 1.81 |
| MSTL | 1.71 | 1.43 | 1.71 | 1.71 |
| MTTL | 2.38 | 1.71 | 2.19-2.38 | 2.19 |
| PEL | 6.65 | 5.70 | 7.13-7.41 | 6.27 |
| PPL | 7.60 | 6.84 | 8.27-8.65 | 6.94 |

Genus *Merohister* Reitter, 1909

Merohister Reitter, 1909: 282; Ôhara, 1992a: 378.

This genus has already been revised in Ôhara (1992b). Herein I add some specimens examined and give the key to the Japanese species.

Key to the Japanese species of the Genus *Merohister*

- 1(2) Anterior area within frontal stria of head with a few coarse punctures. *M. aino* (Lewis, 1884)
- 2(1) Anterior area within frontal stria of head without puncture.
- 3(4) Meso- and metatibiae normal, not dilated. Punctuation of pronotum usually present on apical half of lateral area. Paramera of male genitalia slender. *M. jekeli* (Marseul, 1857)
- 4(3) Meso- and metatibiae broadly dilated. Punctuation of pronotum present on whole lateral area, the punctures larger. Paramera of male genitalia stout. *M. uenoi* M. Ôhara, 1992

Merohister jekeli (Marseul, 1857)

Hister jekeli Marseul, 1857: 417.

Merohister jekeli: Ôhara, 1992a: 375.

Japanese name: Emma-mushi.

Distribution. Japan (Chishima Isles., Hokkaidô, Honshû, Shikoku, Kyûshû, Sado Is., Izu Isles., Tsushima Isles., Nansei Isles.); Sakhalin; Primorskij Kray; Korea; Taiwan (proper, Lanyu Is.); Continental China; Philippines; India.

***Merohister aino* (Lewis, 1884)**

Hister aino Lewis, 1884: 134.

Merohister aino: Ôhara, 1992a: 385.

Japanese name: Ainu-emma-mushi.

Distribution. Japan (Hokkaidô, Honshû).

***Merohister uenoi* M. Ôhara, 1992**

Merohister uenoi M. Ôhara, 1992b: 495.

Japanese name: Amami-emma-mushi.

Distribution. Japan (Nansei Isles.: Amami-Ôshima Is.).

Genus *Atholus* Thomson, 1859

This genus has already been revised in Ôhara (1992c, 1993a). Herein I provide the key to the Japanese species.

Key to the Japanese Species of the genus *Atholus*

- 1(2) Elytra red maculate. *A. bimaculatus* (Linnaeus, 1758)
- 2(1) Elytra entirely black.
- 3(4) Lateral pronotal stria present on apical half. Apical end of 3rd elytral dorsal stria strongly bent inwards. *A. coelestis* (Marseul, 1857)
- 4(3) Lateral pronotal stria nearly entire. Third elytral dorsal stria normal.
- 5(6) Fifth elytral dorsal stria present on apical half. *A. pirithous* (Marseul, 1873)
- 6(5) Fifth elytral dorsal stria nearly complete.
- 7(8) Lateral disk of metasternum with long hairs. Anterior margin of prosternal lobe narrowly truncate on medium. Punctuation of propygidium even.
..... *A. depistor* (Marseul, 1873)
- 8(7) Lateral disk of metasternum without hair. Anterior margin of prosternal lobe round. Punctuation of propygidium becoming coarser basally.
..... *A. duodecimstriatus quatuordecimstriatus* (Gyllenhal, 1808)

***Atholus bimaculatus* (Linnaeus, 1758)**

Atholus bimaculatus: Ôhara, 1992c: 169.

Japanese name: Aka-mon-emma-mushi.

Distribution. Japan (Oki Is., Kyûshû, Iki Is., Tsushima Isles.); Europe; Holarctic; Argentina (introduced); Chad (introduced); India; Tenasserim.

***Atholus coelesi* (Marseul, 1857)**

Atholus coelestis: Ôhara, 1992c: 173.

Japanese name: Sujimagari-emma-mushi.

Specimens examined [additional records]. [Nansei Isles.] <Yonakuni Is.> 1 ex., Mt. Urabu-dake, 19/ii/1990, Y. Okushima leg.

Distribution. Japan (Nansei Isles.); Taiwan; Continental China; India; Sri Lanka; Indonesia (Java, Celebes).

***Atholus depistor* (Marseul, 1873)**

Atholus depistor: Ôhara, 1992c: 176.

Japanese name: Munakubo-emma-mushi.

Distribution. Japan (Hokkaidô, Honshû, Shikoku, Kyûshû, Nansei Isles., Ogasawara Isles.); Taiwan; southeastern China; Korea; Siberia, Primorskij Kray.

***Atholus duodecimstriatus quatuordecimstriatus* (Gyllenhal, 1808)**

Atholus duodecimstriatus quatuordecimstriatus: Ôhara, 1993a: 135.

Japanese name: Ko-tsuya-emma-mushi.

Specimens examined [additional records]. [Hokkaidô] 1 ex., Futatsu-yama, Shibeche, Kushiro, 6/vi/1974, K. Ijima leg. (II); 2 exs., Sapporo, 9/vii/1985, M. Ôhara leg.

Distribution. Japan (Hokkaidô, Honshû, Shikoku, Kyûshû, Tsushima Isles., Nansei Isles.); North Europe and Central Europe (at high altitude); Siberia; Mongolia; China; Taiwan.

***Atholus pirithous* (Marseul, 1873)**

Atholus pirithous: Ôhara, 1993a: 141.

Japanese name: Tsuya-maru-emma-mushi.

Specimens examined [additional records]. [Hokkaidô] 4 exs., Futatsu-yama, Shibeche, Kushiro, 15/ix/1955, 12/vii/1975, 28/vii/1991, K. Ijima leg. (IJ); 3 exs., Sapporo, 7/vi/1985, M. Ôhara leg.

Distribution. Japan (Hokkaidô, Honshû, Shikoku, Kyûshû, Tsushima Isles., Nansei Isles.); Taiwan; Continental China; Korea; Primorskij Kray; Viet-Nam.

Genus *Margarinotus* Marseul, 1853

Margarinotus Marseul, 1853: 549; Wenzel, 1944: 123; Ôhara, 1989: 6.

This genus has already been revised in Ôhara (1989). Herein I add some specimens examined and give the key to the Japanese species.

Key to the Japanese species of the Genus *Margarinotus*

- 1(2) Lateral sides of pronotum strongly depressed. Intercoxal disk of metasternum wholly covered with coarse punctures. subgenus *Kurilister* Tishechkin, 1992
..... *M. (K.) kurbatovii* (Tishechkin, 1992)
- 2(1) Lateral sides of pronotum not depressed. Intercoxal disk of metasternum not punctate (rarely punctate, with punctures only along lateral metasternal stria.).
- 2(19) Pronotum with two lateral pronotal striae.
..... subgenus *Ptomister* Houlber et Monnot, 1923
- 3(4) Inner lateral pronotal stria strongly undulate behind the eyes.
..... *M. (P.) boleti* (Lewis, 1884)
- 4(3) Inner lateral pronotal stria not strongly undulate behind eyes.
- 5(16) Prosternal keel without carinal stria (sometimes *striola*, *weymarni* and *reichardti* with an obsolete one).
- 6(15) Body larger, 5.0 - 9.2 mm in length.
- 7(10) Lateral stria of metasternum united with the oblique stria of metasternum.
- 8(9) Lateral disk of metasternum with long hairs.
..... *M. (P.) cadavericola* (Bickhardt, 1920)
- 9(8) Lateral disk of metasternum without hair. *M. (P.) agnatus* (Lewis, 1884)
- 10(7) Lateral stria of metasternum not united with the oblique stria of mesosternum.
- 11(12) Lateral disk of metasternum without hair.
..... *M. (P.) reichardti* Kryzhanovskij, 1976
- 12(11) Lateral disk of metasternum with long hair.
- 13(14) Outer lateral pronotal stria extending beyond basal end of inner one.
..... *M. (P.) weymarni* Wenzel, 1944
- 14(13) Outer lateral pronotal stria not extending beyond basal end of inner one.
..... *M. (P.) striola* (C. R. Sahlberg, 1819)

- 15(6) Body smaller, 4.0 - 4.5 mm in length. *M. (P.) yezoensis* M. Ôhara, 1989
 16(5) Prosternal keel with carinal striae.
 17(18) Inside the inner pronotal stria densely with large punctures.
 *M. (P.) marginepunctatus* (Lewis, 1879)
 18(17) Inside the inner pronotal stria without large punctures.
 *M. (P.) sutus* (Lewis, 1884)
 19(2) Pronotum with one lateral pronotal stria.
 subgenus *Grammostethus* Lewis, 1906
 *M. (G.) niponicus* (Lewis, 1884)

***Margarinotus (Kurilister) kurbatovi* (Tishechkin, 1992)**

Kurilister kurbatovi Tishechkin, 1992: 328 [Kuriles, SW Kunashiri Is.].

Margarinotus (Kurilister) kurbatovi: Ôhara, 1993b: 3.

Japanese name: Hirata-kaku-hime-emma-mushi.

Distribution. Japan (Chishima Isles., Hokkaidô, Honshû, Shikoku).

***Margarinotus (Ptomister) boleti* (Lewis, 1884)**

Margarinotus (Ptomister) boleti: Ôhara, 1989: 9.

Japanese name: Kinoko-emma-mushi.

Specimens examined [additional records]. [Hokkaidô] 1 ex., Futatsu-yama, Shibechea, Kushiro, 10/ix/1976, K. Ijima leg. (IJ); 1♂ 1♀, Kariba-yama, Osima penins., 19-23/vii/1972, no collector's name (EIHU).

[Honshû] <Fukushima-ken> 1 ex., Futamata-zawa, Yumoto, Iwase, 15/viii/1950, Y. Kurosawa leg. (NSMT); 1 ex., Nagarazawa, Asahida, Minami-Aizu, 1/viii/1949, Y. Kurosawa leg. (NSMT); 1 ex., Akaiwa, Fukushima-shi, 25/vi/1960, K. Tazoe leg. <Tochigi-ken> 1 ex., Chugushi, Nikkô, 9-11/viii/2603 (=1903), T. Adachi leg. (NSMT); 1 ex., Kotoku, Nikkô, 8/vii/1967, J. Aoki leg. (NSMT). <Nagano-ken> 1 ex., Kami-kôchi, Tokusawa, 25/viii/1967, H. Higuchi leg. <Gifu-ken> 1 ex., Oshirakawa, Shirakawa-mura, 26/vii/1987, Y. Takai leg.; 1 ex., Kammuri-yama-tôge, Tokuyama-mura, Gifu, 28/vii/1985, Y. Takai leg.

[Kyûshû] <Kagoshima-ken> 1 ex., Ônami-ike, Kirishima, 5/iv/1985, H. Shimoazono leg.

Distribution. Japan (Chishima Isles., Hokkaidô, Honshû, Shikoku, Kyûshû); Taiwan.

***Margarinotus (Ptomister) cadavericola* (Bickhardt, 1920)**

Margarinotus (Ptomister) cadavericola: Ôhara, 1989: 13.

Japanese name: Ôsawa-hime-emma-mushi.

Specimens examined [additional records]. [Hokkaidô] 1 ex., Harutori, Kushiro-shi, 23/x/1983, E. Osaki leg.; 1 ex., Seiryû-bashi, Bisei-gawa-jôryû, Memuro, 2/ix/1990, K. Haga leg.; 1 ex., Sapporo, v/1904, no collector's name.; 1 ex., Ditto, 20/v/1955, T. Kumata leg. (EIHU).

[Honshû] <Aomori-ken> 1 ex., Takada, Aomori-shi, 14/vii/1986, H. Saitô leg. <Shizuoka-ken> 3 exs., Fujinomiya-shi, 2/viii/1978, S. Mochizuki leg.; 1 ex., Koizumi, Fujinomiya-shi, 1/xi/1978, S. Mochizuki leg.

Distribution. Japan (Chishima Isles., Hokkaidô, Honshû, Kyûshû); Primorskij Kray; Continental China.

***Margarinotus (Ptomister) agnatus* (Lewis, 1884)**

Margarinotus (Ptomister) agnatus: Ôhara, 1989: 15.

Japanese name: Nise-hime-emma-mushi.

Specimens examined [additional records]. [Hokkaidô] 1 ex., Futatsu-yama, Shibeche, Kushiro, 26/vi/1988, K. Ijima leg. (IJ); 2♂♂, 4 exs., Sapporo, 20/v/1955, T. Kumata leg. (EIHU); 2 exs., Maruyama, Sapporo, 8/vi/1954, T. Kumata leg. (EIHU); 1 ex., Moiwa, Sapporo, 4/vi/1905, no collector's name. (EIHU); 5 exs., Nopporo, 24/vi, 1, 21/vii/1988, M. Ôhara leg.; 1 ex., Mt. Hakodate, 26/viii/1951, K. Honma leg. (EIHU).

[Honshû] <Fukushima-ken> 1 ex., Fukiya-yama, Monden, Kita-Aizu, 21/v/1948, K. Hayashi leg. (NSMT). <Tochigi-ken> 2 exs., Nikkô, 14/vii/1943, no collector's name (NSMT). <Tôkyô-to> 1 ex., Takao-san, 23/iv/1969, H. Takizawa leg. <Shizuoka-ken> 4 exs., Subaru Line, Ni-gôme, Fujinomiya-shi, 2/viii/1978, S. Mochizuki leg.

Distribution. Japan (Hokkaidô, Honshû, Shikoku, Kyûshû); Himalaya; North India; Korea.

***Margarinotus (Ptomister) weymarni* Wenzel, 1944**

Margarinotus (Ptomister) weymarni: Ôhara, 1989: 19.

Japanese name: Hime-emma-mushi.

Specimens examined [additional records]. [Hokkaidô] 3 exs., Futatsu-yama, Shibeche, Kushiro, 10/vi/1975, 9/v/1990, K. Ijima leg. (IJ); 1 ex., Oku-shibetsu, Kamikawa, Teshio, 16/v/1947, T. Hasegawa leg. (NSMT).; 1 ex., Abashiri, 21/iv/1950, T. Kumata leg. (EIHU); 1 ex., Sapporo, 30/v/1987, M. Ôhara leg.; 2 exs., Ditto, 6/viii/?, 6/ix/?, no collector's name. (EIHU); 2 exs., 1♀, Sapporo, no date, S. Matsumura leg. (EIHU); 1♂, 1 ex., Ditto, no date, Ishida leg.; 1 ex., Ditto, 16/v/1955, S. Takagi leg.

(EIHU); 1 ex., Moiwa, Sapporo, 19/iv/1965, T. Kocha leg. (EIHU); 1 ex., Maruyama, Sapporo, 23/ix/1953, S. Takagi leg. (EIHU); 2 exs., Nopporo, 24/vi, 21/vii/1988, M. Ôhara leg.; 1 ex., Mt. Kariba, Shimamaki, 6-8/viii/1988, M. Ôhara, T. Tanabe and K. Sayama leg.; 1 ex., Kita-Hiyama, 28/v/1988, M. Ôhara leg.

[Honshû] <Aomori-ken> 1 ex., Aomori, vi/1904, no collector's name.; 1 ex., Minami-Tsugaru, 19/vi/1952, K. Shimoyama leg.; 1 ♀, Hachinohe, 10/vi/1934, S. Fukuda leg. (Fukuda Collection). <Fukushima-ken> 1 ex., Tokusa, Tateiwa, 26/v/1991, K. Haga leg. <Yamagata-ken> 4 exs., Yonezawa, 12/iv/1941, 16/v/1944, Y. Kurosawa leg. (NSMT); 1 ex., Ditto, 3/v/1944, A. Suzuki leg. <Fukushima-ken> 1 ex., Yunohana, Tateiwa, Minami-Aizu, 8/vii/1948, Y. Kurosawa leg. (NSMT); 1 ex., Aizu-Wakamatsu, Fukushima, 15/v/1949, no collector's name (NSMT); 5 exs., Wakamatsu, 13/iv/1946, 5/v/1948, K. Nagayama leg. (NSMT). <Tôkyô-to> 1 ex., Shimonoge, Tama-gawa, 28/iv/1929, no collector's name.; 2 exs., Arakawa, 13/iii/1960, S. Fukumoto leg.; 1 ex., Ushigome, 20/iv/1988, T. Wakamori leg. (NSMT). <Kanagawa-ken> 2 exs., Hatano, 15/iii/1974, 6/vi/1985, H. Takizawa leg.; 1 ex., Yokohama, vi/1923, J. F. Illingworth leg. (BSM). <Nagano-ken> 1 ♀, Utsugushi-ga-hara, 24/vii/1952, K. Nishikawa leg. (NSMT). <Shizuoka-ken> 15 exs., Hamaoka-chô, 2, 15/v, 31/x, 3, 7, 30/xi/1982, 28/iii, 24/v/1983, 2/iv, 11/xi/1984, S. Mochizuki leg. <Toyama-ken> 1 ex., Toyama, 20/vi/1955, S. Takagi leg. (EIHU).

Distribution. Japan (Hokkaidô, Honshû, Shikoku, Kyûshû); Khabarovskij and Primorskij Kray; North-eastern China (Manchuria).

Margarinotus (Ptomister) reichardti Kryzhanovskij, 1976

Margarinotus (Ptomister) reichardti: Ôhara, 1989: 22.

Japanese name: Touhoku-hime-emma-mushi.

Distribution. Japan (Honshû); Taiwan; Continental China; Korea; Primorskij and southern Khabarovskij Kray.

Margarinotus (Ptomister) striola (C. R. Sahlberg, 1819)

Margarinotus (Ptomister) striola: Ôhara, 1989: 24.

Japanese name: Ezo-hime-emma-mushi.

Specimens examined [additional records]. [Hokkaidô] 1 ex., Futatsu-yama, Shibeche, Kushiro, 25/v/1972, 10/vi/1975, 10/v/1982, K. Ijima leg. (II); 2 ♂♂ 1 ♀, 5 exs., Moiwa, 21/iv, 11/vi/1905, no collector's name. (EIHU); 12 exs., Nopporo, 29/v/1987, 7/vii/1988, M. Ôhara leg.; 1 ex., Jôzankei, 5/vii/1910, S. Matsumura leg. (EIHU).

Distribution. Japan (Hokkaidô); North Europe; Siberia; Korea; North-eastern China (Manchuria)

***Margarinotus (Ptomister) yezoensis* M. Ôhara, 1989**

Margarinotus (Ptomister) yezoensis: Ôhara, 1989: 27.

Japanese name: Nopporo-hime-emma-mushi.

Specimens examined [additional records]. [Honshû] <Tôkyô-to> 1 ex., Ushigome, 4/vi/1933, T. Wakamori leg. (NSMT). <Nagano-ken> 1 ex., Shimashima-dani, 4/vi/1940, T. Nimura leg. (NSMT).

Distribution. Japan (Hokkaidô, Honshû).

***Margarinotus (Ptomister) marginepunctatus* (Lewis, 1884)**

Margarinotus (Ptomister) marginepunctatus: Ôhara, 1989: 31.

Japanese name: Heriten-emma-mushi.

Specimens examined [additional records]. [Honshû] <Fukushima-ken> 1 ex., Kuromori, Ôta, Kita-Aizu, 28/iv/1951, Y. Kurosawa leg. (NSMT). <Yamanashi-ken> 1 ex., Senyo-ga-taki, Shôsen-kyô, Kôfu-shi, 11/iv/1992, K. Haga leg. <Nagano-ken> 1 ex., Kita Alps, Nanakura, 14/vii/1967, K. Tazoe leg.

Distribution. Japan (Hokkaidô, Honshû, Shikoku).

***Margarinotus (Ptomister) sutus* (Lewis, 1884)**

Margarinotus (Ptomister) sutus: Ôhara, 1989: 34.

Japanese name: Hakone-emma-mushi.

Specimens examined [additional records]. [Honshû] <Aomori-ken> 1 ex., Kuroishi, Ôkawara, 17/v/1992, H. Saitô leg. <Yamagata-ken> 1 ex., Shirabutakayu, 17/vi/1980, S. Ohmomo leg. <Fukushima-ken> 1 ex., Aizu-Wakamatsu, 2/v/1948, Y. Kurosawa leg. (NSMT); 1 ex., Jabami, Nagaino, Ônuma, 25/vi/1941, Y. Kurosawa leg. (NSMT); 1 ex., Senaka-aburi, Higashi-yama, 28/v/1947, Y. Kurosawa leg. (NSMT); 1 ex., Nakamoniwa, 15/v/1973, K. Tazoe leg. <Tôkyô-to> 2 exs., Arakawa, 13/iii/1960, S. Fukumoto leg. (NSMT). <Shiga-ken> 5 exs., Ibuki-yama, 10/vi/1990, H. Takizawa leg.

Distribution. Japan (Honshû, Shikoku, Kyûshû); Korea.

***Margarinotus (Grammostethus) niponicus* (Lewis, 1895)**

Margarinotus (Grammostethus) niponicus: Ôhara, 1989: 37.

Japanese name: Ko-emma-mushi.

Specimens examined [additional records]. [Hokkaidô] 3 exs., Raibetsu (85, 82),

Shibecha, Kushiro, 27/vi/1975, 25/vii/1983, 3/vii/1985, K. Ijima leg. (IJ); 3 exs., Futatsu-yama, Shibecha, Kushiro, 17/vi/1972, 6/vii/1974, 8/vii/1984, K. Ijima leg. (IJ); 2 exs., Okushihoro, Teshio, 14/vi/1951, T. Hasegawa leg. (NSMT); 1 ex., Motokamabetsu, Kita-Moshiri, 9/vii/1987, T. N. leg.; 5 exs., Kenebetsu, Nemuro, 2/viii/1973, T. Kumata leg. (EIHU); 1 ex., Onne-shisui-damu, Minami-Kitoushi, Ashoro, 11/vii/1992, K. Haga leg.; 1 ex., Moiwa, Sapporo, 11/vi/1904, no collector's name. (EIHU); 2 exs., Maruyama, Sapporo, 26/vi/1913, S. Matsumura leg. (EIHU); 1 ex., Ditto, 13/vi/1939, Y. Nishijima leg. (EIHU); 1 ex., Ditto, 10/vi/1954, M. Konishi leg. (EIHU); 1 ex., Sapporo, no date and collector's name. (EIHU); 1 ex., Ditto, no date, S. Matsumura leg. (EIHU); 1 ex., Ditto, 1903, no collector's name. (EIHU); 2 exs., Ditto, 20/iv/1925, 25/v/1942, H. Kôno leg. (EIHU); 3 ♂♂ 2 ♀♀, 9 exs., Ditto, 22/vi/1985, 4/vi/1987, M. Ôhara leg.; 19 exs., Hokkaidô Univ., Sapporo, 27/vi/1985, M. Ôhara leg.; 1 ex., Mt. Jôten, Sapporo, 6/vi/1978, T. Fujisawa leg. (EIHU); 5 exs., Misumai, Sapporo, 9, 12/vii/1991, K. Sayama leg.; 2 exs., Jôzankei, 27/vi/1954, K. Honma leg. (EIHU); 1 ex., Ditto, 27/vi/1954, M. Konishi leg. (EIHU); 1 ex., Nopporo, 17/vi/1936, S. Hirai leg.; 1 ex., Ditto, 29/v/1987, M. Ôhara leg.; 1 ex., Naganuma, 20/v/1991, A. Iwasaki leg.; 3 exs., Shikotsu-ko, 6/vii/1988, M. Ôhara leg.; 7 exs., Hobetsu, 23/vi/1985, M. Ôhara leg.; 1 ex., Kariba-yama, Osima Penins. 19-23/vii/1972, H. U. Ent. Inst. (EIHU).

[Honshû] <Aomori-ken> 1 ex., Tsuta-onsen, 14/vii/1954, T. Kumata leg. (EIHU); 1 ex., Ditto, 25/vii/1954, J. Aoki leg. (NSMT); 1 ex., Minami-Tsugaru, 18/x/1953, K. Shimoyama leg. (NA). <Yamagata-ken> 1 ex., Yonezawa, 25/v/1944, Y. Kurosawa leg. (NSMT). <Fukushima-ken> 1 ex., Wakamatsu, 30/vi/1949, Y. Kurosawa leg. (NSMT); 1 ex., Senaka-aburi, Higashi-yama, Kita-Aizu, 13/vi/1948, K. Ikarashi leg. (NSMT); 3 exs., Futamata-zawa, Yumoto, Iwase, 16/vii/1949, Y. Kurosawa leg. (NSMT); 5 exs., Oyama, Monden, Kita-Aizu, 21/v/1949, Y. Kurosawa leg. (NA); 2 exs., Yunohana, Tateiwa, Minami-Aizu, 5-8/viii/1983, Y. Kurosawa and S. Okajima leg.; 1 ex., Moniwa, Masuzawa, 3/vii/1970, K. Tazoe leg.; 1 ex., Nanairi, Hinoemata, 22/vii/1990, N. M. leg. <Ibaraki-ken> 8 exs., Ami-machi, 16/vi/1985, K. Akiyama leg. <Tochigi-ken> 2 exs., Chûzenji, 19/viii/1915, E. Gallois leg.; 3 exs., Nikkô, 17/vii/1957, Y. Kurosawa leg. (NSMT); 1 ex., Chugusi, Nikkô, 9-11/viii/2603, T. Adachi leg. (NSMT). <Saitama-ken> 1 ex., Mt. Tatekawa, 10/vi/1979, H. Takizawa leg. <Tôkyô-to> 1 ex., Toshima-ku, 19/v/1963, S. Kondo leg.; 2 exs., Aihara, 16/v/1987, H. Takizawa leg.; 1 ex., Tôkyô, v/1913, F. Muir leg. (BSM); 2 exs., Mt. Takao-san, 11/v/1957, Y. Kurosawa leg. (NSMT); 1 ex., Ditto, 1/vi/1924, no collector's name (NSMT); 2 exs., Ditto, 21/vi/1963, S. Nomura leg. (NSMT); 4 exs., Tôkyô, 13, 27/v, 13/vii/1914, E. Gallois leg.; 1 ex., Kunitachi, 25/iv/1954, S. Nomura leg. (NSMT); 3 exs., Kinuta, Setagaya, 16/vi/1987, 5/v/1980, 19/iv/1987, Y. Kurosawa leg. (NSMT). <Kanagawa-ken> 2 exs., Yokohama, vi/1923, J. F. Illingworth leg. (BSM); 1 ex., Ditto, vi/1941, K. Sato leg.; 30 exs., Akuwa-chô, Yokohama, 7/vi/1983, 25/v, 12/vi/1984, K. Wada leg.; 1 ex., Mt. Ôyama, 5/v/1989, H. Takizawa leg.; 3 exs., Fudakake, Tanzawa, 11/v/1980, H. Tanaka leg.

<Toyama-ken> 1 ex., Kanayama, Izumi, Toyama, 8/v/1983, K. Sakai leg. <Yamanashi-ken> 1 ex., Mt. Daibosatsu, 12-13/vii/1969, H. Takizawa leg.; 2 exs., Akeno, 25/viii/1985, N. Kobayashi leg. (NSMT). <Nagano-ken> 1 ex., Sugadaira, 24/vii/1978, T. Fujisawa leg. (EIHU); 1 ex., Yatsu-ga-take, 4/x/1941, M. Hanano leg. (NSMT); 1 ex., Mt. Nyûgasa, 3/viii/1960, S. Nomura leg.; 1 ex., Shirahone Spa., 17/vii/1988, K. Tazoe leg. <Shizuoka-ken> 1 ex., Hamaishi, 24/iv/1977, H. Takizawa leg.; 2 exs., Amagi-san, Izu, 17/vii/1955, S. Tsuyuki leg. (NSMT). <Nara-ken> 5 exs., Hasedera, Sakurai-shi, 3/v/1985, T. Itô leg.; 1 ex., Kôjin, Nosegawa, Yoshino, Nara, 13/vii/1985, T. Itô leg. <Wakayama-ken> 3 exs., Ryûmon-yama, Kokawa, 21/iv/1985, T. Itô leg.

[Shikoku] <Ehime-ken> 2 exs., Mt. Ishizuchi, 8/viii/1987, K. Matsuda leg.

[Kyûshû] <Fukuoka-ken> 2 exs., Tachibana-yama, 17/vii/1988, S. Nomura leg. <Saga-ken> 2 exs., Sashi, Karatsu, 16/vii/1950, T. Shibuya leg. (NSMT). <Kumamoto-ken> 3 exs., Ichifusa-yama, 1-2/viii/1988, S. Nomura leg.; 107 exs., Kawaguchi, Sakamoto-mura, 15/vi/1985, T. Tanabe leg. <Kagoshima-ken> 1 ex., Chiran, 13/viii/1963, Y. Kurosawa leg. (NSMT); 1 ex., Ôdomari, Sata, Ôsumi-hantô, 2/v/1992, K. Haga leg. <Tsushima Is.> 1 ex., Nita, Meboro, 9/vi/1968, Y. Kurosawa leg. (NSMT).

Distribution. Japan (Hokkaidô, Honshû, Shikoku, Kyûshû, Tsushima Isles., Nansei Isles.); Taiwan; Continental China; Korea; Khabarovskij and Primorskij Kray.

7. 3. 6. Subfamily Hetaeriinae Marseul, 1857

Hetaeriinae Marseul, 1857: 148.

Hetaerini: Schmidt, 1885b: 281.

Hetaeriinae: Fowler, 1912: 93.

Genus *Hetaerius* Erichson, 1834

Hetaerius Erichson, 1834: 156 [type species: *Hister quadratus* Kugelann, 1794: 519. Designated by monotypy].

Haeterius (sic): Dejean, 1837: 143.

Key to the Japanese species of the genus *Hetaerius*

- 1(4) Body red or reddish brown. Pronotal lateral area without rugae.
- 2(3) Dorsal surface densely furnished with hairs. Lateral pronotal area with slight and interrupted carina. *H. gratus* Lewis, 1884
- 3(2) Dorsal surface without hairs. Lateral pronotal area with carina which is not interrupted. *H. otaruensis* M. Ôhara, sp. nov.
- 4(1) Body black. Pronotal lateral area densely with rugae.
- 5(6) Dorsal surface densely furnished with short hairs, without long and yellow hairs. *H. kubotai* M. Ôhara, sp. nov.

- 6(5) Dorsal surface sparsely furnished with long and yellow hairs, without short hairs. *Hetaerius optatus* Lewis, 1884

Hetaerius gratus Lewis, 1884
(Fig. 77B)

Hetaerius gratus Lewis, 1884: 137 [midway between Shimonosuwa and Wada-toge]; Hasegawa and Kubota, 1944: 84 [Yokohama]; Tanoguchi and Koshio, 1979: 8; Kurosawa, 1976: 11; Hisamatsu, 1985: 230.

Japanese name: Aka-arizuka-emma-mushi.

Original description. "Subquadratus, rufo-brunneus, fulvo-hispidus; frontelateribus striatis; pronoto utrinque bisulcato; elytris striis 3 distinctis, 3 brevis; pygidio parce punctato, tenuissime impresso. L. 1. 1/2 mill."

Description. Body oval, red brown, shining and furnished with yellow, long hairs on dorsal surface. Body length, width and biometric data are as follows: PPL 1.86, PEL 1.69, APW 0.69, PPW 1.27, PL 0.59, EL 1.03, EW 1.47, ProW 0.78, ProL 0.47, PYL 0.44, PTL 0.61, MSTL 0.69, MTTL 0.76.

Frontal disk flat, feebly concave apically, evenly covered with setiferous punctures which are separated by two to four times their diameter. Lateral margin strongly carinate from occiput to front margin of clypeus, these carinae feebly convergent apically before antennal sockets, thence strongly convergent apically, on clypeus nearly parallel and feebly arcuate inwardly, and separated on front. Labrum rectangular, its anterior margin cuspidate at middle. Mandible short and robust.

Pronotal sides (Fig. 77B) medially arcuate inwardly, convergent forward, furnished with long robust hairs, and feebly marginate and carinate laterally, the carinae running inwardly on basal third; anterior angles rather broadly and obliquely truncate; anterior margin strongly emarginate, its marginal stria impressed at a little distance from the margin on each lateral third. Pronotal lateral stria strongly elevated, complete laterally, reaching nearly to anterior margin and not crenate, behind anterior margin feebly impressed on lateral third. Disk separated from lateral one-fifth by the pronotal lateral stria; lateral area convex, evenly covered with fine, setiferous punctures which are separated by four times their diameter and of which setae are rather long; a dark brown bulla present on basal fourth of the lateral area; median area convex medially, feebly depressed along the lateral stria, and sparsely covered with fine, long setiferous punctures which are separated by about three times their diameter.

Epipleura feebly concave medially. Epipleural marginal stria impressed on median third. Elytral marginal stria (Fig. 77B) complete and feebly carinate. External subhumeral stria strongly carinate, sinuate and complete, the apical end extending across elytral apex to medio-apical angles of elytra. Internal subhumeral stria carinate and abbreviated on apical fourth. First to 2nd dorsal striae carinate and complete, apical end of the 1st

continuing to the extended external subhumeral stria. Third dorsal elytral stria carinate and shortened on apical fourth. Fourth, 5th and sutural striae absent. Surface of elytral disk evenly covered with fine, long setiferous punctures which are separated by about three times their diameter, except narrowly inside the dorsal striae.

Propygidium broad, flat, sparsely and shallowly punctate on basal third, the punctures united with each other to form rugae, and sparsely furnished with long hairs. Pygidium sparsely, shallowly and finely punctate, the punctures being separated by about three times their diameter.

Anterior margin of pronotal lobe straight, its marginal stria complete; disk short, elevated, with a longitudinal impression. Suture between the lobe and the keel clearly impressed, but narrowly interrupted medially, the median ends united with apical ends of the lateral prosternal striae. Prosternal keel convex medially; carinal striae convergent apically, joined in front and extending anteriorly as a carina; disk flat and sparsely and finely punctate; posterior margin broadly and roundly emarginate. Lateral marginal striae strongly carinate and convergent apically.

Anterior margin of mesosternum produced in front to fit prosternal emargination. Marginal stria absent. Disk elevated medially on basal third along the anterior margin, and with deep fovea laterally; surface microscopically and sparsely punctate. Intercoxal disk of metasternum convex medially, strongly depressed behind anterolateral angles, and its punctation similar to that of the mesosternum. Two lateral metasternal striae present on each side; the inner outwardly arcuate, carinate, the apical end reaching near the inner angle of the metacoxa; the outer sinuate, lightly carinate, and extending obliquely outwardly, the apical end reaching near the middle of basal margin of the metacoxa. Post-mesocoxal stria lightly carinate, extending posteriorly on basal half, then strongly bent outwardly and reaching middle of the lateral disk. Lateral disk densely covered with transverse oblong and coarse punctures, which are often fused with each other.

Intercoxal disk of 1st abdominal sternum has a punctation similar to that of the metasternum; two lateral striae present on each side, these striae sinuate, carinate and complete. Lateral disk coarsely punctate.

Protibia dilated, oblong and with sixteen setae on outer margin. Mesotibia with sixteen setae on outer margin. Metatibia with eight setae on outer margin.

Specimens examined. 1 ex., Kiso-Ontake-san, Hinagura-Hongô-mura, 19/vi/1952, S. Uéno leg. (NA).

Distribution. Japan (Honshû; Kyûshû).

Remarks. *Hetaerius gratus* resembles *H. otaruensis*; however, it is easily distinguished by the dense hairs on the dorsal surface in combination with the presence of the slight and interrupted carina on the pronotal lateral area.

Biology of this species has been noted and recorded by some workers, who recorded the following ants as hosts of *H. gratus*: *Formica exsecta fukaii* Wheeler (Tanoguchi & Koshio, 1979), *F. japonica* Motschulsky (Hasegawa & Kubota, 1944; Kurosawa, 1976), *F. sp.*, and *F. sanguinea* Satreille (Hirano, 1984).

Hetaerius otaruensis M. Ôhara, sp. nov.

(Fig. 77A)

Japanese name: Otaru-arizuka-emma-mushi.

Description. Body oval, dark reddish brown, shining and not furnished with hair. Body length, PEL, 1.53 - 1.76 mm (1.67 ± 0.04 , $n=5$), PPL, 1.69 - 2.08 mm (1.91 ± 0.06 , $n=5$). Width, 1.41 - 1.53 mm (1.48 ± 0.02 , $n=5$). Biometric data are given in Table 21.

Frontal disk flat, sparsely and finely punctate. Lateral margins strongly carinate from occiput to anterior margin of clypeus, these carinae nearly parallel before antennal sockets, thence convergent forward, narrowly separated anteriorly. Labrum transverse oblong, its anterior margin slightly angulate. Mandible short and robust.

Pronotal sides (Fig. 77A) feebly sinuate, convergent forward and slightly carinate, on basal third the carinae running inwardly; anterior angles rather broadly and obliquely truncate; anterior margin strongly emarginate and slightly carinate. Pronotal lateral stria strongly elevated, complete laterally, reaching nearly to anterior margin and not crenate; behind anterior margin the stria feebly impressed on lateral fourth. Disk separated from lateral one-fifth by the pronotal lateral stria; lateral area convex, covered with punctures which are separated by two to five times their diameter, with a bulla on basal third and with a clear ruga on median third; median area convex medially, feebly depressed along the lateral stria, and sparsely covered with fine punctures which are finer than those of the lateral area and are separated by about five times their diameter.

Epipleura feebly concave medially, its margin carinate; the carina divided into three branches at basal third; the outer branch complete and the others abbreviated on apical fourth. External subhumeral stria (Fig. 77A) carinate, sinuate and complete, the apical end extending across elytral apex to medio-apical angles of elytra. First to 2nd dorsal elytral striae carinate and complete, the 1st apical end continuing to the extended external subhumeral stria. Third dorsal elytral stria carinate and shortened on apical third. Fourth, 5th dorsal and sutural striae absent. Surface of elytral disk evenly covered with fine punctures which are separated by about four times their diameter, except narrowly along inside of the 1st - 3rd dorsal striae.

Propygidium broad and flat, sparsely and shallowly punctate, on basal third the punctures fused with each other and to form rugae. Pygidium sparsely, shallowly and finely punctate, the punctures being separated by two to five times their diameter.

Anterior margin of prosternal lobe straight, its marginal stria complete medially; disk irregularly with tubercles medio-basally. Suture between the lobe and the keel clearly impressed, but narrowly interrupted medially, the median ends united with apical ends of the lateral prosternal stria. Prosternal keel flat and sparsely and finely punctate; carinal striae convergent apically and joined in front; posterior margin broadly and roundly emarginate. Lateral marginal striae strongly carinate and convergent apically.

Table 21. Biometric data of *Hetaerius otaruensis* M. Ôhara

| | |
|------|-------------------------|
| APW | 0.49-0.55 (0.52±0.01) 5 |
| PPW | 1.22-1.33 (1.27±0.02) 5 |
| PL | 0.55-0.63 (0.60±0.01) 5 |
| EL | 0.86-1.13 (0.99±0.04) 5 |
| EW | 1.14-1.53 (1.48±0.02) 5 |
| ProW | 0.71-0.82 (0.75±0.02) 5 |
| ProL | 0.42-0.47 (0.45±0.01) 5 |
| PyL | 0.43-0.67 (0.50±0.04) 5 |
| PTL | 0.51-0.59 (0.54±0.02) 5 |
| MSTL | 0.51-0.71 (0.63±0.03) 5 |
| MTTL | 0.67-0.82 (0.72±0.02) 5 |

Anterior margin of mesosternum produced in front to fit prosternal emargination. Marginal stria absent. Disk broadly elevated medially on basal third along the anterior margin, and with deep foveae laterally; surface microscopically and sparsely punctate. Intercostal disk of metasternum convex medially, strongly depressed behind anterolateral angles; its punctation feebly sparser than that of the mesosternum; two lateral metasternal striae present on each side; the inner outwardly arcuate and carinate, the apical end reaching near the inner angle of the metacoxa; the outer sinuate lightly carinate, obliquely extending posteriorly, and reaching near the outer angle of the metacoxa. Post-mesocoxal stria feebly carinate, extending posteriorly on basal half, thence strongly bent outwardly, and reaching middle of the lateral disk. Lateral disk covered with large and shallow punctures which are often fused with each other.

Intercostal disk of 1st abdominal sternum has a similar punctation to that of the intercostal disk of the mesosternum; two lateral striae present on each side, the inner strongly carinate, complete and its apical end extending laterally, and the outer lightly carinate, sinuate and not attaining to the posterior margin. Lateral disk coarsely and shallowly punctate.

Protibia dilated, oblong and with seventeen setae on outer margin. Mesotibia with nine setae on outer margin. Metatibia with six setae on outer margin.

Specimens examined. **Holotype**, 1 ex., Okusawa-suigenchi, Otaru, Hokkaidô, Japan, 1/viii/1993, M. Ôhara leg. (EIHU). **Paratypes**, 1 ♂ 1 ♀, 2 exs., locality same with that of the holotype, 1-2/viii/1993, M. Ôhara leg.

Distribution. Japan (Hokkaidô).

Remarks. *H. otaruensis* is easily distinguished by *H. gratus* by the absence of dense hairs on the dorsal surface and the presence of carina on the pronotal lateral area.

This species was found in the nest of the ant *Formica (Raptiformica) sanguinea* Latreille.

***Hetaerius kubotai* M. Ôhara, sp. nov.**
(Fig. 77D)

Japanese name: Kubota-arizuka-emma-mushi.

Body oval, black, shining and densely furnished with short hairs on dorsal surface; legs, mouth parts, antennae, margin of pronotum and elytra dark brown. Body length and width and biometric data are as follows: PPL 2.27, PEL 2.16, APW 0.59, PPW 1.42, PL 0.73, EW 1.70, EL 1.30, ProW 1.00, ProL 0.57, PyL 0.65, PTL 0.73, MSTL 0.81, MTTL 0.95.

Frontal disk flat, densely and coarsely punctate, and densely with hairs. Lateral margins strongly carinate from occiput to front margin of clypeus, these carinae nearly parallel before antennal sockets, thence strongly convergent apically, parallel on clypeus and narrowly separated in front. Labrum rectangular, its anterior margin sinuate. Mandible short and robust.

Pronotal sides (Fig. 77D) arcuate inwardly, convergent forward, furnished with long robust hairs, and lightly marginate discontinuously, on basal third the carina running inwardly; anterior angles rather broadly and obliquely truncate; anterior margin strongly emarginate and slightly carinate, the carina narrowly interrupted at middle. Pronotal lateral stria not recognized clearly, but represented by several sinuated carinae on lateral fifth, the carinae densely present, fused and interrupted variously. A slightly impressed stria behind lateral-third of the anterior emarginated portion. Disk furnished with short hairs, separated from lateral one-fifth by the lateral carinae; the lateral area convex, with various carinae, sparsely and coarsely punctate, and with a bulla on basal third; the median area convex medially, depressed laterally, densely covered with large and ocelloid punctures which are separated by about their diameter and become denser anteriorly.

Epipleura flat, not concave, with three striae (the middle may be recognized as the elytral marginal stria); the outer (running closely along the epipleural margin) present on apical two-thirds; the middle complete and feebly carinate, the apical end extending across elytral apex to medio-apical angles of elytra and united with the apical apex of sutural stria; the inner sinuate and present on median one-third. External subhumeral stria (Fig. 77D) sinuate basally, carinate slightly and complete. Internal subhumeral stria shortened on apical third. First - 3rd dorsal elytral striae slightly carinate and complete. Fourth and 5th elytral striae absent. Sixth dorsal stria impressed a little distant from the suture, and shortened on basal and apical sixths. Sutural stria complete, close to sutural margin. Surface of elytral disk covered with coarse, shallow and setiferous punctures which are absent basally along the 1st - 3rd dorsal stria, and are separated by their own diameter to twice the diameter; the setae yellow and short.

Propygidium broad, convex, densely covered with various sized, setiferous, round and shallow punctures. Pygidium sparsely covered with setiferous, round, shallow and various sized punctures which are separated by about the diameter of the large sized punctures.

Anterior margin of prosternal lobe truncate, its marginal stria lightly carinate and interrupted medially; disk densely and coarsely punctate. Suture between the keel and the lobe clearly impressed. Prosternal keel flat; carinal striae present on basal half nearly parallel, strongly carinate and feebly sinuate; disk densely covered with coarse punctures; posterior margin broadly and roundly emarginate. Lateral marginal stria carinate, parallel and present on median third.

Anterior margin of mesosternum feebly produced anteriorly to fit prosternal emargination. Marginal stria strongly carinate, a little distant from the anterior margin; disk short, evenly covered with shortly setiferous punctures, and with a deep fovea laterally. Intercoxal disk of metasternum convex medially, strongly depressed on anterolateral angles, and evenly covered with shortly setiferous punctures. Two lateral metasternal striae present; the inner strongly carinate, arcuate inwards and shortened on apical fifth; the outer carinate, extending posteriorly outwardly, and reaching near the middle of the lateral disk. Post-mesocoxal stria slightly impressed extending posteriorly and outwardly and reaching near the middle of the lateral disk. Lateral disk coarsely covered with setiferous punctures.

Intercoxal disk of 1st abdominal sternum has a punctation similar to that of the mesosternum; two lateral striae present on each side, strongly sinuate and complete. Lateral disk evenly covered with shallow, coarse and setiferous punctures.

Protibia dilated, oblong and with ten robust setae on outer margin. Mesotibia and metatibia furnished with long hairs on their surface, their outer margin strongly outwardly arcuate.

Specimens examined. **Holotype**, 1 ex., Manazuru, Kanagawa pref., Japan, 22/v/1955, M. Kubota leg., collected from the nest of *Aphenogaster famelica*. (EIHU).

Distribution. Japan (Honshû).

Etymology. This species is named in honor of Dr. Masao Kubota, who is a leading entomologist in Japan in the classification of ants and gave me the opportunity to study the specimen.

Remarks. *H. kubotai* extremely resembles *H. optatus*, from which it differs by the characters given in the key and the description.

***Hetaerius optatus* Lewis, 1884**

(Fig. 77C)

Hetaerius optatus Lewis, 1884: 137.

Japanese name: Kuro-arizuka-emma-mushi.

Original description. "Oblongo-ovatus, nigro-piceous, sparse fuscescenti-hirtus, punctulatus; pronoto lateribus subrotundatis, margine latissimo, medio bistriato; elytris striis 1-3 et suturali integris; pedibus rufis, tibiis modice latioribus. L. 2 mill."

Description. Body oval, black, shining and sparsely furnished with long hairs on dorsal surface; legs, mouthparts, antennae, margins of pronotum and of elytra dark

brown. Body length, PEL, 2.01 - 2.14 mm (2.09 ± 0.03 , $n=3$), PPL, 2.18 - 2.27 mm (2.22 ± 0.02 , $n=3$). Width, 1.57 - 1.64 mm (1.81 ± 0.02 , $n=3$). Biometric data are given in Table 22.

Frontal disk flat, densely and coarsely punctate, and sparsely furnished with long hairs; lateral margin strongly carinate from occiput to posterior angles of clypeus, these carinae nearly parallel before antennal socket, thence strongly convergent apically, absent on clypeus, their apical ends separated anteriorly. Labrum rectangular, its anterior margin broadly emarginate. Mandible short and robust.

Pronotal sides (Fig. 77C) inwardly arcuate medially, convergent forward, furnished with long and robust hairs and completely and lightly carinate, on basal third the carinae running inwardly; anterior angles rather broadly and obliquely truncate; anterior margin strongly emarginate. Pronotal lateral stria not clear, represented by several sinuated carinae on lateral fifth; these carinae set close, variously fused and interrupted. A slight impressed stria behind lateral-fourth of the anterior emarginated portion. Disk sparsely furnished with long hairs, separated from lateral one-fifth by the lateral carinae; the lateral area convex, with various carinae, sparsely and coarsely punctate, and with a bulla on basal third; the median area convex medially, depressed laterally, densely covered with large, ocelloid and setiferous punctures which are separated by their own diameter to thrice the diameters and become denser anteriorly, the setae long and castaneous, and intermingled with coarse punctures.

Epipleura flat, not concave. Epipleural marginal stria slightly carinate on apical half. Elytral marginal stria sinuate, slightly carinate and complete, the apical end extending across elytral apex to medio-apical angles of elytra and united with the apical end of the sutural stria. External subhumeral stria (Fig. 77C) sinuate basally, carinate slightly and complete. Internal subhumeral stria shortened on apical fourth. First - 3rd dorsal elytral striae slightly carinate and complete. Fourth and 5th dorsal elytral striae absent. Sixth dorsal elytral stria shortened on basal fourth and not attaining to the posterior margin. Suture complete, close to the sutural margin. Surface of elytral disk covered with large, ocelloid and setiferous punctures which are separated by their own diameter to four times the diameter, the setae long and yellow, and intermingled with coarse and round punctures which are separated by their own diameter to five times the diameter.

Propygidium broad, convex, densely covered with various sized, setiferous, round and shallow punctures. Pygidium sparsely covered with round, coarse and setiferous punctures which are separated by their own diameter to four times the diameter.

Anterior margin of prosternal lobe truncate, its marginal stria lightly carinate and interrupted medially; disk densely and coarsely punctate. Suture between the keel and the lobe clearly impressed. Prosternal keel flat; carinal striae present on basal half, nearly parallel, strongly carinate and feebly sinuate; disk densely covered with coarse punctures; posterior margin broadly and roundly emarginate. Lateral marginal striae carinate and convergent basally.

Anterior margin of mesosternum feebly produced anteriorly to fit prosternal emargination. Marginal stria strongly carinate, a little distant from the margin; disk short,

sparsely covered with shortly setiferous punctures and with deep fovea laterally. Intercoxal disk of metasternum convex medially, strongly depressed on anterolateral angles, and evenly covered with shortly setiferous punctures. Two lateral metasternal striae present, the inner strongly carinate, arcuate inwards and shortened on apical fifth, the outer carinate, extending posteriorly outwardly and reaching near the middle of metasternal-metepisternal suture. Post-mesocoxal stria slightly carinate, extending posteriorly and outwardly and reaching near the middle of the lateral disk. Lateral disk densely covered with transverse, oblong, large and shallow punctures which are often fused with each other.

Intercoxal disk of 1st abdominal sternum has a similar punctuation to that of the mesosternum; two lateral striae present on each side, strongly sinuate basally and complete. Lateral disk evenly covered with oblong, large and shallow punctures.

Protibia dilated, oblong and with eight robust setae on outer margin. Mesotibia and metatibia furnished with long hairs on outer margin, their outer margin strongly outwardly arcuate.

Specimens examined. [Hokkaidô] 1 ex., Nopporo, 19/vi/1987, M. Ôhara leg.; 1 ♂, Maruyama, Sapporo, 23/v/1951, T. Kumata leg. (EIHU).

[Honshû] <Akita-ken> 1 ex., Chôkai-san, 30/v/1939, Suzuki leg. (NA). <Nara-ken> 1 ex., Muroo, 1/viii/1989, M. Mori leg.

Distribution. Japan (Hokkaidô, Honshû, Shikoku).

Remarks. *Hetaerius optatus* resembles *H. kubotai*; but they can easily be distinguished by the characters given in the key and the description.

Little is known about habitats of this species. Nishikawa (1987) noted that *H. optatus* was found in the nest of an ant, *Lasius fuliginosus* (Latreille).

Table 22. Biometric data of *Hetaerius optatus* Lewis

| | |
|------|-------------------------|
| APW | 0.57-0.59 (0.57±0.01) 3 |
| PPW | 1.31-1.35 (1.33±0.01) 3 |
| PL | 0.70-0.76 (0.73±0.02) 3 |
| EL | 1.22-1.24 (1.23±0.01) 3 |
| EW | 1.57-1.64 (1.61±0.02) 3 |
| ProW | 0.87-0.92 (0.90±0.01) 3 |
| ProL | 0.52-0.57 (0.54±0.01) 3 |
| PyL | 0.55-0.63 (0.58±0.02) 3 |
| PTL | 0.65-0.70 (0.67±0.01) 3 |
| MSTL | 0.87 (0.87) 3 |
| MTTL | 0.92-0.96 (0.94±0.01) 3 |

7. 3. 7. Subfamily Dendrophilinae Reitter, 1909

Dendrophilinae Reitter, 1909: 279 [type genus: *Dendrophilus* Leach, 1817: 77]; Kryzhanovskij and Reichardt, 1976: 250; Olexa, 1982: 37; Mazur, 1973: 41; 1981: 105; 1984: 113; Hisamatsu, 1985: 220.

Dendrophilini Reitter, 1909: 279.

Dendrophilinae: Bickhardt, 1914: 306.

Key to the Japanese tribes of the subfamily Dendrophilinae

- 1(2) Outer margin of protibia thick, with two edges bearing short setae, without denticles and spinula. Groove between the edges inset with protarsus.
..... Tribe Anapleini Olexa, 1982
- 2(1) Outer margin of protibia thin, single-edged, the edge usually with small denticles, and with a small or strong hooked spinula. Protarsus put on dorsal surface of protibia.
- 3(6) Epistoma narrow, its lateral margins weakly convergent apically. Front without stria. Body round or oval, and usually convex. Basal piece of male aedeagus usually short.
- 4(5) Elytral disk with normal dorsal striae, which are well developed and parallel. Spinula of protibia large. Tribe Dendrophilini Reitter, 1909
- 5(4) Elytral disk punctate, without dorsal stria except for vague rudiments, these usually present basally and oblique. Spinula of protibia small.
..... Tribe Bacaniini Kryzhanovskij and Reichardt, 1976
- 6(3) Epistoma broad, trapezoid; frontal stria well developed and completely impressed behind labrum (sometimes interrupted anteriorly, ex. *Eulomalus*). Body oblong-oval, sometimes oval, and moderately convex. Basal piece of male aedeagus long, usually 3 times as long as parameres. Tribe Paromalini Reitter, 1909

Tribe Dendrophilini Reitter, 1909

Dendrophilini Reitter, 1909: 279 [type genus: *Dendrophilus* Leach, 1817: 77].

Genus *Dendrophilus* Leach, 1817

Dendrophilus Leach, 1817: 77 [type species: *Hister punctatus* Herbst, 1792: 41. Designated by monotype].

Subgenus *Dendrophilus* Leach, 1817

Dendrophilus (Dendriophilus) xavieri Marseul, 1873
(Fig. 78, 79, 80)

Dendrophilus xavieri Marseul, 1873: 221, 226 [Japan]; Jakobson, 1911: 647; Hinton, 1945: 317, 333 [genitalia]; Hisamatsu, 1985: 224, pl. 40, no. 23.

Dendrophilus (Dendrophilus) xavieri: Kryzhanovskij and Reichardt, 1976: 256; Mazur, 1984: 115.

Dendrophilus californicus: Ross, 1937: 68, synonymized by Hatch, 1962: 268.

Dendrophilus sexstriatus Hatch, 1938: 18, synonymized by Hinton, 1945: 334.

Dendrophilus punctatus: Ross, 1940: 107, synonymized by Hatch, 1962: 268.

Dendrophilus punctatus var. *sexstriatus*: Hatch and McGrath, 1941: 55.

Japanese name: Ô-mame-emma-mushi.

Original description. "Long. 2.5/10 à 3.5/10 mill.; larg. 2 à 2.5/10 mill. Ressemble beaucoup à notre *punctulatus*, mais doit être distinct, car les stries dorsales des élytres sont plus enfoncées et nettement tracées, complètes, sans excepter même les internes, tandis qu'elles sont beaucoup plus superficielles, les 3-4 raccourcies par derrière, 5^e et suturale nulles dans celui-ci, qui a la ponctuation bien plus forte, plus égale, ainsi que les interstries; dans l'espèce du Japon, la partie antérieure du dos est presque lisse et à peine pointillée, le 2^e interstrie est plus étroit que ses voisins et marqué dans sa première moitié d'une ou deux rangées irrégulières seulement de points fins. Ces caractères différentiels se retrouvent dans tous les exemplaires que j'ai sous les yeux. De plus, dans l'un le prosternum est élargi et ses stries marginales sont un peu divergentes à la base, ce qui n'a pas lieu dans l'autre.

Serait-ce le *sulcatus* Mots.? La courte description de l'auteur ne s'y oppose pas; mais il dit que celui-ci est bien plus petit que le *punctulatus*, tandis que le *Xavieri* est au moins aussi grand que les plus grands de notre espèce, qui, toutefois, est très-variable sous ce rapport.

Japon, au pied des vieux arbres, souvent avec une Fourmi noire."

Description. Male and female. Body length, PPL, 2.78 - 3.30 mm (3.01 ± 0.03 , n=20), PEL, 2.62 - 2.98 mm (2.78 ± 0.03 , n=20). Width, 1.93 - 2.26 mm (2.09 ± 0.02 , n=20). Biometric data are given in Table 23. Body oblong, oval. Cuticle black and shining; tarsi and antennae dark rufopiceous.

Head (Fig. 78C) even, densely and coarsely punctate, the punctures being separated by their own diameter to twice the diameter; other punctures fine, intermingled with the coarse ones, sparser medially; frontal stria absent. Mandible short and stout; labrum with setiferous punctures.

Pronotal sides (Fig. 78A) strongly convergent to apices; disk sparsely covered with coarse punctures which are separated by two to five times their diameter and become denser laterally, with fine punctures intermingled. Marginal pronotal stria complete and feebly crenulate.

Marginal epipleural stria complete, strongly carinate, and feebly sinuate on apical

half. Marginal elytral stria deeply impressed and complete. Epipleura densely covered with coarse punctures which become sparser and finer on the inner half. Disk of elytra densely covered with coarse punctures on apical half, which are separated by about their diameter and often united with each other to form rugae on the apical third; on basal half, interstices among dorsal striae sparsely covered with moderate or fine punctures, which are irregularly separated by their own diameter to five times the diameter; extreme apical band impunctate. Subhumeral stria absent, but sometimes present on median third. Oblique humeral stria indistinctly present on basal third. First dorsal stria nearly complete and deeply impressed, but its apical third obsolete. Second and 5th dorsal striae present on basal two-thirds, sometimes nearly complete. Third and 4th dorsal striae present on basal half. These dorsal striae strongly impressed and crenate basally and progressively obsolete apically. Sutural stria present on basal two-thirds but its basal third indistinctly impressed, and its median third crenated.

Propygidium short, with two or three transverse rows consisting of coarse punctures along posterior margin. Pygidium densely covered with coarse and ocelloid punctures which are separated by their own diameter to half the diameter.

Anterior margin of prosternal lobe (Fig. 78B) round and shortly marginate on median portion; sides marginate completely; disk of lobe densely and coarsely punctate. Prosternal process somewhat sparsely punctate. Carinal striae complete, strongly carinate and not united with posterior terminal ends. Descending lateral stria complete and carinate.

Anterior margin of mesosternum deeply emarginate in median portion. Mesosternum short, sparsely covered with coarse punctures, which are separated by about their diameter, and strongly marginate laterally. Meso-metasternal suture indistinctly impressed and complete, and distantly with a strongly crenated stria on mesosternum. Intercoxal disk of metasternum even, and sparsely and finely punctate, the punctures coarse along lateral metasternal stria and along posterior margin. Lateral disk of metasternum densely covered with large and shallow punctures. Mesocoxal stria complete along mesocoxa. Lateral metasternal stria carinate and extending posteriorly and obliquely, its apical end reaching about half to apical third of metasternal-metepisternal suture.

Intercoxal disk of 1st abdominal sternum completely striate on each side, and sparsely and coarsely punctate laterally.

Protibia (Fig. 78E, D) dilated, with 10 denticles on outer margin.

Male genitalia as shown in Fig. 79.

Specimens examined. [Hokkaidô] 1 ex., Teshio, 18/vii/1969, no collector's name; 11 exs., Otaru, iv/1985, Y. Kusui leg.; 1 ex., Tokiwa, Sapporo, 10/vii/1985, M. Ôhara leg.

[Honshû] <Miyagi-ken> 1 ex., Oshiro-yama, Sendai, 27/iv/1953, K. Nagayama leg. <Yamagata-ken> 1 ex., Yubama-onsen, 26/vii/1951, K. Nagayama leg. (NSMT). <Tôkyô-to> 3 exs., Setagaya, 18/ix/1949, Ôhira leg. (NA). <Kanagawa-ken> 1 ex., Hatano, 7/viii/1972, H. Takizawa leg.; 1 ex., Yokohama, 1/vi/1941, K. Satô leg. (NSMT). <Nagano-ken> 1 ex., Kiso-Koma-kôgen, 13/vi/1993, K. Tazoe leg. (Tazoe

coll.). <Wakayama-ken> 1 ex., Igumbashi, Kinokawa, 7/xi/1953, K. K. leg. (NA).
 <Hyôgo-ken> 1 ex., Goten-yama, Takarazuka, 25/ix/1948, M. Gotô leg. (NA).
 <Okayama-ken> 1 ex., Saeki, 22/vi/1949, K. Kurosa leg.(NA).

[Shikoku] <Kagawa-ken> 2 exs., Toyonaka-chô, Sampô-gun, 4/v/1980, S. Ohmomo leg. (NSMT).

[Kyûshû] <Fukuoka-ken> 1 ex., Mt. Adachi, 5/iii/1963, S. Nakao leg. (NA).
 <Nagasaki-ken> 1 ex., Shimabara, 18-19/iv/1952, K. Oyama leg. (NA); 22 exs., Kônoura, Hirado-shi, 16/ix/1979, A. Oda leg. <Miyazaki-ken> 2 exs., Miyazaki, 13/x/?, no collector's name. <Kagoshima-ken> 1 ex., Kurino, Kirishima, 23/vi/1985, H. Daidô leg.; 1 ex., Takachiho-gawara, Kirishima, 11/iii/1980, T. Kinoda leg.

Distribution (Fig. 80). Japan (Hokkaidô, Honshû, Shikoku, Kyûshû, Izu Isles.); Taiwan; East Siberia; introduced to England and North America (British Colombia, Washington, Oregon).

Remarks. *Dendrophilus xavieri* superficially resembles *Gnathoncus* spp.; however, it can easily be distinguished by the presence of the prosternal lobe. This species is well characterized among the Japanese histerids.

Dendrophilus xavieri occurs in many kinds of rotting organic matter, such as compost piles, hen and pig manure, carrion, etc., and also found in nests of ants and birds. Hinton (1945) also recorded the species on pumice in warehouse and in rotting grain in the basement of a flour-mill. Hisamatsu (1985) recorded it from a nest of rats.

Tribe Anapleini Olexa, 1982

Anapleini Olexa, 1982: 38 [type genus: *Anapleus* Horn, 1873: 311]; Mazur, 1984: 116; Hisamatsu, 1985: 221.

Table 23. Biometric data of *Dendrophilus xavieri* Marseul.

| | |
|------|---------------------------|
| APW | 0.75-0.92 (0.83± 0.01) 20 |
| PPW | 1.54-1.80 (1.66± 0.02) 20 |
| PL | 0.75-0.92 (0.83± 0.01) 20 |
| EL | 1.80-2.09 (1.95± 0.02) 20 |
| EW | 1.93-2.26 (2.09± 0.02) 20 |
| ProW | 1.05-1.24 (1.14± 0.01) 20 |
| ProL | 0.16-0.23 (0.20±0.005) 20 |
| PyL | 0.72-0.92 (0.83± 0.01) 20 |
| PTL | 0.62-0.75 (0.70± 0.01) 20 |
| MSTL | 0.65-0.85 (0.77± 0.01) 20 |
| MTTL | 0.82-0.98 (0.90± 0.01) 20 |

Genus *Anapleus* Horn, 1873

- Anapleus* Horn, 1873: 311 [type species: *Bacanius marginatus* J. L. LeConte, 1853: 292. Designated by monotypy]; Bickhardt, 1913: 175; 1916-17: 63, 73; Reichardt, 1941: 84, 126; Arnett, 1962: 375, 380; Kryzhanovskij and Reichardt, 1976: 260; Mazur, 1984: 116.
- Sphaeroderma* J. L. LeConte, 1861: 76, nec Stephens, 1831: 328, synonymized by Mazur, 1984: 116 [type species: *Bacanius marginatus* J. L. LeConte, 1853: 292].
- Abraeodes* Reitter, 1886: 272 by Bickhardt, 1913: 175 [type species: *Abraeus raddei* Reitter, 1877: 292]; Jakobson, 1911: 642, 653.
- Tadzhister* Kryzhanovskij, 1966: 55, synonymized by Kryzhanovskij and Reichardt, 1976: 260 [type species: *Tadzhister gracilipes* Kryzhanovskij, 1966: 55].

Diagnosis. Body small, about 2.5 mm long; oval, convex, usually dark brown or black; tibiae, tarsi, antennae and mouthparts rufopiceous. Frontal stria of head absent; surface obliquely convex in front of eyes and feebly depressed on longitudinal median line. Labrum transverse, with a pair (or more) of setiferous punctures. Mandible short and stout. Antennae long; scape oblong and stout; pedicel somewhat long and stout; club consisting of apical 3 flagella, of which sutures are distinct. Pronotum transverse, its sides usually strongly convergent to apices; lateral and anterior margin narrowly marginate; apical angles acute and strongly depressed. Elytra usually coarsely punctate, sometimes strigate apically; dorsal stria absent; apex of elytra truncate. Propygidium transverse and nearly vertical. Pygidium curved downwards. Prosternal lobe quadrate and broad; suture between lobe and process indistinct; antennal cavity longitudinal, deep and situated along prosternal lobe and process; carinal striae deeply impressed. Mesosternum short and transverse. Meso-metasternal suture distinct and crenate. Metasternum coarsely and densely punctate. Protibia narrow, dilated medially, without large denticles, usually dentate-serrate with very small denticles. Meso- and metatibiae narrow and long.

Key to the Japanese species of the genus *Anapleus*

- 1(2) Pygidium with a depressed area near the tip *A. hagai* M. Ôhara, sp. nov.
- 2(1) Pygidium without depressed area.
- 3(4) Punctuation of elytra dense; on humeral area of elytra, the punctures being separated by one-third their diameter (Fig. 82B). *A. semen* (Lewis, 1884)
- 4(3) Punctuation of elytra sparse; on humeral area of elytra, the punctures being separated by their own diameter to twice the diameter (Fig. 84C, 86D).
- 5(6) Punctuation of metasternum with uniform punctures (Fig. 84F). *A. nakanei* M. Ôhara, sp. nov.
- 6(5) Punctuation of metasternum with large and fine punctures (Fig. 87B). *A. nomurai* M. Ôhara, sp. nov.

Anapleus semen (Lewis, 1884)
(Fig. 81, 82, 83)

Triballus semen Lewis, 1884: 137 [Japan: Honshû].

Anapleus semen: Nakane, 1964: 68; Mazur, 1984: 117.

Anapleus japonicus Nakane, 1961: 4 [Rausu, Hokkaidô]; Kryzhanovskij and Reichardt, 1976: 262; Olexa, 1982: 44.

Japanese name: Tsubu-emma-mushi.

Original description as *Triballus semen*. "Ovalis, parum convexus, dense punctatus, nigro-piceus, parum nitidus; fronte post oculos subtuberculata; elytris striis dorsalibus 2 abbreviatis, obsoletis. L. 2 mill.

Allied to *Triballus americanus*, but more convex, with the forehead behind the eyes more elevated, the elytra strigose-punctate at the sides, and the margin simple, not reflexed.

I have only one specimen; it was taken in an old tree at Kiga, near Miyanoshita, May 1880. "

Nakane's description (1961) of *Anapleus japonicus*. "Dull black, with the mandibles and mouth organs clear reddish brown, the antennae except scape and the legs dark reddish brown.

Very shortly ovate or subcircular in outline, moderately convex and a little shining. Head very closely punctured and the punctuation especially dense in front, the frons somewhat depressed medially and weakly raised above antennal insertion on each side, the eyes quite lateral and not prominent. Antennae of moderate length, the scape long and unilaterally swollen, the 1st joint of the funicle about half as long as the scape, as long as 4 following together, the 2nd to 7th short and transverse, and the club dilated and oval. Pronotum strongly narrowed from base to apex, the front margin plainly emarginate, the sides sublinear, only slightly arched on apical third, with both angles rather acute, the basal margin fully twice as broad as the front, linear on each side and obtusely angulate in front of the scutellum, which is very small and triangular, the disc punctured like the head but the punctuation less close on the median and basal areas, with a small oblong impunctate space in front of the scutellum. Elytra more coarsely punctured than the pronotum and the punctures longitudinally confluent forming wrinkles except those near the suture, which is slightly raised, the lateral margins costate but rather obsolete anteriorly, the subhumeral costa distinct, abbreviated in front and behind. Propygidium closely, pygidium less closely punctured. Prosternum with the inner striae only slightly convergent forwards and the outer divergent in front. Pectoral plates more or less closely punctured, the punctures on mesepimera very large, those on sides of metathorax and 1st abdominal sternite also coarse. Abdomen with the 1st sternite large, bearing slightly diverging coxal lines and the rest very short and finely punctured. Fore femora broad, fore tibiae also dilated, falciform, those of four hinder legs slender, tarsi simple and narrow. Body length: 2.3 mm.

In appearance closely allied to *A. raddei* Reitter, but the body is much larger and black in colour."

Description. Body oval, moderately convex, black and shining; tarsi and antennae rufopiceous. Body length, PPL, 2.05 - 2.23 mm (2.14 ± 0.03 , $n=5$), PEL, 1.95 - 2.11 mm (2.03 ± 0.03 , $n=5$). Width, 1.46 - 1.85 mm (1.67 ± 0.05 , $n=6$). Biometric data are given in Table 24.

Head (Fig. 81C) densely, coarsely and deeply punctate. Epistoma convex. Front depressed between eyes, without stria.

Pronotal sides (Fig. 81A) strongly convergent to apices. Disk of pronotum densely covered with punctures, which are as large as those of head and are separated by their own diameter to half the diameter, and with two shallow depressions behind eyes. Marginal stria strongly carinate and complete, the anterior portion densely crenate.

Epipleural marginal stria complete and densely crenate. Elytral marginal stria somewhat carinate, complete and sparsely crenate, its apical end extending along the apex of elytra and attaining to near the suture. There is a narrow impunctate band outside the epipleural marginal stria. Area between epipleural and elytral marginal striae with two or three rows of coarse punctures. Lateral side of elytra elevated. Surface of elytra (Fig. 82A, B) densely covered with coarse punctures, which are a little larger than those of pronotum and are separated by one-third to half their diameter; fine punctures narrowly along suture; basal half of elytra densely with longitudinal rugae; extreme apex impunctate. Dorsal stria absent.

Propygidium densely covered with somewhat deep punctures, which are a little finer than the elytral ones and separated by about half their diameter. Pygidium (Fig. 82D) sparsely punctate, the punctures being separated by their diameter and as large as those of propygidium.

Anterior margin of prosternal lobe (Fig. 82C) straight medially and slightly marginate and carinate; sides strongly carinate and marginate; basal angles deeply excavate, the excavations are situated just before ends of carinal striae of prosternal process. Disks of the lobe and the process densely covered with coarse, deep punctures and sometimes intermingled with ocelloid ones, these coarse punctures being separated by about half their diameter and becoming sparser on a narrow basal band. Carinal striae completely impressed.

Anterior margin of mesosternum (Fig. 82C) nearly straight; disk of mesosternum short (width : length = 4 : 1), and coarsely and sparsely covered with ocelloid and shallow punctures, which become finer medially; lateral side completely marginate. Meso-metasternal suture complete and strongly carinate. Mesosternum feebly convex on median area, and covered with deep, round and large punctures, which are separated by about half their diameter, the punctures becoming sparser on median area. Lateral metasternal stria extending obliquely and posteriorly, reaching near middle of metasternal-metepisternal suture. Intercostal disk of 1st abdominal sternum densely covered with punctures, which are a little finer than those of the metasternum, longitudinal oblong, and

separated by one-third their diameter laterally, and become finer and sparser on the median area; its sides completely striate and strongly carinate.

Protibia dilated, its outer margin angulate about middle.

Male genitalia as shown in Fig. 83.

Specimens examined. Holotype of *Triballus semen* Lewis, 1884, labelled "Type", "Miyanoshta, Japan, 1880" and "*Triballus semen* Lewis" (The Natural History Museum, London). Holotype of *Anapleus japonicus* Nakane, labelled "Holotype", "Rausu, Shiretoko, (Hokkaidô,) 8/vii/1958, T. Nakane leg." and "*Anapleus japonicus*, Det. T. Nakane, 1961" (Nakane collection).

[Hokkaidô] 1 ♂ 1 ♀, Hôheikyô, Jôzankei, 16/vii/1988, M. Ôhara leg.

[Honshû] <Tochigi-ken> 1 ex., Nikkô, 11-13/vi/1967, H. Takizawa leg. <Tôkyô-to> 1 ex., Takao-san, 27/vi/1970, H. Takizawa leg.

Distribution. Japan (Hokkaidô, Honshû).

Remarks. *Anapleus semen* is a relatively large species; it is similar to *A. nakanei* and *A. nomurai*; however, the rather larger body and the dense punctation on the elytra will distinguished it from them.

This species is found on logs.

Anapleus nakanei M. Ôhara, sp. nov.
(Fig. 84, 85)

Japanese name: Nara-tsubu-emma-mushi.

Table 24. Biometric data for *Anapleus semen* Lewis

| | Holotype | Holotype of
<i>A. japonicus</i> . | male and female |
|------|----------|--------------------------------------|-------------------------|
| APW | 0.43 | 0.63 | 0.43-0.63 (0.58±0.03) 6 |
| PPW | 1.14 | 1.40 | 1.14-1.42 (1.33±0.04) 6 |
| PL | 0.51 | 0.59 | 0.51-0.67 (0.59±0.02) 6 |
| EL | 1.26 | 1.48 | 1.26-1.48 (1.40±0.03) 6 |
| EW | 1.46 | 1.69 | 1.46-1.85 (1.67±0.05) 6 |
| ProW | 0.67 | 0.79 | 0.67-0.79 (0.75±0.02) 6 |
| ProL | 0.20 | 0.22 | 0.20-0.28 (0.23±0.01) 6 |
| PyL | | 0.45 | 0.39-0.45 (0.42±0.01) 5 |
| PTL | | 0.61 | 0.53-0.67 (0.61±0.02) 5 |
| MSTL | | 0.69 | 0.59-0.69 (0.63±0.02) 5 |
| MTTL | | 0.75 | 0.65-0.75 (0.70±0.02) 5 |

Description. Male and female. Body weakly convex, oval, dark brown and shining; tarsi and antennae light brown. Body length, PPL, 1.89 - 2.07 mm (1.99 ± 0.03 , n=6), PEL, 1.73 - 1.87 mm (1.81 ± 0.02 , n=6). Width, 1.42 - 1.52 mm (1.46 ± 0.02 , n=6). Biometric data are given in Table 25.

Head densely and deeply punctate. Epistoma convex. Front feebly depressed between eyes, without stria.

Pronotum (Fig. 84A) strongly convergent to apices on sides. Disk sparsely covered with moderate and shallow punctures, which are separated by their own diameter to twice the diameter, the punctures becoming denser on lateral sides where they are separated by their own diameter to half the diameter, and with two shallow depressions behind the eyes. Marginal stria weakly crenate and complete.

Epipleural marginal stria complete with dense punctures. Elytral marginal stria entirely and deeply impressed, and separately punctate. Impunctate narrowly along epipleural marginal stria. Area between epipleural and elytral marginal striae with one or two rows of moderate punctures. Lateral side of elytron feebly elevated, and with two rows of sparse and moderate punctures. Surface of elytra (Fig. 84B, C) sparsely and coarsely punctate, the punctures a little coarser than those of the pronotum, shallow and separated by their own diameter to twice the diameter; impunctate narrowly on basal half near lateral one-third to half of elytron, the impunctate area slightly striate; finely punctate in a narrow band along suture; apical fourth of elytra densely covered with shallow rugae; extreme apex impunctate. Oblique humeral stria present on basal third. All dorsal striae obsolescent, but the 1st (or 2nd) stria entirely and feebly impressed, and the 2nd (or 3rd) indistinctly on basal half.

Propygidium densely covered with coarse and deep punctures, which are separated by half their diameter. Pygidium coarsely and sparsely punctate, the punctures being separated by their own diameter to twice the diameter, but becoming denser apically.

Anterior margin of prosternal lobe (Fig. 84D) straight and indistinctly margined. Disk of lobe densely covered with coarse punctures. Prosternal process nearly quadrate, its disk slightly convex, densely covered with coarse punctures except on a band along basal margin, and with complete carinal striae.

Anterior margin of mesosternum nearly straight (Fig. 84F). Mesosternum short (width : length = 16 : 5), densely and coarsely punctate. Lateral side of mesosternum (Fig. 84E) deeply marginate. Meso-metasternal suture with strongly crenate stria. Disk of metasternum convex medially, and coarsely with shallow punctures, which are separated by their own diameter to half the diameter, the punctures becoming finer on median area. Lateral metasternal stria carinate, extending obliquely and posteriorly, reaching near middle of metasternal-metepisternal suture.

Intercostal disk of 1st abdominal sternum completely striate on each side, and finely and densely punctate, the punctures becoming coarser towards lateral and anterior margins.

Protibia dilated, its outer margin arcuate.

Table 25. Biometric data of *Anapleus nakanei* M. Ôhara.

| | |
|------|-------------------------|
| APW | 0.49-0.57 (0.54±0.01) 6 |
| PPW | 1.14-1.26 (1.20±0.02) 6 |
| PL | 0.45-0.55 (0.51±0.01) 6 |
| EL | 1.18-1.32 (1.24±0.02) 6 |
| EW | 1.42-1.52 (1.46±0.02) 6 |
| ProW | 0.61-0.71 (0.65±0.01) 6 |
| ProL | 0.18-0.22 (0.20±0.01) 6 |
| PyL | 0.33-0.39 (0.38±0.01) 6 |
| PTL | 0.55-0.59 (0.56±0.01) 6 |
| MSTL | 0.53-0.57 (0.56±0.01) 6 |
| MTTL | 0.59-0.67 (0.62±0.01) 6 |

Male genitalia as shown in Fig. 85.

Specimens examined. **Holotype.** 1 ♂, Yoshino-yama, 27/v/1985, S. Nomura leg. (EIHU). Paratypes, [Honshû] <Fukushima-ken> 2 exs., Kaimon-Rindô, Towada, Kami-Ogawa, Ogawa-machi, Iwaki-shi, 19/vii/1993, A. Matsushima leg. (1 ex., in Matsushima Collection). <Nara-ken> 2 ♂♂, Yoshino-yama, 27/v/1985, S. Nomura leg. <Kyôto-fu> 1 ♂, Kurama, 17/vi/1954, T. Nakane leg.; 1 ♀, Kunogahata, 8/vi/1954, T. Nakane leg.

[Kyûshû] <Fukuoka-ken> 1 ♂, Mt. Shôji, 28/iv/1964, S. Nakano leg. <Ôita-ken> 1 ex., Saeki, no date, K. Kurosa leg.

Distribution. Japan (Honshû, Kyûshû).

Remarks. *Anapleus nakanei* is very similar to *A. nomurai*, but differs from the latter by the punctuation of the pronotum, elytra and meso- and metasterna (see the description of *A. nomurai*).

Anapleus nomurai M. Ôhara, sp. nov.

(Fig. 86, 87)

Japanese name: Okayama-tsubu-emma-mushi.

Almost agrees with *Anapleus nakanei*, but differs by the following characters: punctuation on pronotum and elytra deeper (Fig. 86C, D) than in *nakanei*; lateral sides of elytra not elevated; punctuation of intercoxal disk of meso-, and metasternal and 1st abdominal sternum sparse, coarse and very deep, with fine punctures intermingled (Fig. 87B, C).

Body length, PPL, 2.09 - 2.13 mm (2.11 ± 0.01 , n=2), PEL, 1.89 - 12.93 mm (1.91 ± 0.01 , n=2). Width, 1.44 - 1.56 mm (1.50 ± 0.04 , n=2). Biometric data are given in Table 26.

Table 26. Biometric data of *Anapleus nomurai* M. Ôhara.

| | | |
|------|-----------------------|---|
| APW | 0.53-0.59 (0.56±0.02) | 2 |
| PPW | 1.18-1.28 (1.23±0.03) | 2 |
| PL | 0.57-0.61 (0.59±0.01) | 2 |
| EL | 1.22-1.26 (1.24±0.01) | 2 |
| EW | 1.44-1.56 (1.50±0.04) | 2 |
| ProW | 0.67-0.71 (0.69±0.01) | 2 |
| ProL | 0.24 (0.24) | 2 |
| PyL | 0.33-0.35 (0.34±0.01) | 2 |
| PTL | 0.51-0.55 (0.53±0.01) | 2 |
| MSTL | 0.51 (0.51) | 2 |
| MTTL | 0.51-0.59 (0.55±0.03) | 2 |

Specimens examined. Holotype, 1 ♀, Yoshino-yama, Nara-ken, Honshû, Japan, 27/v/1985, S. Nomura leg. (EIHU). Paratype, 1 ♀, Ikura-nimi-shi, Okayama-ken, Honshû, 21/v/1985, S. Nomura leg.

Distribution. Japan (Honshû).

Remarks. This species is strikingly similar to *A. nakanei*, but can be distinguished easily by having two kinds of punctures on the meso- and metasterna.

This species seems to live in the litter.

Anapleus hagai M. Ôhara, sp. nov.
(Fig. 88, 89, 90)

Japanese name: Ô-tsubu-emma-mushi.

Description. Female. Body oval, convex, black and shining; tarsi, tarsus and antennae light brown. Body length, PPL, 2.45 - 2.84 mm (2.65 ± 0.07 , n=4), PEL, 2.29 - 2.62 mm (2.49 ± 0.06 , n=4). Width, 1.96 - 2.09 mm (2.03 ± 0.02 , n=4). Biometric data are given in Table 27.

Head (Fig. 88B) densely and coarsely punctate. Epistoma convex. Front depressed between eyes, without striae.

Pronotum strongly convergent anteriorly on sides. Disk densely covered with coarse and deep punctures, which are separated by about one-third their diameter. Marginal stria weakly carinate and complete.

Epipleural marginal stria complete and strongly crenate. Elytral marginal stria carinate, complete and crenate. Impunctate narrowly along epipleural marginal stria. Area between these striae with two or three rows of coarse and dense punctures. Surface of elytra (Fig. 88C, D) sparsely covered with large, shallow, and ocelloid punctures, which

are separated by about their own diameter to twice the diameter medially, the punctures becoming denser and a little finer laterally; dense fine punctures narrowly along the sutural line; apical fifth of elytra with shallow longitudinal rugae; extreme apex impunctate. Dorsal striae obsolescent, but the 1st dorsal stria slightly impressed on mediobasal one-fourth, and the 2nd slightly on about the basal half.

Propygidium densely covered with moderate and deep punctures, which are as large as those on the elytral apices. Pygidium moderately punctate, the punctures becoming denser and finer towards apical margin. Disk of pygidium convex and feebly depressed behind tip.

Anterior margin of prosternal lobe (Fig. 89A) straight, and indistinctly margined. Prosternal process nearly quadrate, its disk coarsely punctate, sometimes with fine punctures intermingled, and with complete carinal striae (Fig. 89A).

Anterior margin of mesosternum feebly and outwardly arcuate in median portion. Mesosternum short (width : length = 24 : 7), densely and coarsely punctate, with fine punctures intermingled. Lateral sides distinctly margined. Meso-metasternal suture with strongly crenated stria. Mesosternum even, densely covered with large and deep punctures, which are separated by their own diameter to half the diameter, with fine punctures intermingled (Fig. 89B). Lateral metasternal stria extending obliquely and posteriorly, reaching near middle of metasternal-metepisternal suture. Intercostal disk of 1st abdominal sternum completely striate on each side, densely covered with moderate punctures, which are coarser along the anterior margin.

Protibia (Fig. 78D) dilated, its outer margin with an obtuse angle at middle.

Male genitalia as shown in Fig. 90.

Specimens examined. **Holotype**, 1 ♀, Kotombetsu, Naka-tombetsu, Hokkaidô, Japan, 25/vii/1987, K. Haga leg. (EIHU).

Paratype. [Hokkaidô] 1 ♀, Shintoku, 19/viii/1989, K. Haga leg.

[Honshû] <Aomori-ken> 1 ♂, Oirase-gawa, Fukura-machi, 1/viii/1988, S. Yamauchi leg.

Distribution. Japan (Hokkaidô, Honshû).

Remarks. *Anapleus hagai* is easy to recognize by its large size and the depressed pygidium.

Tribe Bacaniini Kryzhanovskij and Reichardt, 1976

Bacaniini Kryzhanovskij and Reichardt, 1976: 266 [type genus: *Bacanius* J. L. LeConte, 1853: 291];
Kryzhanovskij and Reichardt, 1976: 266.

The Japanese species including this tribe Bacaniini have not been sufficiently studied until now. Probably five or more species occur in Japan. In this paper, the known Japanese species are only listed.

Table 27. Biometric data of *Anapleus hagai* M. Ôhara.

| | |
|------|-------------------------|
| APW | 0.69-0.78 (0.74±0.02) 4 |
| PPW | 1.50-1.67 (1.61±0.03) 4 |
| PL | 0.82-0.92 (0.86±0.02) 4 |
| EL | 1.57-1.70 (1.65±0.03) 4 |
| EW | 1.96-2.09 (2.03±0.02) 4 |
| ProW | 0.92-1.08 (1.01±0.03) 4 |
| ProL | 0.29-0.39 (0.35±0.02) 4 |
| PyL | 0.46-0.59 (0.54±0.02) 4 |
| PTL | 0.65-0.78 (0.74±0.02) 4 |
| MSTL | 0.69-0.78 (0.73±0.02) 3 |
| MTTL | 0.82-0.85 (0.83±0.01) 4 |

Genus *Bacanius* J. L. LeConte, 1853

Bacanius J. L. LeConte, 1853: 291 [type species: *Bacanius tantillus* J. L. LeConte, 1853: 291. Designated by Bickhardt, 1916: 71]; Lacordaire, 1854: 271; Marseul, 1856: 576; Schmidt, 1885a: 332; Reitter, 1886: 273; 1909: 297; Ganglbauer, 1899: 409; Jakobson, 1925: 18; Cooman, 1936: 136; Reichardt, 1941: 84, 117; Wenzel and Dybas, 1941: 438; Wenzel, 1944: 54, 95-101; Arnett, 1962: 375, 380; Witzgall, 1971: 175; Kryzhanovskij and Reichardt, 1976: 267; Mazur, 1984: 118.

Subgenus *Mullerister* Cooman, 1936

Mullerister Cooman, 1936: 137 [type species: *Bacanius tonkinensis* Cooman, 1936: 135. Originally designated]; Mazur, 1984: 119.

Muellerister Kryzhanovskij and Reichardt, 1976: 270 (emend.).

Neobacanius G. Müller (part.), 1925: 20; Reichardt, 1941: 118, 121.

Bacanius (Mullerister) niponicus Lewis, 1879

Bacanius niponicus Lewis, 1879: 461 [Japan: Nagasaki].

Bacanius (Mullerister) niponicus: Mazur, 1984: 119; Hisamatsu, 1985: 224, pl. 40, no. 22.

Bacanius (Muellerister) niponensis (sic): Kryzhanovskij et Reichardt, 1976: 268 [Key].

Japanese name: Aka-tsubu-emma-mushi.

Original description. "Ovalis, convexus, rufo-castaneus, undique sat dense punctatus; pronoti stria integra, linea basali arcuata e punctis paucis composita; elytris haud striatis; antennis pedibusque rufo-brunneis.

Near *Bacanius rhombophorus*, Aubé, but half as large again; the punctures are

coarser and more equally distributed; and the punctured line before the scutellum is a simple bow of twelve or thirteen points.

Hab. Nagasaki; under dead leaves at Suwosama temple in April."

Distribution. Japan, Taiwan.

Subgenus *Bacanius* J. L. LeConte, 1853

Bacanius (Bacanius) mikado (Lewis, 1892)

Abraeus mikado Lewis, 1892b: 356 [Japan].

Bacanius mikado: Schmidt, 1893: 238.

Bacanius (Bacanius) mikado: Kryzhanovskij and Reichardt, 1976: 269; Mazur, 1984: 122; Hisamatsu, 1985: 224, pl. 40, no. 21.

Japanese name: Ko-aka-tsubu-emma-mushi.

Original description. "Ovatus, globosus, rufo-brunneus, nitidus; antennis pedibusque flavis; supra vix dense punctulatus; mesosterno metasternoque grosse et parce punctatis. L. 1 mill.

Oval, globose, reddish brown, shining, head darker, antennae and legs paler; the forehead sparsely punctured; the thorax and elytra evenly punctured, punctures shallow and not very thickly set, thoracic marginal stria complete, but very fine behind the neck; the propygidium and the pygidium are feebly and indistinctly punctulate; the prosternum a little wider than long, feebly and obscurely punctured, lateral striae slightly widen out from the base, the base very feebly sinuous; the meso- and metasterna and the first segment of the abdomen is evenly but not thickly covered with somewhat large and shallow punctures, the punctures being largest and most closely set at the widest part of the metasternum.

Hab. Japan. I found this species in *Cossus*-burrows at Kiga, Konose, Nara and in S. Yezo."

Distribution. Japan (Honshû, Shikoku, Kyûshû).

Tribe Paromalini Reitter, 1909

Paromalini Reitter, 1909: 287 [type genus: *Paromalus* Erichson, 1834: 167]; Kryzhanovskij and Reichardt, 1976: 125; Olexa, 1982: 38; Mazur, 1984: 125.

Paromalinae: Bickhardt, 1913: 175.

Key to the Japanese genera of the tribe Paromalini

- 1(2) Elytral disk with normal dorsal striae. Genus *Carcinops* Marseul, 1855
- 2(1) Elytral disk punctate, without normal dorsal striae except for vague rudiments.
- 3(4) Propygidium with a transverse line. Metasternal lateral stria not extended

- posteriorly. All tibiae dilated. Genus *Pachylomalus* Schmidt, 1879
- 4(3) Transverse line of pygidium not visible. Metasternal lateral stria extended posteriorly. Protibia dilated, but others narrow.
- 5(6) Prosternal keel without carinal stria. Genus *Paromalus* Erichson, 1834
- 6(5) Prosternal keel with carinal stria.
- 7(10) Frontal stria complete.
- 8(9) Basal margin of pronotum without an irregular row of large punctures. Body oblong-oval, and less convex. Genus *Platylomalus* Cooman, 1948
- 9(8) Basal margin of pronotum with an irregular row of large punctures. Body oval, and convex. Genus *Australomalus* Mazur, 1981
- 10(7) Frontal stria interrupted behind labrum. Genus *Eulomalus* Cooman, 1937

Genus *Carcinops* Marseul, 1855

Carcinops Marseul, 1855: 83 [type species: *Dendrophilus quatuordecimstriatus* Stephens, 1835: 412. Designated by Bickhardt, 1917: 113]; Schmidt, 1885c: 283; Ganglbauer, 1899: 373; Reitter, 1909: 287; Jakobson, 1911: 640, 647; Bickhardt, 1916-17: 108, 112-114; 1921: 149; Arnett, 1962: 375, 380; Witzgall, 1971: 177; Kryzhanovskij and Reichardt, 1976: 263; Mazur, 1984: 127.

Subgenus *Carcinops* Marseul, 1855

Carcinops pumilio (Erichson, 1834) (Fig. 91, 92, 93)

Paromalus pumilio Erichson, 1834: 169 [Spain, Egypt, North America]; Wollaston, 1854: 213; Redtenbacher, 1858: 313.

Dendrophilus quatuordecimstriatus Stephens, 1835: 412, synonymized by Gemminger and Harold, 1868: 777.

Paromalus quatuordecimstratus: Horn, 1873: 308.

Dendrophilus pumilio: Dejean, 1837: 143.

Hister nanus J. E. LeConte, 1845: 61, synonymized by Gemminger and Harold, 1868: 777.

Dendrophilus nanus Dejean, 1837: 143 [nom. nud.].

Phelister nanus: Marseul, 1857: 476.

Carcinops quatuordecimstriatus: Wollaston, 1864: 166; Kolbe, 1909: 21; Scott, 1913: 225; Bickhardt, 1917: 114; Hinton, 1945: 334.

Carcinops quatuordecimstriatus: Ganglbauer, 1899: 374; Reitter, 1909: 287; Jakobson, 1911: 647; Anzat, 1916-25: 106; Horion, 1949: 347.

Epierus krujanensis Mader, 1921: 181, synonymized by Mader, 1927: 193.

Carcinops pumilio: Marseul, 1855: 91; 1873: 221 [Japan, Nangasaki]; Seidlitz, 1891: 216; Kolbe, 1910: 21; Kuhnt, 1913: 371; Rapp, 1933: 590; Wenzel, 1955: 608, 617; Witzgall, 1971: 177; Kryzhanovskij and Reichardt, 1976: 264; Hisamatsu, 1985: 224, pl. 40, no. 24.

Carcinus pumilio Acloque, 1896: 251.

Japanese name: Kuro-chibi-emma-mushi.

Original description. "Ovalis, parum convexus, ater, nitidus, elytris striis dorsalibus integris, marginali cum humerali continua. Long. 1 lin.

Diese Art scheint sehr weit verbreitet, doch nirgends häufig zu sein; ich habe ein Exemplar aus Spanien, eins aus Nordamerika und eins aus Aegypten von mir; letzteres fand Ehrenberg im Menschenkoth.

Er hat viele Aehnlichkeit mit der folgenden Art, ist aber etwas länglicher. Der Kopf ist fein punktiert. Die Fühler sind braunroth, mit schwärzlichem Stiel und rostrothem Knopf. Das Halsschild ist flach gewölbt, nach vorn verengt, an den Seiten kaum gerundet, sehr fein und dicht punktulirt, und darüber besonders nach den Seiten zu mit etwas gröberen Punkten besät. Die Flügeldecken sind flach gewölbt; die Rückenstreifen sind grob, durch eingedrückte Punkte gekerbt, alle ganz; der Nathstreif ist neben dem Schildchen, wo er sich mit dem zweiten Streif verbindet, etwas undeutlich, und nur durch Punkte angedeutet; der Randstreif hängt mit dem Schulterstreif zusammen. Das vorletzte obere Hinterleibssegment ist ziemlich stark und dicht punktiert, das letzte sehr fein und dicht punktulirt. Die Beine sind braunroth."

Hinton's description (1945) under the name *Carcinops quattuordecimstriata* (Stephens). "Male: Length, 1.6 - 2.7 mm.; breadth, 1.1 - 1.8 mm. Body broadly obovate in outline, rarely nearly subparallel. Cuticle strongly shining and black or (probably only in recently emerged specimens) dark rufopiceous; black specimens with legs or only tarsi rufopiceous and antennae with club brownish or reddish testaceous and funicle dark rufopiceous.

Head with marginal stria well developed on occiput and on sides and more or less truncate and much less deeply impressed at anterior margin, rarely with transverse anterior section of stria absent or scarcely visible; stria occasionally interrupted at postero-lateral angles. Surface with two sizes of punctures as follows: (1) large round punctures about a third again as coarse as facet of eyes and separated by their own diameter to five times or more the diameter; and (2) punctures about one-half as coarse which are much more regularly distributed, being separated usually by two or three diameters; surface between punctures on middle of front, anteriorly and on a narrow belt near occipital stria with a very fine transverse to partly reticulate alutaceous microsculpture; surface elsewhere smooth between punctures.

Pronotum with sides slightly more strongly arcuate anteriorly. Apex with marginal line usually complete but occasionally very indistinct or even absent on middle half; side with marginal line broad, well impressed, and complete from apex to base; base with marginal line very fine and complete but usually completely concealed by base of elytra. Surface with a deep oval or nearly round puncture immediately in front of scutellum, this puncture being about half as large as scutellum; disk with punctures which are very slightly coarser than fine ones of head and are usually separated by three to five diameters; lateral third of pronotum with fine punctures similar to those of disk and also with puncture which are slightly coarser than coarse ones of head and are usually separated by

two to five or even more diameters; coarse punctures often absent in a large oval area which is adjacent to lateral margin and half way between base and apex; surface between pronotal punctures smooth.

Elytra with striae and stria punctures as shown in fig. 52 (in this paper, Fig. 80A); second (= 5th dorsal) to seventh (external subhumeral) striae extending from near base to near apex; first or sutural stria often absent on basal fourth or fifth and sometimes very feebly impressed elsewhere or only indicated by a row of large punctures; oblique humeral stria fine but long and distinct and posteriorly usually joining seventh stria. Intervals flat and with only fine punctures like middle of pronotal disk; apical non-striae belt of elytra with coarse and fine punctures intermixed as on lateral third of pronotum; coarse and fine punctures sometimes present on apical half of first and second intervals and, more rarely, also on apical half or third and fourth intervals; intervals with surface between punctures smooth.

Propygidium nearly as long as pygidium and, except for a narrow and finely punctate band as well as apical belt, with both fine and coarse punctures, the coarse punctures usually being slightly but distinctly larger than those of apex of elytra and separated by less than their own diameter to twice the diameter. Pygidium finely punctate throughout and basally with numerous, or only a few, coarse punctures which, however, are apparently never as coarse as those of propygidium.

Prosternum with caudal margin of process broadly rounded and received into a broad arcuate emargination of anterior margin of mesosternum; median (= carinal) striae nearly parallel but slightly more approximate opposite anterior third of front coxa and joined together in a broad curve before apex of process.

Mesosternal disk completely and thickly margined laterally and anteriorly; disk with coarse and fine punctures like sides of pronotum. Metasternum with inner lateral striae extending caudally and outwards to basal fifth; outer metasternal stria extending from middle coxal cavity feebly diverges laterally from inner stria and does not extend quite as far posteriorly as the latter; disk punctate like pronotum, *i.e.* with only fine punctures on middle and with both fine and coarse punctures on sides. Abdomen with lateral striae of first sternite nearly parallel but with inner one coarse and extending from near base of anterior process to very near caudal margin, whereas the outer one commences near the inner hind part of the coxal cavity and does not extend quite as near to the caudal margin of the segment.

Female: Externally similar to male."

Description. Body length, PPL, 1.98 - 2.57 mm (2.39 ± 0.03 , $n=20$), PEL, 1.76 - 2.40 mm (2.19 ± 0.03 , $n=20$). Width, 1.30 - 1.74 mm (1.60 ± 0.02 , $n=20$). Biometric data are given in Table 28. Marginal elytral stria well impressed and complete. Marginal epipleural stria complete. Epipleura with another stria between marginal elytral and epipleural striae, which is strongly crenate with coarse punctures and complete. In Japanese specimens, the apical non-striae belt of elytra only with fine punctures, not covered with coarse ones. Apical half of 1st and 2nd intervals of dorsal striae and apical

third of 3rd to 5th ones usually covered with coarse and fine punctures. Prosternal lobe densely and coarsely punctate, the punctures becoming sparser mediobasally. Laterobasal angles of the lobe deeply margined, and lateral third of basal margin or suture between keel and lobe strongly and deeply with a longitudinal impression, which extends obliquely and posteriorly on prosternum. Protibia (Fig. 91E) with 2 large denticles on apical half and 3 or 4 small ones on basal half of outer margin, the interval between large ones being wide about one-third as long as protibia.

Male genitalia as shown in Fig. 92.

Specimens examined. [Hokkaidô] 1 ex., Kun-neppu, 16/ix/1989, H. Torikura leg.; 4 ♀ ♀, Bibi, 28/vi/1987, M. Ôhara leg.; 1 ex., Naganuma, 4/viii/1989, A. Iwasaki leg.; 2 exs., Hitsuji-gaoka, Sapporo, 20/vii/1985, M. Ôhara leg.; 1 ex., Sapporo, 27/vii/1985, M. Suwa leg.; 1 ex., Ditto, 2/vii/1987, S. Kondo leg.; 1 ex., Hakken-zan, Sapporo, 13/vii/1985, M. Ôhara leg.; 16 ♀ ♀, Jôzankei, 27, 30/viii, 1/x/1985, 1986, M. Ôhara leg.; 6 exs., Misumai, Sapporo, 14/vii/1986, M. Ôhara leg.; 1 ex., Nakagoya, Ishikari-Tôbetsu, 8/vii/1990, S. Shiyake leg.; 1 ♀, 2 exs., Zenibako, 30/viii/1985, M. Ôhara leg.; 1 ex., Ditto, 19/vi/1979, N. Nishikawa leg.

[Honshû] <Ibaraki-ken> 1 ex., Tsukuba-Gakuentoshi, 3/v/1979, M. Ôhara leg. <Tôkyô-to> 1 ex., Mt. Jimba, 16/vi/1967, H. Takizawa leg.; 1 ex., Kinuta, 28/vi/1964, Y. Kurosawa leg. (NSMT); 3 exs., Tôkyô, 24/v/1971, no collector's name (NSMT); 1 ex., Kunitachi, 3/vii/1958, S. Nomura leg. (NSMT). <Kanagawa-ken> 1 ex., Fudakake, Tanzawa, 15/vii, 1971, M. Ishida leg.; 31 exs., Hatano, 5/vi/1971, 7/viii/1972, 22/vi/1974, 16/ix/1976, 28/v/1977, 24/vi/1984, 7/vii/1985, H. Takizawa leg.; 2 exs., Izu, Daruma-yama, 25/vii/1966, M. Ishida leg. <Gumma-ken> 1 ex., Ôsawa, 15/vi/1963, S. Kondo leg. <Nagano-ken> 1 ex., Shimashima, Shinano, 29/vii/1948, S. Ôsawa leg. <Niigata-ken> 2 exs., Senami, northern Echigo, 14/ix/1986, K. Baba leg.; 1 ex., Kurokawa, Echigo, 10/viii/1958, K. Baba leg.; 1 ex., Mizutanizawa, Mt. Minô-ji, northern Echigo, 7/vi/1958, K. Baba leg. <Aichi-ken> 2 exs., Shikatsu-mura, Owari, 25/x/1945, 27/iv/1946, S. Ôsawa leg. (NA); 1 ex., Meito-ku, Nagoya, 13/ix/1986, T. Tanabe leg.; 1 ex., Higashiyama, Nagoya, Owari, 13/v/1949, T. Nakane leg. (NA); 1 ex., Nagoya, 13/vi/1947, S. Ôsawa leg. (NA); 1 ex., Ditto, 30/ix/1945, T. Nakane leg. (NA); 4 exs., Ditto, viii/1950, no collector's name. <Gifu-ken> 1 ex., Minô-shi, 19/v/1979, Y. Takai leg. <Ôsaka-fu> 2 exs., Nishinari, 12/vi/1949, 17/v/1951, K. Sawada leg. (NA). <Nara-ken> 1 ex., Kasuga, 22-23/ix/1968, S. Kondo & T. Okutani leg. <Fukui-ken> 1 ex., Inumi, Ôi, 9/v/1987, T. Itô leg. <Shiga-ken> 1 ex., Ômi-hachiman, 15/x/1990, S. Shiyake leg. <Tottori-ken> 15 exs., Daisen, 12/x/1987, M. Ôhara leg.

[Shikoku] <Kagawa-ken> 1 ex., Toyonaka-chô, Sampô-gun, 4/v/1980, S. Ohmomo leg. (NSMT).

[Kyûshû] <Fukuoka-ken> 1 ex., Hakozaki, 3/vii/1946, Y. Kurosawa leg. (NA); 1 ex., Mt. Adachi, 31/v/1969, S. Nakao leg. (NA). <Kumamoto-ken> 60 exs., Yokoshima-chô, Tamana-shi, 9/vi/1986, E. Matsui leg.; 3 exs., Ue-mura, Kuma-gun,

6/vi/1986, E. Matsui leg. <Miyazaki-ken> 1 ex., Takachiho-no-mine, 9/vii/1984, S. Masuda leg.; 99 exs., Ditto, 19, 27/vii/1983, 10/vii/1984, M. Ôhara leg.; 6 exs., Ebino-kôgen, 29/iv/1986, E. Matsui leg. <Kagoshima-ken> 3 exs., Toso, Kagoshima-shi, 7/iv/1984, M. Ôhara leg.; 1 ex., Kôrimoto, Kagoshima-shi, 16/vi/1981, Y. Takai leg.; 4 exs., Chôjô-bokujô, Kushikino, 20/v/1984, M. Ôhara leg.; 51 exs., Iriki-bokujô, 17/iii/1985, K. Tomiyama leg.; 1 ex., Kirishima, 29/vii/1971, T. Nakane leg. (NA); 15 exs., Kaimon, Satsuma, 1/vi/1983, K. Tomiyama leg. (NA); 14 exs., Kamijô-kôgen, Kihoku-chô, 26/v/1985, Y. Harada leg.; 1 ex., Chôsa, 22/v/1984, M. Ôhara leg.

[Nansei Isles.] <Okinawa-Hontô Is.> 1 ex., Nago sea park, 22/iii/1983, T. & T. Nakane leg. (NA). <Iô-tori-shima Is.> 5 exs., 128°15', 27°50', 13/vii/1991, Y. Kusui leg.

[Ogasawara Isles.] <Haha-jima Is.> 1 ex., Kitamura, vii-ix/1976, Y. Yoshida leg. (NA).

Distribution (Fig. 93). Japan (Hokkaidô, Honshû, Shikoku, Kyûshû, Izu Isles., Nansei Isles., Ogasawara Isles.); nearly cosmopolitan.

Remarks. *Carcinops pumilio* is easily recognized by the characters given in the key and description: it cannot be confused with any other Japanese species of the tribe Paromalini.

The species occurs on various decaying organic matters, such as compost piles, cow, pig and hen manure, donkey and human excrement, carrion, under bark, etc. Hinton (1945) summed up the habitats of this species and also recorded in waste grain in the store house.

Jones (1929) noted that this species is an intermediate host of *Hymenolepis carioca*.

Table 28. Biometric data of *Carcinops pumilio* (Erichson).

| | |
|------|--------------------------|
| APW | 0.54-0.74 (0.68±0.01) 20 |
| PPW | 1.15-1.49 (1.39±0.02) 20 |
| PL | 0.56-0.78 (0.73±0.01) 20 |
| EL | 1.18-1.49 (1.39±0.02) 20 |
| EW | 1.30-1.74 (1.60±0.02) 20 |
| ProW | 0.78-0.96 (0.85±0.01) 20 |
| ProL | 0.27-0.42 (0.36±0.01) 20 |
| PyL | 0.34-0.49 (0.44±0.01) 20 |
| PTL | 0.51-0.69 (0.58±0.01) 19 |
| MSTL | 0.54-0.69 (0.59±0.01) 19 |
| MTTL | 0.51-0.74 (0.68±0.01) 20 |

Genus *Australomalus* Mazur, 1981

Australomalus Mazur, 1981b: 379 [type species: *Australomalus fijianus* Mazur, 1981b: 379].

Mazur's description. "Body oval, more or less convex. Pronotum with a complete marginal stria, its base an irregular row of large punctures. Elytra with or without traces of dorsal and humeral striae. Pronotum with distinct carinal striae. Mesosternum very short; marginal stria widely interrupted anteriorly and replaced by a median stria. Mesometasternal suture absent or indistinct.

Sexual dimorphism: female with the pygidium distinctly sculptured."

Australomalus montivagus (Lewis, 1892)

(Fig. 94, 95, 96)

Paromalus montivagus Lewis, 1892: 37 [Japan: Fujisan].

Platylomalus montivagus: Kryzhanovskij and Reichardt, 1976: 275; Hisamatsu, 1985: 224, pl. 40, no. 26.

Australomalus montivagus: Mazur, 1984: 133.

Japanese name: Maru-chibi-hirata-emma-mushi.

Original description. "Ovalis, convexiusculus, niger, supra, punctulatus; pedibus rufo-brunneis; elytris striis obsoletis; pygidio sublaevi vel grosse vermiculato; mesosterno marginato. L. 2.1/4 - 2.1/2 mill.

Oval, convex, black, punctulate above, with a strigose surface-sculpture visible under the microscope; the head lightly impressed in front, somewhat prominent over the eyes, stria complete, strong above the eyes, fine anteriorly; the thorax bisinuous behind the neck, anterior angles obtuse and depressed, stria complete, and on the edge before the scutellum is a row of ten or twelve large punctures; the elytra, punctuation larger and more dense than that of the thorax except on the dorsal area behind the scutellum, the striae are obsolete and in their place the punctures are rugose and confluent; a narrow margin at suture is smooth, the epipleural stria is fine and passes round the apex, and terminates after passing the angle at the suture; the propygidium is punctulate like the thorax; the pygidium impunctate in the female and microscopically strigose, in the male it is narrowly smooth at the base, with a coarse vermicular sculpture at the apex; the prosternum bistriate, striae indistinctly joined at the base, where the margin is a little broad; the mesosternum short and transverse, marginal stria nearly complete, being a little broken in the middle only, transverse stria widely sinuous, suture invisible; the metasternum, lateral stria oblique, punctuation sparse; the anterior femora conspicuously grooved like those figured for *Phelister Simoni* Lew. (Ann. & Mag. Nat. Hist. 1889, vol. iv, p.46); the anterior tibiae 5-6-dentate, posterior without spines. The minute strigosity is more apparent on the sternal plates than on the upper surface.

The facies of this species is like a very large *Abraeus*, and it is the only species

noticed in this paper with an anterior marginal stria to the mesosternum.

Hab. Japan. I took several specimens at different places bordering the great plain of Fujisan in May 1880. It frequents old beeches."

Description. Male and female. Body length, PPL, 3.57 - 3.70 mm (3.62 ± 0.03 , $n=4$), PEL, 3.39 - 3.51 mm (3.43 ± 0.03 , $n=4$). Width, 2.13 - 2.95 mm (2.51 ± 0.05 , $n=16$). Biometric data are given in Table 29. Body oval, black and shining; tarsi, mouthparts and antennae reddish brown.

Head sparsely covered with coarse punctures, which are separated by two or three times their diameter, the punctures becoming a little finer anteriorly; interspace among the punctures with alutaceous microsculptures.

Pronotum (Fig. 94A) sparsely covered with coarse, somewhat longitudinal oblong, and shallow punctures, which are separated by two to four times their diameter, and with other fine punctures intermingled; interspace among these punctures with alutaceous microsculptures.

Epipleural marginal stria fine and complete. Elytral marginal stria (Fig. 94A) (in original description, epipleural stria) strongly impressed and carinate. Epipleura impunctate, with alutaceous microsculptures. Oblique humeral stria present on basal fourth.

Propygidium densely covered with large, round and shallow punctures, which are unevenly separated by their own diameter to one-third the diameter. The punctation is not similar to that of pronotum in disagreement with the original description.

The male and female are confused in the original description; in reality, the pygidium is sparsely clothed with fine punctures and with alutaceous microsculptures in the male; in the female it has a coarse vermicular sculpture (Fig. 94C).

Anterior margin of prosternal lobe (Fig. 94B) truncate, its marginal stria complete and inwardly curved basally; lateral side of the lobe with another short margin which is strongly carinate; disk of the lobe evenly and finely punctate, the punctures being separated by about twice their diameter and becoming finer and sparser around margin. Prosternal process completely with carinal striae, which are strongly carinate and nearly parallel, and of which the basal ends are usually not jointed with each other along the basal margin of the lobe.

Anterior margin of mesosternum (Fig. 94B) deeply emarginate at middle, its marginal stria carinate and nearly complete, being shortly interrupted at middle; disk sparsely covered with fine punctures. Meso-metasternal suture strongly carinate, complete and widely sinuous. Disk of metasternum sparsely covered with large, oblong and shallow punctures, which are separated by two to five times their diameter, and become finer medially; area along mid line finely punctate, sometimes densely punctate; interspace among punctures with alutaceous microsculpture; surface feebly depressed mediobasally. Lateral metasternal stria carinate, extending obliquely and posteriorly, attaining to near basal one-third of metasternal-metepisternal suture.

Table 29. Biometric data of *Australomalus montivagus* (Lewis).

| | |
|------|--------------------------|
| APW | 0.88-1.10 (0.99±0.01) 16 |
| PPW | 1.88-2.38 (2.11±0.04) 16 |
| PL | 1.00-1.25 (1.17±0.02) 16 |
| EL | 2.07-2.57 (2.29±0.04) 16 |
| EW | 2.13-2.95 (2.51±0.05) 16 |
| ProW | 1.07-1.57 (1.24±0.03) 16 |
| ProL | 0.38-0.56 (0.42±0.01) 16 |
| PyL | 0.47-0.75 (0.67±0.02) 16 |
| PTL | 0.75-0.94 (0.86±0.02) 16 |
| MSTL | 0.69-0.88 (0.81±0.02) 16 |
| MTTL | 0.82-1.07 (0.95±0.02) 16 |

Intercoxal disk of 1st abdominal sternum sparsely covered with coarse punctures, which are separated by two to five times their diameter.

Protibia dilated, with 5 or 6 denticles on outer margin.

Male genitalia as shown in Fig. 95.

Specimens examined. [Hokkaidô] 1 ♀, Nopporo, 30/v/1987, S. Kudô leg.; 1 ♂, Ditto, 21/v/1985, M. Ôhara leg.; 1 ♀, Maruyama, 28/iii/?, no collector's name. (EIHU).

[Honshû] <Miyagi-ken> 1 ♂, Moriyasu, Akiu-mura, 24/vi/1951, no collector's name (NSMT). <Fukushima-ken> 1 ♂, Hirasawa-rindô, Hinoemata-mura, 21/v/1988, H. Haga leg.; 1 ♂ 1 ♀, Hizumari, Tateiwa, Minami-aizu, 8/v/1949, Y. Kurosawa leg. (NSMT); 1 ♂, Yunohana, Tateiwa, Minami-aizu, 7/v/1949, Y. Kurosawa leg. (NSMT); 1 ex., Ôtakiyama, Omata, Ônuma, 15/vii/1950, Y. Kurosawa leg. (NSMT). <Yamagata-ken> 1 ♀, Tokuami, Kitaoguni, Oguni, 2/vi/1957, I. K. leg. (NSMT). <Tôkyô-to> 1 ♀, Nippara, Okutama, 12/iv/1983, M. Ishida leg. <Kanagawa-ken> 1 ♂, Ôwaki-dani, Hakone, 19/ix/1976, Y. Hirano leg. <Shizuoka-ken> 1 ♂, Mt. Amagi, 27/v/1956, H. Hayashi leg. <Niigata-ken> 1 ♀, Sasagamine, Myôkô-kôgen, 29/viii/1932, Y. Kusui leg. <Gifu-ken> 2 ♂ ♂ 1 ♀, Kammuri-yama-tôge, Tokuyama, 1/vi/1986, Y. Takai leg.; 1 ♂, Ditto, 11v/1986, Y. Takai leg.; 1 ♂, Ditto, 10/x/1986, Y. Takai leg. <Nara-ken> 1 ♂, Kasuga, 9/iv/1950, S. Uéno leg.; 2 ♂ ♂ 1 ♀, Ditto, 20/v/1951, K. Sawada leg. <Kyôto-fu> 1 ♂, Kibune, 9/iii/1950, A. Nobuchi leg.; 1 ♂ 1 ♀, Ditto, 9/vi/1953, A. Nobuchi leg. <Wakayama-ken> 1 ♀, Mt. Gomanodan, 2/viii/1957, H. Kono leg. (Ôsaka Mus.).

[Kyûshû] <Fukuoka-ken> 2 exs., Mt. Adachi, 7/vii/1982, 28/iv/1964, S. Nakao leg. (NA). <Ôita-ken> 1 ex., Mt. Kujû, 20/v/1979, S. Nakao leg. (NA). <Miyazaki-ken> 2 exs., Mt. Sobo, 10-12/v/1969, H. Takizawa leg.

Distribution (Fig. 96). Japan (Hokkaidô, Honshû, Shikoku, Kyûshû). Newly recorded from Hokkaidô and Kyûshû.

Remarks. *Australomalus montivagus* is quite peculiar by its very broadly oval and convex form and the transverse punctured row on the posterior margin of the pronotum; it cannot be confused with any other species of the tribe.

No details are known about habitat requirements of this species. Some specimens were collected in rotting woods.

Genus *Platylomalus* Cooman, 1948

Platylomalus Cooman, 1948: 134 [type species: *Hister complanatus* Panzer, 1797].

Paromalus Lewis, 1907: 316. nec. Erichson, 1835: 167, synonymized by Cooman, 1948: 134.

Key to the Japanese species of the genus *Platylomalus* Cooman

- 1(4) Apical end of marginal elytral stria extending to suture of elytra, and curved at medio-posterior angle of elytra, then extending anteriorly.
- 2(3) Disk of mesosternum with a transverse stria, which is trapezoid (Fig. 86B). Pygidium of female deeply engraved with furrows (fig. 97C). *P. fujisanus* (Lewis, 1892)
- 3(2) Disk of mesosternum without transverse stria (Fig. 107B). Pygidium of female densely punctate at apex, not engraved with furrows. *P. viaticus* (Lewis, 1892)
- 4(1) Apical end of marginal elytral stria not attaining to suture of elytra.
- 5(6) Elytra coarsely punctate, the area along oblique humeral depression with large punctures (Fig. 110A). Disk of mesosternum without a transverse stria. *P. kusuii* M. Ôhara, sp. nov.
- 6(5) Elytra rather evenly punctate, without large punctures. Disk of mesosternum with a transverse stria. (In *P. mendicus*, the transverse stria sometimes absent.)
- 7(8) Transverse stria of mesosternum trapezoid (Fig. 105B). Mesotibia clearly with 3 spines. Metatibia with 1 spine. Pygidium of female engraved with a large and ocelloid sculpture. *P. persimilis* (Lewis, 1888)
- 8(7) Disk of mesosternum with a transverse stria, which is smoothly curved and sometimes interrupted. Mesotibia with 4 spines. Metatibia with 2 spines.
- 9(10) Body length 3.0 - 3.5 mm. Marginal stria of pronotum nearly complete anteriorly. Pygidium of female engraved with irregular furrows except on its margin. *P. niponicus* (Lewis, 1899)
- 10(9) Body length 1.8 - 2.3 mm. Marginal stria of pronotum broadly interrupted at anterior middle. Pygidium of female engraved with two small circular sculptures (Fig. 99D). *P. mendicus* (Lewis, 1892)

Platylomalus fujisanus (Lewis, 1892)

(Fig. 97 and 98)

Paromalus fujisanus Lewis, 1892: 34 [Japan: Honshû]; Cooman, 1937: 160.

Platylomalus fujisanus: Hisamatsu, 1968: 31 [Shikoku]; 1985: 224 [photo]; Kryzhanovskij and Reichardt, 1976: 276; Mazur, 1984: 134.

Japanese name: Fuji-chibi-hirata-emma-mushi.

Original description. "Oblongo-ovatus, convexiusculus, niger, nitidus, supra punctatus; prosterno striis parallelis postice junctis; pronoto ante scutellum foveolato; mesosternum stria transversali biangulata; pedibus piceis. L., 2 mill.

Oblong-oval, rather convex, black, shining, punctured above; the head rather broad, impressed in front, stria complete, surface clearly and evenly, not thickly punctured; the thorax, stria complete and strong at the sides, very fine behind the head, wholly punctured, with a distinct scutellar fovea visible amongst the punctures, anterior angles rather depressed, anterior margin impressed behind the eyes; the elytra punctured like the thorax except in the sutural area before the apex, where the punctures are oblong, epipleural stria continues along the apex and turns round the sutural angle, one oblique obsolete stria; the propygidium sparsely and evenly punctulate; the pygidium in the male has a raised exterior margin, and within the margin the whole surface is evenly vermiculate in sculpture, in the female the pygidium is immarginate, irregularly and sparsely punctured at the base, nearly smooth at the apex; the prosternum bistriate, striae parallel at the sides, bent inwards at either end, keel with a few punctures very irregularly set, anterior lobe somewhat straight on the anterior edge and sparsely punctured; the mesosternum, transverse stria middle part nearly straight, arcuate on each side, not angulate, suture not apparent, surface sparsely punctulate; the metasternum with large punctures between the intermediate and posterior coxae, punctures gradually becoming finer on the median area and especially behind the mesosternum; anterior tibiae 4-dentate.

This species must be placed next to *P. bistriatus*, Er., from America.

Hab. Japan. I obtained a considerable number of specimens at Kiga, Hakone, Subashiri, and Nikko."

Description. Male and female. Body length, PPL, male, 1.62 - 1.97 mm (1.82 ± 0.03 , n=13), female, 1.56 - 2.01 mm (1.76 ± 0.04 , n=13), PEL, male, 1.52 - 1.85 mm (1.70 ± 0.03 , n=13), 1.50 - 1.77 mm (1.64 ± 0.02 , n=13). Width, male, 1.00 - 1.18 mm (1.10 ± 0.02 , n=13), female, 0.99 - 1.14 mm (1.08 ± 0.01 , n=13). Biometric data are given in Table 30. Body oblong, black and shining; femora, tarsi, mouthparts and antennae red brown.

Frontal stria of head weakly carinate and complete. Disk of head sparsely clothed with fine and deep punctures, which are separated by two to four times their diameter and become denser apically.

Pronotal sides (Fig. 97A) evenly and rather strongly convergent to apices. Surface

of pronotum weakly depressed behind eyes. Marginal stria weakly carinate and complete laterally and apically. Disk of pronotum evenly and moderately punctate except near the apical angles and behind eyes, the impunctate areas being clothed with microscopic punctures only; the moderate-sized punctures becoming denser and finer on lateral third and becoming coarser along basal margin, with the microscopic punctures intermingled. Antescutellar area with a shallow and longitudinal depression.

Epipleural marginal stria present on apical half and well impressed. Marginal elytral stria deeply impressed and complete, its apical end extended along apical margin of elytron, attaining to sutural angle, then inwardly bent, and shortly extended anteriorly. Epipleura impunctate, rarely clothed with microscopic punctures, and with coarse rugae medially. Disk of elytra evenly and coarsely punctate except on a narrow band along the suture, which is clothed with microscopic punctures and feebly elevated, and on extreme apical band; the coarse punctures somewhat longitudinal and separated by their own diameter to thrice the diameter, becoming coarser around scutellum and near oblique depression, their interspaces with microscopic punctures intermingled. Dorsal stria absent, but oblique and shallow depressions present on laterobasal half.

Propygidium sparsely covered with coarse, shallow and round punctures, which become sparser and finer laterally and basally. Pygidium (Fig. 97C) evenly covered with fine punctures, which are separated by twice their diameter; some other oblong, shallow and large punctures present near the basal margin. In female, whole surface except for a narrow area along margin evenly covered with vermicular sculptures (Fig. 97C).

Anterior margin of prosternal lobe (Fig. 97B) truncate anteriorly; marginal stria of lobe absent; basal angles strongly carinate and its insides deeply depressed; disk irregularly scattered with moderate or coarse and deep punctures, which are separated by two to five times their diameter. Prosternal process completely with carinal striae, which are well impressed and feebly divergent apically; disk sparsely and finely punctate. Lateral descending stria short and strongly carinate.

Anterior margin of mesosternum strongly emarginate at middle; marginal stria absent anteriorly, but complete and well impressed laterally, its basal end strongly bent inwards and apical end continued to lateral metasternal stria; disk with punctation similar to that of prosternal process; transverse stria well impressed, straight on middle part, and obliquely and posteriorly arcuate on each side, usually not angulate (sometimes angulate). Meso-metasternal suture indistinct. Intercoxal disk of metasternum evenly covered with longitudinal and moderate punctures, which are separated by their own diameter to twice the diameter, and become finer medially and coarser laterally. Lateral disk covered with few large punctures around margin. Lateral metasternal stria well impressed, extending obliquely and posteriorly and attaining to near apical third.

Intercoxal disk of 1st abdominal sternum evenly covered with oblong and coarse punctures, which become finer medially and are separated by two to four times their diameter. First abdominal stria complete and well impressed.

Protibia with 4 denticles on outer margin. Mesotibia with 3 spinules on outer margin. Metatibia with 2 spinules near the apex.

Table 30. Biometric data of *Platylomalus fujisanus* (Lewis).

| | Male | Female |
|------|---------------------------|---------------------------|
| APW | 0.47-0.57 (0.53± 0.01) 13 | 0.47-0.55 (0.51± 0.01) 13 |
| PPW | 0.95-1.12 (1.02± 0.02) 13 | 0.91-1.06 (0.99± 0.01) 13 |
| PL | 0.51-0.67 (0.59± 0.01) 13 | 0.55-0.65 (0.59± 0.01) 13 |
| EL | 0.89-1.10 (1.02± 0.02) 13 | 0.85-1.12 (1.00± 0.02) 13 |
| EW | 1.00-1.18 (1.10± 0.02) 13 | 0.99-1.14 (1.08± 0.01) 13 |
| ProW | 0.47-0.59 (0.53± 0.01) 13 | 0.49-0.59 (0.55± 0.01) 13 |
| ProL | 0.12-0.20 (0.18± 0.01) 13 | 0.16-0.55 (0.38± 0.05) 13 |
| PyL | 0.22-0.32 (0.26± 0.01) 13 | 0.24-0.32 (0.27± 0.01) 13 |
| PTL | 0.35-0.43 (0.40± 0.01) 13 | 0.35-0.45 (0.40± 0.01) 13 |
| MSTL | 0.33-0.43 (0.38± 0.01) 13 | 0.33-0.39 (0.37±0.005) 12 |
| MTTL | 0.45-0.53 (0.50±0.005) 13 | 0.39-0.45 (0.42± 0.01) 13 |

Male genitalia as shown in Fig. 98.

Specimens examined. [Honshû] <Aomori-ken> 1 ♀, Towada, 16-19/vi/1968, H. Takizawa leg. <Nagano-ken> 1 ex., Togakushi, 9/viii/1963, Y. Kishi leg.; 1 ex., Agematsu, Koma-ga-take, 12/vi/1949, S. Ôsawa and T. Nakane leg. <Gifu-ken> 2 ♂♂ 3 ♀♀, Kammuri-yama-tôge, Tokuyama-mura, 10/x/1986, 26/xi/1988, Y. Takai leg. <Mie-ken> 1 ex., Okimi Pass, 12/vi/1952, H. Ishida leg. <Wakayama-ken> Gomadan, 27/viii/1967, M. Yoshida leg. <Hyôgo-ken> 2 exs., Hataganaru, 24, 26/vi/1955, T. Nakane leg.; 1 ♂, Hyônosen, 27/iv/1986, T. Itô leg. <Tottori-ken> 1 ex., Daisen, 26/iv/1942, K. Sakaguchi leg.; 1 ex., Ditto, 6/vi/1955, K. Sawada leg.; 1 ex., Ditto, 11/vii/1948, M. Iga leg.; 3 exs., Ditto, Hôki, 800m, 4/viii/1942, M. Azuma leg. <Sado Is.> 1 ♂, Tataramine, Sado Is., 28/vii/1947, M. Iga leg.

[Kyûshû] <Fukuoka-ken> 2 ♂♂ 1 ♀, Mt. Hiko-san, 23/x/1985, M. Ôhara leg. <Kumamoto-ken> 1 ♀, Shiraga-dake, 13/v/1984, M. Ôhara leg. <Miyazaki-ken> 1 ex., Mt. Sobo, 10-12/v/1967, H. Takizawa leg.

Distribution. Japan (Honshû, Kyûshû). New to Kyûshû.

Remarks. *Platylomlaus fujisanus* resembles *P. viaticus* superficially, but they can readily be distinguished by several characters given in the key and description.

Little is known about the habitats of this species. Some specimens were collected under bark.

Platylomalus mendicus (Lewis, 1892)

(Fig. 99, 91, 92)

Paromalus mendicus Lewis, 1892: 33 [Japan]; Lewis, 1899: 21 [Java]; Cooman, 1937: 138 [Shanghai,

Indochina].

Platylomalus mendicus: Cooman, 1948: 138; Mazur, 1984: 135; Hisamatsu, 1985: 225 [photo].

Japanese name: Hime-chibi-hirata-emma-mushi.

Original description. "*P. biarculus* simillimis at paulo minor; elytris propygidioque distincte punctulatis; mesosterno stria transversali nulla. L.2-2.1/2 mill.

Oblong-oval, rather flat, black; antennae and legs reddish; the head distinctly but not densely punctured, stria complete, well-marked, and angulate over the eyes; the thorax visibly punctured behind the anterior angles, less so laterally, and nearly smooth on the disk, scutellar spot very small and placed a little away from the edge, stria interrupted behind the neck; the elytra much more distinctly punctured except on the area behind the scutellum and a very narrow margin along the suture, one short basal stria, somewhat straight but ill-defined; the propygidium clearly and rather closely punctured; the pygidium nearly smooth, in the male there are obscure and ill-defined marks but no vermicular sculpture; the prosternum is a little broader than in *P. biarculus*, Mars., bistrigate, striae strong, feebly sinuous at the sides, and widening outwards a little in front and joining posteriorly; the mesosternum feebly and sparsely punctulate, without a transverse stria, lateral furrow deep and common to it and the metasternum; the suture is clearly seen between the meso- and metasterna; anterior tibiae 4-dentate.

This species differs from *P. biarculus* in having the elytra distinctly punctured, by the absence of the mesosternal transverse stria, and by the want in the male of vermicular sculpture on the pygidium.

Hab. Japan. I found this insect at Kashiwagi and in several places in Higo."

Description. Male and female. Body length, PPL, 1.87 - 2.23 mm (2.05 ± 0.02 , n=20), PEL, 1.73 - 2.03 mm (1.90 ± 0.02 , n=20). Width, 1.14 - 1.34 mm (1.26 ± 0.01 , n=20). Biometric data are given in Table 31. Body oblong, dark brown or black and shining; femora, tibiae, mouthparts and antennae rufopiceous.

Frontal stria (Fig. 100C) of head well impressed and complete. Disk sparsely covered with moderate punctures which are separated by two to four times their diameter and become a little denser apically; area between the punctures shining.

Pronotal sides (Fig. 99A, 100A) feebly arcuate and convergent on basal two-thirds, then strongly convergent apically. Emarginated portion of anterior margin of pronotum feebly bisinuate. Marginal stria complete laterally, but broadly interrupted anteriorly behind neck. Disk sparsely and evenly clothed with fine punctures, with microscopic punctures intermingled and becoming denser on median third of pronotum, A small puncture present on antescutellar area somewhat distant from margin.

Epipleural marginal stria weakly impressed on apical half. Elytral marginal stria deeply impressed and complete, its apical end extended to lateral two-thirds of posterior margin of elytron. Epipleura even and sparsely clothed with microscopic punctures. Disk of elytra (Fig. 99A) sparsely and coarsely punctate except on a narrow band along suture, which is sparsely clothed with microscopic punctures and feebly elevated; on extreme

apical band, the punctures becoming finer mediobasally, and coarser near oblique depression. Dorsal stria absent, but oblique depression present on lateral half on basal third.

Propygidium sparsely covered with coarse, shallow and round punctures, which are separated by their own diameter to four times the diameter. Pygidium (Fig. 99C, D) sparsely and finely punctate, the punctures becoming coarser near basal margin. In female, circular and linear sculptures present on apical half, which are shown in Fig. 99D. These female sculptures are found in the specimens from Okinawa, Ryûkyû Isles., but not in the specimens from Fukushima-ken, Honshû.

Anterior margin of prosternal lobe (Fig. 99B) truncated; anterior angles of the lobe round; marginal stria present at lateral third on basal half, extending obliquely and inwardly; lateral margin of lobe strongly carinate and its inside deeply depressed near the basal angles; disk irregularly scattered with fine and deep punctures, which are separated by their own diameter to four times the diameter. Prosternal process completely with carinal striae, which are divergent anteriorly and posteriorly, narrowest at basal two-thirds, and not meeting at either end. Lateral descending stria short, complete and strongly carinate.

Anterior margin of mesosternum (Fig. 99B) feebly emarginate at middle; its marginal stria absent anteriorly, complete laterally; basal end of the marginal stria bent inwards and apical end continued to lateral metasternal stria; punctation of mesosternal disk similar to that of prosternal process; transverse stria weakly impressed, usually interrupted at middle (in the original description, the stria is absent). Meso-metasternal suture finely depressed. Intercostal disk of metasternum sparsely clothed with fine punctures which are separated by three to eight times their diameter. Lateral disk sparsely covered with large, round and shallow punctures, which become finer apically. Lateral metasternal stria well impressed and extended obliquely and posteriorly, its apical end attaining to near metacoxal cavity. Post-mesocoxal stria extended along mesocoxal cavity and its outer end strongly bent posteriorly.

Intercostal disk of 1st abdominal sternum feebly depressed on lateral sides, and with punctation similar to metasternal ones. First abdominal stria complete and well impressed.

Protibia with 4 denticles on outer margin. Metatibia with 4 spinules on outer margin. Metatibia with two spinules near the apex.

Male genitalia as shown in Fig. 101.

Specimens examined. [Honshû] <Fukushima-ken> 13 exs., Kita-Aizu, Kuwabara, 15/iv/1950, T. Nakane leg. (NA); 1 ♂, 12 exs., Kami-miyori, Kita-Aizu, 16/iv/1950, K. Nagayama leg. (NA); 3 exs., Kawatani, Higashi-yama, Kita-Aizu, 24/x/1948, Y. Kurosawa leg. (NA).

[Nansei Isles.] <Okinawa-Hontô Is. > 11 exs., Sueyoshi-Kôen, Naha, 31/v/1988, T. Ueno leg. <Ishigaki Is.> 1 ex., Kabira, 25/v/1988, H. Daidô leg.

Distribution. Japan (Honshû, Shikoku, Kyûshû, Oki Is., Nansei Isles.); Russia (Primorskiy Krai); China; Viet-Nam; India; Taiwan; Indonesia.

Table 31. Biometric data of *Platylomalus mendicus* (Lewis).

| | |
|------|----------------------------|
| APW | 0.53-0.63 (0.60± 0.01) 20 |
| PPW | 1.04-1.26 (1.16± 0.01) 20 |
| PL | 0.59-0.71 (0.66± 0.01) 20 |
| EL | 1.02-1.30 (1.13± 0.01) 20 |
| EW | 1.14-1.34 (1.26± 0.01) 20 |
| ProW | 0.57-0.69 (0.63± 0.01) 20 |
| ProL | 0.20-0.28 (0.23± 0.004) 20 |
| PyL | 0.20-0.30 (0.24± 0.01) 20 |
| PTL | 0.41-0.47 (0.44± 0.004) 20 |
| MSTL | 0.30-0.39 (0.36± 0.01) 20 |
| MTTL | 0.37-0.49 (0.42± 0.01) 20 |

Remarks. *Platylomalus mendicus* resembles *P. persimilis*; however, the different shape of the mesosternal transverse stria and the sculptures of the female pygidium will distinguished it from *P. pesimilis*.

Platylomalus niponensis (Lewis, 1899)
(Fig. 102, 103, 104)

Paromalus complanatus: Lewis, 1892: 33.

Paromalus niponensis Lewis, 1899: 21 [Japan]; Cooman, 1937: 142.

Platylomalus niponensis: Kryzhanovskij and Reichardt, 1976: 274; Mazur, 1984: 225; Hisamatsu, 1985: 225 [photo].

Japanese name: Ô-chibi-hirata-emma-mushi.

Original description. "The general outline of the body is less oblong -- that is, it is relatively broader than *P. complanatus*, the breadth being particularly seen in the width of the thorax and mesosternum; the legs and antennae are less elongate; the head more distinctly punctured, with the lateral border more elevated; the thorax has the marginal stria minutely interrupted in the middle behind the neck, and the anterior angles are more acute; the sculpture of the pygidium in the male is variable, but it is usually deeper, and the anastomosed sculpture is bordered behind usually with a semicircular furrow; the mesosternum has an indistinct biarcuate transverse stria, and its lateral stria terminates at the base rectangularly. Marseul says the head of *P. complanatus* is smooth, but there are fine and feeble points on the surface; the mesosternum has the lateral striae hamate at the base, and its transverse stria is fine but very clear and consists of a single arc. Long. 3-3.1/4 mill.

Hab. Found throughout Japan, chiefly under the bark of beech."

Description. Male, Female. Body oblong, black and shining; tarsi and antennae rufopiceous. Body length, PPL, male, 2.52 - 3.17 mm (2.98 ± 0.04 , n=17), female, 2.65 - 3.01 mm (2.82 ± 0.04 , n=9), PEL, male, 2.19 - 2.91 mm (2.68 ± 0.04 , n=17), female, 2.45 - 2.68 mm (2.54 ± 0.03 , n=8). Width, male, 1.47 - 1.90 mm (1.76 ± 0.02 , n=19), female 1.60 - 1.77 mm (1.68 ± 0.02 , n=9). Biometric data are given in Table 32.

Head (Fig. 103C) evenly covered with moderate punctures which are separated by twice their diameter. Frontal stria well impressed and complete.

Sides of pronotum (Fig. 102A) arcuate, slightly convergent anteriorly on basal three-fourths, thence strongly arcuate and convergent to apices. Marginal stria nearly complete, but a little broken at middle. Disk of pronotum sparsely clothed with fine punctures which are separated by four to six times their diameter and become coarser on lateral fourth. Antiscutellum area distinctly with a short longitudinal impression.

Marginal epipleural stria feebly impressed on apical half. Marginal elytral stria strongly carinate and complete, its apical end extending along the apical margin of elytron, and attaining to near lateral two-thirds. Epipleura shining and microscopically punctate. Oblique humeral stria present on basal one-fourth. First dorsal stria present on median third, weakly impressed. Another oblique stria deeply impressed on laterobasal half. Disk of elytra sparsely covered with coarse and shallow punctures which are separated by their own diameter to four times the diameter and become finer on mediobasal half and along the suture.

Propygidium sparsely covered with moderate punctures, with fine punctures intermingled. The male and female are confused in the original description; in reality, the pygidium (Fig. 103C) is densely and finely punctate in the male; in female, it has an anastomosed sculpture medially (Fig. 103D).

Anterior margin of prosternal lobe (Fig. 102B) truncate and rather broad; marginal stria of the lobe absent anteriorly, but distinctly present on lateral third; another short marginal stria on each lateral side and strongly carinate at basal angles of the lobe; disk sparsely and finely punctate, the punctures being separated by two to five times their diameter. Prosternal process with complete carinal striae; disk of the process sparsely and finely punctate; descending lateral stria short, strongly carinate.

Anterior margin of mesosternum deeply emarginate at middle, its marginal stria complete and carinate laterally, absent anteriorly; basal angles rectangulate; disk evenly and sparsely clothed with fine punctures, which are separated by about three times their diameter, and indistinctly with a biarcuate transverse line (Fig. 102B). Meso-metasternal suture slightly impressed and broadly sinuous. Intercostal disk of metasternum with punctures similar to those of metasternum. Lateral metasternal stria strongly carinate, extending obliquely and posteriorly on basal two-thirds, thence running along the metasternal-metepisternal suture, and attaining near the latero-posterior angle.

Intercostal disk of 1st abdominal sternum sparsely and finely punctate, and completely striate on lateral side, the stria strongly carinate.

Protibia (Fig. 103F) with 6 denticles on outer margin. Mesotibia with 4 spinules on outer margin. Metatibia with 2 spinules near the apex.

Table 32. Biometric data of *Platylomalus niponensis* (Lewis).

| | Male | Female |
|------|--------------------------|-------------------------|
| APW | 0.69-0.88 (0.83±0.01) 19 | 0.75-0.82 (0.79±0.01) 9 |
| PPW | 1.34-1.77 (1.66±0.02) 19 | 1.50-1.64 (1.57±0.01) 9 |
| PL | 0.78-1.01 (0.93±0.01) 19 | 0.78-0.92 (0.86±0.02) 8 |
| EL | 1.37-1.73 (1.60±0.02) 19 | 1.44-1.60 (1.54±0.02) 8 |
| EW | 1.47-1.90 (1.76±0.02) 19 | 1.60-1.77 (1.68±0.02) 9 |
| ProW | 0.72-1.01 (0.88±0.01) 19 | 0.82-1.01 (0.90±0.02) 8 |
| ProL | 0.23-0.39 (0.32±0.01) 19 | 0.29-0.33 (0.31±0.01) 8 |
| PyL | 0.33-0.49 (0.40±0.01) 19 | 0.29-0.43 (0.36±0.02) 8 |
| PTL | 0.52-0.72 (0.65±0.01) 19 | 0.56-0.62 (0.59±0.01) 9 |
| MSTL | 0.49-0.69 (0.59±0.01) 19 | 0.46-0.62 (0.54±0.01) 9 |
| MTTL | 0.59-0.78 (0.69±0.01) 19 | 0.56-0.69 (0.62±0.02) 9 |

Male genitalia as shown in Fig. 104.

Specimens examined. [Hokkaidô] 2♂♂ 3♀♀, Maruyama, Sapporo, 25/vi/1989, S. Shiyake leg.; 4♂♂ 2♀♀, Ditto, 10, 11/v/1989, M. Ôhara leg.; 1♂, 1 ex., Ditto, 5/v/1973, S. Kudô leg.; 2♂♂, Mt. Yôtei, Hirafu, Kutchan, 15-16, 22/vii/1991, M. Ôhara leg.

[Honshû] <Fukushima-ken> 1 ex., Naka-moiwa, Azuma-yama, 13/iv/1966, K. Tazoe leg.; 3 exs., Kami-miyori, Kita-Aizu, 16/iv/1950, K. Nagayama leg. (NA); 5 exs., Kuwabara, Kita-Aizu, 15/iv/1950, Y. Kurosawa leg. (NA); 4♂♂ 4♀♀, Ditto, (NSMT). <Tôkyô-to> 2 exs., Takao, 14/vi/1930, S. Asahina leg. <Nagano-ken> 1♂, Sanosaka, Hakuba Vill., 8/v/1983, M. Kiuchi leg.

Distribution. Japan (Hokkaidô, Honshû); Taiwan.

Remarks. *Platylomalus niponicus* is a relatively large species; it is similar to *P. persimilis* and *P. mendicus*, but can be distinguished by the different shape of the mesosternal transverse stria and the larger size.

Little is known about the habitats of this species. Some specimens were collected under bark.

***Platylomalus persimilis* (Lewis, 1888)**
(Fig. 105, 106)

Paromalus persimilis Lewis, 1888: 641 [Tenasserium]; Cooman, 1937, 133 [Tonkin].

Platylomalus persimilis: Mazur, 1984: 136; Hisamatsu, 1985: 224 [photo].

Japanese name: Kuro-chibi-hirata-emma-mushi.

Original description. "Ovalis, depressus, nigro-nitidus; precedenti proxime affinis at pygidio transversim sulcato. Long. 2. 1/2 mill.

Hab. Bhamo, in Birmania and Thagata, in Tenasserim.

This species is almost similar to annellus but the sulcus in the pygidium is elliptical and transverse instead of being circular."

Description. Body oblong, black and shining; femora, tarsi and antennae clear red brown. Body length, PPL, male, 2.03 - 2.50 mm (2.31 ± 0.06 , n=9), female, 1.76 - 2.35 mm (2.05 ± 0.08 , n=6); PEL, male, 1.79 - 2.25 mm (2.04 ± 0.05 , n=9), female, 1.64 - 2.11 mm (1.87 ± 0.08 , n=6). Width, male, 1.15 - 1.39 mm (1.28 ± 0.02 , n=9), female, 1.03 - 1.37 mm (1.19 ± 0.05 , n=6). Biometric data are given in Table 33.

Frontal stria of head clearly impressed and complete; disk of head evenly and finely punctate, the punctures being separated by about twice their diameter.

Pronotal sides (Fig. 105A) slightly arcuate and convergent to apices. Apical angles acute. Emarginated portion of apical margin bisinuated behind neck. Marginal stria complete laterally and rather broadly interrupted medially on anterior margin. Disk of pronotum evenly clothed with fine and deep punctures which are separated by three to five times their diameter.

Epipleural marginal stria present on apical half. Elytral marginal stria deeply impressed, densely crenate and complete, its apical end extending along the apical margin of elytron and attaining to lateral half. Epipleura impunctate and shining. Disk of elytra sparsely covered with coarse and deep punctures; the punctures three times as coarse as those of pronotum, separated by two to five times their diameter and becoming coarser laterobasally, and becoming finer narrowly along the suture and on extreme apical band.

Propygidium sparsely and coarsely punctate, the punctures becoming finer and denser basally. Pygidium (Fig. 105C) convex, and sparsely clothed with fine punctures which are separated by about three times their diameter in the male. In female, pygidium with a large ocelloid sculpture which is very deep, usually with several short foveae around.

Anterior margin of prosternal lobe (Fig. 105B) truncate, its median portion broadly straight. Marginal stria of lobe absent anteriorly and present on basal half at lateral third; another short marginal stria present on each basal angle and strongly carinate. Disk of the lobe sparsely covered with fine punctures which are separated by two to four times their diameter. Prosternal process completely with carinal striae, the striae being well impressed; disk sparsely and finely punctate. Descending lateral stria short and strongly carinate.

Anterior margin of mesosternum strongly emarginate medially, its marginal stria absent anteriorly and complete and well impressed laterally, the basal end of the stria rectangularly inwards, and the apical end continued with the metasternal lateral stria; disk of mesosternum densely clothed with fine punctures except for an inside area surrounded by a transverse stria and a meso-metasternal suture; transverse stria (Fig. 105B) rather strongly carinate. Meso-metasternal suture slightly impressed and complete. Intercostal

disk of metasternum sparsely clothed with fine punctures which are separated by four to six times their diameter and become sparser laterally. Lateral disk of metasternum sparsely covered with coarse punctures and with postcoxal stria which runs along the mesocoxal cavity and strongly sinuates near the lateral end. Lateral metasternal stria deeply impressed, extending posteriorly and obliquely on basal two-thirds, thence running along suture between metasternum and metepisternum, and its apical end attaining to near metacoxa and curved inwardly.

Intercoxal disk of 1st abdominal sternum sparsely and finely punctate and 1st abdominal stria present on each lateral side.

Protibia with 5 denticles on outer margin. Mesotibia with 4 spinules on outer margin. Metatibia with 1 spinule near apex.

Male genitalia as shown in Fig. 105.

Specimens examined. [Nansei Isles.] <Tokara-Nakano-shima Is.> 4♂♂ 2♀♀, Nakano-shima Is., Tokara Isles., 18/vii/1982, M. Ôhara leg. <Yoron Is.> 1♀, Yoron Is., 5/ix/1988, Y. Kusui leg. <Okinawa-Hontô Is.> 1♂, Yona, 13-15/vi/1970, H. Makihara leg. <Kerama Is.> 1♂ 1♀, Aka, Kerama, 2/viii/1987, Y. Kusui leg. <Ishigaki Is.> 1♂, Mt. Banna-dake, 20/ii/1982, K. Sawada leg.; 1 ex., Ditto, 31/x/1974, K. Tazoe leg.

Distribution. Japan (Nansei Isles.); Tenasserim; Viet-Nam.

Remarks. *Platylomalus persimilis* is very similar to *P. mendicus*, but differs by the black body, the trapezoid transverse stria of the mesosternum and the mesotibia bearing one spine.

Table 33. Biometric data of *Platylomalus persimilis* (Lewis).

| | Male | Female |
|------|--------------------------|--------------------------|
| APW | 0.63-0.69 (0.66± 0.01) 9 | 0.54-0.68 (0.60± 0.02) 6 |
| PPW | 1.08-1.28 (1.20± 0.02) 9 | 0.98-1.27 (1.10± 0.04) 6 |
| PL | 0.64-0.76 (0.71± 0.02) 9 | 0.56-0.73 (0.65± 0.02) 6 |
| EL | 1.08-1.27 (1.20± 0.02) 9 | 0.98-1.27 (1.09± 0.04) 6 |
| EW | 1.15-1.39 (1.28± 0.02) 9 | 1.03-1.37 (1.19± 0.05) 6 |
| ProW | 0.59-0.78 (0.72± 0.02) 9 | 0.61-0.71 (0.66± 0.02) 6 |
| ProL | 0.20-0.29 (0.25± 0.01) 9 | 0.15-0.27 (0.22± 0.01) 6 |
| PyL | 0.34-0.41 (0.36± 0.01) 9 | 0.24-0.29 (0.26± 0.01) 6 |
| PTL | 0.44-0.52 (0.48± 0.01) 9 | 0.37-0.49 (0.43± 0.02) 6 |
| MSTL | 0.37-0.49 (0.43± 0.01) 9 | 0.34-0.44 (0.39± 0.02) 6 |
| MTTL | 0.47-0.59 (0.52± 0.01) 9 | 0.42-0.51 (0.46± 0.02) 6 |

***Platylomalus viaticus* Lewis, 1892**
(Fig. 107, 108, 109)

Paromalus viaticus Lewis, 1892: 33 [Japan: Nikkō, Oyama, Kashiwagi, Nara, Kumamoto, and Yuyama, chiefly in the warmer districts of the islands].

Platylomalus viaticus: Kryzhanovskij and Reichardt, 1976: 275; Mazur, 1984: 136; Hisamatsu, 1985: 224 [photo].

Japanese name: Tsuya-chibi-hirata-emma-mushi.

Original description. "Oblongo-ovalis, depressiusculus, niger, nitidus supra punctulatus; ---- stria transversali nulla; metasterno leviter et sparse ---- ; propygidio pygidioque sublaevibus.

Oblong-oval, somewhat depressed, black, legs reddish; the head evenly punctured, a little prominent and obtusely angulate over the eyes, stria strong laterally, arched anteriorly, sinuous before the eyes, forehead flattish; the thorax bisinuate behind the head, punctured finely behind the neck and on the disk, punctures much larger at the sides and along the base, no scutellar fovea; the elytra are punctured like the sides of the thorax, sutural margin narrowly smooth, suture feebly raised before the apex to the middle of the dorsum, epipleural stria continues round the sutural angle, dorsal striae indistinct; the propygidium evenly, not closely punctured; pygidium in the female evenly punctulate, in the male punctulate except at the apex, which is transversely rough and very densely punctured; the prosternum, lobe sparsely but distinctly punctate, keel bistriate, stria feebly sinuous, bent at both ends, but not connected at either; the mesosternum without a transverse stria, suture apparent and like the metasternum, sparsely and finely punctured, especially in the median area; anterior tibiae 4-dentata."

Description. Male and female. Body oblong, black and shining; femora, tarsi, mouthparts and antennae rufopiceous. Body length, PPL, male, 1.64 - 1.91 mm (1.79 ± 0.03 , $n=9$), female, 1.49 - 1.77 mm (1.63 ± 0.06 , $n=5$); PEL, male, 1.52 - 1.72 mm (1.64 ± 0.02 , $n=9$), female, 1.45 - 1.64 mm (1.54 ± 0.03 , $n=4$). Width, male, 0.95 - 1.13 mm (1.05 ± 0.02 , $n=9$), female, 0.95 - 1.08 mm (1.02 ± 0.03 , $n=5$). Biometric data are given in Table 34.

Head (Fig. 108D) densely covered with coarse punctures which are separated by their own diameter to half the diameter, with microscopic punctures intermingled. Frontal stria complete and feebly carinate.

Pronotal sides (Fig. 107A) slightly arcuate and convergent to apices. Emarginated portion of apical margin bisinuated behind neck. Marginal stria complete laterally and anteriorly. Disk of pronotum densely covered with coarse and somewhat oblong punctures which are somewhat coarser than those of the head. Antescutellar area without a large puncture.

Epipleural stria weakly impressed on apical half. Marginal elytral stria deeply impressed and complete, coarsely punctate inside; the apical end of the stria extending

along apical margin of elytron, through apical sutural angle, and shortly extending anteriorly. All dorsal striae indistinct, but feeble oblique depressions present on laterobasal half of elytron. Punctuation of elytra (Fig. 107A) similar to pronotal one, but much coarser and sparser except on narrow band along suture and on extreme apex of elytra, the punctures becoming finer mediobasally and coarser around the oblique depression.

Propygidium densely and moderately punctate, the punctures becoming sparser and finer laterally. Pygidium evenly clothed with fine punctures which are separated by three to five times their diameter and become a little denser on apical third. In female, the punctuation of pygidium becoming much denser on apical third and sometimes with transverse depression near apex.

Anterior margin of prosternal lobe (Fig. 107B, 108C) truncate; marginal stria shortly impressed only near basal angle and carinate; disk sparsely covered with moderate punctures, which are separated by two to five times their diameter. Prosternal process with complete carinal striae; disk scattered with moderate punctures which are separated by two to ten times their diameter. Descending lateral stria short, complete and strongly carinate.

Anterior margin of mesosternum (Fig. 107B) deeply emarginate at middle, its marginal stria absent anteriorly, but complete and well impressed laterally; apical end of the marginal stria continued to basal end of lateral metasternal stria; disk sparsely clothed with fine punctures which are separated by three times their diameter; transverse stria absent. Intercoxal disk of metasternum similar to punctuation of mesosternum, the punctures becoming a little coarser laterally; lateral stria well impressed, extending obliquely and posteriorly, running along mesosternal-metepisternal suture on apical half, its apical end attaining near metacoxal cavity; lateral disk of metasternum sparsely and coarsely punctate. Postcoxal stria extending along mesocoxal cavity, its outer end strongly bent posteriorly.

Intercoxal disk of 1st abdominal sternum sparsely and moderately punctate; 1st abdominal stria straight, well impressed and complete.

Protibia (Fig. 108E, F) with 4 denticles on outer margin. Mesotibia with 3 spinules on outer margin. Metatibia with a spinule near apex.

Male genitalia: as shown in Fig. 109.

Specimens examined. [Honshû] <Aomori-ken> 1 ex., Mt. Osore, Shimokita, 31/vii/1956, T. Nakane leg. (NA). <Fukushima-ken> 1 ♂, Araumi, Minami-Aizu, 9/v/1948, K. Nagayama leg. (NA); 1 ex., Ashinohara, Egawa, Minami-Aizu, 18/v/1948, Y. Kurosawa leg. (NA); 1 ex., Yunohana, Tateiwa, Minami-Aizu, 9/viii/1948, Y. Kurosawa leg. (NA). 1 ♀, Nr. Oyama, Nr. Wakamatsu, Aizu, 14/v/1947, Y. Kurosawa leg. (NA); 1 ♂, Suimon, Ômaki, Asahida V., Minami-Aizu, 20/v/1948, Y. Kurosawa leg. (NA). <Saitama-ken> 1 ex., Yanagikoya, Chichibu, 22/vii/1933, S. Asahina leg. (NA). <Nara-ken> 3 exs., Kasuga, Nara, 19/vi/1957, 13/vi/1958, T. Nakane leg. (NA); 1 ex., Ditto, 30/iv/1950, N. Yato leg. (NA); 1 ♂, Nara Park, Nara-shi, 7/x/1987, K.

Sawada leg. <Hyôgo-ken> 1 ♂, Hataganaru, 24/v/1955, T. Nakane leg. (NA).

[Izu Isles.] <Hachijô-jima Is.> 1 ex., Suigenchi, Hachijô-jima, 26/vi/1958, K. Mizusawa leg. (NA).

[Kyûshû] <Fukuoka-ken> 1 ♂ 1 ♀, Mt. Hiko-san, 23/x/1985, M. Ôhara leg.

[Taiwan] 2 exs., Karapin, near Mt. Ari, 1/v/1941, Y. Yano leg. (NA).

Distribution. Japan (Honshû, Kyûshû); Taiwan; Russia (Chabarovskiy Kray).
New to Kyûshû.

Remarks. *Platylomalus viaticus* can easily be distinguished from *P. fujisanus* by the absence of a transverse stria on the mesosternum and the absence of furrows on the female pygidium. Lewis (1892) described sexual dimorphism in the state of the pygidium, but he confused the sexes.

Platylomalus kusuii M. Ôhara, sp. nov.

(Fig. 110, 111)

Japanese name: Ogasawara-chibi-hirata-emma-mushi.

Description. Body oblong, black and shining; femora, tarsi, mouthparts and antennae red brown. Body length, PPL, female, 2.09 - 2.60 mm (2.34 ± 0.08 , n=6); PEL, male, 1.99 mm, female, 1.89 - 2.36 mm (2.11 ± 0.06 , n=7). Width, male, 1.26 mm, female, 1.20 - 1.50 mm (1.35 ± 0.04 , n=7). Biometric data are given in Table 35.

Frontal stria of head clearly impressed and complete; disk of head sparsely and finely punctate, the punctures being separated by two to five times their diameter.

Pronotal sides (Fig. 110A) slightly arcuate and convergent to apical fourth, thence strongly convergent to apices. Emarginated portion of apical margin bisinuate behind neck. Marginal pronotal stria complete, but shortly interrupted at middle on anterior margin. Disk of pronotum densely clothed with microscopic punctures, which become sparser and coarser on lateral third and are separated by two to three times their diameter. Antiscutellum area with a large puncture.

Epipleural marginal stria present on apical two-thirds. Elytral marginal stria deeply impressed, coarsely crenate and complete, its apical end extending along the apical margin of elytron and attaining to lateral three-fourths. Epipleura shining and sparsely clothed with fine punctures. Disk of elytra (Fig. 110A) sparsely covered with moderate punctures; the punctures separated by two or three times their diameter, becoming denser and finer on apical half narrowly along the suture, and becoming coarser broadly on apical third of elytron and narrowly around an oblique depression which is present on the laterobasal half of the elytron; the punctation around the oblique depression very large, round and deep; extreme apical band impunctate. Dorsal striae of elytron absent, but a rudimentary impression (2nd dorsal stria ?) present on apical two-thirds of lateral third and another (3rd ?) on basal half of lateral half.

Table 34. Biometric data of *Platylomalus viaticus* (Lewis).

| | Male | Female |
|------|--------------------------|--------------------------|
| APW | 0.47-0.57 (0.53± 0.01) 9 | 0.46-0.54 (0.50± 0.02) 5 |
| PPW | 0.90-1.01 (0.97± 0.02) 9 | 0.81-1.00 (0.90± 0.03) 5 |
| PL | 0.51-0.61 (0.56± 0.01) 9 | 0.47-0.56 (0.53± 0.01) 5 |
| EL | 0.91-1.08 (0.99± 0.02) 9 | 0.86-0.98 (0.91± 0.02) 5 |
| EW | 0.95-1.13 (1.05± 0.02) 9 | 0.95-1.08 (1.02± 0.03) 5 |
| ProW | 0.46-0.56 (0.50± 0.01) 9 | 0.42-0.59 (0.50± 0.03) 5 |
| ProL | 0.10-0.15 (0.13±0.003) 9 | 0.14-0.15 (0.14±0.004) 5 |
| PyL | 0.17-0.27 (0.23± 0.01) 9 | 0.17-0.25 (0.21± 0.01) 5 |
| PTL | 0.35-0.44 (0.38± 0.01) 9 | 0.34-0.37 (0.36± 0.01) 5 |
| MSTL | 0.29-0.42 (0.34± 0.01) 9 | 0.29-0.34 (0.31± 0.01) 5 |
| MTTL | 0.37-0.42 (0.40± 0.01) 8 | 0.35-0.42 (0.40± 0.01) 5 |

Propygidium evenly and coarsely punctate, the punctures being separated by their own diameter to twice the diameter. Pygidium (Fig. 110C) densely clothed with fine punctures which are separated by their own diameter to twice the diameter. In female, pygidium with a punctation similar to that of the male and also with an irregular and liner sculpture (Fig. 110C).

Anterior margin of prosternal lobe (Fig. 110B) truncate; marginal stria of the lobe absent anteriorly and present laterally on median third; disk evenly covered with deep and moderate punctures which are separated by their own diameter to twice the diameter. Prosternal process completely with carinal striae, which are well impressed and feebly sinuate at middle, sometimes reduced basally; disk of the process sparsely clothed with fine punctures which are separated by two to four times their diameter. Descending lateral stria short and strongly carinate; outside area of the stria deeply depressed.

Anterior margin of mesosternum (Fig. 110B) feebly emarginate medially, its marginal stria absent anteriorly, and complete and well impressed laterally; the basal end of the stria hooked inwards; the apical end continued to metasternal stria; disk of the metasternum sparsely with fine punctures which are separated by three to five times their diameter, and with microscopic punctures sparsely intermingled. Meso-metasternal suture weakly impressed and feebly arcuate. Punctation of intercoxal disk of metasternum a little denser and finer than mesosternal ones, and the fine punctures being usually represented in pairs; lateral disk sparsely covered with large, round and shallow punctures, which become smaller and sparser; lateral metasternal stria deeply impressed, extending obliquely and outwardly, and reaching near the posterior coxal cavity; postmesocoxal stria well impressed, extending along basal margin and its lateral end strongly bent posteriorly.

Table 35. Biometric data of *Platylomalus kusuii* M. Ôhara, sp. nov.

| | Male (n=1) | Female |
|------|------------|--------------------------|
| APW | 0.61 | 0.59-0.71 (0.66± 0.02) 7 |
| PPW | 1.24 | 1.16-1.42 (1.28± 0.04) 7 |
| PL | 0.75 | 0.63-0.89 (0.76± 0.04) 7 |
| EL | 1.14 | 1.10-1.36 (1.23± 0.04) 7 |
| EW | 1.26 | 1.20-1.50 (1.35± 0.04) 7 |
| ProW | 0.63 | 0.61-0.75 (0.68± 0.02) 6 |
| ProL | 0.26 | 0.22-0.30 (0.25± 0.01) 6 |
| PyL | 0.32 | 0.22-0.32 (0.28± 0.01) 6 |
| PTL | 0.47 | 0.43-0.53 (0.49± 0.01) 7 |
| MSTL | 0.43 | 0.33-0.47 (0.43± 0.02) 7 |
| MTTL | 0.47 | 0.45-0.57 (0.52± 0.02) 7 |

Punctuation of 1st abdominal sternum similar to that of metasternum, the punctures becoming coarser before apical angles; 1st abdominal stria complete on each lateral side.

Protibia with 4 denticles on outer margin. Metatibia with 5 spinules on outer margin, but the basalmost very small. Metatibia with 2 spinules near apex.

Male genitalia; as shown in Fig. 111A - K.

Female genitalia; as shown in Fig. 100L

Specimens examined. Holotype, Sakai-ura, Chichi-jima Is., 8/vi/1972, Y. Kusui leg. Paratypes: 1 ♀, Nishi-ura, Haha-jima Is., 15/vi/1972, Y. Kusui leg.; 1 ♂ 3 ♀, and 4 exs., Nakano-taira, Haha-jima Is., 29/vi/1976, Y. Kurosawa leg. (NSMT); 1 ex., Bonin Is., no date, M. Nishihara leg.; 1 ex., Bonin Is., vi/1969, T. Nakane leg.

Distribution. Japan (Ogasawara Isles.)

Remarks. *Platylomalus kusuii* can easily be distinguished by the characteristic large punctuation on the humeral area of the elytra and the absence of a transverse stria on the mesosternum, in combination with its limited distribution (Ogasawara Isles.).

Genus *Pachylomalus* Schmidt, 1879

Pachylomalus Schmidt, 1897: 295 [type species: *Paromalus leo* Marseul, 1879: 272. Designated by Bickhardt, 1917: 115]; Bickhardt, 1917: 115.

Subgenus *Canidius* Cooman, 1941

Canidius Cooman, 1941: 292 [type species: *Pacylomalus opulentus* Cooman, 1932: 65. Originally designated].

Pachylomalus (Canidius) musculus (Marseul, 1873)
(Fig. 112, 113, 114)

Paromalus musculus Marseul, 1873: 221, 225 [Nippon, Nangasaki]; Lewis, 1892: 37 [Nara; Kiushu]; 1915: 56 [Formosa].

Pachylomalus musculus: Bickhardt, 1917: 116; Hisamatsu, 1985: 224, pl. 40, no. 25.

Pachylomalus (Canidius) musculus: Cooman, 1941: 298, fig. 6; Hisamatsu, 1968: 31 [Shikoku, Ryûkyû].

Pachylomalus inops Cooman, 1933: 195, synonymized by Cooman, 1935: 217.

Japanese name: Hasuji-chibi-hirata-emma-mushi.

Original description. "Long. 2.3/10 mill.; larg. 1.5/10 mill. Tellement semblable, pour le faciès, la couleur, la forme et la sculpture, an *mus*, que je le regarderais volontiers comme une variété locale de cette remarquable espèce, trouvée dans l'île de Dorey par M. Alfred Wallace; cependant ses élytres et son pronotum sont couverts d'une fine ponctuation aciculée, visible à un grossissement ordinaire, tandis qu'ils paraissent entièrement lisses dans l'espèce indienne. C'est déjà, ce me semble, un fait assez curieux de retrouver au Japon, sinon la même espèce, du moins une forme presque identique.

Nippon, Nangasaki; sous les feuilles mortes, autour des temples; 6 exemplaires."

Description. Body length, PPL, 2.08 - 2.57 mm (2.33 ± 0.04 , $n=20$), PEL, 1.79 - 2.38 mm (2.13 ± 0.04 , $n=20$). Width, 1.27 - 1.72 mm (1.52 ± 0.03 , $n=20$). Biological data are given in Table 36. Body oblong-oval, black or dark brown and shining; tibiae, mouthparts and antennae rufopiceous.

Frontal stria of head weakly carinate and complete; disk sparsely clothed with fine punctures which are separated by three to four times their diameter; interspace among the punctures shining.

Pronotal sides (Fig. 112A) arcuate and strongly convergent to apices; anterior angles acute. Emarginated portion of anterior margin bisinuate. Marginal stria complete, weakly impressed. Disk of pronotum convex, sparsely clothed with fine punctures similar to the pronotal ones; divergent striae present on mediobasal third, inside the stria feebly depressed. Basal margin of pronotum sparsely covered with large punctures, but absent medially.

Epipleural marginal stria weakly impressed and interrupted on mediobasal one-fourth, sometimes complete. Epipleura shining, sparsely clothed with microscopic punctures. Elytra marginal stria deeply impressed and complete, its apical end extending along apical margin of elytron, attaining to sutural angle, then inwardly bent and shortly extending anteriorly. Disk of elytra evenly covered with coarse punctures which are separated by three to four times their diameter. Extreme apical band impunctate. Oblique humeral stria slightly impressed on basal third.

Propygidium (Fig. 112C) distinctly with a transverse stria which is well impressed; the lateral end of the stria not attaining to lateral margin; disk sparsely and finely punctate,

the punctures being separated by three to four times their diameter. Pygidium (Fig. 112C, D) with punctation similar to that of propygidium. In female, punctation of pygidium as in male; surface with a large oval depression on apical half.

Anterior margin of prosternal lobe (Fig. 113B) truncate, its marginal stria well impressed and strongly and inwardly bent laterally; basal angle shortly carinate, of which the inside area is strongly and obliquely excavated; disk of lobe covered with alutaceous ground sculpture and microscopic punctures which are separated by nearly three times their diameter. Prosternal keel narrow, its top even; disk impunctate, shining; carinal striae well impressed, divergent basally, and its apical ends united with each other in an arc. Descending lateral stria deeply impressed.

Anterior margin of mesosternum strongly and deeply emarginate medially, marginal stria absent; basal angles depressed; disk of mesosternum shining and sparsely clothed with microscopic punctures. Meso-metasternal suture strongly carinate and anteriorly arcuate medially, its lateral end continued to lateral metasternal stria. Disk of metasternum strongly shining, and evenly and finely punctate, the punctures being separated by four to five times their diameter and becoming sparser laterally. Lateral metasternal stria strongly carinate, impressed along mesocoxal cavity, its lateral end attaining to basal third of metepisternal-metasternal suture. A deep fovea present near lateral half of the lateral metasternal stria. Lateral disk of metasternum with transverse, alutaceous and microscopic ground sculptures and fine punctures. Mesocoxal stria well impressed, extending along the mesocoxal cavity and posteriorly bent on lateral fourth of lateral metasternal disk.

Intercoxal disk of 1st abdominal sternum sparsely and microscopically punctate, with 2 striae on each lateral side.

Protibia dilated, with 4 denticles on outer margin. Meso- and metatibiae somewhat dilated.

Male genitalia as shown in Fig. 113.

Specimens examined. [Honshû] <Saitama-ken> 1 ♂, Urawa, 10/vi/1954, no collector's name. (NA). <Nara-ken> 1 ♂, Kasuga, 19/i/1958, T. Shibata leg. (NA).

[Shikoku] <Tokushima-ken> 1 ♀, Kuhina-mura, 20/vii/1953, M. Hirai leg. (NA). <Ehime-ken> 1 ♀, Shiroyama, Matsuyama, 24/v/1949, T. Yano leg. (NA); 1 ex., Kurokawa, Ishizuchi, 2/vi/1952, N. Yato leg. (NA).

[Kyûshû] <Fukuoka-ken> 47 ♂♂ 35 ♀♀, Mt. Tachibana, Fukuoka, 24/ix, 23/x/1983, 24/v, 6/vi, 25/vii/1984, S. Nomura leg.; 12 ♂♂ 6 ♀♀, Kashigû, 8, 15/ix/1983, S. Nomura leg. <Nagasaki-ken> 24 ♂♂ 6 ♀♀, Suwa Shrine, Nagasaki-shi, 9/vi/1983, S. Nomura leg. <Ôita-ken> 1 ♀, Saeki, 20/vii/1953, K. Kurosa leg. (NA).

Distribution (Fig. 114). Japan (Honshû, Shikoku, Kyûshû, Tokara Isles.); Taiwan; Burma; Veit-Nam.

Remarks. Being the only Japanese representative of the genus, *P. musculus* can easily be recognized by the generic character.

Table 36. Biometric data of *Pachylomalus musculus* (Marseul).

| | |
|------|---------------------------|
| APW | 0.56-0.71 (0.66± 0.01) 20 |
| PPW | 1.20-1.52 (1.35± 0.02) 20 |
| PL | 0.66-0.83 (0.76± 0.01) 20 |
| EL | 1.10-1.47 (1.27± 0.02) 20 |
| EW | 1.27-1.72 (1.52± 0.03) 20 |
| ProW | 0.61-0.83 (0.73± 0.01) 20 |
| ProL | 0.25-0.29 (0.27±0.004) 20 |
| PyL | 0.27-0.44 (0.36± 0.01) 20 |
| PTL | 0.42-0.56 (0.50± 0.01) 20 |
| MSTL | 0.42-0.54 (0.47± 0.01) 19 |
| MTTL | 0.44-0.61 (0.54± 0.01) 20 |

Little is known about the habitats of this species. Some specimens were collected in the litter.

Genus *Eulomalus* Cooman, 1937

Eulomalus Cooman, 1937: 97 [type species: *Eulomalus vermicipygus* Cooman, 1937: 98. Originally designated].

The Japanese species included in the genus *Eulomalus* have not been sufficiently studied. Probably three or more species occur in Japan. In this paper, the known Japanese species are only listed.

Eulomalus lombokanus Cooman, 1937

Eulomalus lombokanus Cooman, 1937: 104 [Lombok]; Mazur, 1984: 137; Hisamatsu, 1985: 225 [photo].

Japanese name: Mizo-chibi-hirata-emma-mushi.

Original description. "Breviter ovatus, parum convexus, nitidus. Caput sparse punctulatum. Pronotum antice leviter bisinuatatum, in disco sat dense lateribus minus punctatum, stria integra pone caput intervallo majore. Elytra punctata, sutura postice elevata, stria marginali apice haud prolongata, epipleuris nitidis. Pygidia puncticulata. Prosternum sublaeve, sat latum, striis leviter bisinuatis disjunctis, lobo immarginato puncticulato. Mesosternum laeve, longitudinaliter sed breviter biimpressum, stria laterali leviter arcuata basi haud prolongata; stria transversali mediana, valida, biangulata in medio recta longa, utrinque breviter arcuata; sutura apicali bisinuata aegre conspicua. Metasternum in angulis posticis punctatum, stria laterali obliqua bisinuata; primum segmentum abdominis lateribus punctatum, punctis sensim in medio decrescentibus.

Tibiae anticae 3-denticulatae. Pygidium basi transversim sculptum sulco valido, longo et lato, in medio parum constricto, postice leviter arcuato, antice bisinuato. Long. 1.2; larg. 0.8.

Type unique des collection du Museum de Paris: Lombok (Fruhstorfer april 1896)."

Distribution. Japan (Nansei Isles.); Lombok Is.

Eulomalus tardipes (Lewis, 1892)

Paromoalus tardipes Lewis, 1892: 35 [Japan: Honshû].

Eulomalus tardipes: Mazur, 1984: 1348 Hisamatsu, 1985: 225 [photo].

Japanese name: Chairō-chibi-hirata-emma-mushi.

Original description as *Paromalus tardipes*, "Ovalis, depressiusculus, brunneus, nitidus, punctatus; fronte impressa stria interrupta; pronoto basi tenuiter bistriato. L. 1.1/2 - 2 mill.

Oval, rather depressed, brown, shining; the head anteriorly impressed, punctate, punctures rather large but not closely set, stria strong and somewhat carinate, feebly sinuous over the eyes, anteriorly ceasing behind the mandibles: the thorax, anterior angles obtuse and depressed, strongly punctate, punctures oblong, with some inclined to be acicular, evenly, not closely set, stria laterally a little elevated, fine and complete behind the head, two short striae before the base at a point parallel to the usual position of the fourth elytral stria, the striae are faint but easily seen, and they are a good specific character in this difficult genus; the elytra wholly punctured somewhat like the thorax, but more distinctly, the punctures towards and at the apex are round, not oval or acicular like some in front; the propygidium is punctured like the apices of the elytra; the pygidium in the male is punctured like the propygidium at the base, but at the apex there are transverse furrows which are confluent with the punctures; in the female the pygidium is sparsely and finely punctulate; the prosternum bistriate, striae nearly straight laterally, bent, but not quite joining at either end, a few irregular punctures on the keel, anterior lobe punctate and strigose; the mesosternum very sparsely punctured, lateral furrow strong, transverse stria with the middle portion very wide and straight, arcuate at the sides, suture not apparent; the metasternum, anterior half lightly punctulate, posteriorly and the first segment of the abdomen with much larger punctures, all are more or less elongate or acicular; the other abdominal segments are smooth, with a row of punctures on their posterior edges; anterior tibiae 4-dentate, tarsi rather short.

Hab. Japan. Single specimens taken at Miyanoshita, Kiga, Kashiwagi, and Nara."

Distribution. Japan (Nansei Isles.); Lombok Is.

Genus *Paromalus* Erichson, 1834

Paromalus Erichson, 1834: 167 [type species: *Hister flavicornis* Herbst, 1792: 40. Designated by

Westwood, 1840: 22].

Microlomalus Lewis, 1907: 318, synonymized by Cooman, 1948: 133. [type species: *Hister flavicornis* Herbst, 1792: 40].

Key to the Japanese species of the genus *Paromalus*

- 1(4) Apical end of marginal elytral stria extending to suture of elytra, and curved at medio-posterior angle of elytra, then extending anteriorly.
..... *P. parallelepipedus* (Herbst, 1792)
2(1) Apical end of marginal elytral stria not attaining to medio-apical angle of elytron.
..... *P. vernalis* Lewis, 1982

Another species, *Paromalus omineus* Lewis, 1892, occurs in Japan.

Subgenus *Paromalus* Erichson, 1834

Paromalus (*Paromalus*) *omineus* Lewis, 1892

Paromalus omineus Lewis, 1892: 36 [Japan: Omimesan]; Mazur, 1984: 139; Hisamatsu, 1985: 225.

Micromalus omineus: Lewis, 1907: 318

Japanese name: Aka-chibi-hirata-emma-mushi.

Original description. "Oblongo-ovalis, parum convexus, lateribus vix parallelis, brunneus, nitidus; fronte stria integra; metasterno utrinque suboscellato-punctato; pedibus flavis. L. 1.1/2 mill.

Oblong-oval, rather convex, brown, shining, antennae and legs flavous; the head clearly and somewhat sparsely punctulate, stria elevated over the eyes, fine and complete in front, forehead rather flat; the thorax, anterior angles depressed, little acute, stria not interrupted, but very fine behind the neck, not closely punctate, punctures somewhat ocellate, especially before the bases of the elytra; the elytra are punctured like the thorax, subocellate at the sides, finer behind the scutellum and on the dorsal area, striae obsolete; the propygidium clearly, not densely punctulate in both sexes; the pygidium similarly punctured, and in the male a few scratches or obscure furrows are visible at the apex; the prosternum without striae, finely strigose under the microscope; the mesosternum with a few punctures, transverse stria very slightly bent in the middle portion, rather widely arched on each side, median portion narrowest; meso- and metasternal suture invisible, both plates punctate, not closely, but at the sides the punctures are subocellate; anterior tibiae 4-dentate.

This species is like a small example of *P. parallelepipedus*. The colour, and especially the shape of the mesosternal stria, with the median portion much less wide than the appendages, will distinguish it.

Hab. Japan. Two examples taken on Omimesan."

Specimens examined. No specimen is available in this study.

Distribution. Japan (Honshû); ? Bhutan.

***Paromalus (Paromalus) parallelepipedus* (Herbst, 1792)**
(Fig. 115, 116)

Hister parallelepipedus Herbst, 1792: 37.

Hister pusillus Kugelann, 1792: 305, synonymized by Kugelann, 1794: 518.

Hister picipes: Sturm, 1805: 248 [emend.].

Microlomalus parallelepipedus: Lewis, 1907: 318.

Paromalus parallelepipedus: Lewis, 1892: 36 [Sapporo, Miyanoshta, Nikkô, Nishimura]; Mazur, 1984: 139; Hisamatsu, 1985: 225 [photo].

Japanese name: Hoso-chibi-hirata-emma-mushi.

Description. Male and female. Body length, PPL, male, 1.99 - 2.36 mm (2.13 ± 0.03 , $n=16$), female, 1.85 - 2.23 mm (2.06 ± 0.03 , $n=20$), PEL, male, 1.81 - 2.13 mm (1.98 ± 0.02 , $n=16$); female, 1.73 - 2.13 mm (1.94 ± 0.02 , $n=20$). Width, male, 1.08 - 1.24 mm (1.16 ± 0.01 , $n=16$), female, 0.99 - 1.26 mm (1.14 ± 0.02 , $n=20$). Biometric data are given in Table 37. Body oblong, black and shining; tibiae, mouthparts and antennae rufopiceous.

Frontal stria of head impressed and complete, its lateral portions parallel. Disk feebly depressed on apical half, and evenly covered with moderate punctures which are separated by their own diameter to thrice the diameter, with microscopic punctures intermingled.

Pronotal sides (Fig. 115A) feebly arcuate and convergent apically on basal three-fourths, then strongly convergent to apices. Emarginated portion of anterior margin of pronotum bisinuate. Marginal stria well impressed and complete laterally and anteriorly. Disk evenly covered with moderate punctures which are separated by two to four times their diameter or more; interspace among the moderate ones sparsely clothed with microscopic punctures. Antescutellar area without a large puncture, but feebly depressed.

Epipleural marginal stria weakly impressed on apical half. Marginal elytral stria strongly carinate and complete, its apical end extending along posterior margin, attaining to sutural angle, then curved and a little extending basally. Epipleura sparsely clothed with microscopic punctures. Disk of elytra sparsely covered with coarse punctures which are separated by two to five times their diameter, except on the following parts: a narrow band along suture which is clothed with microscopic punctures and feebly elevated, a narrow area along the basal margin which is impunctate, and an extreme apical band; surface between the coarse punctures sometimes clothed with microscopic punctures. Dorsal stria absent, but a weak oblique depression present on laterobasal half.

Table 37. Biometric data of *Paromalus parallelepipedus* Herbst.

| | Male | Female |
|------|---------------------------|---------------------------|
| APW | 0.51-0.59 (0.56±0.005) 16 | 0.51-0.61 (0.55± 0.01) 20 |
| PPW | 1.00-1.14 (1.07± 0.01) 16 | 0.95-1.14 (1.06± 0.01) 20 |
| PL | 0.59-0.73 (0.68± 0.01) 16 | 0.61-0.73 (0.67± 0.01) 20 |
| EL | 1.12-1.38 (1.23± 0.02) 16 | 1.02-1.36 (1.21± 0.02) 20 |
| EW | 1.08-1.24 (1.16± 0.01) 16 | 0.99-1.26 (1.14± 0.02) 20 |
| ProW | 0.55-0.63 (0.59± 0.01) 16 | 0.49-0.63 (0.58± 0.01) 20 |
| ProL | 0.22-0.28 (0.25± 0.01) 16 | 0.20-0.30 (0.24±0.005) 20 |
| PyL | 0.32-0.39 (0.37± 0.01) 16 | 0.24-0.39 (0.32± 0.01) 20 |
| PTL | 0.39-0.49 (0.45± 0.01) 16 | 0.37-0.47 (0.44± 0.01) 20 |
| MSTL | 0.39-0.49 (0.44± 0.01) 16 | 0.35-0.47 (0.41± 0.01) 20 |
| MTTL | 0.45-0.53 (0.50±0.005) 16 | 0.39-0.53 (0.47± 0.01) 20 |

Propygidium densely covered with coarse, round and shallow punctures, which become finer and sparser around margin; surface between the punctures with weakly transverse alutaceous microsculpture. Pygidium (Fig. 115C) evenly clothed with fine punctures which are separated by their own diameter to twice the diameter; surface between the fine punctures intermingled with microscopic punctures. In female, punctures of pygidium similar to those of male, and a deep sculpture present as shown in fig. 115C.

Anterior margin of prosternal lobe (Fig. 115B) truncate medially; the anterior angles of the lobe broadly round; marginal stria absent anteriorly, weakly impressed laterally on basal half; inside of basal angle deeply excavate; disk sparsely covered with moderate punctures which are separated by their own diameter to five times the diameter. Punctuation of prosternal process similar to that of the lobe. Descending lateral stria strongly carinate and complete.

Anterior margin of mesosternum (Fig. 115B) strongly emarginate medially; marginal stria absent anteriorly and deeply impressed and complete laterally, its posterior end continued to basal end of lateral metasternal stria; disk sparsely covered with moderate punctures, which are separated by two to five times their diameter, except on area surrounded by transverse stria and meso-metasternal suture; transverse stria well impressed, acutely angulate on each lateral half and arcuate medially. Meso-metasternal suture indistinct. Intercostal disk of metasternum sparsely and coarsely punctate, the punctures becoming finer medially and being separated by two to three times their diameter; surface between coarse punctures intermingled with fine punctures. Lateral disk scattered with moderate punctures which are separated by two to five times their diameter or more. Lateral metasternal stria strongly carinate, extending obliquely and posteriorly, and attaining to the middle of metasternal-metepisternal suture. Post-mesocoxal stria extending along mesocoxal cavity, its outer end strongly bent posteriorly.

Punctuation of intercoxal disk of 1st abdominal sternum similar to that of sides of metasternal intercoxal disk; 1st abdominal stria complete and well impressed.

Protibia with 3 denticles on outer margin. Mesotibia with 4 spinules on outer margin, the basal one small. Metatibia with 1 spinule near the apex.

Male genitalia as shown in Fig. 116

Specimens examined. [Hokkaidô] 4 exs., Kami-Shihoro, 17-24/v, 19-23/vi/1989, K. Haga leg.; 12 exs., Nopporo, 5, 19, 20, 22, 26, 30/vi/1987, M. Ôhara leg.; 12 exs., Ditto, 19/v/1936, M. Inoue leg. (HFFP); 1 ex., Kitanoue, 23/viii/1949, M. Inoue leg. collected from *Picea glehnii*. (HFFP); 21 exs., Kamui-dake, Jôzankei, 11/vi/1990, M. Ôhara leg.; 4 exs., Abuta, 4/vi/1951, M. Inoue leg. collected from *Picea jezoensis*. (HFFP); 3 exs., Nanae-chô, 19/vii/1948, M. Inoue leg. (HFFP).

[Honshû] <Iwate-ken> 2 exs., Numakunai, 25/vi/1948, M. Inoue leg., red pine. (HFFP); 1 ex., Mizusawa, 28/vi/1948, M. Inoue leg. (HFFP). <Fukushima-ken> 6 exs., Yunohana, Tateiwa, Minami-Aizu, 6/v/1949, Y. Kurosawa leg. (NSMT); 1 ex., Wakamatsu, 30/iv/1949, T. Yoneyama leg. (NSMT). <Tôkyô-to> 1 ex., Omaru, Inagi, 10/iv/1988, K. Sawada leg.; 4 exs., Akaidani, 5/v/1949, K. Nagayama leg. (NA).

Distribution. Japan (Hokkaidô, Honshû); Europe; Crimea; Caucasus; Siberia.

Remarks. Small specimens of *Paromalus parallelepipedus* resemble *P. omienus*, but can be distinguished by the difference shape of the transverse mesosternal stria and the body color.

This species is frequently collected on *Abies sachalinensis* in Hokkaidô. Mazur (1981) recorded it from the following trees: *Pinus silvestris*, *Picea abies*, *Abies alba*, *Quercus*, *Fagus silvatica*, *Salix*, *Tomicus piniperda*.

Paromalus (Paromalus) vernalis Lewis, 1892

(Fig. 117, 118)

Paromalus vernalis Lewis, 1892: 35 [Japan; Nara, Oyayama, Yuyama]; Hisamatsu, 1968: 31 [Ryûkyû]; 1985: 225 [photo]; Mazur, 1984: 134.

Microtomalus vernalis: Lewis, 1907: 318.

Japanese name: Ko-chibi-hirata-emma-mushi.

Original description. "Oblongo-ovalis, convexiusculus, niger, nitidus, supra punctatus; prosterno haud striato; mesosterno, stria transversali in medio arcuato, utrinque biangulato. L. 1.1/2 mill.

Oblong-oval, rather convex, black, legs pitchy; the head evenly punctured, stria complete, forehead flattish; the thorax, anterior angles depressed, somewhat obtuse, somewhat thickly punctured, stria strong at the sides and behind the anterior angles, fine behind the neck, punctures behind the neck small, those at the sides and in front of the scutellum somewhat oblong; the elytra are punctured like the thorax, suture very feebly raised in the dorsal region, sutural margin narrow, smooth, one stria short and oblique, the epipleural stria does not reach the sutural angle; the propygidium is transversely

punctured; the pygidium in the male has a transverse furrow near the base, and behind it is another (which is sometimes broken at the sides), which is formed to enclose a semicircular lobe, the course of the furrow not being always well defined; in the female the pygidium is faintly and sparsely punctulate; the prosternum without stria, punctures scattered and feeble, the whole surface microscopically strigose; the mesosternum, stria arcuate in the middle, angles acute, median part wider than the appendages, suture invisible; the metasternum similarly punctate, punctures large and not closely set, subocellate in front of the hind coxae; the lateral striae on the first segment of the abdomen are nearly parallel to each other; anterior tibiae 4-dentate.

This species also is of the *P. bistratus* group.

Hab. Japan. Obtained at Nara, Oyayama, and Yuyama."

Description. Male and female. Body length, PPL, male, 1.42 - 1.64 mm (1.51 ± 0.03 , n=6), female, 1.39 - 1.66 mm (1.53 ± 0.02 , n=11), PEL, 1.32 - 1.54 mm (1.41 ± 0.03 , n=7), female, 1.23 - 1.61 mm (1.44 ± 0.03 , n=11). Width, male, 0.83 - 0.98 mm (0.88 ± 0.02 , n=7), female, 0.76 - 0.98 mm (0.89 ± 0.21 , n=11). Biometric data are given in Table 38. Body black, sometimes reddish brown and shining; femora, tibiae, mouthparts and antennae rufopiceous.

Frontal stria of head deeply impressed, its sides feebly divergent anteriorly; disk sparsely covered with moderate and deep punctures which are separated by four to six times their diameter and become denser apically; surface between the moderate ones rarely intermingled with microscopic punctures.

Pronotal sides (Fig. 117A) feebly arcuate and convergent to apices. Marginal stria distinctly carinate and complete anteriorly and laterally. Disk of pronotum evenly covered with coarse punctures which are separated by their own diameter to thrice the diameter and become finer medio-anteriorly, with other microscopic punctures sometimes intermingled. Antescutellar area without large depression.

Epipleural marginal stria weakly impressed on apical half. Elytral marginal stria deeply impressed and sparsely and coarsely carinate, its apical end extending along apical margin, attaining to near the middle of apical margin of elytron. Dorsal stria absent, but an oblique depression shortly present at lateral half on basal third. Disk of elytra evenly covered with coarse, round and shallow punctures except on the following parts: a narrow band along suture which is impunctate and feebly elevated, a narrow band along basal margin, and an extreme apical band; the coarse punctures becoming coarser near the oblique depression and gradually sparser apically.

Propygidium densely covered with coarse, round, shallow punctures and intermingled with fine punctures, and finely punctate narrowly along the margin. Pygidium evenly covered with fine punctures which are separated by their own diameter to thrice the diameter. In female, punctation of the pygidium as in male and a deep sculpture present as shown Fig. 117C; the sculpture consisting of two parts, a transverse deep part basally and a circular one on apical two-thirds, inside of the circular one deeply and irregularly rugose.

Anterior margin of prosternal lobe (Fig. 117B) nearly round; marginal stria sometimes present anteriorly and impressed deeply on laterobasal half; disk irregularly scattered with fine punctures. Punctuation of prosternal process similar to that of the prosternal lobe. Lateral descending stria strongly carinate, short and complete.

Anterior margin of mesosternum (Fig. 117B) strongly emarginate medially. Marginal stria absent anteriorly, and complete and carinate laterally. Punctuation of disk similar to that of the prosternal process; impunctate and depressed behind transverse stria and narrowly along lateral marginal stria. Meso-metasternal suture absent. Intercostal disk of metasternum sparsely covered with coarse and oblong punctures which are separated by two to three times their diameter and become finer medially and coarser on lateral third, the punctures on lateral third three times as large as those of the median third. Lateral metasternal stria strongly carinate, extending obliquely and posteriorly, and attaining to the middle of metasternal-metepisternal suture. Lateral disk sparsely covered with coarse punctures which are smaller than those of sides of intercostal metasternal disk. Post-mesocoxal stria extending along mesocoxal cavity, its outer end strongly bent posteriorly.

Intercostal disk of 1st abdominal sternum sparsely and coarsely punctate, the punctures becoming finer medially; 1st abdominal stria completely present on each lateral side.

Protibia with 4 denticles on outer margin. Mesotibia with 3 spinules on outer margin. Metatibia with a spinule near the apex.

Male genitalia as shown in Fig. 118.

Table 38. Biometric data of *Paromalus vernalis* Lewis.

| | Male | Female |
|------|-------------------------|--------------------------|
| APW | 0.41-0.44 (0.42±0.01) 7 | 0.39-0.47 (0.42±0.01) 11 |
| PPW | 0.76-0.88 (0.79±0.02) 7 | 0.68-0.90 (0.80±0.02) 11 |
| PL | 0.42-0.49 (0.48±0.01) 7 | 0.42-0.52 (0.49±0.01) 11 |
| EL | 0.83-1.01 (0.92±0.02) 7 | 0.76-1.00 (0.87±0.02) 11 |
| EW | 0.83-0.98 (0.88±0.02) 7 | 0.76-0.98 (0.89±0.02) 11 |
| ProW | 0.37-0.46 (0.41±0.01) 6 | 0.35-0.46 (0.41±0.01) 11 |
| ProL | 0.12-0.17 (0.15±0.01) 6 | 0.12-0.19 (0.16±0.01) 11 |
| PyL | 0.24-0.27 (0.25±0.01) 6 | 0.19-0.25 (0.22±0.01) 11 |
| PTL | 0.27-0.34 (0.32±0.01) 7 | 0.27-0.34 (0.31±0.01) 11 |
| MSTL | 0.25-0.32 (0.29±0.01) 7 | 0.27-0.34 (0.30±0.01) 11 |
| MTTL | 0.30-0.37 (0.34±0.01) 6 | 0.29-0.37 (0.33±0.01) 10 |

Specimens examined. [Honshû] <Fukushima-ken> 1 ex., Niizuru, Ônuma, 6/iv/1949, K. Nagayama leg. (NA). <Nara-ken> 1 ♂, Nara Park, Nara, 7/x/1987, K. Sawada leg. (NA); 1 ex., Mt. Kasuga, 26/ix/1948, M. Gotô leg. (NA); 1 ex., Ditto, 9/v/1952, K. Sawada leg. (NA).

[Shikoku] <Kôchi-ken> 1 ex., Yakyo, 4/ix/1945, K. Sakaguchi leg. Under bark. (NA).

[Kyûshû] <Miyazaki-ken> 1 ex., Koshima, 24/vii/1953, M. Yoshida leg. (NA). <Kagoshima-ken> 1 ♀, Kurino, 3/ii/1985, M. Ôhara leg.; 3 exs., Sata, 9/iii/1964, no collector's name. (NA).

[Nansei Isles.] <Tokara-Nakano-shima Is.> 1 ex., Nakano-shima, 12/vi/1953, S. Uéno leg. (NA); 1 ♂, 3 exs., Ditto, 25/v, 9/vi/1953, T. Nakane leg. (NA); 1 ex., Ditto, 5/vi/1953, S. Miyamoto leg. (NA); 1 ♀, Funakura, Mitake, Nakano-shima, 18/viii/1982, Y. Takai leg. <Tokara-Takara-jima Is.> 4 exs., Takara-jima, 6/vii/1953, T. Nakane leg. <Amami-Ôshima Is.> 1 ♀, Kinsakubaru, Naze, 30/vi/1984, M. Ôhara leg. <Ishigaki Is.> 1 ♀, Mt. Banna, Ishigaki, 1/iv/1976, N. Nishikawa leg.

Distribution. Japan (Honshû, Shikoku, Kyûshû, Nansei Isles.); Taiwan; Russia (Primorskiy Kray).

Remarks. *Paromalus vernalis* resembles *P. parallelepipedus*, but is distinguishable by the marginal elytral stria not attaining the medio-apical angle of the elytron (see the key and the description).

7. 3. 8. Subfamily Abraeinae Marseul, 1857

Key to the Japanese tribes and genera of the subfamily Abraeinae

- 1(2) Posterior tarsus consisting of 4 tarsomeres. Tribe Acritini Wenzel, 1944
..... Genus *Acritus* J. L. LeConte, 1853
- 2(1) Posterior tarsus consisting of 5 tarsomeres.
- 3(4) Pronotum with a longitudinal depression laterally and with transverse line on middle or near middle. Prosternal process with an X-shaped excavation. Mesosternum and metasternum fused. Tribe Plegaderini Portevin, 1929
..... Genus *Plegaderus* Erichson, 1834
- 4(3) Pronotum smooth, without line. Prosternal process with no excavation. Mesosternum and metasternum separated by meso-metasternal suture.
..... Tribe Abraeini Portevin, 1929
..... Genus *Chaetabareus* Portevin, 1929

Tribe Abraeini Portevin, 1929

Genus *Chaetabraeus* Portevin, 1929

Chetabreus Portevin, 1929: 624 [type species; *Hister globulus* Creutzer, 1799: 83. Designated by monotypy].

Chaetabreus: Mazur, 1989: 31.

Chartabraeus: Witzgall, 1971: 162 [error !].

Recently, Mazur (1989) has studied this genus. In his opinion this genus is characterized by the following characters; (1) long and pentagonal propygidium, (2) strongly convex dorsum and usually brownish black or black coloration (3) living in the dung of various mammals, on carrion or in rotting vegetation.

Key to the Japanese species of the genus *Chaetabraeus*

- 1(2) Disk of prosternum with a deep fovea on each side.
..... *C. bonzicus* (Marseul, 1873)
- 2(1) Disk of prosternum without deep fovea on each side.
- 3(4) Body smaller; 1.37 - 1.64 mm, black with red luster; legs reddish brown.
..... *C. cohaeres* (Lewis, 1898)
- 4(3) Body larger; 1.84 mm, black with green luster; legs yellowish brown.
..... *C. sp.*

Chaetabraeus bonzicus (Marseul, 1873)

(Fig. 119, 120, 121, 122, 123)

Abraeus bonzicus Marseul, 1873: 221, 226 [Japan: Nangasaki (=Nagasaki, Kyûshû)]; Lewis, 1898: 181 [Otaru, Yezo (=Hokkaidô)]; Jakobson, 1911: 653; Bickhardt, 1916-17: 74, t. 3, fig. 23; Bickhardt, 1913: 177 [Taiwan, but misidentification]; Cooman, 1937: 38; Reichardt, 1941: 130, 131, fig. 59.

Chetabraeus bonzicus: Mazur, 1984: 8.

Chaetabraeus bonzicus: Mazur, 1989: 32.

Abraeus (*Chetabraeus*) *bonzicus*: Kryzhanovskij and Reichardt, 1976: 96.

Japanese name: Kuro-tsubu-emma-mushi.

Original description. "Long. 2.3/10 mill.; larg. 2 mill. Arrondi, convexe, noir opaque, très-densément ponctué sur toute sa surface, avec quelques soies dressées grises. Tête creusée longitudinalement entre les antennes, qui s'insèrent sur une crête transverse; premier article long et grêle; massue en ovale long, acuminée; pronotum court, convexe, largement dilaté à sa base, avec le milieu anguleux et les angles aigus et prolongés; arqué et étroitement rebordé sur les côtés, fort rétréci et bisinueusement échancré en devant, avec

les angles aigus et abaissés. Élytres d'un tiers plus longues que le pronotum, bombées, dilatées fortement après la base, rétrécies par derrière, arrondies au bout et formant un angle rantrant bien marqué; pas de traces de stries dorsales; épipleures larges, plans, ponctués, également sans stries; propygidium bombé, pentagonal pygidium rabattu, ovalaire. Dessous couvert de points plus gros et plus espacés, plus luisant que le dessus. Prosternum en carré transverse, entouré d'un rebord élevé; mésosternum transverse, formant une avance tronquée droit et sinuée de chaque côté; séparée bien nettement par une large strie ponctuée transverse. Jambes antérieures un peu élargies au milieu et granies en ce point de quelques petites spinules: postérieures grêles; tarsi allongés, grêles, testacés. "

Description. Biometric data are given in Table 39. Body oval, strongly convex and black; tarsi and antennae rufopiceous. Body length, PPL, 1.84 - 2.25 mm (2.08 ± 0.03 , n=20), PEL, 1.74 - 2.21 mm (1.97 ± 0.03 , n=20). Width, 1.62 - 1.94 mm (1.78 ± 0.02 , n=20).

Head densely covered with coarse and longitudinal oblong punctures, and sparsely with stout and erect setae, which are about one-third as long as the transverse diameter of the eye; surface with a transverse carina behind each antennal cavity (Fig. 109F).

Anterior margin of pronotum emarginate, the median portion nearly straight; lateral sides evenly arcuate and weakly convergent to apices on basal two-thirds, thence strongly arcuate and convergent to the apices. Disk of pronotum densely covered with coarse and round punctures, the punctures being as large as those of the head and separated by one-third to half of their diameter, becoming denser and a little finer apically, and sparsely with erect setae which are as large as those of the head.

Table 39. Biometric data of *Chaetabraeus bonzicus* (Marseul).

| | |
|------|----------------------------------|
| APW | 0.61-0.76 (0.68 ± 0.01) 20 |
| PPW | 1.47-1.79 (1.61 ± 0.02) 20 |
| PL | 0.61-0.96 (0.82 ± 0.02) 20 |
| EL | 0.91-1.45 (1.18 ± 0.03) 20 |
| EW | 1.62-1.94 (1.78 ± 0.02) 20 |
| ProW | 0.71-1.00 (0.85 ± 0.02) 20 |
| ProL | 0.47-0.56 (0.53 ± 0.01) 20 |
| PyL | 0.44-0.66 (0.56 ± 0.01) 20 |
| PTL | 0.49-0.61 (0.58 ± 0.01) 20 |
| MSTL | 0.47-0.59 (0.53 ± 0.01) 20 |
| MTTL | 0.54-0.66 (0.60 ± 0.01) 20 |

Epipleura of elytra without stria. All dorsal striae absent. Disk of elytra with punctation and erect setae, the punctures being similar to, but a little denser than pronotal ones, usually fused to form longitudinal rugae on lateral and apical area, and becoming finer on area along the sutural line.

Propygidium pentagonal, its disk with punctation and setae similar to those of pronotum, the coarse punctures being separated by one-third to half their diameter. Pygidium longitudinal oblong, its punctation similar to propygidial one but somewhat sparser and shallower.

Prosternal process nearly quadrangular; its anterior angles extended latero-anteriorly, acute, and with deep fovea (Fig. 121A); anterior margin completely impressed, with a transverse depression a little distant from the margin; disk of the process sparsely covered with coarse punctures which are separated by their own diameter to half of the diameter and as coarse as elytral ones, with other moderate punctures intermingled with them.

Mesosternum narrow and transverse; anterior margin straight medially and curved laterally along the posterior margin of procoxa; the anterior and lateral sides distinctly carinate and marginate; disk of mesosternum sparsely covered with coarse punctures which are a little coarser than elytral ones and separated by their own diameter to one-third the diameter, and fine punctures sparsely intermingled among the coarse ones. Mesometasternal suture distinctly impressed and strongly crenate. Metasternum with short lateral stria, which is obliquely and posteriorly extended, its apical end attaining to the basal third of metasternum; intercoxal disk evenly covered with coarse, shallow and round punctures which are a little coarser than those of the mesosternum and separated by their own diameter to half the diameter, other fine punctures being intermingled among the coarse ones; longitudinal mid line clearly and deeply impressed; lateral disk densely covered with large, round and somewhat deep punctures, and fine punctures being intermingled on apical two-thirds (Fig. 121A).

Intercoxal disk of 1st abdominal sternum narrow and transverse, of which the punctation is similar to that of mesosternum

Protibia slender, its outer margin with many small setae.

Male genitalia as shown in Fig. 122.

Female genitalia: spermatheca as shown in Fig. 122F.

Specimens examined. [Hokkaidô] 2 exs., Sapporo, 25/iii, 23/v/1985, M. Ôhara leg.; 1 ex., Hitsuji-ga-oka, Sapporo, 20/vii/1985, M. Ôhara leg.; 1 ex., Jôzankei, 29/vi/1985, M. Ôhara leg.; 1 ex., Nopporo, 15/ix/1989, M. Ôhara leg.

[Honshû] <Fukushima-ken> 1 ex., Arai, Mizubayashi, 12/xi/1975, K. Tazoe leg.; 3 exs., Wakamatsu, 29/vi/1948, Y. Kurosawa leg. (NSMT); 1 ex., Ditto, 5/vi/1949, T. Yoneyama leg. (NSMT). <Ibaraki-ken> 3 exs., Yatabe, 5/vi/1986, M. Kiuchi leg.; 1 ex., Kamisakai, Sakura-mura, 4/v/1985, H. Haga leg. <Chiba-ken> 1 ex., Ôami, 19/vi/1984, M. Ôhara leg. <Tôkyô-to> 2 exs., Aihara, 16/v/1987, H. Takizawa leg.; 1 ex., Suginami, 14/iv/1979, M. Ôhara leg. <Nagano-ken> 4 exs., Kakeyu, Maruko,

Chiisagata, 3/iii/1969, M. Kiuchi leg. <Hyôgo-ken> 4 exs., Kôbe, 25/vi, 28/vii/1930, no collector's name. (BSM).

Distribution (Fig. 123). Japan (Hokkaidô, Honshû, Shikoku, Kyûshû); Prymorskij Kray.

Remarks. *Chaetabraeus bonzicus* is very similar to *C. cohaeres*; however, it differs from the latter by the large size and the deep foveae on the prosternal process. See also the description of *C. cohaeres*.

This species occurs in many kinds of rotting organic substances, in manure, animal dropping, carrion, etc.

***Chaetabraeus cohaeres* (Lewis, 1898), sp. rev.**
(Fig. 119, 120, 121, 123)

Abraeus cohaeres Lewis, 1898: 181 [Hongkong]; Desbordes, 1919: 409.

Abraeus bonzicus: Bickhardt, 1913: 177.

Abraeus (*Chetabraeus*) *bonzicus*: Kryzhanovskij and Reichardt, 1976: 96.

Chaetabraeus cohaeres: Mazur, 1989: 32.

Japanese name: Ko-kuro-tsubu-emma-mushi.

Original description. "1.3/4 mm. Circular in outline, convex, black and somewhat opaque, densely punctate, with short slightly club-shaped setae; the head densely and coarsely punctured, with a feeble median frontal impression; the thorax and elytra are similarly punctate, except that the thorax has large punctures along the basal edge, and elytra for the posterior half are longitudinally rugose; the propygidium is punctured like the disk of the thorax, but the punctuation of the pygidium is smaller, more even and clear; the prosternum and mesosternum are somewhat irregularly punctured, the punctures varying in size; the metasternum has an extremely fine longitudinal median line, and the punctures on the surface are more closely set than those of the mesosternum; along the anterior edge of the first abdominal segment is a row of large punctures."

Description. Body length, PPL, 1.37 - 1.64 mm (1.54 ± 0.01 , n=28), PEL, 1.35 - 1.62 mm (1.50 ± 0.01 , n=28), Width, 0.76 - 1.13 mm (0.92 ± 0.01 , n=29).

Extremely similar to *C. bonzicus* but differs as follows: smaller in size (Table 40); punctuation of propygidium a little sparser (Fig. 120D); anterior angles of prosternal process without deep fovea, only weakly depressed; lateral disk of metasternum densely covered with coarser punctures, with no fine punctures intermingled; longitudinal mid line of metasternum present, but obscure, not strongly impressed; male genitalia not expanded at caudal apex.

Table 40. Biometric data of *Chaetabraeus cohaerites* (Lewis).

| | |
|------|---------------------------|
| APW | 0.47-0.59 (0.53± 0.01) 28 |
| PPW | 1.15-1.40 (1.25± 0.01) 28 |
| PL | 0.51-0.69 (0.61± 0.01) 28 |
| EL | 1.25-1.49 (1.39± 0.01) 28 |
| EW | 0.76-1.03 (0.91± 0.01) 28 |
| ProW | 0.54-0.74 (0.66± 0.01) 28 |
| ProL | 0.37-0.51 (0.43± 0.01) 28 |
| PyL | 0.37-0.49 (0.41± 0.01) 25 |
| PTL | 0.37-0.44 (0.42±0.005) 27 |
| MSTL | 0.32-0.44 (0.40± 0.01) 26 |
| MTTL | 0.37-0.49 (0.42±0.004) 26 |

Specimens examined. [Nansei Isles.] <Yaku-shima Is.> 21 exs., 2/iv/1985, M. Kiuchi leg. <Tokara-Nakano-shima Is.> 1 ex., 14/vii/1982, M. Ôhara leg. <Tokara-Takara-jima Is.> 11 exs., 18/iii/1986, E. Matsui leg. <Iriomote Is.> 1 ex., Ôtomi, 17/iii/1985, S. Masuda leg.; 3 exs., Ditto, K. Nakamine leg. <Yonakuni Is.> 2 exs., Urabu-take, 21/II/1993, Y. Hirano leg.

[Taiwan] <Nantou pref.> 40 exs., Songkang, alt. 2000 m., 31/iii, 2, 5, 14/iv/1986, M. Ôhara leg.; 1 ex., Nanshanxi, 28/xii/1974, K. Masumoto leg. <Pingtung pref.> 28 exs., Sizhongchi, 11/v/1986, M. Ôhara leg. <Lanyu Is. (Orchid Is.)> 22 exs., 18-22/iv/1986, M. Ôhara leg.

Distribution (Fig. 123). Japan (Nansei Isles.); Taiwan; China (Hongkong). New to Japan.

Remarks. Bickhardt (1913) erroneously synonymed this species with *C. bonzicus*. It is distinct from the latter, being distinguished by the characters given above.

Chaetabraeus sp.

In general appearance similar to *bonzicus* and *cohaeres*, but distinguishable by the following characters: fovea of prosternum absent; punctation of intercoxal disk of metasternum much denser than in *bonzicus*; body with green luster; body nearly as large as *bonzicus* and distinctly larger than *cohaeres*. Biometric data are as follows; PPL 1.84, PEL 1.79, APW 0.59, PPW 1.47, EL 1.62, EW 1.13, ProW 0.69, ProL 0.51, PyL 0.47, PTL 0.49, MSTL 0.47, MTTL 0.49. At present it is uncertain to me whether this form is a good species, because it is represented by a single specimen.

Specimens examined. [Nansei Isles.] <Iriomote Is.> 1 ex., Iriomote-jima, 22/iii/1982, M. Kiuchi leg.

Tribe Plegaderini Portevin, 1929

Plegaderini Portevin, 1929: 601 [type genus *Plegaerus* Erichson, 1834: 203].

Genus *Plegaderus* Erichson, 1834

Plegaderus Erichson, 1834: 203 [type species *Hister caesus* Herbst, 1792: 40, Designated by Thomson, 1859: 75]; Lacordaire, 1854: 278; Marseul, 1856: 256; Schmidt, 1885a: 284; Ganglbauer, 1899: 397; Reitter, 1909: 204; Jakobson, 1911: 83, 97; Arnett, 1962: 373, 379; Witzgall, 1971: 160; Kryzhanovskij and Reichardt, 1976: 85; Mazur, 1973: 19; 1981: 55; 1984: 12; Vienna, 1980: 73.

Subgenus *Plegaderus* Erichson, 1834

Plegaderus (Plegaderus) marseuli Reitter, 1877 (Fig. 124, 125)

Plegaderus marseuli Reitter, 1877c: 371 [Japan].

Plegaderus (Plegaerus) marseuli: Nakane, 1963: 67; Kryzhanovskij and Reichardt, 1976: 86 [kye]; Mazur, 1984: 13; Hisamatsu, 1985: 222.

Japanese name: Mune-mizo-tsubu-emma-mushi.

Original description. "Oblongo-obovatus, convexus, niger aut piceus, antennis pedibusque rufo-brunneis; fronte punctulata, prope oculos subtuberculata; prothorace sulco transverso in 2 inaequales partes diviso, ubique aequaliter subtilissime punctato, margine laterali incrassato interrupto, elytris dense sat fortiter punctatis; prosterno utrinque sulcato, costa media latiori versus basim interrupta, excavata, dense flavo holosericea. -- Long. 1.5 - 1.8 mm."

Description. Body oblong-oval. Cuticles shining and black; tibiae, tarsi and antennae rufopiceous. Body length, PPL, 1.40 - 1.52 mm (1.47 ± 0.02 , n=8), PEL, 1.35 - 1.49 mm (1.43 ± 0.01 , n=8), Width, 0.93 - 1.03 mm (0.99 ± 0.01 , n=8). Biometric data are given in Table 41.

Head (Fig. 124C) with a convex area behind each antennal cavity; surface unevenly covered with coarse and setiferous punctures which are separated by their own diameter to thrice the diameter, the punctures becoming denser on epistoma.

Pronotum strongly convex; anterior margin broadly emarginate, with a complete marginal stria; sides divergent posteriorly on basal three-fourths, and strongly convergent anteriorly on apical fourth, its lateral marginal stria clearly impressed along the margin and nearly complete, but not attaining to the apical angle. Surface of pronotum divided into two, anterior and posterior, areas by a transverse line on apical third; the anterior area with a longitudinal convex area on each lateral side, the inside margin of the convex area complete and distinct, and the disk of the convex area densely and coarsely punctate; the

remain of the anterior area evenly, rather sparsely covered with coarse punctures which are separated by their own diameter to twice the diameter and as coarse as those of head; along the convex area there is a narrow impunctate area inside; the posterior area laterally with a longitudinal convex area which is, however, not distinct, being only weakly convex, and is sparsely and finely punctate; the remain of the posterior area sparsely clothed with fine punctures which are separated by their own diameter to four times the diameter.

Epipleura not concave. Marginal elytral stria entirely impressed but obscure on apical half. A narrow area along epipleural margin impunctate. No dorsal striae present, but oblique humeral stria deeply impressed on basal fourth and another short stria (longitudinal depression) present near the middle of anterior margin of elytron. Surface of elytra densely covered with somewhat longitudinal oblong and coarser punctures which are a little coarser than those of head and separated by their own diameter to half the diameter, the punctures becoming sparser around scutellum; a narrow band along sutural line and extreme apex impunctate.

Propygidium (Fig. 124D) densely covered with coarse, round and deep punctures which are separated by the own diameter to half the diameter, and with a transverse band of moderate punctures along the posterior margin. Pygidium (Fig. 124D) somewhat sparsely covered with coarse, round and deep punctures which are separated by their own diameter to twice the diameter.

Prosternal process with an X-shaped excavation (Fig. 124E), which presents near basal third on the process and densely with long hair; anterior margin completely with marginal stria, the lateral end of the stria continued to apex of outer margin of the X-shaped excavation; lateral side of the process completely marginate; disk of apical half of the process strongly convex, and sparsely covered with setiferous fine punctures which are separated by two to three times their diameter; lateral disk impunctate. Antennal groove deeply excavate, round and present on each lateromedian sixth.

Meso-metasternal suture absent. Mesosternum and metasternum fused. Intercostal disk of meso-metasterna shallowly sulcate on longitudinal midline, which is one-third as wide as anterior margin of mesosternum, the sulcus becoming narrower posteriorly; surface of disk sparsely and coarsely punctate, the punctures as coarse as elytral ones and separated by their own diameter to four times the diameter. Two lateral metasternal striae present; internal one strongly carinate basally, and its apical end extended posteriorly and obliquely, attaining to the apical margin of metacoxae; external one (probably homologous with the posterior mesocoxal stria in Wenzel and Dybas, 1941) weakly carinate, its apical end attaining to the posterior corner of metasternum. Surface between these two lateral metasternal striae sparsely with fine punctures. Lateral disk of metasternum sparsely covered with several large, round, and deep punctures. Metepisternum with a row consisting of large and dense punctures.

Table 41. Biometric data of *Plegadeus marseuli* Reitter.

| | |
|------|--------------------------|
| APW | 0.46-0.51 (0.48± 0.01) 8 |
| PPW | 0.83-0.93 (0.88± 0.01) 8 |
| PL | 0.57-0.66 (0.62± 0.01) 8 |
| EL | 0.74-0.90 (0.81± 0.02) 8 |
| EW | 0.93-1.03 (0.99± 0.01) 8 |
| ProW | 0.44-0.56 (0.49± 0.01) 8 |
| ProL | 0.10-0.15 (0.14± 0.01) 8 |
| PyL | 0.29-0.34 (0.31± 0.01) 8 |
| PTL | 0.34-0.39 (0.37±0.004) 8 |
| MSTL | 0.34-0.41 (0.36± 0.01) 8 |
| MTTL | 0.39-0.44 (0.41± 0.01) 8 |

Intercostal disk of 1st abdominal sternum striate on each side, the stria carinate, its apical end attaining to the apical third; surface densely and coarsely punctate, the punctures separated by about their diameter and as coarse as those of intercostal disk of metasternum.

Protibia (Fig. 124F) slender, but progressively broader on apical half, with 6 denticles on outer margin. Metatibia with 4 denticles on outer margin.

Male genitalia as shown in Fig. 125A - G.

Female genitalia: spermatheca as shown in Fig. 50H.

Specimens examined. [Hokkaidô] 1 ex., Kami-Shihoro, 9/vi/1989, H. Haga leg.; 10 exs., Kamui-dake, Jôzankei, 11/vi/1990, M. Ôhara leg.; 1 ex., Hôheikyô, Jôzankei, 16/vii/1988, S. Kudô leg.; 1 ex., Ditto, 16/vii/1988, M. Ôhara leg.; 1 ex., Jôzankei, 25/v/1990, M. Ôhara leg.

[Honshû] <Gifu-ken> 1 ex., Kawayu, Hida, 31/vii/1954, T. Nakane leg. <Wakayama-ken> 6 exs., Mt. Rokkô, Naga-gun, 4/i/1950, M. Aoyagi leg.; 1 ex., Ditto, (NSMT). <Okayama-ken> 1♂1♀, 1 ex., Okayama, 23/vi/1948, M. Inoue leg. (HFFP).

Distribution. Japan (Hokkaidô, Honshû, Shikoku, Kyûshû).

Remarks. *Plegadeus marseuli* is similar to *P. shikokensis*, but differs by the large size, the fine punctation of the surface and the divided convex area on the lateral pronotal area.

This species was found under the bark of *Pinus* in galleries of bark beetles.

Plegaderus (Plegaderus) shikokensis Hisamatsu, 1985

Plegaderus (Plegaderus) shikokensis Hisamatsu, 1985a: 5 [Japan: Mt. Ishizuchi, Ehime, Shikoku]; Hisamatsu, 1985b: 222, pl. 40, fig. 8 [noted, photo]; Hirano, 1986: 42 [Honshû].

Japanese name: Chairô-mune-mizo-tsubu-emma-mushi.

Original description. "Male. Body oval, somewhat broader than its fellows, rather strongly convex, destitute of appreciable setae except on appendages. General color chestnut brown; mouthparts, antennae and legs mainly reddish brown; palpi, antennal clubs and legs tinged with yellow.

Head densely rugosely punctate, somewhat uneven, with a medio-longitudinal depression on frons; epistoma truncate apically. Eyes moderate in length, flat viewed from above linear and subparallel to each other. Antennae comparatively long, 2nd segment nearly square, 3rd as long or slightly longer than wide, 4th to 8th moniliform, club 1.5 times as long as wide, a little more elongate than in congeneric species.

Pronotum 1.55 times as wide as long, widest at base; sides not sinuate hind angles, simply feebly attenuate at basal half, then arcuately more strongly convergent toward apex; apex broadly arcuate at middle, anterior angles strongly curved downward, hind angles subrectangular, base rather simply rounded. Disk of pronotum with a transverse smooth groove which is placed at apical two-fifths and reaches the lateral entire groove on each side; lateral convex area not divided; basal margin without depression; punctation not minute, nor sparse, allied to that of *P.caesus* (Herbst). Elytra about 1.5 times as long as pronotum, 1.16 times as long at suture as their combined width, broadest at basal fifth, then strongly narrowing posteriorly, apex obliquely truncate; each elytron with a rather well defined stria which arises from the middle of basal edge and is evanescent on the posterior half, oblique humeral stria short, vaguely impressed; punctures round and coarse, densely placed, derma smooth. Propygidium and pygidium densely coarsely punctate.

Prosternum very peculiar in structure as shown in Fig. 1: area not raised, but sulcate, this sulcus connected with a longitudinal median sulcus placed on meso- and metasterna; antennal cavities subtriangular. Metasternum coarsely punctate as on ventral segments, punctures becoming finer near the median sulcus, postcoxal stria wanting. Leg slender except for fore legs, protibia strongly dilated from basal third. Length 1.1 - 1.3 mm."

Specimens examined. No specimen was available in this study.

Distribution. Japan (Honshû, Shikoku).

Tribe Acritini Wenzel, 1944

Acritini Wenzel, 1944: 55, 57 [type genus: *Acritus* J. L. LeConte, 1853: 288].

The Japanese species including this tribe Acritini have not been sufficiently studied until now. Probably four or more species occur in Japan. In this papaer, the known Japanese species are only listed.

Genus *Acritus* J. L. LeConte, 1853

Acritus J. L. LeConte, 1853: 288 [type species: *Hister nigricornis* Hoffmann, 1803: 127. Designated by

Thomson, 1859: 75]; Lacordaire, 1854: 281; Marseul, 1856: 595; Schmidt, 1885: 284; Reitter, 1886: 278; Ganglbauer, 1899: 405; Reitter, 1909: 294; Jakobson, 1911: 642, 653; Bickhardt, 1916-17: 63, 76; Reichardt, 1941: 84, 138 (part); Wenzel, 1944: 58.

Subgenus *Acritus* J. L. LeConte

Acritus (Acritus) komai Lewis, 1879

Acritus komai Lewis, 1879: 461 [Japan: Nagasaki]; Reichardt, 1941: 141, 147.

Acritus insularis Sharp in Blackburn and Sharp, 1885: 129, by Kryzhanovskij and Reichardt, 1976: 105.

Acritus volitans Fall, 1901: 238, by Kryzhanovskij and Reichardt, 1976: 105.

Acritus optatus Cooman, 1947: 423, by Kryzhanovskij and Reichardt, 1976: 105.

Acritus oregonensis Hatch, 1962: 256, by Kryzhanovskij and Reichardt, 1976: 105.

Japanese name: Arame-yofusi-emma-mushi.

Original description. "Ovalis, conveus, piceus, nitidus, supra dense punctatus; pronoto linea basali punctorum transversa impresso; antennis pedibusque infuscatis."

Distribution. Japan (Kyûshû, Nansei Isles.); China; North Africa; France; Mariana Isles.; Hawaii; Oregon, South California.

Subgenus *Pycnacritus* Casey, 1916

Pycnacritus Casey, 1916: 252 [type species: *Acritus discus* LeConte, 1853: 289]; Mazur, 1987: 31.

Diagnosis by Mazur (1987). "Lateral metasternal stria recurved to terminate near outer end mesopostcoxal stria. Mesepimeron with 2 distinct (inner and outer) marginal striae. Surface with alutaceous or chagreen microsculpture, this especially noticeable along sides of pronotum, elytra and sterna."

Acritus (Pacnacritus) homoeopathicus Wollaston, 1857

Acritus homoeopathicus Wollaston, 1857: 77 [Madeira]; Reitter, 1909: 297; Jakobson, 1911: 653; Reichardt, 1941: 141, 148, fig. 63c, 64c; Horion, 1949: 331; Halstead, 1963: 11; Witzgall, 1971: 164.

Acritus rhenanus Fuss, 1868: 356; Schmidt, 1885: 324; Ganglbauer, 1899: 408, synonymized by Schmidt, 1895: 179.

Acritus shogunus Lewis, 1892: 357 [Japan]; Reichardt, 1941: 141, 148, synonymized by Mazur, 1987: 31.

Japanese name: Kuro-yofusi-emma-mushi.

Distribution. Japan (Hokkaidô); Madeira; North Africa; Central and South Europe; Caucasus; USSR (Chabarovskij Kray).

6. 3. 9. Subfamily Saprinae Larcordaire, 1854

Saprinides Larcordaire, 1854: 273 (part).

Saprinites Jacquelin-Duval, 1858: 110 (part).

Saprinien Marseul, 1857: 154.

Saprinini Schmidt, 1885: 283; Ganglbauer, 1899: 327; Reitter, 1909: 279, 290.

Saprinina Jakobson, 1911: 640, 648.

Saprininae Bickhardt, 1916-17: 11, 19, 20, 80; Reichardt, 1932: 7-15; 1941: 66, 150-153; Wenzel, 1944: 52; Arnett, 1962: 373, 380; Kryzhanovskij and Reichardt, 1976: 107.

Key to the Japanese genera of the subfamily Saprinae

- 1(2) Head with frontal stria. Genus *Gnathoncus* Jacquelin-Duval, 1858
- 2(1) Head without frontal stria.
- 3(4) Surface of elytra impunctate. Prosternal keel strongly narrow (Fig. 154E).
..... Genus *Eopachylopus* Lewis, 1926
- 4(3) Surface of elytra punctate posteriorly. Prosternal keel broad and flat at top (Fig. 127, 138, 141, 148, 151).
- 5(8) Prosternal keel with a pair of small foveae (pre-apical prosternal foveae in Wenzel, 1962) apically part (Fig. 138, 141). Body length, 2.0 - 4.0 mm.
- 6(7) Frontal disk of head (Fig. 142) with one or two transverse rows or irregular transverse rugae; its anterior transverse margin strongly impressed and straight.
..... Genus *Hypocaccus* Thomson, 1867
- 7(6) Frontal disk of head (Fig. 138C) usually with a light punctation or weak rugae, without strongly transverse rows; its anterior transverse margin lightly impressed, usually partly arcuate, and sometimes interrupted.
..... Genus *Hypocacculus* Bickhardt, 1916
- 8(5) Prosternal keel without small foveae. Body length, 4.6 - 8.6 mm.
..... Genus *Saprinus* Erichson, 1834

Genus *Gnathoncus* Jacquelin-Duval, 1858

Gnathoncus Jacquelin-Duval, 1858: 112 [type species: *Hister rotundatus* Kugelann, 1792: 304. Designated by Thomson, 1859: 75]; Thomson, 1867: 391; Reitter, 1896: 306; Ganglbauer, 1899: 378; Reitter, 1904: 35; 1909: 290; Jakobson, 1911: 641, 648; Bickhardt, 1916-17: 104; Auzat, 1917: 206; Horion, 1936: 238; Reichardt, 1941: 154, 157; Stochmann, 1957: 67-76; Arnett, 1962: 374, 380; Halstead, 1963: 9, 11-13; Witzgall, 1971: 166; Kryzhanovskij and Reichardt, 1976: 113; Vienna, 1980: 117; Mazur, 1973: 27; 1981: 87; 1984: 103; Yélamos, 1990: 78.

Key to the Japanese species of the genus *Gnathoncus*

- 1(2) Punctures of pygidium round. Apical area of prosternal process with a deep excavation (Fig. 127A). *G. nannetensis* (Marseul, 1862)
- 2(1) Punctures of pygidium transversely oblong. Apical area of prosternal process without excavation (Fig. 127B, C).
- 3(4) Protibia (Fig. 126E) with outer margin deeply emarginate between denticles. Sutural stria of elytra present on basal one-fourth. Posterior margin of tenth genital tergite of male genitalia truncate. *G. rotundatus* (Kugelann, 1792)
- 4(3) Protibia (Fig. 126F) with outer margin only feebly emarginate between denticles. Sutural stria of elytra rudimentarily represented on basal sixth. Posterior margin of tenth genital tergite bifid. *G. communis* (Marseul, 1862)

Gnathoncus nannetensis (Marseul, 1862)

(Fig. 126, 127, 128, 131)

Saprinus nannetensis Marseul, 1862: 499, fig. 2 [IV^e groupe]; Reitter, 1896: 308; Auzat, 1917: 208; Reichardt, 1941: 160, 162; Hinton, 1945: 316, 325; Stockmann, 1957: 60, 73; Witzgall, 1971: 166.

Gnathoncus rotundatus: Thomson, 1862: 242 nec Kugelann, 1792, corrected by Reichardt, 1941: 162; Schmidt, 1885: 317; Ganglbauer, 1899: 379; Reitter, 1904: 36; 1909: 291; Reclaire and van der Viel, 1936: 234; Horion, 1949: 45.

Hister rotundatus var. "a": Hoffmann, 1803: 87, synonymized by Reichardt, 1941: 162.

Gnathoncus urganensis Reitter, 1896: 307; 1904: 36, synonymized by Bickhardt, 1916: 105.

Gnathoncus rotundatus var. *suturalis*: Ganglbauer, 1899: 380, synonymized by Bickhardt, 1916: 105.

Gnathoncus rotundatus var. *nannetensis*: Roubal et Labler, 1933: 30.

Gnathoncus nannetensis: Gemminger et Harold, 1868: 792; Kryzhanovskij and Reichardt, 1976: 117; Mazur, 1980: 91; 1984: 105; Vienna, 1980: 121; Hisamatsu, 1985: 222; Yélamos, 1990: 79.

Japanese name: Ô-maru-mame-emma-mushi.

Original description. "Ovale, convexe, noir de poix luisant. Antennes brunes. Tête bombée, peu densément pointillée; front large, avec un court rudiment de strie marginale de chaque côté, près des yeux. Épistome court, rétréci peu à peu, sans séparation bien tranchée. Labre court, arrondi. Mandibules courbées en pointe au bout. Pronotum plus large que long, avancé en angle assez aigu sur l'écusson, avec les angles externes droits; peu arqué sur les côtés, si ce n'est vers les angles antérieurs, qui sont obtus et abaissés; rétréci échancré en devant; couvert de points espacés, plus forts et oblongs latéralement; strie marginale entière, fine et interrompue en devant. Écusson ponctiforme. Élytres une fois et demie plus longues que le pronotum, de sa largeur à la base, un peu dilatées à l'épaule, rétrécies et coupées droit au bout, avec l'angle externe arrondi; ponctuation assez égale et espacée, couvrant environ les deux tiers postérieurs et remplacée en devant par de petits points à peine visibles; stries dorsales fortes, ponctuées, parallèles; première

contournée vers le bout et presque entière; 2-4 raccourcies au delà du milieu, à peu près d'égale longueur; on voit à la base un petit rudiment de la cinquième et de la suturale, de sorte qu'on croit reconnaître trois petits crochets; humérale oblique, profonde; subhumérale interne courte, très distante de l'humérale; externe courte basale distincte; bord infléchi sillonné de trois stries ponctuées, dont l'extérieure se continue le long du bord apical jusqu'à la suture. Propygidium courbé, court, couvert presque en entier par les élytres. Pygidium très déclive, en demi-ellipse très allongée, bombé au bout, couvert de gros points égaux et assez serrés. Prosternum plan, pointillé, assez large et sinué à la base, rétréci en devant et subitement étranglé à la fossette antennaire, dilaté et arrondi au bout en forme de courte mentonnière; stries fortes dans le plan du prosternum, d'abord parallèles et se réunissant en devant en angle très aigu. Mésosternum bisinué, bordé d'une strie entière et parsemé de gros points espacés. Pattes brunes; jambes antérieures faiblement élargies, armées au bout d'une forte dent accostée de deux épines, et à une certaine distance, de trois dents moins fortes; postérieures, garnies d'épines peu serrées."

Description. Body length, PPL, male, 2.33 - 3.43 mm (2.73 ± 0.06 , n=20), female, 2.77 - 3.48 mm (3.10 ± 0.04 , n=20), PEL, 2.21 - 3.31 mm (2.57 ± 0.06 , n=20), female, 2.47 - 3.14 mm (2.89 ± 0.04 , n=20). Width, male, 1.72 - 2.47 mm (2.04 ± 0.04 , n=20), female, 2.13 - 2.50 mm (2.31 ± 0.02 , n=20). Biometric data are given in Table 42. Body broadly oval and strongly convex. Cuticles shining and black; antennae dark rufopiceous with club rufotestaceous; legs dark reddish brown.

Front sparsely clothed with deep and moderate punctures.

Pronotal sides (Fig. 126A) feebly arcuate and convergent on basal two-thirds, thence strongly convergent to apices. Apical angles obtuse. Marginal stria carinate and complete. Middle of disk moderately punctate, the punctures being separated by two to four times their diameter, becoming coarser and denser towards sides; base with a single or double transverse rows of punctures which are nearly as coarse as those on sides. Interspace among punctures smooth and with occasional microscopic punctures.

Epipleura of elytra not concave. Marginal epipleural stria finely impressed and complete. Another epipleural stria complete, carinate and well impressed between the marginal epipleural and elytral striae. Marginal elytral stria complete, carinate and its apical end extending across elytral apex to medio-apical angle of elytra, then a little extending basally. Surface of epipleura between the marginal epipleural and other striae smooth, and with several fine punctures medially; surface between other epipleural and marginal elytral striae with a row of coarse punctures. Internal subhumeral stria present on medio-apical fourth. Oblique humeral stria present on basal third and usually crossed by a number of fine oblique rugae so that it appears to be irregular. First dorsal stria deeply impressed and nearly complete. Second and 4th striae deeply impressed and present on basal half. Third stria a little longer than the 2nd. Fifth stria only represented by a short, curved, transverse line at base. Sutural stria confined to basal region, usually present on basal sixth. Surface of apical half or three-fifths of elytra covered with deep oval punctures which are about as coarse as those on the extreme base of the pronotum and separated by their own diameter

to twice the diameter; surface of basal half to two-fifths slightly more finely and more sparsely punctate than middle of pronotal disk; extreme apex of elytra (around apical stria) impunctate. Interspace among all discal elytral punctures smooth or nearly so.

Propygidium densely with coarse punctures on apical half, which are as large as those occurring anteriorly to the apical elytral stria, and more finely and more sparsely punctate on basal half. Interspace among the punctures with lightly impressed, fine and irregularly transverse lines, these lines heavily impressed on basal half. Pygidium coarsely and sparsely covered with round and umbilicate punctures, which are separated by their own diameter to twice the diameter; on apex those punctures are much finer.

Anterior margin of median portion of prosternum (Fig. 127A) round. Ventral disk of keel even, somewhat broad, and sparsely and moderately punctate. Carinal striae complete, carinate and sinuate, the anterior apex of striae attaining to a large preapical fovea. Descending lateral stria shortly present on medial third of prosternum, its medio-apical end attaining to apical third of length of keel.

Anterior margin of mesosternum bisinuate with a feeble median projection. Marginal stria of mesosternum complete and subcariniform. Disk sparsely and coarsely covered with transverse and setiferous punctures, and interspace among punctures sparsely with microscopic punctures. Meso-metasternal suture indistinctly impressed and accompanied by a coarsely crenate line. Median area of intercoxal disk of metasternum sparsely clothed with fine and setiferous punctures, the punctures being separated by four to seven times their diameter; anterior corner sparsely with large and setiferous punctures, the punctures being sparser and finer on mediolateral area; posterior corner evenly covered with coarse punctures, which are separated by about twice their diameter. Lateral metasternal stria carinate and deeply impressed on lateral two-thirds of the intercoxal disk, an area inside the stria bearing coarse punctures. Lateral disk densely covered with large, round, shallow and setiferous punctures. Metepisternum more densely covered with large punctures than those of lateral disk.

Intercoxal disk of 1st abdominal sternum completely striate, the stria carinate, running along post-coxal cavity on basal half and straight towards posterior margin on apical half. Surface of disk sparsely and coarsely punctate, the punctures being finer on median area.

Protibia (Fig. 126D) with 9 spinules on outer margin.

Male genitalia as shown in Fig. 128.

Specimens examined. [Hokkaidô] 3 exs., Futatsu-yama, Shibecha, Kushiro, 3/v/1985, K. Ijima leg. (IJ); 1 ex., Bekkambe-dai, Shibecha, Kushiro, 26/v/1971, K. Ijima leg. (IJ); 1 ex., Usubetsu, Taisetsu-chô, 22/vii/1954, K. Sawada leg. (NA); 1 ex., Nopporo, 10/v/1987, M. Ôhara leg.; 59 exs., Ashoro, 30/v/1989, Y. Hayashi, N. Kuhara and O. Suda leg. (from a nest of an owl, *Ketupa blakistoni*).

[Honshû] <Kanagawa-ken> 6 exs., Bodai, Tanzawa, 8/iv/1973, Y. Hirano leg. (NA); 3 exs., Ditto, 3/iii/1974, Y. Hirano leg. (NA); 1 ex., Hatano, Kanagawa, 1/ix/1978, H. Takizawa leg. <Yamanashi-ken> 1 ex., Narusawa, Fuji, 31/v/1983, M. Abe leg. (NA). <Aichi-ken> 1 ex., Okehazama, Owari, i/1946, M. Yasuda leg. (NA).

<Ôsaka-fu> 2 exs., Nishinari-ku, 2/vii/1949, K. Sawada leg. (NA). <Tottori-ken> 1 ex., Takenouchi, 4/iv/1987, H. Daidô leg.

[Kyûshû] <Fukuoka-ken> 1 ♂, Mt. Adachi, 25/v/1978, S. Nakao leg. (NA); 1 ex., Matsunoe, Moji, 4/v/1936, S. Watanabe leg. (NA). <Kumamoto-ken> 1 ex., Uemura, Kuma-gun, 6/vi/1986, K. Kimura leg. (NA); 16 exs., Yokoshima, Tamana, 9/vi/1986, E. Matsui leg. <Miyazaki-ken> 1 ex., Nobeoka, 7/iv/1982, T. Kinoda leg.; 12 exs., Furushiro-chô, Nobeoka, 4/vi/1985, T. Kinoda leg.

[Sachalin] 1 ex., Muka, 20/vii/1944, Y. Nishijima leg. (EIHU).

Distribution (Fig. 131). Japan (Hokkaidô, Honshû, Shikoku, Kyûshû); nearly the whole Palearctic. New to Hokkaidô.

Remarks. *Gnathoncus nannetensis* is a relatively large species; it is similar to *G. rotundatus* and *G. communis*, but distinguished by the different shape of the punctures on the pygidium and by the presence of the apical excavation of the prosternal keel (see the key and description).

This cadavericole and coprophile species frequents a wide range of habitats; it occurs on decomposing bodies of chicken, on dung of pig and cow, and so on. It is also found in nests of birds, the fish owl *Ketupa blakistoni* (Seeböhm) and the swallow *Hirundo rustica* Linné, for example. Mazur (1981) recoded this species from the nests of the following birds and animals: carrion crow, *Corvus corax* L.; jackdaw, *Corvus monedula* (L.); starling, *Sturnus vulgaris* L.; swift, *Apus apus* (L.); blue tit, *Parus caeruleus* L.; rough-legged buzzard, *Buteo lagopus* (Brunn); wood pigeon, *Columba oenas* L.; badger, *Meles meles* L., and *Laetiporus sulphureus* (Bull. et Fr.).

Table 42. Biometric data of *Gnathoncus nannetensis* (Marseul).

| | Male | Female |
|------|--------------------------|--------------------------|
| APW | 0.66-0.93 (0.77±0.01) 20 | 0.81-0.93 (0.87±0.01) 20 |
| PPW | 1.52-2.11 (1.78±0.03) 20 | 1.86-2.21 (2.01±0.02) 20 |
| PL | 0.81-1.08 (0.91±0.01) 20 | 0.88-1.15 (1.00±0.02) 20 |
| EL | 1.27-1.91 (1.58±0.03) 20 | 1.57-1.94 (1.77±0.02) 20 |
| EW | 1.72-2.47 (2.04±0.04) 20 | 2.13-2.50 (2.31±0.02) 20 |
| ProW | 0.98-1.35 (1.11±0.02) 20 | 1.10-1.47 (1.29±0.02) 20 |
| ProL | 0.17-0.25 (0.20±0.01) 20 | 0.17-0.29 (0.23±0.01) 20 |
| PyL | 0.74-1.13 (0.92±0.02) 20 | 0.86-1.13 (1.04±0.02) 20 |
| PTL | 0.59-0.78 (0.65±0.01) 20 | 0.64-0.81 (0.71±0.01) 20 |
| MSTL | 0.61-0.78 (0.71±0.01) 20 | 0.69-0.86 (0.77±0.01) 20 |
| MTTL | 0.71-0.93 (0.81±0.01) 20 | 0.78-1.03 (0.91±0.02) 20 |

***Gnathoncus rotundatus* (Kugelann, 1792)**

(Fig. 126, 127, 129, 131)

- Hister pygmaeus*: DeGeer, 1774: 344, corrected by Hoffmann, 1803: 87.
Hister nanus Scriba, 1790: 73. nec. Piller et Mitterpacher, 1783, synonymized by Hoffmann, 1803: 87.
Hister rotundatus Kugelann, 1792: 304.
Hister punctatus: Thunberg, 1794: 64, corrected by Hoffman, 1803: 87.
Hister quadristriatus Thunberg, 1794: 65, synonymized by Kanaar, 1980: 63.
Hister piceus Marsham, 1802: 97, synonymized by Stephens, 1830: 157.
Hister rotundatus var. "b" Hoffmann, 1807: 42, synonymized by Erichson, 1834: 175.
Saprinus rotundatus: Erichson, 1834: 175.
Saprinus deletus J. E. LeConte, 1844: 186, synonymized by J. L. LeConte, 1861: 77.
Dendrophilus (sic!) *rotundatus* var. *quinquestriatus*: Dejean, 1837: 143 (nom. nud.).
Gnathoncus punctulatus Thomson, 1862: 242, synonymized by Reitter, 1896: 306.
Saprinus ignobilis Wollaston, 1864: 173, synonymized by Schmidt, 1895: 177.
Saprinus wollastoni Marseul, 1864b: 353 (emend.)
Tribalus (sic!) *quadristriatus* Wollaston, 1869: 310, synonymized by Lewis, 1886b: 280.
Saprinus rotundatus var. *communis*: Horn, 1873: 315.
Saprinus (*Gnathoncus*) *rotundatus*: Marseul, 1873: 221 [New to Japan].
Gnathoncus communis: Schmidt, 1884: 160.
Gnathoncus rotundatus var. *punctulatus*: Reitter, 1896: 306.
Gnathoncus nanus: Reichardt, 1941: 191; Mazur, 1973: 27; Kryzhanovskij and Reichardt, 1976: 116; Vienna, 1980: 120; Hisamatsu, 1985: 222.
Gnathoncus rotundatus var. *subsuturalis* Reitter, 1896: 307.
Gnathoncus punctulatus var. *pygidialis* Ganglbauer, 1899: 380.
Gnathoncus punctulatus var. *subsuturalis*: Reitter, 1906: 266.
Gnathoncus rotundatus: Jacquelin-Duval, 1858: 112; Mazur, 1980: 88; 1984: 105.
Japanese name: Maru-mame-emma-mushi.

Description. Body length, PPL, 1.91 - 2.45 mm (2.15 ± 0.04 , n=17), PEL, 1.84 - 2.35 mm (2.05 ± 0.04 , n=17). Width, 1.42 - 1.76 mm (1.58 ± 0.02 , n=17). Biometric data are given in Table 43. Body broadly oval and feebly depressed medially. Cuticles shining and black; antennae, mandible, tibiae dark rufopiceous, and club of antennae rufotestaceous.

Front sparsely covered with deep and moderate punctures, interspace among the punctures sparsely clothed with fine punctures.

Pronotal sides (Fig. 126B) feebly arcuate and convergent on basal three-fourths, thence strongly convergent to apices. Apical angles obtuse. Marginal stria feebly carinate and complete. Disk sparsely and evenly covered with coarse, round and deep punctures, which become coarser on the basal half; interspace among the punctures sparsely and finely punctate. Antiscutellar area feebly depressed and coarsely and somewhat densely punctate.

Epipleura of elytra not concave. Marginal epipleural stria finely and clearly impressed and complete. Another epipleural stria complete, carinate and clearly impressed between marginal epipleural and elytral striae. Marginal elytral stria complete and carinate, its basal end inwardly bent, and apical end extending across elytral apex to medio-apical angle of elytra, then a little extending apically. Surface of epipleura and marginal elytral striae densely with a row of coarse punctures. Internal subhumeral stria rudimentary on basal third and usually crossed by a number of fine, oblique rugae. First dorsal stria (Fig. 126B) deeply impressed on basal three-fourths. Second to 4th dorsal striae deeply impressed, crenate and present on basal half, but usually a little extending beyond the half. Fifth stria represented only by a short, curved, transverse line at base. Sutural stria usually present on basal fourth, sometimes shorter than basal sixth. Surface of apical half to two-thirds of elytra covered with longitudinal, oblong, deep punctures, which are about as coarse as those of the extreme base of the pronotum and separated by two to three times their diameter; surface of basal half to one-third finely and sparsely punctate, the punctures being separated by four to seven times their diameter; apical transverse region (around apical stria) densely and longitudinally rugate; extreme apex of elytra impunctate. Interspace among discal elytral punctures smooth and rarely microscopically punctate.

Propygidium densely covered with coarse and transverse oblong punctures on apical half, which are as large as those occurring posterior to apical elytral stria, and more finely and sparsely punctate on basal half. Interspace among the punctures with lightly impressed, fine and irregularly transverse lines, these lines being heavily impressed on basal half. Pygidium coarsely and densely covered with transverse oblong punctures, the punctures being separated by their longer diameter to twice the diameter and their posterior margin usually emarginate; on apex those punctures are much finer.

Anterior margin of median portion of prosternum (Fig. 127B) round. Ventral disk of keel even, broad and sparsely and finely punctate; the punctures being separated by about three to seven times their diameter; ground surface densely covered with microscopic and longitudinal rugae except medially. Carinal stria complete, carinate and sinuate. Keel without preapical fovea. Descending lateral stria short and present on median third of prosternum, its apical end attaining to medio-apical third of keel.

Anterior margin of mesosternum feebly bisinuate with a slight projection. Marginal stria of mesosternum strongly carinate and complete. Disk sparsely covered with moderate and round punctures which are separated by four to six times their diameter; interspace among the punctures sparsely and finely punctate. Meso-metasternal suture strongly impressed and densely crenate, usually the lateral sixth reduced. Intercoxal disk of metasternum sparsely clothed with fine punctures which are separated by five to ten times their diameter and become coarser in the lateral and posterior areas along the marginal suture or lateral stria. Lateral metasternal stria carinate and deeply impressed on lateral three-fourths of the intercoxal disk. Lateral disk densely covered with large, round and setiferous punctures, which become denser posteriorly. Metepisternum more densely covered with large punctures than on lateral disk.

Intercoxal disk of 1st abdominal sternum almost completely striate, the stria not

attaining the posterior margin, deeply impressed and carinate. Surface of disk evenly covered with coarse longitudinal oblong and deep punctures; interspace among the punctures sparsely clothed with microscopic punctures.

Protibia (Fig. 126E) with 8 denticles on outer margin, the interspace between the apical 3th and 4th denticles strongly emarginate.

Male genitalia as shown in Fig. 129.

Specimens examined. [Hokkaidô] 1 ex., Futatsu-yama, Shibecha, Kushiro, 16/v/1986, K. Ijima leg. (IJ); 10 exs., Shimohoro, Tsurui, Kushiro moor, 1/vi/1992, M. Ôhara leg.; 9 exs., Ditto, 9/vi/1992, M. Ôhara leg.; 1 ex., Kushiro Zoo, Yamahana, Kushiro, 9/vi/1992, M. Ôhara leg.

[Honshû] <Ôsaka-fu> 1 ex., Nishinari, 15/v/1950, K. Sawada leg. (NA).

Distribution (Fig. 131). Japan (Hokkaidô, Honshû); nearly whole Holarctic region, Taiwan, South Africa.

Remarks. *Gnathoncus rotundatus* is quite similar to *G. communis* in all external characters examined, and the differences are very subtle; the shape of the protibia and the male genitalia should be used to distinguish these two species positively.

Gnathoncus rotundatus is coprophile and known from a wide range of habitats. Mazur (1981) recoded this species from the nests of the following birds and animals: owl, *Strix* L.; hoope, *Upupa epops* L.; hooded-crow, *Corvus corone cornix* L.; starling, *Sturnus vulgaris* L.; squirrel, *Sciurus vulgaris* L.; rabbit, *Oryctolagus cuniculus* (L.), and hamster, *Cricetus cricetus* (L.).

***Gnathoncus communis* (Marseul, 1862)**
(Fig. 126, 127, 130, 131)

Saprinus communis Marseul, 1862: 501, synonymized with *Gnathoncus rotundatus* by Horn, 1873: 314, but revived by Mazur, 1990: 744.

Table 43. Biometric data of *Gnathoncus rotundatus* (Kugelann).

| | |
|------|---------------------------|
| APW | 0.51-0.74 (0.63± 0.01) 17 |
| PPW | 1.23-1.52 (1.36± 0.02) 17 |
| PL | 0.64-0.83 (0.75± 0.01) 17 |
| EL | 1.15-1.42 (1.30± 0.02) 17 |
| EW | 1.42-1.76 (1.58± 0.02) 17 |
| ProW | 0.78-0.98 (0.90± 0.01) 17 |
| ProL | 0.15-0.25 (0.19± 0.01) 17 |
| PyL | 0.74-0.88 (0.79± 0.01) 17 |
| PTL | 0.49-0.56 (0.53±0.005) 17 |
| MSTL | 0.54-0.64 (0.59± 0.01) 17 |
| MTTL | 0.61-0.76 (0.69± 0.01) 17 |

Gnathoncus communis: Mazur, 1990, 744 [Australia]

Gnathoncus schmidtii Reitter, 1894: 239; Stockmann, 1957: 75, fig. 4, 9, 14, 19, 24; Halstead, 1963: 13, fig. 27, 27b-d; Vienna, 1980: 123, fig. 45c, i, 46c, synonymized by Mazur, 1990: 744.

Gnathoncus nidicola Joy, 1907: 133, tab., V, fig. 2; Auzat, 1917: 208; Reclaire en van der Wiel, 1936: 208, synonymized by Stockmann: 73.

Gnathoncus nidicola var. *auzati* Pic, 1918: 9.

Gnathoncus punctor: Reichardt, 1941: 164, fig. 75A, 77B; Hinton, 1945: 326, fig. 32, 34, 36, 41, 42, 45 [male genitalia], corrected by Stockmann: 73.

Gnathoncus idiopygus Casey, 1916: 255, synonymized by Mazur, 1990: 744.

Japanese name: Nise-maru-mame-emma-mushi.

Original description. "Ovale, assez, brun luisant. Antennes rousses. Front convexe, arrondi, dessément et également pointillé, non séparé de l'épistome, entouré par derrière d'une fine strie qui s'évanouit au niveau des yeux. Pronotum beaucoup plus large que long, anvecé en angle obtus au milieu de la base, arrondi sur les côtés, fortement rétréci et échancré en devant, avec les angles abaissés et arrondis, convexe, couvert d'une ponctuation assez serrée, rugueuse et plus forte latéralement; strie marginale entière. Écusson en très petit triangle allongé. Élytres presque deux fois plus longues que le pronotum, de sa largeur à la base, dilatées en arc sur les côtés, rétrécies et coupées droit au bout avec les angles arrondis, relevées légèrement sur la suture à leur partie postérieure, couvertes d'une ponctuation forte assez écartée, mais serrée et rugueuse sur leur tiers postérieur; stries fortes, densément ponctuées, 1-4 dorsales parallèles, cependant rapprochées par paires par derrière, première atteignant presque le bout, mais d'une manière confuse; deuxième et quatrième raccourcies plus tôt et égales à peu près entre elles, troisième un tant soit peu plus longue, cinquième réduite à un tout petit arc basal; suturale courte basale; humérale bien marquée, parallèle à la première dorsal; subhumérale interne disjointe, longue; extrême courte, à peine séparée du sillon latéral qui se continue le long du bord apical jusqu'à la suture; bord infléchi bisilloné, ponctué dans l'intervalle des sillons. Propygidium incliné, court, transverse, densément et également pointillé. Pygidium ponctué de même, entièrement rabattu, légèrement convexe. Prosternum plan, acuminé en devant, étranglé au niveau des fossettes antennaires, avec quelques points; stries fortes se joignant en angle fort aigu. Mésosternum entièrement rebordé, parsemé de points assez forts, distinctement séparé du métasternum qui est ponctué comme lui. Pattes rousses; jambes antérieures dilatées, garnies de cinq à six denticules séparés en deux groupes; intermédiaires aussi larges, et postérieures plus étroites, avec quelques cils courts.

Cette espèce, que je tiens de M Asa Fitch, a beaucoup de rapports avec le *S. rotundatus*; elle s'en distingue par sa ponctuation beaucoup plus forte et plus serrée, et par la disposition des stries des élytres. Elle a été trouvée près d'Albany, aux États-Unis."

Description. Body length, PPL, 2.21 - 2.57 mm (2.34 ± 0.04 , n=10), PEL, 2.01 - 2.40 mm (2.19 ± 0.03 , n=10). Width, 1.47 - 1.89 mm (1.69 ± 0.04 , n=10). Biometric

data are given in Table 44. Body broadly oval and strongly convex. Cuticles shining and black, but a few specimens very dark rufopiceous; antennae dark rufopiceous with club rufotestaceous; legs dark reddish brown.

Front of head sparsely with fine and transverse punctures, and with round punctures posteriorly.

Pronotal sides (Fig. 126C) feebly arcuate and convergent on basal two-thirds, thence feebly convergent to apices. Apical angles obtuse. Marginal stria carinate and complete, its anterior portion weakly carinate and indistinct. Middle of disk finely punctate, the punctures being separated by three to five times their diameter; towards sides the punctures become coarser and denser; base sparsely and coarsely punctate, the punctures being nearly as coarse as those of sides. Interspace among punctures smoother and with occasional microscopic punctures.

Epipleura of elytra not concave. Marginal epipleural stria finely impressed and complete. Another epipleural stria complete and subcarinate between the marginal epipleural and elytral striae. Marginal elytral stria complete and carinate; its apical end extending across elytral apex to medio-apical angles of elytra and then a little extending basally. Surface between marginal epipleural and another epipleural striae with 2 rows of longitudinal-oblong and coarse punctures. Subhumeral stria present on median third. Oblique humeral stria (Fig. 126C) present on basal third, and usually crossed by a number of fine, oblique rugae so that it appears to be irregular. First and 3rd dorsal striae deeply impressed on basal two-thirds and carinate. Second and 4th dorsal striae a little shorter than the 3rd. Fifth and sutural striae only represented by a short, curved, transverse line at base. Surface of apical half of elytra covered with coarse, oval punctures which are about as coarse as those of the extreme base of the pronotum and separated by their own diameter to twice the diameter; surface of basal half slightly more finely and distinctly more separately punctate than middle of pronotal disk; extreme apex of elytra (around apical stria) impunctate. Interspace among all discal elytral punctures smooth or nearly so.

Propygidium densely covered with coarse, round punctures on apical half which are as large as those occurring anteriorly to apical elytral stria and finely and sparsely punctate on basal half. Interspace among punctures on basal half with lightly impressed, fine and irregularly transverse lines. Pygidium densely and coarsely covered with transverse-oblong and umbilicate punctures, which become denser apically and round on the mediobasal region.

Anterior margin of median portion of prosternum (Fig. 127C) round. Ventral disk of keel even, sparsely covered with moderate and longitudinal-oblong punctures. Carinal striae complete, strongly carinate and sinuate, the anterior ends united with each other in an arch. Preapical fovea absent. Descending lateral stria shortly present on median third, its apical end attaining to apical third of keel.

Anterior margin of mesosternum bisinuate with a feeble median projection. Marginal stria of mesosternum complete and subcarinate. Disk sparsely covered with large and round punctures, which are separated by two to three times their diameter. Meso-

metasternal suture slightly impressed and accompanied by a coarsely and sparsely crenate line. Median area of intercoxal disk finely punctate, the punctures being separated by three to four times their diameter; lateral and posterior fourth sparsely covered with large, round and setiferous punctures, these being a little larger than those of mesosternal disk; interspace among large punctures sparsely clothed with fine punctures. Lateral metasternal stria strongly carinate, extending obliquely and posteriorly, and usually present on basal two-thirds. Lateral disk densely covered with large, round and setiferous punctures, which are somewhat larger than those of the intercoxal disk. Metepisternum densely punctate, the punctures being as large as those of lateral disk.

Intercoxal disk of 1st abdominal sternum completely striate. Surface of disk sparsely and finely punctate on median area, and coarsely punctate laterally, the punctures on lateral areas being smaller than the punctures of mesosternal disk.

Protibia (Fig. 126F) with 7 spinules on outer margin, the apical-outer angles bearing large 3 spinules, and only feebly emarginate between spinules.

Male genitalia as shown in Fig. 130.

Specimens examined. [Honshû] <Tôkyô-to> 10 exs., Setagaya, 18/ix/1949, Ôhira leg. (NA).

[Kyûshû] <Kagoshima-ken> 1♂, Uenosono, Kagoshima, 2/xi/1982, T. & T. Nakane leg. (NA).

Distribution (Fig. 131). Japan (Honshû, Kyûshû); North America; Eurapa; Caucasus; Central Asia; Sakhalin; Egypt; Australia. New to Japan.

Remarks. *Gnathoncus communis* is quite similar to *G. rotundatus* in all external characters, but the two species can positively be distinguished by the shape of the protibia and the male genitalia.

Little is known about the habitat of this species in Japan. Mazur (1981) reorded *G. communis* in the nests of the following birds: carrion crow, *Corvus corax* L.; jackdaw, *Corvus monedula* (L.); tawny owl, *Strix aluco* L. and goshawk, *Accipiter gentilis* (L.).

Genus *Saprinus* Erichson, 1834

Saprinus Erichson, 1834: 172 [type species: *Hister nitidulus* Fabricius, 1801: 85. Designated by Westwood, 1840: 22]; Lacordaire, 1854: 274; Marseul, 1855: 327; Jacquelin-Duval, 1858: 111; Thomson, 1862: 235; Schmidt, 1885: 302; Ganglauber, 1899: 380; Reitter, 1909: 290, 291; Jakobson, 1911: 641, 649; Bickhardt, 1916-17: 82, 84; 1921: 109; Peyerimhoff, 1936: 223; Reichardt, 1941: 156, 176; Arnett, 1962: 374, 380; Dahlgren, 1962: 237-248; 1964: 152-162; 1967: 213-224; 1968a: 82-94; 1968b: 255-268; 1969b: 257-269; Witzgall, 1971: 168-172; Dahlgren, 1974: 401-404; Kryzhanovskij and Reichardt, 1976: 125; Mazur, 1973: 29; 1980: 73; 1984: 44; Vienna, 1980: 129;.

Plesioprinus Houlbert and Monnot, 1923: 72 (nom. nud.), synonymized by Cooman, 1947: 428.

Table 44. Biometric data of *Gnathoncus communis* (Marseul).

| | |
|------|--------------------------|
| APW | 0.64-0.88 (0.72±0.02) 10 |
| PPW | 1.35-1.62 (1.49±0.02) 10 |
| PL | 0.74-0.91 (0.80±0.02) 10 |
| EL | 1.23-1.64 (1.36±0.04) 10 |
| EW | 1.47-1.89 (1.69±0.04) 20 |
| ProW | 0.81-1.05 (0.94±0.02) 10 |
| ProL | 0.15-0.25 (0.20±0.01) 10 |
| PyL | 0.64-0.93 (0.78±0.03) 10 |
| PTL | 0.47-0.64 (0.54±0.02) 10 |
| MSTL | 0.54-0.69 (0.61±0.01) 10 |
| MTTL | 0.66-0.78 (0.73±0.01) 10 |

Key to the Japanese species of the genus *Saprinus*

- 1(4) Basal half of interval between 1st and 4th dorsal elytral striae coarsely punctate.
 - 2(3) Pygidium wholly punctate, without impunctate band on longitudinal mid line. Mesosternum coarsely punctate. *S. cyaneus auricollis* Marseul, 1855
 - 3(2) Pygidium with an impunctate band on longitudinal mid line. Mesosternum without coarse punctures. *S. splendens* (Paykull, 1811)
 - 4(1) Basal half of interval between 1st and 4th dorsal elytral striae smooth, at least finely punctate.
 - 5(6) Third elytral dorsal stria short, usually half as long as 4th or 2nd stria.
..... *S. planiusculus* Motschulsky, 1849
 - 6(5) Third elytral dorsal stria as long as 4th or 2nd stria.
..... *S. niponicus* Dahlgren, 1962
- Another species, *Saprinus pecuinus*, has been recorded from Japan.

Subgenus *Saprinus* Erichson, 1834

Saprinus (*Saprinus*) *cyaneus auricollis* Marseul, 1855 (Fig. 132, 133)

Saprinus auricollis Marseul, 1855: 390 [Iles Philippines]; Dahlgren 1971: 49; Nakane, 1977: 148 [Ogasawara Isles].

Saprinus cyaneocupreus Marseul, 1864: 337, synonymized by Dahlgren, 1967: 220.

Japanese name: Ko-ruri-emma-mushi.

Original description. "Ovale allongé, convexe, luisant, métallique, cuivreux sur la tête et le pronotum, vert doré sur les élytres. Antennes brunes; funicules ferrugineux.

Front plan, ponctué ainsi que l'épistome; strie entière, bien marquée, presque droite en devant. Pronotum beaucoup plus large que long, bisinué à la base et bordé étroitement de points, oblique, subsinué sur les côtés, avec une impression ponctuée, commençant derrière les yeux et ne dépassant guère le milieu, rétréci et échancré en devant, avec les angles arrondis; lisse sur le desque; strie marginale entière. Ecusson petit, triangulaire. Elytres courtes, un peu plus longues que le pronotum, de sa largeur à la base, dilatées à l'épaule, rétrécies postérieurement; stries ponctuées, bien marquées; suturale raccourcie vers la base; dorsales s'étendant au-delà du milieu, 1 et 3 un peu plus courtes; quatrième arquée vers l'écusson; humérale jointe à la subhumérale interne et atteignant presque le bout; marginales entières; interne bordée de points; ponctuation des élytres peu serrée, mais forte, les couvrant en entier, à l'exception du bord latéral et d'un espace juxta-scutellaire lisses. Pygidium légèrement convexe, assez densément et uniformément ponctué. Prosternum à stries subparallèles, entières, réunies par devant. Mésosternum à peine visiblement pointillé, entièrement rebordé. Jambes d'un brun de poix; antérieures garnies de six dentelures."

Description. Body length and biometric data are as follows: PPL 4.95, PEL 3.86, APW 1.33, PPW 3.47, PL 1.52, EL 2.28, EW 3.24, ProW 2.00, ProL 0.57, PyL 1.52, PTL 1.19, MSTL 1.19, MTTL 1.62. Body broadly oval and strongly convex. Cuticle strongly shining with purple metallic lustre on pronotum and dark green metallic lustre on elytra; funicle of antennae and tarsi dark rufopiceous; tibiae black.

Frontal stria of head complete and carinate. Supraorbital stria complete and evenly arcuate. Disk of front sparsely covered with moderate punctures, which are separated by two to three time their diameter; interspace among the punctures with microscopic punctures. Epistoma sparsely punctate, the punctures being a little coarser than those of frontal disk. Labrum broadly depressed anteriorly.

Pronotal sides (Fig. 132) evenly arcuate and feebly convergent on basal three-fourths, thence strongly arcuate and convergent to apices. Apical angles obtusely angulate. Marginal stria carinate and complete. Disk densely covered with large, round, and deep punctures on longitudinal area along the sides, the punctures becoming finer on basal fourth; interspace among the large punctures smooth, occasionally clothed with microscopic punctures; narrow lateral band along the side with dense and fine punctures; base with two or three rows of large, deep and longitudinal punctures, the rows absent on median fifth of posterior margin of pronotum, and becoming finer laterally; elsewhere sparsely clothed with microscopic punctures.

Epipleura of elytra even; surface between epipleural and elytral marginal striae smooth, shining, with a row consisting of sparse and fine punctures; inside marginal elytral stria finely punctate, the punctures being separated by two to three times their diameter. Marginal epipleural stria lightly carinate and complete. Marginal elytral stria heavily carinate, complete and densely with coarse punctures; its apical end extending inwards, reaching lateral fourth of apical margin of elytron. External subhumeral stria present on basal fourth. Internal subhumeral stria nearly complete and densely crenate.

Oblique humeral stria present on basal third and its apical portion fused with the basal portion (nearly on basal third of elytron) of internal subhumeral stria, so that they appear to be a single stria. First to 4th dorsal striae present on near basal half and densely crenate with coarse punctures; 2nd a little longer than the 1st; 3rd a little shorter than the 1st; 4th as long as the 1st. Fifth dorsal stria absent. Sutural stria strongly carinate, sparsely crenate and abbreviated on basal fourth. Surface of elytra, excepting flanks, mediobasal area and extreme apices (around apical stria), densely covered with coarse punctures, which are half as coarse as those of the longitudinal lateral area of the pronotum, becoming finer apically, and separated by their own diameter to twice the diameter; interspace among the punctures occasionally with fine punctures; flanks evenly covered with fine punctures which are separated by two or three times their diameter; mediobasal area, that is, basal half of elytra inside 4th dorsal stria sparsely clothed with microscopic punctures; area inside the apical stria densely covered with fine punctures.

Propygidium densely covered with coarse, round and shallow punctures, which are as coarse as the coarse elytral punctures; interspace among the punctures with lightly impressed, fine and irregularly transverse alutaceous microsculptures, and sometimes with fine punctures. Pygidium (Fig. 132) sparsely with deep punctures, which are as coarse as the propygidial ones; interspace among the punctures with alutaceous microsculpture basally, but elsewhere smooth and sometimes with fine punctures.

Anterior margin of median portion of prosternum nearly straight. Ventral disk of keel even, but slightly descended on apical sixth; surface of disk sparsely with fine punctures. Anterior marginal stria strongly carinate, nearly straight, but feebly and inwardly arcuate medially. Carinal striae strongly carinate and complete. Descending lateral stria strongly carinate, its apical end attaining to apical sixth of keel.

Anterior margin of mesosternum deeply emarginate medially. Marginal stria complete and strongly carinate. Disk sparsely with coarse punctures and other fine punctures intermingled among coarse ones. Meso-metasternal suture lightly impressed, and with a line which is densely and coarsely crenate. Intercoxal disk of metasternum sparsely clothed with microscopic punctures, these becoming coarse basally; a transverse apical band densely with the coarse punctures. Lateral metasternal stria strongly carinate, extending obliquely and posteriorly, and present on basal three-fourths. Lateral disk densely covered with large, round and shallow punctures, these progressively becoming sparser and finer apically. Metepisternum broad, and densely covered with large, shallow and longitudinal punctures.

Intercoxal disk of 1st abdominal sternum sparsely with microscopic punctures except along anterior margin and behind anterior corner, these parts being densely and coarsely punctate; also with an apical transverse row which consists of moderate punctures. Lateral stria of the disk strongly carinate basally and complete.

Protibia with 9 spinules on outer margin, the apical three and basal two small.

Male genitalia as shown in Fig. 133.

Specimens examined. [Ogasawara Isles.] 1 ♂, Bonin Is. vii, 1969.

Distribution. Japan (Ogasawara Isles.); Philippines; Bali; New Guinea; Volcano Is.;

Buru Is.

Remarks. *Saprinus cyaneus auricollis* can easily be recognized by the color of the body, which is purple on the pronotum and green on the elytra.

Saprinus (Saprinus) niponicus Dahlgren, 1962
(Fig. 132, 134, 137)

Saprinus niponicus Dahlgren, 1962: 245 [Japan: Nagano (holotype and a paratype); Hachinohe; Aomori; Kiso-fukushima; Hirayu; Gifu; Hiogo; Nagasaki]; Mazur, 1970: 52; 1984: 55; Kryzhanovskij and Reichardt, 1976: 158; Hisamatsu, 1985: 223.
Japanese name: Nise-dôgane-emma-mushi.

Original description. "Ähnelt sehr *semistriatus* Scriba (ich habe keine äusseren Verschiedenheiten sehen können), aber ist gekennzeichnet durch die abgerundete Aedeagusspitze und durch das achte Bauchsternit des Männchens. "

Description. Body length, PPL, male, 4.05 - 5.71 mm (4.92 ± 0.09 , n=20), female, 4.52 - 6.66 mm (5.89 ± 0.12 , n=20), PEL, male, 3.33 - 4.81 mm (4.33 ± 0.08 , n=20), female, 3.90 - 5.33 mm (4.82 ± 0.07 , n=20). Width, male, 3.00 - 4.24 mm (3.80 ± 0.07 , n=20), female, 3.38 - 4.71 mm (4.28 ± 0.07 , n=20). Biometric data are given in Table 45. Body broadly oval and strongly convex. Cuticle very strongly shining with brassy lustre and black; tarsi and funicle of antennae dark rufopiceous.

Frontal stria of head weakly carinate, complete, sometimes interrupted medially. Supraorbital stria well impressed and complete. Disk of front sparsely covered with moderate punctures, the punctures much sparser on basal half; interspace among these punctures smooth or nearly so. Epistoma more densely punctate than on anterior area of front. Labrum deeply depressed medially.

Pronotal sides (Fig. 132) evenly arcuate and convergent on basal five-sixths, thence strongly convergent to apices. Apical angles obtuse. Marginal stria lightly carinate and complete. Disk smooth, but densely, coarsely and deeply punctate along the sides except on basal fourth, sparsely clothed with fine punctures in a narrow band outside the coarsely punctate area; base with one or two irregular rows of large punctures, the rows absent on lateral sixth and sparse on median third; elsewhere extremely finely, sparsely punctate; area behind eyes feebly depressed.

Epipleura of elytra even; surface between elytral and epipleural marginal striae with two rows consisting of moderate and sparse punctures; area inside elytral marginal stria sparsely and moderately punctate, the punctures being denser on apical third. Marginal epipleural stria complete and distinctly carinate. Marginal elytral stria strongly carinate, area inside it being crenate with coarse punctures; its apical end extending along the posterior margin of elytra to medio-apical angles of elytra and then a little extending basally. External subhumeral stria confined basally. Internal subhumeral stria present on median third, but frequently abbreviated basally and sometimes absent. Oblique humeral

stria distinctly impressed on basal third. First to 4th dorsal striae densely crenate with coarse punctures, deeply impressed, and present on basal two-thirds. Fifth dorsal stria absent. Sutural stria shortly represented medially by a row of about four to eight coarse punctures. Surface of apical third of elytra covered with coarse, oval punctures, which are finer than those on the longitudinal area along the pronotal sides, and separated by their own diameter to twice the diameter, the punctured area usually expanded basally to nearly sutural area; interval between 1st and 2nd dorsal striae usually with several longitudinal and short lines; surface of basal two-thirds smooth, sparsely clothed with microscopic punctures; extreme apex of elytra (around apical stria) sparsely and finely punctate; interspace among all discal punctures smooth, occasionally clothed with microscopic punctures.

Propygidium densely covered with coarse punctures, which are as coarse as those of the apical third of the elytra but somewhat shallower, and become finer on the basal third; interspace among punctures occasionally and finely punctate, and with lightly impressed, fine and irregularly alutaceous microsculptures. Pygidium (Fig. 132) densely covered with punctures, which are a little coarser than the propygidial ones and progressively become finer apically.

Anterior margin of median portion of prosternum straight. Ventral disk of keel even, sparsely clothed with microscopic punctures, which are coarser laterally. Anterior marginal stria of keel deeply impressed, carinate and complete. Carinal striae carinate, complete, divergent anteriorly and posteriorly, and nearly straight on apical third. Descending lateral stria strongly carinate, its apical end attaining to apical third of carinal stria.

Anterior margin of mesosternum broadly and feebly emarginate medially. Marginal stria complete and strongly carinate. Disk sparsely clothed with coarse punctures, sometimes the punctures sparser and finer medially. Meso-metasternal suture lightly impressed, with a strongly crenate line. Intercoxal disk of metasternum feebly convex, smooth, but with coarse and dense punctures along the lateral stria, and with coarse and dense punctures in a transverse apical band. Lateral metasternal stria strongly carinate, extending obliquely and posteriorly, and usually present on basal half. Lateral metasternal disk densely covered with round, shallow, large and setiferous punctures, which become smaller on the apical third, with fine punctures intermingled. Metepisternum more densely punctate than those of lateral disk of metasternum, the punctures becoming sparser on apical half.

Intercoxal disk of 1st abdominal sternum with strongly carinate lateral stria on basal two-thirds; sparsely clothed with fine punctures on medio-apical area except for a narrow band along posterior margin with a row of coarse punctures; elsewhere densely and coarsely punctate.

Protibia with 13 spines on outer margin, the apical two and basal three small.

Male genitalia as shown in Fig. 134.

Specimens examined. [Hokkaidô] 3 exs., Futatsu-yama, Shibeche, Kushiro, 1/viii/1954, 17/vi/1972, 15/viii/1987, K. Ijima leg. (IJ); 1 ex., Shiriuchi, Oshima,

11/viii/1976, T. Kumata et al. leg. (EIHU); 3 exs., Shibetsu, 24/vii/1966, H. Takizawa leg.; 1 ex., Mt. Yûbari, 10/viii/1966, H. Takizawa leg.; 15 exs., Hokkaidô Univ., Sapporo, 7, 27/vi/1985, M. Ôhara leg.; 8 exs., Misumai, Sapporo, 10 & 12/vii/1991, K. Sayama leg.; 3 exs., Toyotaki, Sapporo, 3/ix/1987, M. Ôhara leg.; 2 exs., Kamui-kotan, 7/viii/1987, M. Ôhara leg.

[Honshû] <Aomori-ken> Paratype, 1 ♂, Hachinohe, 8/vi/1946, A. Fukuda leg. (NA). <Fukushima-ken> 1 ex., Yunohana, Tateiwa, Minami-Aizu, 8/vii/1948, Y. Kurosawa leg. (NSMT). <Gumma-ken> 1 ex., Sarugakyô, 6/vi/1966, M. Ishida leg. <Tôkyô-to> 2 ♂♂ 1 ♀, Tôkyô, 19/viii/1972, no collector's name.; 2 exs., Kunitachi, 21/vi/1963, S. Nomura leg. (NSMT). <Kanagawa-ken> 1 ex., Tozuka, Yokohama, 21/v/1972, no collector's name. <Yamanashi-ken> 1 ex., Mt. Daibosatsu, 22/vii/1963, T. Okumura leg.; 1 ex., Sagashiro Spa., 28-30/vii/1961, S. Nomura leg. (NSMT). <Nagano-ken> 1 ♂, Fukushima, Kiso, 11-12/vi/1946, T. Nakane leg. (NA); 2 exs., Kami-kôchi, Shinano, 21-28/vii/1947, S. Ôsawa leg. (NA); 4 exs., Koma-ga-take, Kiso, 4, 5/viii/1946, S. Ôsawa leg. (NA). <Gifu-ken> Paratypes, 1 ♂ 1 ♀, Hirayu, Hida, 24/vii/1946, M. Hayashi leg. (NA).

Distribution (Fig. 126). Japan (Hokkaidô, Honshû, Shikoku, Kyûshû); Primorskij Kray; Korea.

Remarks. *Saprinus niponicus* resembles *S. planiusculus*; however, the long 3rd dorsal elytral stria and the shape of the 8th sternum of the male genitalia of *S. niponicus* will distinguish it from *S. planiusculus*.

This species is cadavericolous.

Table 45. Biometric data of *Saprinus niponicus* Dahlgren.

| | Male | Female |
|------|--------------------------|--------------------------|
| APW | 1.09-1.52 (1.35±0.02) 20 | 1.24-1.67 (1.49±0.02) 20 |
| PPW | 2.76-3.95 (3.51±0.07) 20 | 2.95-4.33 (3.88±0.07) 20 |
| PL | 1.29-2.00 (1.64±0.04) 20 | 1.33-2.14 (1.83±0.04) 20 |
| EL | 2.00-2.86 (2.60±0.05) 20 | 2.38-3.05 (2.87±0.04) 20 |
| EW | 3.00-4.24 (3.80±0.07) 20 | 3.38-4.71 (4.28±0.07) 20 |
| ProW | 1.81-2.67 (2.34±0.05) 20 | 2.00-3.09 (2.58±0.05) 20 |
| ProL | 0.33-0.52 (0.45±0.01) 20 | 0.43-0.62 (0.48±0.01) 20 |
| PyL | 1.43-1.90 (1.68±0.03) 20 | 1.43-2.33 (2.09±0.04) 20 |
| PTL | 1.09-1.48 (1.35±0.02) 20 | 1.00-1.67 (1.45±0.03) 20 |
| MSTL | 1.24-1.57 (1.42±0.02) 20 | 1.05-1.71 (1.50±0.03) 20 |
| MTTL | 1.33-1.90 (1.67±0.03) 20 | 1.14-1.95 (1.79±0.04) 20 |

Saprinus (Saprinus) pecuinus Marseul, 1855

Saprinus pecuinus Marseul, 1855: 391; 1873: 221 [Kagoshima, Kiu-Siu, Japon]; Mazur, 1984: 56.

Specimens examined. No material of this species has been available.

Distribution. China; Japan (?).

Remarks. Marseul's record (1873) remains in doubt. I have had no opportunity to check his specimens.

Saprinus (Saprinus) planiusculus Motschulsky, 1849
(Fig. 132, 135, 137)

Saprinus planiusculus Motschulsky, 1849: 97 [Kirgiz SSR].

Saprinus cuspidatus Ihssen, 1949: 183, synonymized by Kryzhanovskij, 1972: 435.

Saprinus nitidulus: Marseul, 1873: 221 [Japan; Shimabara (Kiu-Siu) et Hiogo (Nippon)].

Japanese name: Dôgane-emma-mushi.

Description. Body length, PPL, male, 3.95 - 5.66 mm (4.72 ± 0.08 , n=20), female, 4.09 - 6.33 mm (5.30 ± 0.12 , n=20), PEL, male, 3.52 - 4.71 mm (4.20 ± 0.06 , n=20), female, 3.81 - 5.09 mm (4.47 ± 0.08 , n=20). Width, male, 3.14 - 4.19 mm (3.64 ± 0.05 , n=20), female, 3.28 - 4.57 mm (3.94 ± 0.07 , n=20). Biometric data are given in Table 46. Body broadly oval and strongly convex. Cuticle very strongly shining with brassy lustre, black; tarsi and funicle of antennae dark rufopiceous.

Frontal stria of head weakly carinate and complete. Supraorbital stria well impressed and complete. Disk of front densely covered with moderate punctures, which become sparser on the basal half; interspace among these punctures usually smooth, occasionally clothed with fine punctures. Epistoma medio-apically more densely punctate than the disk. Labrum deeply depressed medially.

Pronotal sides (Fig. 132) evenly arcuate and convergent on basal five-sixths, thence strongly convergent to apices. Apical angles obtusely angulate. Marginal stria carinate and complete. Disk smooth, but densely, coarsely and deeply punctate along the sides except on basal fourth, sparsely clothed with fine punctures in a narrow band outside the coarsely punctate area; base with two or three irregular rows of large punctures except on lateral seventh and a narrow antiscutellar area; elsewhere extremely finely, sparsely punctate; area behind eyes feebly depressed.

Epipleura of elytra sparsely with moderate punctures, which become denser on the apical third. Marginal epipleural stria complete and finely impressed. Marginal elytral stria lightly carinate and complete, its apical end extending along the posterior margin of elytra to medio-apical angles of elytra and then bending basally and running for a short distance. External subhumeral stria confined basally. Internal subhumeral stria present on median third, with coarse punctures, and sometimes its basal end united with the apical end of oblique humeral stria. Oblique humeral stria (Fig. 132) distinctly impressed on basal

third. First, 2nd and 4th dorsal striae present on about basal half, and coarsely and sparsely crenate; 2nd usually a little longer than the 1st. Third dorsal stria short, present on basal fifth, and coarsely crenate. Fifth dorsal stria wanting. Sutural stria shortly represented by a row of four to five coarse punctures medially. Surface of apical half or third of elytra covered with coarse and oval punctures, which are finer than those in an area along the pronotal sides, and usually separated by their own diameter to twice the diameter, but sometimes sparser; the punctate area usually expanding basally onto sutural area and also interval between 2nd and 4th dorsal striae; interval between 1st and 2nd dorsal striae usually with several longitudinal and short lines; surface of basal half smooth, sparsely clothed with microscopic punctures; extreme apex of elytra (around apical stria) sparsely and finely punctate; interspace among all discal punctures of elytra smooth, occasionally clothed with microscopic punctures.

Propygidium densely covered with coarse punctures, which are a little coarser than the elytral coarse punctures and become finer on basal half; interspace among the punctures occasionally and finely punctate and with lightly impressed, fine and irregularly alutaceous microsculptures. Pygidium densely covered with punctures, which are slightly coarser than those of the propygidium and progressively become finer on the apical third and nearly absent at the apex.

Anterior margin of median portion of prosternum straight. Ventral disk of keel even, sparsely clothed with microscopic punctures, which are coarser laterally. Anterior marginal stria of keel deeply impressed, carinate, and complete. Carinal stria carinate, complete, divergent anteriorly and posteriorly, and nearly straight on apical third. Descending lateral stria strongly carinate, its apical end attaining to apical third of carinal stria.

Anterior margin of mesosternum broadly and feebly emarginate medially. Marginal stria complete, and strongly carinate. Disk sparsely clothed with microscopic punctures, which become coarser laterally. Meso-metasternal suture lightly impressed, and accompanied with a strongly crenate line. Intercostal disk of metasternum feebly convex, sparsely clothed with microscopic punctures, which are coarser along lateral metasternal stria and in a transverse apical band. Lateral metasternal stria strongly carinate, extending obliquely and posteriorly, and present usually on basal half. Lateral metasternal disk densely covered with round, shallow, large and setiferous punctures, which become smaller on the apical third, with fine punctures intermingled. Metepisternum more densely punctate than those of lateral disk of metasternum, the punctures becoming sparser on apical half.

Intercostal disk of 1st abdominal sternum with strongly carinate lateral stria on basal three-fourths: sparsely and microscopically punctate on median area; lateral area along lateral stria sparsely and coarsely punctate, with fine punctures intermingled.

Protibia with 13 spines on outer margin, the apical two and basal three small.

Male genitalia as shown in Fig. 135.

Specimens examined. [Hokkaidô] 1 ex., Shibechea, Kushiro, 16/vi/1955, K. Ijima leg. (IJ); 1 ex., Kamui-kotan, Asahikawa, 20/vii/1987, M. Ôhara leg.; 1 ♂, Ombetsu,

25/vi/1985, M. Ôhara leg.; 1 ex., Otaru, Shiribeshi, 1/vii/1943, T. Hasegawa leg.; 3 exs., Ishikari-hama, 7/viii/1978, T. Fujisawa leg.; 2 exs., Zenibako, 27/vi/1985, 19/vi/1985, M. Ôhara leg.; 5 exs., Sapporo, 19, 27/vi/1985, 9/vii/1987, M. Ôhara leg.; 1 ex., Maru-yama, Sapporo, 23/vi/1979, N. Nishikawa leg.; 1 ex., Ditto, 2/vi/1951, T. Kumata leg. (EIHU); 1 ex., Jôzankei, Sapporo, 8/vii/1907, S. Matsumura leg. (EIHU); 1 ex., Misumai, Sapporo, 27/vi/1990, M. Ôhara leg.; 18 exs., Ditto, 12-VII, 9, 10 & 18/vii/1991, K. Sayama leg.; 13 exs., Nopporo, 12/vi/1986, M. Ôhara leg.; 9 exs., Kamayausu, Sapporo, 20/vii/1987, M. Hinakura leg.; 1 ♂ 1 ♀, Hakodate, 19/vi/1954, T. Nakane leg. (*Saprinus cuspidatus*, Dahlgren det.) (NA); 1 ex., Hakodate, 17/vi/1954, T. Nakane leg. (NA); 1 ex., Mt. Hakodate, 26/viii/1951, K. Honma leg. (NA); 2 exs., Yagishiri Is., 21/vi/1985, Y. Kusui leg.

[Honshû] <Iwate-ken> 1 ex., Yashikidai, 19/vii/1954, T. Kumata leg. (EIHU). <Yamagata-ken> 12 exs., Yonezawa, 16/v/1944, Y. Kurosawa leg. (NSMT). <Fukushima-ken> 1 ex., Wakamatsu, 29/vi/1049, T. Nakane leg. (NA); 2 exs., Mt. Komagatake, southern Aizu, 10/viii/1949, K. Nagayama leg. (NSMT); 2 exs., Wakamatsu, 14/v/1947, Y. Kurosawa leg. (NSMT); 1 ex., Fukushima-shi, 9/vii/1965, K. Tazoe leg. <Chiba-ken> 2 exs., Cape Futtu, 2/vii/1961, M. Yamazaki leg. (NA); 1 ex., Ôami, 19/vi/1984, M. Ôhara leg.; 2 exs., Ichikawa, 27/iv/1958, M. Suwa leg. <Tôkyô-to> 2 exs., Ogikubo, 16/vi/1963, 21/iv/1968, M. Ishida leg.; 1 ex., Kumegawa, Higashimurayama, 26/iv/1964, M. Ishida leg.; 1 ex., Setagaya, 18/ix/1949, Ôhira leg. (NA); 1 ex., Takamizu-yama, 2/vi/1935, T. Nakane leg. (NA); 1 ♀, 1 ex., Hongô, Musashi, v/1947, T. Nakane leg. (*Saprinus cuspidatus*, Dahlgren det.) (NA); 2 exs., Aoyama, 26/vii/1943, 25/v/1948, T. Nakane leg. (NA); 1 ex., Komazawa, 23/v/2603 (= 1943), Watanabe leg. (NSMT); 1 ex., Kinuta, 16/v/1965, Y. Kurosawa leg. (NSMT); 1 ex., Ueno-kôen, 1/vii/1934, H. Uchida leg. (NSMT); 1 ex., Hatagaya, 11/v/1924, no collector's name. <Yamanashi-ken> 1 ex., Masutomi, 12/vi/2603, no collector's name. (NSMT); 1 ex., Sagashiro Spa., 28-30/vii/1961, S. Nomura leg. (NSMT). <Niigata-ken> 1 ex., Niigata-shi, 26/vi/1933, K. Baba leg. <Nagano-ken> 1 ex., Fukushima, Kiso, 11-12/vi/1940, T. Nakane leg. (*Saprinus cuspidatus*, Dahlgren det.) (NA); 1 ex., Kami-kôchi, Shinano, 21-28/vii/1947, S. Ôsawa leg. (NA); 3 exs., Sunama, Nojiri, 21/viii/1943, T. Nakane leg. (NA); 1 ex., Gaijin-mura, Nojiri, 19/viii/1941, T. Nakane leg. (NA). <Aichi-ken> 3 exs., Obata, Owari, 15/vi/1941, 30/v/1947, S. Ôsawa leg. (NA); 1 ex., Miya, Mikawa, 1-2/ix/1947, S. Ôsawa leg. (NA); 1 ex., Shiadeki-machi, Nagoya, 1/vi/1941, S. Ôsawa leg. (NA). <Gifu-ken> 3 exs., Hirayu, 24/vii/1946, M. Hayashi leg. <Hyôgo-ken> 1 ex., Motoyama-mura, near Kôbe, 14/v/1938, K. Sakaguchi leg. (NA); 1 ex., Kôbe, 22/vi/1930, no collector's name. (BSM). <Tottori-ken> 2 exs., Daisen, 27/v/1935, M. Hamano leg. (NSMT).

[Kyûshû] <Fukuoka-ken> 1 ex., Hakozaki, 24/vi/1946, F. Nakasuji leg. (NA).

Distribution (Fig. 137). Japan (Hokkaidô, Honshû, Shikoku, Kyûshû); USSR; Canary and Azores Is.; Europe; North Africa; Asia Minor; Siberia; China; Korea; ? Viet-Nam.

Table 46. Biometric data of *Saprinus planiusculus* Motschulsky.

| | Male | Female |
|------|--------------------------|--------------------------|
| APW | 1.19-1.43 (1.32±0.01) 20 | 1.24-1.57 (1.42±0.02) 20 |
| PPW | 2.81-3.81 (3.36±0.05) 20 | 3.05-4.00 (3.61±0.06) 20 |
| PL | 1.33-1.86 (1.58±0.03) 20 | 1.38-1.86 (1.68±0.03) 20 |
| EL | 2.28-2.86 (2.57±0.03) 20 | 2.24-3.19 (2.70±0.06) 20 |
| EW | 3.14-4.19 (3.64±0.05) 20 | 3.28-4.57 (3.94±0.07) 20 |
| ProW | 2.05-3.05 (2.29±0.04) 20 | 2.00-3.05 (2.42±0.05) 20 |
| ProL | 0.48-0.71 (0.58±0.02) 20 | 0.43-0.62 (0.54±0.01) 20 |
| PyL | 1.29-1.81 (1.54±0.03) 20 | 1.52-2.14 (1.81±0.03) 20 |
| PTL | 1.14-1.52 (1.34±0.02) 20 | 1.14-1.67 (1.37±0.03) 20 |
| MSTL | 1.29-1.76 (1.46±0.02) 20 | 1.19-1.67 (1.42±0.03) 20 |
| MTTL | 1.48-2.00 (1.68±0.03) 20 | 1.38-1.95 (1.68±0.04) 20 |

Remarks. *Saprinus planiusculus* resembles *Saprinus niponicus*, with which it is to a great extent sympatric; however, it can be distinguished from the latter by the shortened 3rd dorsal elytral stria and the shape of the 8th sternum of the male genitalia.

This species occurs on dead animal bodies.

***Saprinus (Saprinus) splendens* (Paykull, 1811)**
(Fig. 132, 136, 137)

Hister splendens Paykull, 1811: 53 [Capland].

Hister elegans Paykull, 1811: 57, synonymized by G. Müller, 1938: 165.

Hister speciosus: Dejean, 1821: 48 [nom. nud.].

Saprinus speciosus Erichson, 1834: 170; Marseul, 1873: 221 [Japan; Nangasaki et Hiogo], synonymized by Dahlgren, 1967: 214.

Hister cyaneus: Boisduval, 1835: 147, correctly identified by Mazur, 1976: 717.

Hister capicola Dejean, 1837: 141 [nom. nud.], synonymized by Gemminger and Harold, 1868: 791.

Saprinus viridicupreus Blanchard, 1853: 57, synonymized by Blackburn, 1903: 107.

Saprinus advena Marseul, 1855: 335, synonymized by Gemminger and Harold, 1868: 789.

Saprinus ovalis Marseul, 1855: 382, synonymized by Dahlgren, 1967: 214.

Saprinus elegans: Marseul, 1855: 383.

Saprinus ater MacLeay, 1864: 118, synonymized by Blackburn, 1903: 104.

Saprinus rasselas Marseul, 1855: 379, synonymized by Bichardt, 1921: 117.

Saprinus splendens elegans: G. Müller, 1938: 165.

<Larva> Hayashi, 1986: pl. 11.

Japanese name: Ruri-emma-mushi.

Original description. "Aeneus, thorace antice valde angustato, elytris coeruleis, interstitiis omnibus striarum dorsalium posticeque punctatissimis, tibiis anticis sexdentatis.

Habitat in Cap. bon. spei. Dom. Sparrman; in Tranquebaria Dom. de Sehestedt.

Caput aeneum, nitidum, fronte convexa, punctata, stria ordinaria, antennarum clava fusca. Thorax antice vix latitudine longitudinis, postice plus duplo latior, subtus aeneo-coerulescens, supra aeneus nitidissimus; tenuiter marginatus, convexus, antice fossula utrinque profunde punctata, margine laterali late profundeque, antico vero inter fossulas, oculo modo armato, tenuissime punctulato, summo postico, punctis paucioribus etiam adperso, disco asepis laevissimo. Elytra thorace plus dimidio longiora, anticeque latitudine ejus baseos, mox vero versus medium sensim valde dilatata, postice iterum angustata, cyanea, nitidissima, parum convexa: stria suturali antice parum modo abbreviata, quarta dorsali brevissima, antice posticeque abbreviata, reliquis dorsalibus obliquis in medio fere abbreviatis, stria marginali subrecta, dorsalibus adjacentibus, postice, saepiusque etiam antice, paulo breviora, humerali profunda brevissima, laterali et terminali distinctis, interstitio punctulato. Tota superficies elytrorum confertissime punctulata, praeter marginem exteriorem, plagamque communem laevissimam, a sutura fere ad tertiam striam dorsalem, sese extendentem. Interstitium inter primam secundamque striam dorsalem rugulis transversis notatur. Pectus et Abdomen punctatissima, aeneo-coerulescentia. Pedes nigropicei, tibiis dilatatis, anticis sex-denticulatis, intermediis et posticis spinulosis.

OBS. Color hujus speciei jam magis aeneus, jam magis coeruleus. "

Description. Body length, PPL, male, 5.05 - 6.85 mm (6.12 ± 0.13 , n=20), female, 6.14 - 7.66 mm (7.07 ± 0.10 , n=20), PEL, male, 4.28 - 5.43 mm (4.88 ± 0.07 , n=20), female, 4.86 - 5.90 mm (5.52 ± 0.07 , n=20). Width, male, 3.76 - 4.76 mm (4.33 ± 0.06 , n=20), female, 4.33 - 5.24 mm (4.80 ± 0.06 , n=20). Biometric data are given in Table 47. Body broadly oval and strongly convex. Cuticle very strongly shining with dark blue metallic lustre; elytra with light blue metallic lustre; funicle of antennae and tarsi dark rufopiceous; tibiae black.

Frontal stria of head carinate, complete, its sides straight. Supraorbital stria complete and well impressed. Disk of front moderately punctate, the punctures being separated by their own diameter to half the diameter on apical half, becoming sparser and finer on basal half and coarser laterally; sometimes with short lines medially, which are divergent apically, and with a deep and large punctures on basal third on mid line. Epistoma more sparsely punctate than the disk medio-apically. Labrum broadly and deeply depressed medially.

Pronotal sides (Fig. 132) evenly arcuate and convergent on basal five-sixths, thence strongly convergent to apices. Apical angles obtuse. Marginal stria lightly carinate and abbreviated at basal sixth. Disk smooth, densely, largely and deeply punctate along the sides, the punctate area narrowest at middle, attaining to basal margin, and the punctures much coarser behind anterior corner; base with a row of coarse punctures, but the

punctate area broadly interrupted on median third of pronotal posterior margin; elsewhere microscopically, sparsely punctate; area behind eyes strongly depressed.

Epipleura of elytra even; surface between epipleural and elytral marginal striae with three or four rows of moderate punctures, the rows being often abbreviated at basal third; inside elytral marginal stria sparsely clothed with microscopic punctures, which are finer on the apical third. Marginal epipleural stria lightly but distinctly carinate and complete. Marginal elytral stria strongly carinate, complete, its apical end extending along the posterior margin of elytra and united with the apical end of sutural stria. External subhumeral stria (Fig. 132) confined to a basal area. Internal subhumeral stria absent. Oblique humeral stria well impressed and present on basal half. First to 3rd dorsal striae densely crenate with coarse punctures, strongly impressed and present on about basal half; 2nd a little longer than the 3rd; 1st a little longer than the 2nd. Fourth dorsal stria short, usually present on mediobasal fourth. Fifth dorsal stria absent. Suture stria distinctly carinate, sparsely crenate and abbreviated at basal sixth. Surface of elytra densely covered with large, round, and deep punctures, which are as coarse as those of the extreme base of the pronotum, except on flanks, mediobasal half, and extreme apex (around apical stria); elsewhere sparsely and microscopically punctate; interval between 1st and 2nd dorsal striae with several longitudinal rugae.

Propygidium short; disk densely covered with punctures, which are a little coarser than the elytral coarse punctures and sparser and finer on the basal half. Pygidium (Fig. 132) densely covered with large punctures, which are about three times as coarse as the elytral coarse punctures but finer on the apical third; usually with a complete or nearly complete, narrow, median longitudinal line which is impunctate.

Anterior margin of median portion of prosternum nearly straight and shortly marginate on median third. Ventral disk of keel descending anteriorly and even on basal fourth; its disk finely covered with punctures, which are separated by two to three times their diameter; interspace among these punctures with fine and alutaceous microsculpture. Anterior marginal stria of keel strongly carinate and complete. Carinal stria weakly carinate and strongly divergent posteriorly. Descending lateral stria complete and strongly carinate, its apical end attaining to apical sixth of keel.

Anterior margin of mesosternum slightly emarginate medially, its marginal stria well carinate and complete. Disk sparsely clothed with fine punctures, which are a little coarser laterally. Meso-metasternal suture well impressed, complete, angulate at middle, and without a crenate line. Intercoxal disk of metasternum feebly convex, but strongly depressed along longitudinal sutural line in male, while feebly depressed in female; median area sparsely clothed with fine punctures, which are separated by three to eight times their diameter; lateral area along the lateral stria sparsely covered with coarse, round and deep punctures, and with other fine ones intermingled; similarly punctate in an apical transverse band, the punctures becoming sparser and finer on median third; interspace among punctures on lateral area and apical transverse band with finely impressed, alutaceous micro-sculpture. Lateral metasternal stria strongly carinate, extending obliquely and posteriorly, and present on basal two-thirds. Lateral metasternal disk densely covered

with large, round, deep punctures, and with fine ones intermingled; interspace among punctures with lightly impressed, irregular, and transverse alutaceous microsculpture. Metepisternum densely covered with large, deep, and longitudinal punctures, and with fine punctures intermingled; interspace among these punctures smooth and shining.

Intercoxal disk of 1st abdominal sternum sparsely clothed with fine punctures, which become coarser laterally; lateral stria well carinate and abbreviated at apical sixth.

Protibia with 11 spinules on outer margin, the apical three and basal two small.

Male genitalia as shown in Fig. 136.

Specimens examined. [Honshû] <Yamagata-ken> 2 exs., Sakata, 27/vii/1956, K. Shirahata leg. (NA). <Chiba-ken> 1 ex., Ôami, 22/vi/1984, M. Ôhara leg.; 2 exs., Okitsu, 1913, F. Muir leg. (BSM). <Tôkyô-to> 1 ex., Inogashira, 2/viii/1952, no collector's name. <Kanagawa-ken> 1 ex., Kamigo, Yokohama, vii/1977, K. Masumoto leg.; 1 ex., Yokohama, vi/1923, J. F. Illingworth leg. (BSM); 2 exs., Hiratsuka, vii/1958, S. Nomura leg. (NSMT). <Niigata-ken> 2 exs., Senami, northern Echigo, 29/vii/1984, viii/1984, K. Baba leg. <Shizuoka-ken> 17 exs., Toi, Tagata, vi-ix/1987, S. Mochizuki leg.; 1 ex., Gotemba, 17/viii/1933, K. Nakamura leg.; 1 ex., Miho, 10/vi/1932, no collector's name (NSMT); 1 ex., Ditto, 20/x/1927, K. Satô leg. (NSMT). <Aichi-ken> 2 exs., Obata, Owari, 20, 30/v/1947, S. Ôsawa leg. (NA); 1 ex., Nagoya, Owari, 1/viii/1947, S. Ôsawa leg. (NA); 1 ex., Miya, Mikawa, 1-2/ix/1947, S. Ôsawa leg. (NA). <Hyôgo-ken> 2 exs., Uzaki, 20/vi/1935, S. Eda leg. (NA); 1 ex., Kôbe, 23/vi/1930, no collector's name (BSM). <Wakayama-ken> 1 ex., Kawayu, Hongu, southern Kii, 24/vii/1946, S. Ôsawa leg. (NA); 7 exs., Kushimoto, 30/vi/1957, C. Morishima leg. (NSMT). <Ôsaka-fu> 1 ex., Minô, 2/viii/1947, F. Takahashi leg. (NA); 1 ex., Senriyama, 28/v/1949, K. Sawada leg. (NA). <Okayama-ken> 1 ex., Kamba, 19/v/1940, T. Okutani leg. (NSMT).

[Kyûshû] <Fukuoka-ken> 1 ex., Tatara, 10/v/1945, Y. Kurosawa leg.; 2 exs., Ditto, (NSMT); 1 ex., Hakozaki, 15/v/1964, F. Nakasuji leg. (NA). <Saga-ken> 1 ex., Chika, 30/ix/1952, H. Yamaguchi leg. (NA). <Kagoshima-ken> 1 ex., Kushikino, 28/v/1982, M. Maegata leg.; 1 ex., Midori-ga-oka, Kagoshima-shi, 9/vi/1982, N. Mizoguchi leg.; 1 ex., Sakura-jima, 20/vii/1951, F. Takahashi leg. (NA).

[Nansei Isles.] <Yaku-shima Is.> 1 ex., 7-13/vii/1945, R. Matsuda leg. (NA); 1 ex., Kosugi-dani, 7-10/vi/1965, T. Kumata leg. (EIHU); 1 ex., Shiratani, 21/vi/1975, Y. Kurosawa leg. (NSMT). <Amami-Ôshima Is.> 1 ex., Naze, 19/v/1960, T. Shibata leg. (NSMT). <Ishigaki Is.> 2 exs., Ishigaki, 26/iii/1984, Yoshida leg.

Distribution (Fig. 137). Japan (Hokkaidô, Honshû, Shikoku, Kyûshû, Nansei Isles.); tropical Africa; Arabia; Kashimîr; Afganistan, Oriental Region; Australia.

Remarks. *Saprinus splendens* can easily be recognized by the metallic blue body and the pygidium with an impunctated area on the mid line.

The biology of *S. splendens*, including the immature stages, was described by Nakasuji (1965) and Mochizuki (1980, 1985).

Table 47. Biometric data of *Saprinus splendens* (Paykull).

| | Male | Female |
|------|---------------------------|---------------------------|
| APW | 1.24-1.62 (1.49± 0.02) 20 | 1.38-1.76 (1.60± 0.02) 20 |
| PPW | 3.47-4.83 (4.01± 0.06) 20 | 4.05-4.81 (4.46± 0.05) 20 |
| PL | 1.71-2.09 (1.91± 0.02) 20 | 1.81-2.33 (2.16± 0.03) 20 |
| EL | 2.38-3.24 (2.90± 0.05) 20 | 2.86-3.47 (3.19± 0.04) 20 |
| EW | 3.76-4.76 (4.33± 0.06) 20 | 4.33-5.24 (4.80± 0.06) 20 |
| ProW | 2.19-2.95 (2.67± 0.05) 20 | 2.62-3.24 (2.96± 0.04) 20 |
| ProL | 0.29-0.62 (0.49± 0.02) 20 | 0.38-0.62 (0.48± 0.01) 20 |
| PyL | 1.67-2.19 (1.93± 0.03) 20 | 2.00-2.62 (2.26± 0.03) 20 |
| PTL | 1.29-1.81 (1.54± 0.03) 20 | 1.43-1.81 (1.64± 0.03) 20 |
| MSTL | 1.33-1.81 (1.64± 0.03) 20 | 1.43-2.00 (1.71± 0.03) 20 |
| MTTL | 1.57-2.09 (1.87± 0.03) 20 | 1.76-2.19 (2.03± 0.02) 20 |

Genus *Hypocacculus* Bickhardt, 1916

Hypocacculus Bickhardt, 1916-17: 82, 95 [type species: *Saprinus metallescens* Erichson, 1834: 192. Originally designated]; Reichardt, 1926: 14; 1932: 28, 96; 1941: 156, 280; Peyerimhoff, 1936: 228; Kryzhanovskij and Reichardt, 1976: 201; Mazur, 1984: 83.

Subgenus *Nessus* Reichardt, 1932

Nessus Reichardt, 1932: 32 [type species: *Saprinus rubripes* Erichson, 1834: 193. Originally designated]; 1941: 293; Kryzhanovskij and Reichardt, 1976: 207; Mazur, 1984: 86.

Hypocacculus (*Nessus*) *asticus* (Lewis, 1911) (Fig. 138, 139)

Hypocaccus asticus Lewis, 1911: 89 [Japan: Enoshima].
Japanese name: Hime-hamabe-emma-mushi.

Original description. "Ovalis, convexus, aeneus vel rufo-piceus, nitidus, antennis pedibusque rufis; fronte strigosa; pronoto dense punctato, disco postice laevi; elytris dimidia parte postica tenuiter punctulatis, stria suturali integra, antice arcuatim juncta, dorsalibus 2-4 dimidiatis, 1 subintegra postice sinuata; pygidio tenuissime punctulato; prosterno basi lato, striis postice abbreviatis; mesosterno laevi, stria transversa nulla; tibiis anticis 4-dentatis. L. 2 mill."

Description. Body length, PPL, 2.16 - 2.39 mm (2.26 ± 0.06, n=3); PEL, 1.83 -

2.06 mm (1.95 ± 0.05 , $n=3$). Width, 1.60 - 1.80 mm (1.70 ± 0.05 , $n=3$). Body oval and strongly convex. Biometric data are given in Table 48. Cuticles very strongly shining and black or nearly so with a strong bronze or brassy lustre, but in an observed specimen dark rufopiceous, lacking the metallic lustre; antennae dark rufopiceous with club rufotestaceous; legs dark reddish brown.

Frontal stria of head (Fig. 138C) complete and strongly carinate, straight anteriorly, and its sides parallel to each other and straight. Disk of front with an irregular and shallow depression wholly, as shown in fig. 127C. Epistoma scabrous.

Pronotal sides (Fig. 138A) feebly arcuate and not strongly convergent on basal five-sixths, thence strongly arcuate and convergent to apices. Apical angles round. Disk densely covered with coarse and round punctures except on mediobasal area, the punctures becoming deeper on longitudinal lateral area along the sides; base with two or three rows of coarse punctures, occasionally with fine punctures intermingled; sparsely clothed with microscopic punctures narrowly along the sides and on mediobasal areas.

Epipleura of elytra smooth, sparsely clothed with microscopic punctures. Marginal epipleural stria complete and distinctly carinate. Marginal elytral stria strongly carinate, complete, and extending along posterior margin of elytra, its apical end attaining to near lateral third of elytron. External subhumeral stria present on basal fourth. Internal subhumeral stria present on median third and densely with moderate punctures. Oblique humeral stria distinctly impressed and present on basal third. First and 2nd dorsal striae present on basal two-thirds; the basal end of the 2nd extending inwards. Third dorsal stria a little shorter than the 2nd. Fourth dorsal stria present on basal half, its basal end united with the end of sutural stria in an arch. First to 4th dorsal striae densely crenate with moderate punctures. Sutural stria complete and sparsely crenate with moderate punctures. Surface of apical half of elytra densely covered with coarse, round, and shallow punctures, which are as coarse as the pronotal coarse punctures and separated by their own diameter to twice the diameter; basal half, flanks and extreme apex of elytra impunctate.

Propygidium densely covered with coarse punctures, which are a little coarser than the elytral punctures and become finer anteriorly; interspace among punctures with lightly impressed, transverse alutaceous microsculpture on basal half. Pygidium sparsely covered with coarse and transverse punctures, which are a little finer than those of the propygidium and separated by two to three times their diameter.

Anterior margin of median portion of prosternum (Fig. 138B) round. Preapical foveae distinct and large. Keel moderately compressed, its apex narrowly truncate. Descending lateral striae strongly carinate and convergent to apex. Carinal striae nearly parallel and slightly divergent basally on apical half and strongly so on basal fourth. Lateral side of keel coarsely punctate laterally, and with alutaceous microsculpture.

Anterior margin of mesosternum (Fig. 138B) feebly emarginate, its marginal stria distinctly carinate and shortly interrupted medially. Disk very sparsely and moderately punctate. Meso-metasternal suture lightly impressed, and sparsely carinate with large punctures. Intercostal disk of metasternum sparsely clothed with microscopic punctures,

which are occasionally coarser medio-apically. Lateral stria strongly carinate, extending obliquely and posteriorly, and reaching near hind coxae. Lateral disk sparsely covered with coarse, round, shallow and setiferous punctures, which are twice as coarse as the propygidial punctures, separated by their diameter, and become sparser and finer apically. Metepisternum coarsely punctate on basal two-thirds and smooth on apical third.

Intercostal disk of 1st abdominal sternum (Fig. 138B) completely striate laterally, and sparsely and microscopically punctate except for a transverse apical band which is moderately punctate.

Protibia with 7 spines on outer margin, the apical four large and its base strongly dentate.

Specimens examined. [Honshû] <Wakayama-ken> 1 ex., Wakayama-shi, 10/ii/1957, M. Yoshida leg. (NA).

[Kyûshû] <Nagasaki-ken> Maehama, Kazusa-chô, 28/iii/1979, S. Imasaka leg.

Distribution (Fig. 139) Japan (Honshû, Shikoku, Kyûshû).

Remarks. *Hypocacculus asticus* can easily be recognized by the rugae on the front, the rather small size, the striation of the elytron and the punctation of the pronotum and elytra.

Genus *Hypocaccus* Thomson, 1867

Hypocaccus Thomson, 1867: 400 [type species: *Hister quadristriatus* Hoffmann, 1803: 85, nec Thunberg, 1794: 65. Designated by Lewis, 1899: 3]; Schmidt, 1885: 302; Ganglbauer, 1899: 382; Lewis, 1899: 3, fig. 6, 7; Reitter, 1909: 291; Bickhardt, 1916-17: 82-98; Reichardt, 1926: 14; 1941: 156, 305; Peyerimoff, 1936: 226; Arnett, 1962: 374, 380; Dahlgren, 1969a: 64-66; Kryzhanovskij and Reichardt, 1976: 217; Mazur, 1984: 92.

Rhytidoprinus Houlbert and Monnot, 1923: 46, synonymized by Cooman, 1947: 428 [type species not designated].

Table 48. Biometric data of *Hypocacculus asticus* (Lewis).

| | |
|------|-------------------------|
| APW | 0.69-0.72 (0.71±0.01) 3 |
| PPW | 1.47-1.64 (1.56±0.04) 3 |
| PL | 0.69-0.82 (0.74±0.03) 3 |
| EL | 1.18-1.24 (1.20±0.02) 3 |
| EW | 1.60-1.80 (1.70±0.05) 3 |
| ProW | 0.98-1.01 (0.99±0.01) 3 |
| ProL | 0.23-0.33 (0.28±0.02) 3 |
| PYL | 0.95-1.19 (1.06±0.06) 3 |
| PTL | 0.59-0.65 (0.63±0.02) 3 |
| MSTL | 0.56-0.62 (0.60±0.02) 3 |
| MTTL | 0.65-0.75 (0.71±0.02) 3 |

Key to the Japanese species of the genus *Hypocaccus*

- 1(2) Pronotum smooth, at least finely punctate laterally. Meso-metasternal suture without crenate line. Subgenus *Baeckmainnolus* Reichardt, 1926
..... *H. varinanus* (Schmidt, 1890)
- 2(1) Pronotum coarsely punctate. Meso-metasternal suture with strongly crenate line.
..... Subgenus *Hypocaccus*
- 3(4) Pygidium with impunctate area, which is divided by coarsely punctate mid line.
..... *H. axeli* Kryzhanovskij, 1976
- 4(3) Pygidium evenly punctate wholly, or the punctures becoming finer apically, mid line without coarse punctures.
- 5(6) Frontal disk of head densely covered with coarse rugae. Mesosternal marginal stria interrupted at middle. *H. subaenus* (Schmidt, 1890)
- 6(5) Frontal disk of head with one or two tranverse rows. Mesosternal marginal stria complete.
- 7(10) Surface of elytra smooth on basal half.
- 8(9) Sutural elytral stria united with marginal elytral stria.
..... *H. sinae* (Schmidt, 1890)
- 9(8) Sutural elytral stria not united with marginal stria
..... *H. akanensis* M. Ôhara, sp. nov.
- 10(7) Surface of elytra coarsely punctate on basal half.
..... *H. lewisii* (Schmidt, 1890)

Another species, *H. ainu*, has been recorded from Japan.

Subgenus *Hypocaccus* Thomson, 1867

Hypocaccus (*Hypocaccus*) *ainu* Lewis, 1899

Hypocaccus ainu Lewis, 1899: 24 [Japan: Yezo, Ishikari river]; Reichardt, 1941: 308, 322.

Hypocaccus (?) *Hypocaccus* *ainu*: Kryzhanovskij and Reichardt, 1976: 229.

Japanese name: Ainu-hamabe-emma-mushi.

Original description. "Oval, convex, coppery black, shining; the head, clypeus rugose, frontal carina strong and angulate on either side, upper surface somewhat obscurely and very irregularly rugose, the rugosities are confined to the anterior half; the thorax is densely punctured at the sides, with a broad band of punctures along the base and a narrow one behind the neck, disk feebly punctulate, marginal stria angulate at a fovea behind the eye and straight behind the neck; the elytra, outer subhumeral stria is wanting, inner short and dimidiate with an appendage split at both ends, striae 1-3 nearly equal and reaching the middle, 4 as long as the third and joining the sutural at the base, the sutural stria is not continued along the apex; the propygidium is densely punctured; the pygidium is somewhat similarly pointed, but except at the apex it is transversely rugose;

the prosternum is markedly widened triangularly at the base and the striae gradually meet anteriorly; the mesosternum is margined anteriorly, with a transverse crenulate stria at the base; the anterior tibiae 4-dentate."

Specimens examined. No material of this species has been available for my study.

Distribution. Japan (Hokkaidô).

***Hypocaccus (Hypocaccus) axeli* Kryzhanovskij, 1976**

(Fig. 140, 141, 142, 143, 144)

Hypocaccus (Hypocaccus) axeli Kryzhanovskij in Kryzhanovskij and Reichardt, 1976: 223 [Primorskij Kray, Japan: Harima (= Hyôgo)].

Japanese name: Arame-hamabe-emma-mushi.

Description. Body length and biometric data as follows: PPL 3.68, PEL 3.36, APW 0.99, PW 2.57, PL 1.15, EL 2.11, EW 2.76, ProW 1.65 mm, ProL 0.66 mm, PyL 1.12, PTL 0.95, MSTL 0.99, MTTL 1.15. Biometric data are given in Table 49. Body broadly oval and moderately convex. Cuticles shining and black or bronze with brassy lustre; antennae dark piceous with club black; legs dark brown.

Frontal stria of head (Fig. 142A) nearly complete, sometimes interrupted behind bases of antennae. Anterior area of frontal disk with one or two rugae which are arcuate and sometimes irregularly interrupted. Supraorbital stria complete. Epistoma clearly striate on lateral sides, the stria feebly carinate.

Pronotal sides (Fig. 140A) feebly arcuate and convergent on basal four-fifths, thence straight and strongly convergent to apices. Apical angles obtuse. Marginal stria strongly carinate and complete. Disk densely and coarsely punctate except on a mediobasal triangular area, a small mediolateral area and a narrow band inside the marginal stria, the coarse punctures not rugose behind anterior corner; base with two or three irregular rows of coarse punctures, the rows broadest on antescutellar area; elsewhere smooth.

Epipleura of elytra even, and sparsely and finely punctate. Marginal epipleural stria clearly and strongly carinate, and densely with coarse punctures, its apical end extending inwards, reaching to lateral third of posterior margin of elytron. Internal subhumeral stria deeply impressed, strongly crenate and present on median third. Oblique humeral stria present on basal third. First dorsal stria deeply impressed, and nearly complete, its apical portion sinuate. Second dorsal stria present on basal two-thirds. Third and 4th dorsal striae present on basal half; basal end of 4th united with the basal end of sutural stria. First to 4th dorsal striae densely crenate with coarse punctures. Sutureal stria deeply impressed and complete. Surface of elytra densely and coarsely punctate except on flanks, extreme apex of elytra, a narrow band between sutural striae, and a medio-basal area inside 4th dorsal striae and occupying basal third of elytra; the punctures as coarse as those of the extreme base of the pronotum and separated by half their diameter, usually appearing to be

longitudinal rugae; elsewhere sparsely clothed with microscopic punctures.

Propygidium evenly covered with coarse punctures, which are a little coarser than the elytral ones and separated by about their diameter; interspace among the punctures occasionally finely punctate. Pygidium (Fig. 143E) densely covered with coarse, round and deep punctures, which are a little coarser than the propygidial ones, along lateral margin and on mid line on apical third of pygidium, with a heart shaped impunctate area on apical third.

Anterior margin of median portion of prosternum (Fig. 141A) obtuse-acute. Preapical foveae present. Keel moderately compressed, its anterior apex narrowly truncate. Descending lateral stria strongly carinate and convergent to apex. Carinal stria present on basal three-fourths and distinctly impressed, its basal half gradually divergent basally. Lateral side coarsely punctate medially, and with alutaceous ground microsculptures.

Anterior margin of mesosternum feebly emarginate medially, its marginal stria heavily carinate and complete. Disk smooth. Meso-metasternal suture finely impressed, and with sparsely and coarsely crenate line. Intercoxal disk of metasternum smooth, except in a transverse apical band, which is sparsely and finely punctate. Lateral metasternal stria well impressed, extending obliquely and posteriorly, reaching near hind coxae. Lateral disk covered with large, shallow and round punctures, which are twice as coarse as pygidial punctures, separated by half their diameter and become sparser apically; interspace among the punctures with fine punctures and alutaceous microsculpture. Metepisternum densely covered with coarse punctures, which are a little finer than those of the lateral disk of the metasternum; interspace among the punctures with moderate punctures.

Intercoxal disk of 1st abdominal sternum completely striate on each side, and moderately punctate along the lateral stria, behind anterior corner and in a transverse apical band.

Protibia with 9 spinules on outer margin, the apical two small.

Male genitalia as shown in Fig. 143.

Specimens examined. [Hokkaidô] 1 ♂, Akan, Kushiro, 5/viii/1918, M. Suzuki leg.

[Honshû] <Aomori-ken> 1 ♂, Akaishi River, Ajigasawa-machi, 7/vi/1987, H. Sawada leg. <Nagano-ken> 1 ♂, Kami-kôchi, Pv. Shinano, 27/iii/1918, M. Suzuki leg. (ELKU). <Gifu-ken> 1 ♂, Nagara, Pv. Minô, 19/vii/1919, M. Suzuki leg. (ELKU).

Distribution (Fig. 147). Japan (Hokkaidô, Honshû). New to Hokkaidô.

Remarks. *Hypocaccul axeli* is easily recognized by the rather large size, the pygidium with an impunctated area medially, and the punctation of the pronotum and the elytra.

Little is known about the habitats of this species. It apparently lives on the pebbled beach of mountain rivers.

Hypocaccus (Hypocaccus) lewisii (Schmidt, 1890)
(Fig. 140, 141, 142, 144, 147)

Saprinus lewisii Schmidt, 1890: 53 [Japan: Hakodate].

Hypocaccus lewisii: Reichardt, 1926: 273; Reichardt, 1941: 308, 320, fig. 167.

Hypocaccus (Hypocaccus) lewisii: Kryzhanovskij and Reichardt, 1976: 226.

Japanese name: Karakane-hamabe-emma-mushi.

Original description. "Breviter ovatus, subconvexus, aeneus, antennis pedibusque piceis; fronte carinata, sulco angulato rugis minoribus plus minusve confuso, clypeo antice ruguloso; pronoto punctato, lateribus strigoso, area postica punctorum linea divisa laevi; elytris densissime punctatis, areis basalibus magna in quarto, parva minus distincta in secundo interstitio laevibus; striis dorsalibus 2 externis fere dimidiatis, prima saepius appendiculata, internis indistinctis, suturali integra, subhumerali interna disjuncta, externa nulla; pygidio punctatissimo; prosterni striis basi divergentibus, antice parallelis, abbreviatis, mesosterno indistincte punctulato; tibiis anticis 5-6-denticulatis, dente infimo gemino. Long. 2. 1/4 - 3 mm."

Description. Body length, PPL, 2.26 - 3.17 mm (2.81 ± 0.05 , $n=20$), PEL, 2.13 - 2.94 mm (2.55 ± 0.04 , $n=20$). Width, 1.67 - 2.39 mm (2.07 ± 0.04 , $n=20$). Body oval and moderately convex. Biometric data are given in Table 49. Cuticles shining and black or nearly so with a strong bronzy, blue or brassy lustre; antennae dark rufopiceous with club rufotestaceous; legs dark reddish brown.

Frontal stria of head (Fig. 142D) complete, well impressed and straight on each side. Supraorbital stria well impressed. Disk of front with a transverse ruga, and usually densely and strongly rugose in central area, and impunctate posteriorly. Epistoma scabrose.

Pronotal side (Fig. 140D) feebly arcuate and not strongly convergent on basal five-sixths, thence strongly arcuate and convergent to apices. Marginal stria complete and subcarinate. Disk coarsely and densely punctate, the punctures becoming more rugose laterally, and impunctate mediobasally except on mid line. Basal margin of pronotum with two or three rows of coarse punctures, and with fine ones intermingled, the coarse punctures becoming larger in antescutellar area and lateralmedian fifth of pronotum, and finer laterally.

Epipleura of elytra smooth and even. Marginal epipleural stria complete, finely impressed. Marginal elytral stria well impressed, carinate, and complete, its apical end continuing across elytral apex and united with the apical end of sutural stria at medio-apical angle of elytron. External subhumeral stria absent. Internal subhumeral stria shortly present on medial third. Oblique humeral stria well impressed on basal third. First dorsal stria unclearly present on basal half, usually consisting of coarse punctures in a row, close to and parallel with the oblique humeral stria. Second, 3rd and 4th dorsal striae indistinguishable from elytral punctures, sometimes 2nd represented by a ruga on basal

half. Sutural stria deeply impressed and complete, the apical end united with marginal elytral stria. Surface of elytra densely covered with coarse and somewhat longitudinal punctures except on mediobasal area, basal sixth of interstice between 2nd and 3rd dorsal striae and flanks of elytra; elsewhere sparsely covered with microscopic punctures.

Propygidium densely and moderately punctate, the punctures becoming finer and sparser basally. Pygidium densely and moderately punctate, the punctures finer near apex.

Anterior margin of median portion of prosternum (Fig. 141D) weakly obtuse-angulate. Preapical foveae distinctly present. Keel somewhat broad, moderately compressed, its anterior apex acute, rarely truncate. Descending lateral striae strongly carinate and convergent apically. Carinal striae present on basal two-thirds, parallel to each other on median third, and divergent basally, rarely its apical ends divergent, attaining to the descending lateral stria. Lateral sides of keel sparsely with moderate punctures.

Anterior margin of mesosternum feebly emarginate, its marginal stria carinate and complete. Disk smooth, sparsely with microscopic punctures. Meso-metasternal suture lightly impressed, accompanied by a parallel coarsely crenated line. Intercostal disk of metasternum smooth except in a transverse apical band, which is sparsely and finely punctate. Lateral metasternal stria well impressed, extending obliquely and posteriorly, and reaching near hind coxae. Lateral disk evenly covered with coarse and setiferous punctures, impunctate along the lateral metasternal stria. Metepisternum densely and coarsely punctate.

Intercostal disk of 1st abdominal sternum completely striate on each side, and sparsely covered with fine punctures along anterior margin.

Protibia with 10 spinules on outer margin, its apical-outer angles bearing three large spinules.

Male genitalia as shown in Fig. 144.

Table 49. Biometric data of *Hypocaccus lewisii* (Schmidt)

| | |
|------|--------------------------|
| APW | 0.75-1.01 (0.89±0.01) 20 |
| PPW | 1.57-2.13 (1.88±0.03) 20 |
| PL | 0.75-1.08 (0.93±0.02) 20 |
| EL | 1.24-1.80 (1.56±0.03) 20 |
| EW | 1.67-2.39 (2.07±0.04) 20 |
| ProW | 0.98-1.37 (1.22±0.02) 20 |
| ProL | 0.23-0.43 (0.32±0.01) 20 |
| PyL | 0.86-1.43 (1.24±0.03) 20 |
| PTL | 0.62-0.98 (0.74±0.02) 20 |
| MSTL | 0.65-0.88 (0.74±0.02) 20 |
| MTTL | 0.72-0.95 (0.88±0.02) 20 |

Specimens examined. [Hokkaidô] 1 ex., Hakodate, 17/vii/1954, T. Nakane leg. (NA); 1 ex., Ditto, 15/vii/1952, K. Honma leg. (EIHU); 1 ex., Nanae-hama, Hakodate, 17/viii/1977, Y. Kusui leg.; 1 ex., Ditto, 5/iv/1978, N. Nishikawa leg.; 1 ex., Nezaki-chô, Hakodate-shi, 15/v/1978, H. Sawada leg.; 1 ex., Ditto, 19/vii/1952, K. Honma leg. (EIHU); 2 exs., Yokoma, Suttu, 11/vii/1979, T. Fujisawa leg. (EIHU); 2 exs., Kojô-hama, Shiraoi, 30/vii/1953, M. Ôtake leg.; 2 ex., Zenibako, Otaru, 30/v/1977, 23/vi/1977, N. Nishikawa leg.; 1 ex., Ishikari, 24/vi/1987, A. Iwasaki leg.; 1 ex., Obira, Rumoi, 28/vii/1985, M. Ôhara leg.; 1 ex., Shari-chô, 14/x/1987, H. Torikura leg.; 7 exs., Shiranuka, 25/vi/1985, M. Ôhara leg.; 1 ex., Abashiri, 1/viii/1954, T. Nakane leg. (NA). <Okushiri Is.> 3 exs., Aonoe, 28/vi/1986, Y. Kusui leg.

[Honshû] <Aomori-ken> 1 ex., Nakanosawa, Mutsu, 8/vi/1989, H. Saito leg. <Fukushima-ken> 2 exs., Fujimi-kaigan, Iwaki, 25/vi/1988, K. Tazoe leg. <Fukui-ken> 2 exs., Fujima-kaigan, Iwaki, 25/vi/1988, K. Tazoe leg.

[Kyûshû] <Fukuoka-ken> 1 ex., Ainoshima, 22/v/1983, S. Nakao leg.

[?] 1 ex., Imahama, 23/v/1948, no collector's name.

Distribution (Fig. 147). Japan (Hokkaidô, Honshû, Kyûshû). New to Kyûshû.

Remarks. *Hypocaccus lewisii* resembles *H. axeli*, but differs by the rather dense punctuation on the pronotum and the punctuation on the pygidium without an impunctated area.

Hypocaccus lewisii occurs mainly in a sandy beach. It is occasionally found also on the sandy beach of mountain rivers (Kurosawa, 1988).

***Hypocaccus (Hypocaccus) sinæ* (Marseul, 1862)**
(Fig. 140, 141, 142, 145, 147)

Saprinus sinæ Marseul, 1862: 496, fig. 52 [China: Shang-Hai]; Blackburne, 1903: 106; Jakobson, 1911: 651.

Hypocaccus sinæ: Desbordes, 1919: 415; Reichardt, 1941: 307, 312, fig. 158.

Hypocaccus (Hypocaccus) sinæ: Kryzhanovskij and Reichardt, 1976: 226.

Japanese name: Nise-hamabe-emma-mushi.

Original description. "Ovale oblong, convexe, bronzé, luisant; antennes brunes. Front large, convexe, imponctué, ceint d'une forte carène étroite, droite en devant, à angles latéraux obtus; deux chevrons bien accusés, antérieur formant un arc ouvert en devant, et postérieur, deux arcs ouverts par derrière et réunis au milieu; épistome étroit, ridé, brusquement séparé du front. Pronotum court, large, à peine bisinué à la base, sans angle au-devant de l'écusson, un peu rétréci et fortement échancré en devant avec les angles arrondis abaissés; couvert d'une ponctuation assez forte, inégalement répartie, peu serrée, subrugueuse, assez étendue dans le pourtour antérieur, formant une étroite bordure à la base; strie marginale forte, entière, arrondie derrière les yeux. Écusson très petit, triangulaire. Élytres une fois et demie plus longues que le pronotum, de sa largeur à la base, dilatées à l'épaule, rétrécies et coupées droit au bout, avec les angles externes

arrondis, ponctuation forte et serrée, ne s'étendant pas au delà du milieu et en dehors de la deuxième dorsale; stries fortes, crénelées, 1-4 dorsales parallèles raccourcies aux deux tiers, la première un peu plus longue, quoique l'on puisse les dire à peu près égales; bord infléchi lisse; marginale externe forte, entière, se continuant par le bout avec la suturale, qui se réunit par un arc basal avec la quatrième dorsale; humérale oblique décomposée; subhumérale interne disjointe, forte, atteignant presque obliquement la marge; externe à peine séparée. Propygidium court, transverse, incliné, également et densément ponctué. Pygidium entièrement rabattu, bombé, semi-ovalaire, ponctué à peu près de même. Prosternum en carène étroite, concave dans sa longueur, fortement et peu densément ponctué sur ses flancs, un peu élargi à la base; stries bientôt parallèles et très rapprochées, raccourcies aux deux tiers, encloses par les stries externes qui se réunissent en devant en angle aigu. Mésosternum sinué imponctué, bordé d'une forte strie crénelée non interrompue. Pattes brunes; jambes antérieures en triangle, munies de six dents épineuses, dont les deux dernières plus espacées et plus fortes; postérieures garnies de deux rangées d'épines."

Description. Body length, PPL, 2.39 - 3.34 mm (2.90 ± 0.06 , $n=20$), PEL, 2.22 - 2.94 mm (2.58 ± 0.05 , $n=20$). Width, 1.86 - 2.45 mm (2.15 ± 0.03 , $n=20$). Biometric data are given in Table 50. Body oval and moderately convex. Cuticles very strongly shining and black or nearly so with strong bronzy or brassy lustre; antennae dark rufopiceous with club rufotestaceous; legs dark reddish brown.

Frontal stria of head (Fig. 142C) carinate, complete and straight on each side. Supraorbital stria well impressed. Disk of front impunctate, with two or three transverse rugae, which are sometimes interrupted. Epistoma scabrose.

Pronotal sides (Fig. 130C) rather feebly arcuate and not strongly convergent on basal four-fifths, thence strongly arcuate and convergent to apices. Apical angles somewhat round. Marginal stria complete and carinate. Disk smooth, its sides strongly, densely and moderately punctate anteriorly, the punctate area sometimes becoming broader basally and the punctures coarser and more rugose in the region of the anterior angles. Basal margin of pronotum with one or two rows of large punctures, which, however, become finer laterally.

Epipleura of elytra impunctate and even. Marginal epipleural stria complete. Marginal elytral stria deeply impressed and complete, its apical end extending along the posterior margin of elytron and united with the apical end of sutural stria at medio-apical angle of elytron. External subhumeral stria absent. Internal subhumeral stria shortly present on medial third. Oblique humeral stria well impressed on basal third to half, close to, and parallel with the 1st dorsal stria. First dorsal stria deeply impressed, crenate and present on basal two-thirds. Second, 3rd and 4th dorsal striae well impressed and coarsely punctate; these striae a little longer than the 1st. Suture represented by a fine, crenulate, complete line, the apical end united with marginal elytral stria and the basal end united with the 4th in an arch. Surface of elytra smooth, impunctate on basal half, coarsely and densely punctate on apical half, the punctures being separated by their own

diameter to half the diameter; extreme apex of elytra (around apical stria) and flanks impunctate.

Propygidium densely and moderately punctate, the punctures being separated by slightly more than their diameter. Pygidium sparsely and moderately punctate, the punctures becoming denser towards basal angles, and finer and sparser apically; apex of pygidium impunctate.

Anterior margin of median portion of prosternum (Fig. 141C) round. Preapical foveae distinctly present. Keel moderately compressed, its anterior apex narrowly truncate. Descending lateral striae carinate and convergent to apex. Carinal striae usually present on basal three-fourths, and usually parallel apically and divergent basally, sometimes their apical ends united with each other at middle of keel. Lateral side of keel sparsely (sometimes densely) covered with coarse punctures on apical half, with fine punctures intermingled.

Anterior margin of mesosternum feebly emarginate, its marginal stria carinate and complete. Disk smooth, sparsely clothed with microscopic punctures. Meso-metasternal suture finely impressed, accompanied with a parallel coarsely crenated line. Intercostal disk of metasternum smooth except in a transverse apical band, which is sparsely and coarsely punctate. Lateral metasternal stria well impressed, extending obliquely and posteriorly, reaching near hind coxa. Lateral disk sparsely covered with large punctures, with fine ones intermingled. Disk of metasternum densely covered with moderate punctures.

Intercostal disk of 1st abdominal sternum completely striate on each side, and moderately punctate along the apical and basal margins, the punctures becoming denser at anterior corners.

Protibia with 6 large spinules on outer margin.

Male genitalia as shown in Fig. 145.

Specimens examined. [Hokkaidô] 1 ex., Sakanoshita, Wakkanai, 10/viii/1974, Y. Kusui leg.; 6 exs., Kitahama, Abashiri, 10/vii/1958, T. Nakane leg. (NA); 7 exs., Zenibako, 24/vi/1954, T. Kumata leg. (EIHU); 1 ex., Ditto, 21/vi/1985, M. Ôhara leg.; 1 ex., Momigi-yama, Ishikari, 1/vi/1974, S. Kudô leg. <Okushiri Is.> 2♂♂, 1 ex., Aonae, 28/vi/1986, Y. Kusui leg.

[Honshû] <Yamagata-ken> 1 ex., Miyaumi, Yamagata, 28/v/1953, K. Shirahara leg. (NA). <Ibaraki-ken> 2 exs., Tone River, Kwachi vill., 10/x/1985, M. Kiuchi leg. <Chiba-ken> 2 exs., Iwai, Bôsô-hantô, 23/viii/1966, Y. Kusui leg.; 2 exs., Okitsu, v/1913, F. Muir leg. (BSM). <Niigata-ken> 12 exs., Niigata-shi, 5/v/1933, K. Baba leg. (NA). <Ishikawa-ken> 4 exs., Uchida-sakyû, 31/viii/1968, H. Ebihara leg. <Ôsaka-fu> 3 exs., Yodo River, 31/x/1954, T. Shibata leg. (NA). <Hyôgo-ken> 2 exs., Hiraiso, 14/viii/1954, T. Shibata leg. (NA). <Wakayama-ken> 1 ex., Minabe, 17/iii/1942, K. Sakaguchi leg. (NA).

[Kyûshû] <Fukuoka-ken> 1 ex., Hakozaki, 1/ix/1964, F. Nakasuji leg. (NA). <Kagoshima-ken> 1 ex., Fukiage, 29/vii/1984, M. Ôhara leg.

Distribution (Fig. 147). Japan (Hokkaidô, Honshû, Shikoku, Kyûshû).

Table 50. Biometric data of *Hypocaccus sinae* (Marseul).

| | |
|------|--------------------------|
| APW | 0.75-0.98 (0.86±0.01) 20 |
| PPW | 1.57-2.22 (1.95±0.04) 20 |
| PL | 0.85-1.14 (1.04±0.02) 20 |
| EL | 1.31-1.83 (1.54±0.03) 20 |
| EW | 1.86-2.45 (2.15±0.03) 20 |
| ProW | 1.14-1.57 (1.33±0.02) 20 |
| ProL | 0.33-0.46 (0.39±0.01) 20 |
| PyL | 1.14-1.62 (1.30±0.03) 20 |
| PTL | 0.65-0.88 (0.76±0.01) 20 |
| MSTL | 0.62-0.92 (0.74±0.02) 20 |
| MTTL | 0.69-0.98 (0.82±0.02) 20 |

Remarks. *Hypocaccus sinae* superficially resembles *H. (Baeckmanniolus) varinans*, but can be distinguished from the latter by the characters given in the key.

This species occurs on sandy beach. It is occasionally found also on the sandy beach of mountain rivers (Kurosawa, 1988).

***Hypocaccus (Hypocaccus) subaenus* (Schmidt, 1890)**
(Fig. 140, 141, 142, 146, 147)

Saprinus subaeneus Schmidt, 1890: 53 [Japan: Nikko].

Hypocaccus subaenus: Schleicher, 1930: 137; Reichardt, 1941: 308, 321.

Hypocaccus (? *Hypocaccus*) *subaenus*: Kryzhanovskij and Reichardt, 1976: 229.

Japanese name: Yama-hamabe-emma-mushi.

Original description. "Rotundato-ovatus, convexiusculus, obscure aeneus, antennis pedibusque piceis. Fronte carinata; dense rugose punctata, sulco vix angulato juxta marginem anteriorem parum distincta; thorace pone oculos impresso, dense, antice lateribusque strigose punctato, area parva subtriangulari ante scutellum laevi; elytris dimidio postico sat dense et fortiter punctatis, punctis ad latera etiam magis ascendentibus; stria dorsali prima postice sinuata, medium multo superante, ceteris fere dimidiatis, 4a cum suturali integra connexa, humerali dorsali primae parallela, subhumerali interna longa, externa vix distincta; prosterno striis postice divergentibus, antice parallelis, abbreviatis, mesosterno subtilissime punctulato, tibiis anticis 6-denticulatis."

Description. Body length, PPL, 2.22 - 2.91 mm (2.48 ± 0.04 , n=20), PEL, 2.03 - 2.62 mm (2.27 ± 0.03 , n=20). Width, 1.70 - 2.22 mm (1.92 ± 0.03 , n=20). Biometric data are given in Table 51. Body oval and moderately convex. Cuticles shining and black or nearly so with bronzy, blue or brassy lustre; antennae dark rufopiceous with club

rufotestaceous; legs dark reddish brown.

Frontal stria of head (Fig. 142B) complete, carinate and straight on each side. Supraorbital stria complete. Disk of front scabrose on apical two-thirds, sometimes scabrose wholly. Epistoma scabrose.

Pronotal sides (Fig. 140B) feebly arcuate and convergent on basal four-fifths, then strongly arcuate and convergent to apices. Apical angles round. Marginal stria carinate and complete. Disk coarsely and densely punctate except mediobasally, the punctures becoming more rugose on lateral region; base with two or three transverse rows of coarse punctures with fine ones intermingled, the rows broadest at middle and becoming progressively narrower laterally.

Epipleura of elytra sparsely clothed with fine punctures. Marginal epipleural stria complete and feebly carinate. Marginal elytral stria complete and well carinate, its apical end extending near to lateral sixth of elytron. External subhumeral stria absent. Internal subhumeral stria shortly present on median third. Oblique humeral stria well impressed on basal third. First dorsal stria deeply impressed and crenate on basal four-fifths. Second dorsal stria present on basal three-fifths. Third dorsal stria a little longer than the 2nd. Fourth dorsal stria present on basal half. Sutural stria represented by a fine complete line. Surface of elytra smooth on basal half, and densely covered with coarse punctures on apical half and sometimes also on basal area between 4th dorsal and marginal elytral striae, the punctures often rugose; extreme apex of elytra (around apical stria) and flanks impunctate, but sometimes flanks coarsely punctate.

Propygidium densely covered with coarse punctures, which become finer and sparser towards base. Pygidium convex, and densely and moderately punctate, the punctures sparser apically and medially.

Anterior margin of median portion of prosternum (Fig. 141B) obtusely angulate or round. Preapical foveae distinctly present. Keel somewhat broad, and moderately compressed medially, the apex round. Descending lateral striae complete, carinate, and convergent at apex. Carinal striae present on basal two-thirds, convergent apically and united with each other, rarely completely present, its apical end attaining to the apex of keel. Lateral side of keel sparsely with moderate punctures, with fine punctures intermingled.

Anterior margin of mesosternum feebly emarginate medially, its marginal stria well impressed on each side behind angle, usually interrupted in median third, rarely complete. Disk transverse (19 : 5), evenly clothed with fine or moderate punctures. Meso-metasternal suture finely impressed, accompanied with a parallel coarsely crenated line. Intercoxal disk of metasternum sparsely clothed with fine punctures, and with a transverse apical band of sparse and moderate punctures. Lateral metasternal stria well impressed, carinate, extending obliquely and posteriorly, and reaching near hind coxa. Lateral disk densely and largely punctate, the punctures becoming sparser apically. Metepisternum densely covered with large punctures.

Intercoxal disk of 1st abdominal sternum completely and crenately striate on each side, and moderately punctate along posterior margin and inside the lateral striae.

Table 51. Biometric data of *Hypocaccus subaenus* (Shmidt).

| | |
|------|--------------------------|
| APW | 0.62-0.78 (0.71±0.01) 20 |
| PPW | 1.50-1.96 (1.69±0.02) 20 |
| PL | 0.75-0.95 (0.85±0.01) 20 |
| EL | 1.28-1.70 (1.42±0.02) 20 |
| EW | 1.70-2.22 (1.92±0.03) 20 |
| ProW | 0.92-1.41 (1.13±0.03) 20 |
| ProL | 0.26-0.39 (0.31±0.01) 20 |
| PyL | 1.00-1.33 (1.14±0.02) 20 |
| PTL | 0.59-0.75 (0.66±0.01) 20 |
| MSTL | 0.56-0.75 (0.67±0.01) 20 |
| MTTL | 0.65-0.88 (0.78±0.01) 20 |

Protibia with 8 spinules on outer margin.

Male genitalia as shown in Fig. 146.

Specimens examined. [Hokkaidô] 8 exs., Mt. Ôhirayama, 29/v, 6-8/viii/1988, M. Ôhara leg., from dung of bear; 56 exs., Toyotaki, Jôzankei, 4, 6/vi, 14/vii/1986, 1/v, 3, 18/vi/1987, M. Ôhara leg.

[Honshû] <Kyôto-fu> 1 ex., Kurama, 4/vi/1933, T. Kimura leg. (NA).

Distribution (Fig. 147). Japan (Hokkaidô, Honshû).

Remarks. *Hypocaccus subaenus* can easily be distinguished by the front of the head with coarse rugae, the dense punctation of the pronotum, the mesosternum with coarse punctures and the interrupted mesosternal marginal stria.

Hypocaccus subaenus usually occurs on the sandy beach of mountain rivers. Some specimens were collected under dung of bear, *Ursus arctos* Linné, on the beach of a river.

Hypocaccus (Hypocaccus) akanensis M. Ôhara, sp. nov.
(Fig. 148, 149, 150)

Description. Body length, PPL, 2.13, PEL, 1.90. Width, 1.52. Biometric data as follows: APW 0.67, PPW 1.43, PL 0.76, EW 1.52, ProW 0.88, ProL 0.23, PTL 0.53, MSTL 0.55, MTTL 0.61. Body oval, convex, not shining and black; legs and antennae dark reddish brown.

Frontal stria of head (Fig. 148B) rudimentary behind apical angle (but it seems that the state of the only specimen available is not complete, with dermal structures defaced to some extent). Disk of front with rudimentary transverse rugae.

Pronotal sides (Fig. 148A, 149) convergent on basal one-sixths, thence strongly arcuate and convergent to apices. Apical angles round. Marginal stria carinate and complete laterally, the apical portion broadly interrupted behind head. Disk coarsely and

densely punctate, the punctures becoming more rugose in lateral region and absent mediobasally; base with two or three transverse rows of large and oblong punctures, the rows being broadest at middle and becoming narrower laterally.

Marginal epipleural stria complete and clearly impressed. Marginal elytral stria complete, broadly impressed in the basal third, the apical end extending inwards, reaching to near lateral fourth of posterior margin of elytron. External subhumeral stria absent. Internal subhumeral stria impressed on median third. Oblique humeral stria present on basal third, the area around the stria with several short rugae. First dorsal elytral stria completely present, but shortly reduced on apical eighth. Second to 4th dorsal striae well impressed on basal half, the basal end of 4th extending inwards and united with the base of sutural stria. Suture stria completely impressed. Surface of elytra smooth on basal half, and densely covered with coarse and deep punctures, which are often united to form longitudinal rugae; extreme apex of elytron and flank sparsely and finely punctate.

Propygidium densely covered with coarse and round punctures, which become finer and sparser towards the base, but mostly are separated by their diameter. Pygidium densely covered with coarse punctures, which are a little smaller than those of the propygidium and separated by one-thirds to half their diameter; on the apex the punctures becoming finer and sparser.

Anterior margin of median portion of prosternum (Fig. 148C) weakly obtuse-angulate. Preapical foveae deeply and distinctly present. Keel narrow, strongly compressed, its anterior apex truncate. Descending lateral striae carinate and convergent to apex, but their apical portions nearly parallel. Carinal striae completely impressed, divergent apically and basally, the anterior ends united with descending lateral striae. Lateral side of keel coarsely punctate, the punctures being separated by their own diameter to twice the diameter.

Anterior margin of mesosternum feebly emarginate, its marginal stria carinate and complete. Disk of mesosternum smooth. Meso-metasternal suture lightly impressed, accompanied with a parallel coarsely crenated line. Intercoxal disk of metasternum smooth. Lateral metasternal stria well impressed and carinate, extending obliquely and posteriorly and reaching near hind coxa. Lateral disk densely covered with coarse, round and shallow punctures on basal half, the punctures gradually becoming smaller and sparser; impunctate along the lateral stria and on posterior half of the disk. Metepisternum densely and coarsely punctate.

Intercoxal disk of 1st abdominal sternum smooth, and completely striate on each side.

Protibia with 6 spinules on outer margin, its apical outer angle bearing two large denticles.

Male genitalia as shown in Fig. 150.

Specimens examined. **Holotype**, 1♂, Mount Akan, Kushiro, Hokkaidô, 5/viii/1918, M. Suzuki leg. (Kyûshû University Coll.).

Distribution. Japan (Hokkaidô).

Remarks. The aedeagus of this species is similar in shape to that of *Hypocaccus*

(*Hypocaccus speculum* (Schmidt) (Kryzanovskij and Reichardt, 1976: 225, fig. 443), but the punctuation of elytra is quite different.

Hypocaccus akanensis resembles superficially *H. sinae* but can easily be distinguished by the smaller body and the sutural stria being not united with marginal elytral stria.

Subgenus *Baeckmanniolus* Reichardt, 1926

Baeckmanniolus Reichardt, 1926b: 14 [type species: *Hister dimidiatus* Illiger, 1807: 41. Originally designated].

Pachylopus Zimmermann in J. L. LeConte, 1869: 253 (part.) by Reichardt, 1926b: 14.

Disgonosis. Pronotum smooth, or a little covered with punctures behind each anterior angle. Frontal disk of head smooth, sometimes irregularly rugose only in apical area.

Hypocaccus (Baeckmanniolus) varians varianus (Schmidt, 1890) (Fig. 151, 152, 153)

Saprinus varians Schmidt, 1890: 55 [Japan; China]; Lewis, 1910: 58; Desbordes, 1919: 416.

Hypocaccus varians: Reichardt, 1926b: 15; Reichardt, 1941: 323, 326.

Hypocaccus (Baeckmanniolus) varians: Kryzhanovskij and Reichardt, 1976: 229.

Japanese name: Hamabe-emma-mushi.

Original description. "Ovatus, convexus, aeneo-cupreus, nitidus, antennis pedibusque brunneis; fronte carinata; sulco angulato, saepe rugulis compluribus confuso; pronoto area parva punctata ad angulos anticos vel etiam toto laevi. Elytrorum dimidio postico intus ad striam secundam sat crebre vel fortius vel subtilius punctato; stria suturali antice abbreviata (vel integra), dorsalibus fere dimidiatis, duabus internis saepius plus minusve interruptis aut abbreviatis, vel omnino deletis, externis quoque interdum multo brevioribus; subhumerali interna disjuncta, externa nulla; pygidio dense punctato; prosterni striis postice divergentibus, antice parallelis abbreviatis, mesosterno impunctato; tibiis anticis 5-vel indistincte 6-dentatis. Long. 2. 1/4 - 4 mm."

Description. Body length, PPL, 2.45 - 4.19 mm (3.44 ± 0.10 , n=20), PEL, 2.22 - 3.60 mm (3.11 ± 0.08 , n=20). Width, 1.90 - 3.20 mm (2.56 ± 0.07 , n=20). Biometric data are given in Table 52. Body oval and moderately convex. Cuticles very strongly shining and black or nearly so with strong bronzy, or brassy lustre; antennae dark rufopiceous with club rufotestaceous; legs dark reddish brown.

Frontal stria (Fig. 151C) carinate, complete and straight on each side. Supraorbital stria well impressed. Disk of front with only one ruga, sometimes with two or three short ones. Epistoma scabrose.

Pronotal sides (Fig. 151A) rather feebly arcuate and feebly convergent on basal four-fifths, thence strongly arcuate and convergent to apices. Apical angles round. Marginal stria carinate and complete. Disk smooth, rarely with several moderate punctures in anterior angle. Basal margin of pronotum with one row of moderate punctures, which become finer near the middle and on the lateral sixth.

Epipleura of elytra sparsely clothed with microscopic punctures and even. Marginal epipleural stria complete and finely impressed. Marginal elytral stria carinate, complete and densely punctate, its apical end extending along the posterior margin of elytron, and united with the apical end of sutural stria at medio-apical angle of elytron. External subhumeral stria absent. Internal subhumeral stria shortly present on median third. Oblique humeral stria present on basal third. First dorsal stria present on basal half and well impressed. Second dorsal stria a little longer than the 1st, and densely crenate apically. Third dorsal stria about as long as the 2nd, and densely crenate. Fourth dorsal stria shortly present on median area, composed of five or six punctures. Sutural stria present on apical two-thirds, finely impressed, its apical end united with the marginal elytral stria. Mediobasal area with a short arch consisting of the ends of 4th dorsal and sutural striae, sometimes the arch extending apically, rarely continued to the basal end of sutural stria. Surface of elytra smooth on basal half; on apical half moderately and sparsely punctate except on extreme apex (around apical stria), the punctures being separated by their own diameter to twice the diameter.

Propygidium densely and coarsely punctate. Pygidium (Fig. 151D) densely and coarsely punctate on basal two-thirds, the apical third being sparsely punctate along margin and mid line, with two convex and impunctate areas on both sides.

Anterior margin of median portion of prosternum (Fig. 140B) obtuse-angulate. Preapical foveae distinctly present. Keel moderately compressed, its apex round. Descending lateral stria carinate and convergent to apex. Carinal striae present on basal half and convergent apically. Lateral sides of keel impunctate.

Anterior margin of mesosternum feebly emarginate, its marginal stria carinate and usually complete, sometimes interrupted at middle. Disk smooth. Meso-metasternal suture finely impressed, without a parallel crenate line. Intercoxal disk of metasternum smooth, sparsely clothed with microscopic punctures except for a transverse apical band of sparse and fine punctures. Lateral metasternal stria well impressed, carinate, extending obliquely and posteriorly, reaching near hind coxa. Lateral disk evenly and coarsely punctate, the punctures becoming sparser apically. Metepisternum densely covered with moderate punctures.

Intercoxal disk of 1st abdominal sternum completely striate on each side, and finely punctate along posterior margin.

Protibia with 7 spinules on outer margin.

Male genitalia as shown in Fig. 152.

Specimens examined. [Hokkaidô] 10 exs., Nezaki-kaigan, Hakodate, 19/vii/1952, K. Honma leg. (NA); 6 exs., Hakodate, 19/vii/1954, T. Nakane leg. (NA); 25 exs.,

Ditto, 19/vii/1954, K. Sawada leg. (NA); 3 exs., Shiriuti, Oshima, 8/vii/1976, T. Kumata leg. (EIHU); 2 exs., Kojô-Hama, Shiraoi, 30/vii/1953, M. Ôtake leg. (NA); 1 ex., Zenibako, Otaru, 24/vi/1954, T. Kumata leg. (EIHU); 38 exs., Ditto, 23, 30/v, 8/vii/1977, 10/v/1978, 19/vi/1979, N. Nishikawa leg.; 31 exs., Ditto, 14/v, 30/viii/1985, M. Ôhara leg.; 1 ex., Ishikari-kakô, 19/ix/1987, M. Hinakura leg.; 6 exs., Ishikari, 1/vii/1976, M. Kiuchi leg.; 1 ex., Maruyama, Sapporo, 23/vi/1979, N. Nishikawa leg.; 2 exs., Toyotaki, Sapporo, 14/vi/1987, M. Ôhara leg.; 1 ex., Iwanai, 13/viii/1946, Y. Nishijima leg.; 1 ex., Daisetsu, 7/viii/1954, T. Nakane leg. (NA); 1 ex., Kitahama, Abashiri, 10/vii/1958, T. Nakane leg. (NA); 2 exs., Hakodate, 19/vii/1954, K. Sawada leg. (NA); 3 exs., Ditto, T. Nakane leg. (NA); 4 exs., Ditto, 19/viii/1952, K. Honma leg. (EIHU). <Okushiri Is.> 1 ♀, Aonae, 28/vi/1986, Y. Kusui leg.

[Honshû] <Yamagata-ken> 1 ex., Fukura, 11/vi/1972, H. Takizawa leg. <Fukushima-ken> 1 ex., Nashidaira, Fukushima-shi, 3/vii/1988, K. Tazoe leg.; 11 exs., Fujima-kaigan, Iwaki, 25/vi/1988, K. Tazoe leg. <Chiba-ken> 130 exs., Ôami, 19/vi/1984, 20/v/1986, 1/iv/1987, M. Ôhara leg.; 5 exs., Shirako, 18/v/1984, M. Ôhara leg.; 1 ex., Katsuura, 3/viii/1963, M. Ishida leg.; 1 ex., Iwai, Bôsô-Hantô, 23/viii/1966, Y. Kusui leg.; 2 exs., Narashino, 18/vi/1963, S. Kondo leg.; 1 ex., Cape Futtu, 2/vii/1961, H. Yamazaki leg. (NA); 4 exs., Ichinomiya, Kazusa, 6/vi/1936, T. Nakane leg. (NA). <Kanagawa-ken> 2 exs., Aburatsubo, 11/v/1959, S. Kondo leg.; 2 exs., Koshigoe, 3/viii/1944, Y. Kurosawa leg. (NA). <Niigata-ken> 1 ex., Niigata-shi, 5/v/1933, K. Baba leg. (NA). <Shizuoka-ken> 1 ex., Heda, Mihama-Misaki, Izu-Hantô, 7/vi/1974, M. Ishida leg. <Aichi-ken> 35 exs., Miya, Mikawa, 1-2/ix/1947, S. Ôsawa leg. (NA). <Wakayama-ken> 4 ex., Nachi, Kii, 19/vii/1946, 26, 29/iv/1947, S. Ôsawa leg. (NA); 1 ex., Ditto, 28/iii/1953, K. Sawada leg. (NA); 3 exs., Shingû, southern Kii, 10/vii/1946, S. Ôsawa leg. (NA); 1 ex., Minabe, sea shore, 2/vi/1966, M. Yoshida leg. (NA). <Ôsaka-fu> 1 ex., Takaishino-hama, 10/ix/1966, no collector's name. <Ishikawa-ken> 10 exs., Uchinada-sakyû, 31/viii/1968, H. Ebihara leg. (NA). <Hyôgo-ken> 1 ex., Hiraiso, 14/viii/1954, T. Shibata leg. (NA); 2 exs., Akashi, 8/v/1954, H. Ishida leg. (NA); 3 exs., Mikage-kaigan, 22/vii/1938, K. Sakaguchi leg. (NA). <Okayama-ken> 2 exs., Ushimado, Oku, 20/viii/1975, T. Aono leg. (NA). <Izu Isles.> 2 exs., Shikinejima, 1941, K. Oyama leg. (NA).

[Shikoku] <Tokushima-ken> 1 ex., Kiki, Yuki-chô, 4/v/1986, S. Mano leg.; 2 exs., Anan, Kitanawaki-kaigan, 1/vi/1986, S. Mano leg.

[Kyûshû] <Fukuoka-ken> 2 exs., Satsuki-matsubara, 8/v/1983, S. Nakao leg. (NA); 5 exs., Ainoshima, 22/v/1983, S. Nakao leg. (NA). <Nagasaki-ken> 2 exs., Kuchinotsu, Shimabara, 20/ix/1977, S. Imasaka leg.; 3 exs., Nodahama, Kazusa-chô, 30/iii/1985, S. Imasaka leg.; 1 ex., Ditto, 5/iv/1977, S. Imasaka leg. <Kagoshima-ken> 26 exs., Chôsa, 14/vi/1983, 22/v/1984, M. Ôhara leg.; 24 exs., Fukiage, 29/vii/1984, M. Ôhara leg.; 1 ex., Sata-misaki, 29/v/1971, K. Tazoe leg. <Tsushima Is.> 8 exs., Kuroshima, 4/viii/1959, K. Tsukamoto leg. (NA).

Table 52. Biometric data of *Hypocaccus v. varians* (Schmidt)
and *H. v. hatsune* (Nakane).

| | <i>v. varians</i> | <i>v. hatsune</i> |
|------|--------------------------|--------------------------|
| APW | 0.72-1.21 (1.02±0.03) 20 | 0.62-0.98 (0.87±0.03) 13 |
| PPW | 1.67-2.71 (2.31±0.06) 20 | 1.54-2.26 (1.98±0.07) 13 |
| PL | 0.88-1.37 (1.12±0.03) 20 | 0.85-1.21 (1.06±0.03) 13 |
| EL | 1.41-2.22 (1.89±0.05) 20 | 1.18-1.93 (1.61±0.07) 13 |
| EW | 1.90-3.20 (2.56±0.07) 20 | 1.67-2.45 (2.14±0.08) 13 |
| ProW | 1.21-1.90 (1.53±0.04) 20 | 1.01-1.57 (1.27±0.05) 13 |
| ProL | 0.36-0.59 (0.46±0.01) 20 | 0.26-0.43 (0.36±0.01) 13 |
| PyL | 1.14-1.81 (1.48±0.04) 20 | 1.05-1.67 (1.32±0.05) 13 |
| PTL | 0.65-1.01 (0.88±0.02) 20 | 0.59-0.88 (0.77±0.03) 13 |
| MSTL | 0.62-1.05 (0.87±0.02) 20 | 0.56-0.88 (0.74±0.03) 13 |
| MTTL | 0.65-1.18 (1.01±0.03) 20 | 0.65-1.08 (0.90±0.03) 13 |

[Nansei Isles.] <Tane-ga-shima Is.> 1 ♀, 59 exs., Hamada, 31/vii/1984, Y. Harada leg. <Amami-Ōshima Is.> 69 exs., Akaogi, 2/vii/1984, M. Ōhara leg. <Tokuno-shima Is.> 2 exs., Kametsu, 24/iv/1954, T. Kumata leg. (EIHU). <Yoron Is.> 1 ex., 27/iii/1967, T. Matsumoto leg. <Ishigaki Is.> 1 ex., Botanical Garden, Banna, 12/vi/1974, H. Makihara leg.

Distribution (Fig. 153). Japan (Hokkaidō, Honshū, Shikoku, Kyūshū); China; Taiwan; Sakhalin; Viet-Nam; Philippines; Sri Lanka; Solomon Is.; Australia.

Remarks. *Hypocaccus varians* resembles superficially *H. sinæ*; however the former can easily be distinguished from the latter by the mesosternum without carinal line, the elytral sutural stria usually absent on the basal half and the apical half of the pygidium impunctate.

Hypocaccus varians is a very common species. It lives on snady beach, in various decaying animal matters, such as carrion of birds, dog, turtle and fish.

Hypocaccus (Baeckmanniolus) varians hatsune (Nakane, 1977)

Baeckmanniolus varians hatsune Nakane, 1977: 148, 157 [Hatusne-ura, Chichijima, Ogasawara].

Japanese name: Ogasawara-hamabe-emma-mushi.

Original description. "Very closely allied to the nominate form from the main islands of Japan, but the body is generally smaller (2.4 - 3.5 mm in length). Punctures on both sides of anterior part of pronotum are very feebly impressed and frequently almost disappeared, and those on apical half of elytra are usually finer than in the nominate form. Elytra more or less paler in color than pronotum, at least dark reddish brown on both

sides of prothorax usually somewhat reddish. Male genitalia smaller than in the typical form and the shape of apex of hypopygidium somewhat different. "

Additional description. Body length, PPL, 2.45 - 3.83 mm (3.06 ± 0.12 , n=13), PEL, 1.99 - 3.20 mm (2.76 ± 0.11 , n=13). Width, 1.67 - 2.45 mm (2.14 ± 0.08 , n=13). Biometric data are given in Table 52. Punctuation of pygidium represented only on basal third to half.

Specimens examined. Holotype, Hatsune-ura, Chichi-jima, Bonin Is. (Ogasawara Is.) 5/vi/1975, K. Ichikawa leg. (NSMT); Paratypes, 13 exs., Ditto, (NA); 31 exs., Ditto, (NSMT).

Distribution. Japan (Ogasawara Isles.).

Genus *Eopachylopus* Reichardt, 1926

Eopachylopus Reichardt, 1926b: 14 [type species: *Pachylopus ripae* Lewis, 1885: 469. Originally designated]

Eopachylopus ripae (Lewis, 1885)

(Fig. 154, 155, 156, 157)

Pachylopus ripae Lewis, 1885: 469 [Enoshima and Hakodate, in Japan].

Eopachylopus ripae: Reichardt, 1926b: 14.

Eopachylopus ripae ab. *tsherskii* Reichardt, 1914: 328.

Neopachylopus ripae f. *rufofasciatus* Ôsawa, 1952: 4.

Japanese name: Tsuya-hamabe-emma-mushi.

Original description. "Niger, nitidus; antennis pedibusque rufo-brunneis; fronte stria transversa recta; pronoto laevi, basi sparse punctato, stria integra; elytris impunctatis, striis validis 1-2 obliquis ante medium abbreviatis, 3 plus quam dimidiata, 4 brevissima vel obsoleta, propygidio punctulato, pygidio laevi. L. 2. $1/2$ ad 2. $3/4$ mill."

Description. Body length, PPL, 2.09 - 3.34 mm (2.61 ± 0.06 , n=20), PEL, 1.96 - 2.91 mm (2.40 ± 0.05 , n=20). Width, 1.64 - 2.49 mm (1.98 ± 0.04 , n=20). Biometric data are given in Table 53. Body oval and strongly convex. Cuticles shining and black wholly or with a red spot on each elytron, rest of body black; antennae dark rufopiceous with club rufotestaceous; legs dark reddish brown.

Frontal stria of head (Fig. 154C) lightly carinate anteriorly and absent laterally. Disk smooth, sparsely clothed with microscopic punctures. Epistoma smooth.

Pronotal sides (Fig. 154A) nearly straight and weakly convergent on basal five-sixths, thence strongly arcuate and convergent to apices. Apical angles round. Marginal stria complete and feebly carinate basally. Disk smooth and impunctate.

Marginal epipleural stria weakly carinate and complete. Marginal elytral stria

strongly carinate and complete, its apical end extending across elytral apex and united with apical end of sutural stria. Surface of epipleura between marginal epipleural and elytral striae smooth and shining on basal half; on apical half sparsely with shallow and transverse impressions. Subhumeral stria absent. Oblique humeral stria sharply impressed on basal half. First, 2nd and 3rd dorsal striae well impressed, beginning from basal sixth; 1st shortly present, ending at basal two-sixths; 2nd ending at basal half; 3rd ending at basal four-sixths. Fourth dorsal stria confined to basal region, usually represented by an arch. Sutural stria deeply impressed, nearly complete, beginning at basal fifth and its apical end united with end of marginal elytral stria. Surface of elytra smooth, sparsely with microscopic punctures.

Propygidium sparsely covered with fine punctures, which are coarser and denser laterally. Interspace among punctures with lightly impressed, fine and irregularly transverse alutaceous microsculpture, which are heavily impressed on basal half. Pygidium sparsely clothed with microscopic punctures, and shining. Interspace among punctures with more lightly impressed, irregularly transverse microsculptures than on propygidium.

Anterior margin of median portion of prosternum (Fig. 154E) obtuse-angulate. Preapical fovea weakly impressed on lateral side of keel at apical sixth. Keel strongly compressed, without even disk except on basal third. Carinal striae of keel distinctly and shortly impressed between precoxae, convergent anteriorly and united with each other at apex. Descending lateral striae shortly present and convergent apically, their apical ends attaining at middle of keel.

Anterior margin of mesosternum strongly emarginate medially, its marginal stria well impressed, complete and carinate. Disk smooth, sparsely with microscopic punctures. Meso-metasternal suture sparsely and coarsely crenate. Intercoxal disk of metasternum smooth, sparsely clothed with microscopic punctures; feebly depressed on anteromedian area, and strongly depressed on nearly apical half along longitudinal suture. Lateral metasternal stria well impressed and carinate, extending obliquely and posteriorly, reaching near hind coxae. Lateral disk densely covered with large, shallow and setiferous punctures. Interspace among punctures with fine, irregular and transverse alutaceous microsculptures. Posterior mesocoxal stria well impressed, carinate, and extending along posterior margin of mesocoxal cavity. Disk of metepisternum densely covered with large punctures.

Intercoxal disk of 1st abdominal sternum broadly depressed mediobasally and sparsely covered with moderate punctures before posterior corner. Lateral stria of the disk complete, well impressed and carinate.

Protibia (Fig. 155A, B, C) with 10 spines on outer margin, two spines on apical corner and another spine behind the two being clavate. Ventral sides of meso- and metatibiae with many stout spines.

Male genitalia as shown in Fig. 156.

Specimens examined. [Hokkaidô] 2 exs., Muroran, 25/vi/1960, T. Yamashita leg.

Table 53. Biometric data of *Eopachylopus ripae* (Lewis).

| | |
|------|--------------------------|
| APW | 0.72-1.11 (0.88±0.02) 20 |
| PPW | 1.50-1.99 (1.81±0.03) 20 |
| PL | 0.72-1.05 (0.85±0.02) 20 |
| EL | 1.18-1.83 (1.52±0.04) 20 |
| EW | 1.64-2.49 (1.98±0.04) 20 |
| ProW | 0.95-1.47 (1.14±0.03) 20 |
| ProL | 0.20-0.39 (0.25±0.01) 20 |
| PyL | 0.86-1.48 (1.17±0.04) 20 |
| PTL | 0.59-0.92 (0.75±0.02) 20 |
| MSTL | 0.52-0.92 (0.72±0.02) 20 |
| MTTL | 0.65-1.08 (0.85±0.02) 20 |

[Honshû] <Fukushima-ken> 1 ex., Fujima-kaigan, Iwaki, 25/vi/1988, K. Tazoe leg. <Chiba-ken> 7 exs., Ôami, 19/vi/1984, 1/v/1990, M. Ôhara leg. <Aichi-ken> 1 ex., Miya, Mikawa, 1-2/ix/1947, S. Ôsawa leg. (NA). <Mie-ken> 5 exs., Akogi-ga-ura, Mie Coast, 30/vi/1957, M. Gotô leg. (NA and NSMT).; 1 ex., Tsu-kaigan, 30/v/1957, Z. Naruse leg. (NSMT). <Wakayama-ken> 32 exs., Nachi, southern Kii, 26/iv/1947, S. Ôsawa leg. (NA); 2 exs., Ditto, 19/vii/1946, S. Ôsawa leg. (NA); 14 exs., Ditto, 29/iv/1947, S. Ôsawa leg. (NA). <Ishikawa-ken> 7 exs., Uchinada-sakyû, 31/viii/1968, H. Ebihara leg.

[Kyûshû] <Fukuoka-ken> 1 ex., Satsuki-matsubara, 8/v/1983, S. Nakao leg. (NA); 1 ex., Ainoshima, 22/v/1983, S. Nakao leg. (NA).

[Nansei Isles.] <Tane-ga-shima Is.> 2 exs., Hamada, 31/vii/1984, Y. Harada leg. Distribution (Fig. 157). Japan (Hokkaidô, Honshû, Shikoku, Kyûshû, Nansei Isles.).

Remarks. *Eopachylopus ripae* is easily recognized by the the characters given in the key and description; it is hardly confused with any other species of the tribe.

The speceis occurs under dacing bodies of fish on sandy beach.

6. 3. 10. Subfamily Trypeticinae Bickhardt, 1913

Trypeticinae Bickhardt, 1913: 166; 1916-17: 19, 52; Reichardt, 1941: 65, 72; Wenzel, 1944: 53; Mazur, 1984: 41.

Trypanaeinae Jakobson, 1911: 638, 642.

Genus *Trypeticus* Marseul

Trypeticus Marseul, 1864: 281 [type species: *Trypeticus gilolous* Marseul, 1864: 283. Designated by Bichardt, 1916: 53]; Schmidt, 1893: 15; Jakobson, 1911: 638, 642; Bickhardt, 1916-17: 53;

Key to the Japanese species of the genus *Trypeticus*

- 1(2) Body shining. Pronotum without lateral stria. *T. fagi* (Lewis, 1884)
2(1) Body filiform. Pronotum with complete lateral stria.
..... *T. venator* (Lewis, 1884)

Trypeticus fagi (Lewis, 1884)

(Fig. 158, 159, 160, 161)

Tryponaeus fagi Lewis, 1884: 138 [Japan, no further locality].

Trypeticus fagi: Lewis, 1905d: 7; 1912: 251 [male and female genitalia illustrated].

Japanese name: Tsutsu-emma-mushi.

Original description. "Cylindricus, niger, nitidus, undique punctatus; antennis pedibusque rufo-piceis. L. 4 mill.

Male. Frontis lateribus basisque margine elevatis; pronoto antice rectuso, medio subelevato.

Female. Fronte plana, in medio depressa; pronoto antice convexo. "

Description. Male: Body length, PPL, male, 3.11 - 3.50 (3.36 ± 0.04 , $n=10$) mm, female, 3.11 - 3.60 mm (3.42 ± 0.06 , $n=7$), PEL, male, 2.84 - 3.11 mm (2.99 ± 0.03 , $n=10$), female, 2.94 - 3.14 mm (3.07 ± 0.02 , $n=7$). Width, male, 1.31 - 1.34 mm (1.31 ± 0.001 , $n=10$), female, 1.24 - 1.31 mm (1.28 ± 0.01 , $n=7$). Biometric data are given in Table 54. Body cylindrical, moderately stout. Cuticle shining, black; tibiae, tarsi, and antennae dark rufopiceous.

Head without frontal stria (Fig. 159C, D); surface slightly depressed on median area, and sparsely clothed with fine punctures which are separated by two to five times their diameter and become coarser posteriorly; surface among the punctures extremely finely covered with alutaceous ground sculpture.

Anterior margin of pronotum shallowly emarginate on median four-sixths; sides parallel (Fig. 158) and straight; marginal stria complete and carinate laterally, and absent behind head on anterior margin; surface of disk densely and coarsely punctate, but not on longitudinal mid line, the punctures becoming denser on apical one-fourth and on area along lateral margin; surface among coarse punctures usually impunctate and shining, but sometimes covered with fine punctures, which are one-third as large as the coarse punctures.

Epipleura broad, not concave. Marginal epipleura and elytral stria absent. Narrow band along epipleural margin impunctate, but extremely finely striate. Surface of elytra irregularly scattered with coarse punctures which are somewhat smaller than those of the pronotum and usually separated by two to five times their diameter, the punctures

becoming coarser on basal margin and denser along the sutural line and lateral area along epipleura; a small oblong area on humeral region impunctate; extreme apex of elytra impunctate.

Disk of propygidium (Fig. 159) evenly covered with round and shallow punctures, which are a little coarser than the elytral ones and separated by about their diameter, and with other fine punctures intermingled. Punctuation of pygidium similar to that of propygidium, but much sparser, the punctures becoming finer apically; tip of pygidium clearly acute.

Prosternal process longitudinal quadrangular; anterior margin straight; marginal stria of the process nearly complete and somewhat carinate; disk densely covered with coarse and shallow punctures and intermingled with fine punctures among the coarse ones; surface among these punctures finely clothed with alutaceous ground sculpture.

Median third of anterior margin of mesosternum nearly straight; lateral third inwardly curved, fitting to posterior margin of procoxa; lateral sides nearly parallel and straight on basal half and divergent apically on apical half; each lateral side marginate and deeply carinate; punctuation of disk similar to that of prosternum. Meso-metasternal suture impressed and obtuse-angulate (about 120°) at middle. Metasternum clearly depressed on longitudinal mid line; lateral metasternal striae slightly divergent posteriorly and impressed on basal two-thirds. Intercostal disk of metasternum sparsely covered with coarse, somewhat longitudinally oblong and shallow punctures which are separated by their own diameter to thrice the diameter; surface among coarse punctures sparsely and finely punctate except on a broad band along longitudinal mid line. Lateral disk of metasternum sparsely and coarsely punctate, the punctures much sparser than those of the intercostal disk. Metepisternum with two rows of dense and coarse punctures.

Table 54. Biometric data of *Trypeticus fagi* (Lewis).

| | Male | Female |
|------|---------------------------------|-------------------------------|
| PW | 1.21-1.31 (1.27 $\pm$ 0.01) 11 | 1.24-1.31 (1.27 $\pm$ 0.01) 7 |
| PL | 1.44-1.57 (1.49 $\pm$ 0.01) 11 | 1.47-1.64 (1.57 $\pm$ 0.02) 7 |
| EL | 1.31-1.54 (1.46 $\pm$ 0.02) 11 | 1.34-1.50 (1.43 $\pm$ 0.02) 7 |
| EW | 1.31-1.34 (1.31 $\pm$ 0.001) 10 | 1.24-1.31 (1.28 $\pm$ 0.01) 7 |
| ProW | 0.72-0.85 (0.79 $\pm$ 0.01) 11 | 0.69-0.82 (0.75 $\pm$ 0.02) 7 |
| ProL | 0.29-0.36 (0.33 $\pm$ 0.01) 11 | 0.26-0.33 (0.30 $\pm$ 0.01) 7 |
| PyL | 0.49-0.59 (0.52 $\pm$ 0.01) 11 | 0.49-0.65 (0.57 $\pm$ 0.02) 7 |
| PTL | 0.52-0.65 (0.62 $\pm$ 0.01) 11 | 0.52-0.62 (0.58 $\pm$ 0.01) 7 |
| MSTL | 0.49-0.65 (0.59 $\pm$ 0.02) 11 | 0.52-0.65 (0.58 $\pm$ 0.02) 7 |
| MTTL | 0.59-0.69 (0.63 $\pm$ 0.01) 11 | 0.59-0.65 (0.62 $\pm$ 0.01) 7 |

Intercoxal disk of 1st abdominal sternum densely covered with coarse punctures which are a little smaller than those of the metasternal intercoxal disk, the punctures becoming sparser on basal half.

Protibia slender, with 5 large denticles on outer margin. Mesotibia with 5 denticles on outer margin.

Female. In general appearance similar to the male except in the following characters: head (Fig. 159A, B) with clear frontal marginal stria which is strongly carinate; pronotum distinctly with short costa on apical fourth on longitudinal mid line, and area around the costa densely clothed with longitudinal short rugae and fine alutaceous ground microsculpture where it is lusterless; pronotum evenly punctate wholly, without impunctate area on longitudinal mid line; punctation of pygidium much denser than that of the male; tip of pygidium round, not acute; prosternal process without marginal stria.

Male genitalia as shown in Fig. 160.

Specimens examined. [Honshû] <Aomori-ken> 1 ♀, no date, A. Abe leg.; 1 ♂, Oirase, Nishigun, Fukaura-machi, 23/v/1976, A. Abe leg.; 1 ♂, Yachi Spa., Towada, 26/vii/1952, Y. Kurosawa leg. <Fukushima-ken> 1 ♂, Yunohana, Minami-Aizu, 20/vii/1963, K. Tazoe leg.; 1 ♀, Nagasaka, Iide-san, 14/vi/1970, K. Tazoe leg.; 1 ♂, Hinoemata, 30/v/1982, H. Makihara leg.; 1 ♀, Shin-machi, Tateiwa, Minami-Aizu, 18/vi/1947, Y. Kurosawa leg. <Saitama-ken> 1 ♂, Yanagi-koya, Chichibu, 22/vii/1933, no collector's name. <Gifu-ken> 1 ♂, Idani, Kawai, Hida, 5/vi/1955, H. Torigai leg.; 2 ♂ ♂, Ditto, 1/vi/1957, T. Nakane leg. <Mie-ken> 1 ♂, Mie Univ. Forest., Ichishigun, 11/vi/1956, H. Ichihashi leg.; 1 ♀, Ditto, 12/vi/1956, H. Ichihashi leg. <Kyôto-fu> 1 ♀, Ashiu, vi/1951, A. N leg.

[Shikoku] <Tokushima-ken> 1 ♂, Ashû, 27/vii/1940, M. Tokunaga leg. (Host: *Aesculus turbinata* Blume). <Ehime-ken> 1 ♀, Omogo, 11/vii/1956, Z. Naruse et M. Satô leg.

[?] 1 ♂ 1 ♀, Sakasimo, Hora, 13/vi/1954, H. Torigai leg.

Distribution (Fig. 161). Japan (Honshû, Shikoku, Kyûshû, Izu Isles., Yaku-shima Is.).

Trypeticus venator (Lewis, 1884)

Tryponaeus venator Lewis, 1884: 138 ["South Japan, at Yuyama and Konose"].

Trypeticus venator. Lewis, 1905b: 8.

Japanese name: Hoso-tsutsu-emma-mushi.

Original description. "Niger, nitidus filiformis, parum dense punctatus; antennis pedibusque piceis; prothorace stria laterali integra, prosterno utrinque striato. Long. 3.1/2 mill.

Male. Rostro apice modice reflexo, thorace antice linea in medio vix elevata.

Female. Fronte excavata."

Specimens examined. No material of this species has been available for my study.

Distribution. Japan (Honshû, Kyûshû); Taiwan.

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PLATES

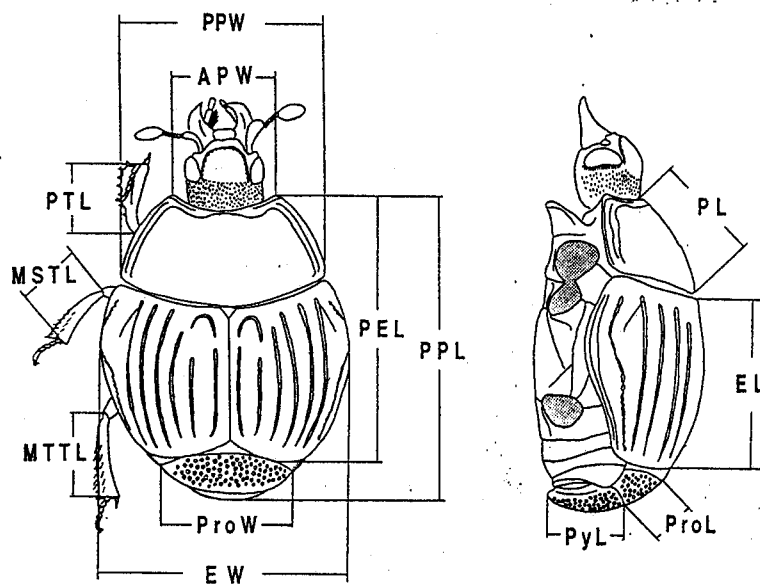


Fig. 1. Adult of the Histeridae in dorsal view (left) and lateral view (right), showing biometric measurements.

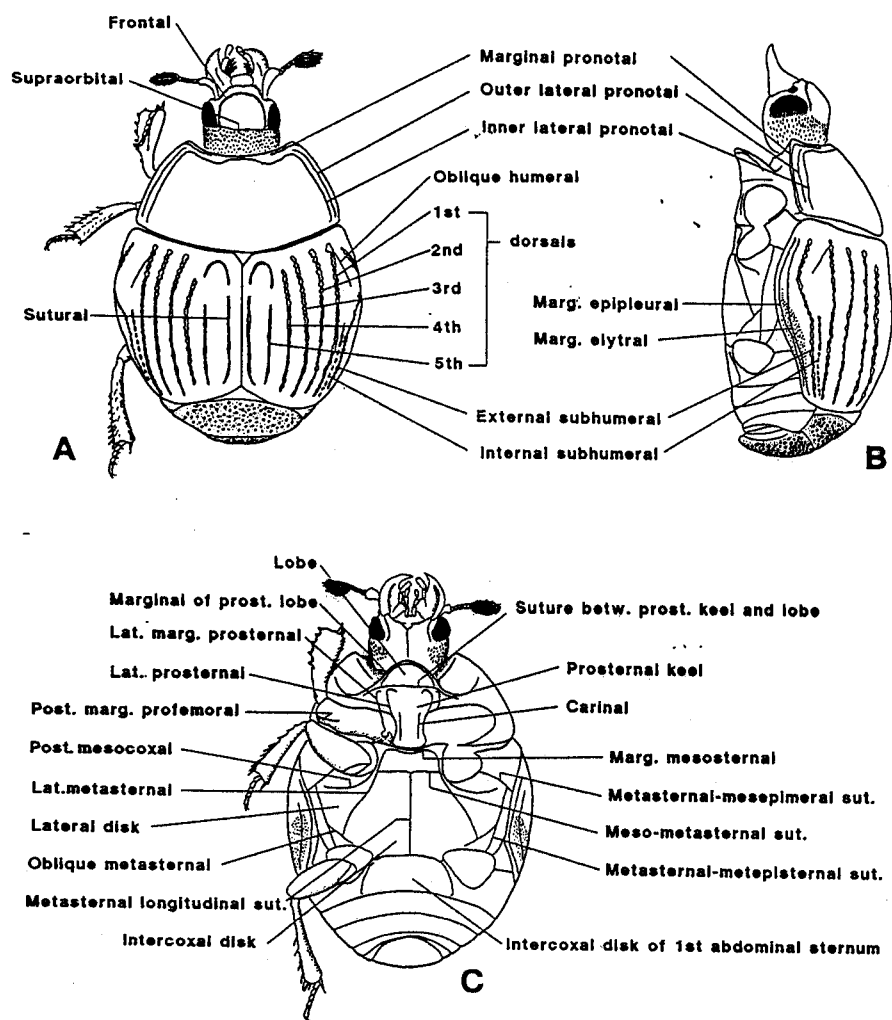


Fig. 3. Terms of some striae and parts. A: Dorsal view of a histerid beetle, *Margarinotus* showing principal striae. B: Lateral view, ditto. C: Ventral view, showing principal striae and parts (after Ôhara, 1989).

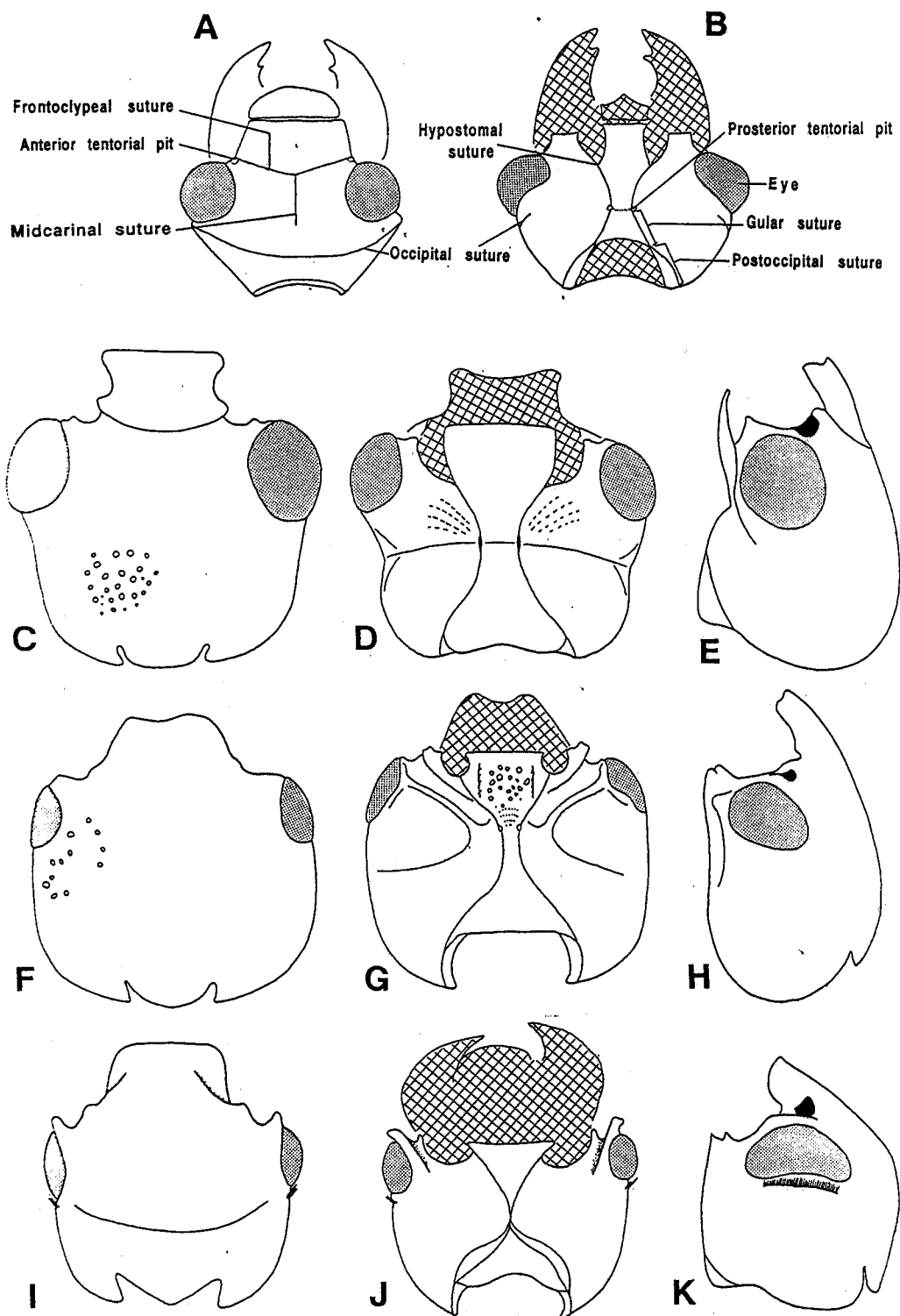


Fig. 4. Head. A, B: Schematic. C, D, E: *Sphaerites politus* (Sphaeritidae). F, G, H: *Syntelia histeroides* (Synteliidae). I, J, K: *Dendrophilus xavieri*. A, C, F, I: dorsal view. B, D, G, J: ventral view. E, H, K: lateral view, left side.

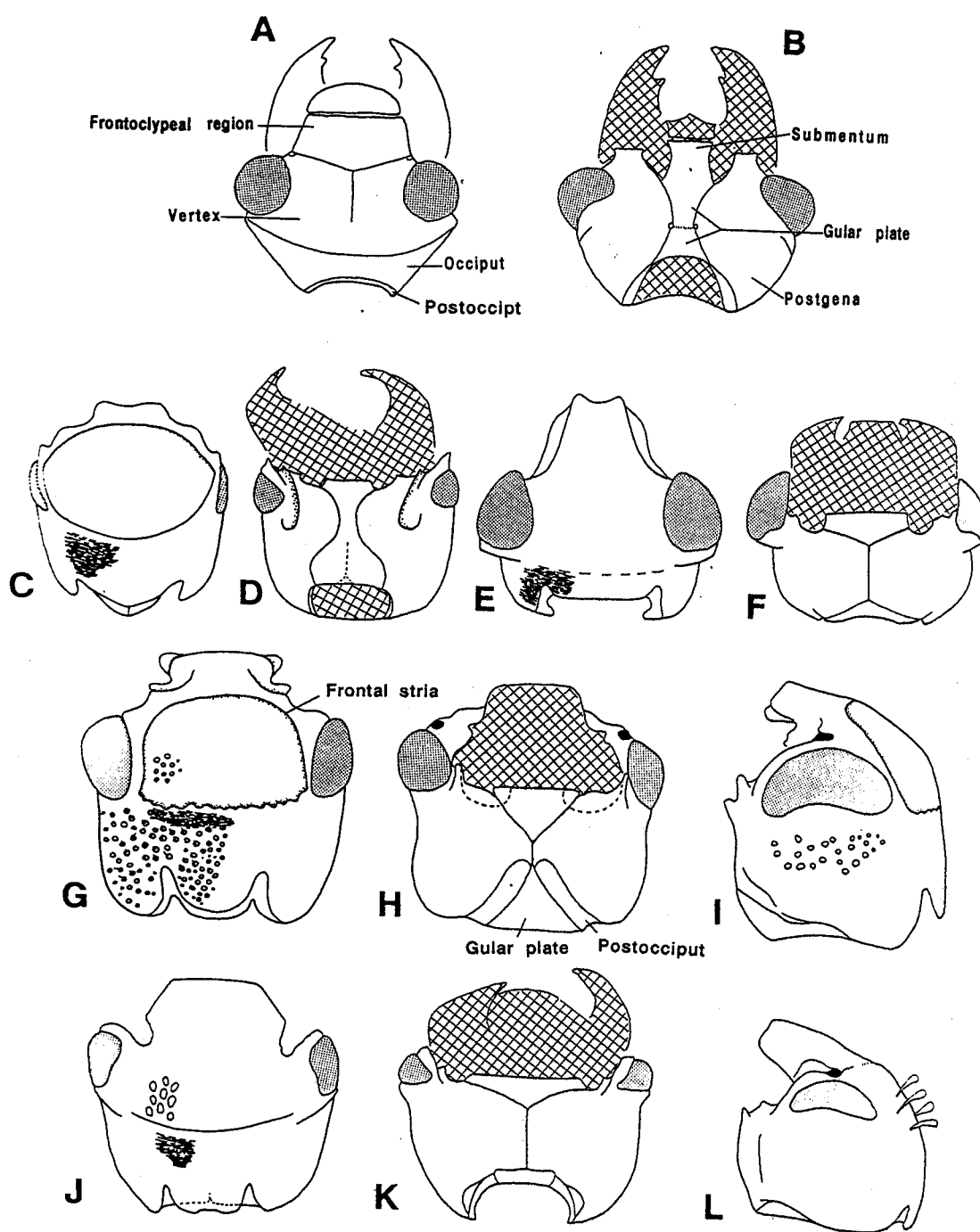


Fig. 5. Head. A, B: Schematic. C, D: *Pachylomalus* sp. (Paromalini; Dendrophilinae; Histeridae) E, F: *Trypeticus fagi* (Trypeticinae; Histeridae). G, H, I: *Saprinus splendens* (Saprininae; Histeridae). J, K, L: *Chaetabraeus bonzicus* (Abraeinae; Histeridae). A, C, E, G, J: dorsal view. B, D, F, H, K: ventral view. I, L: lateral view, left side.

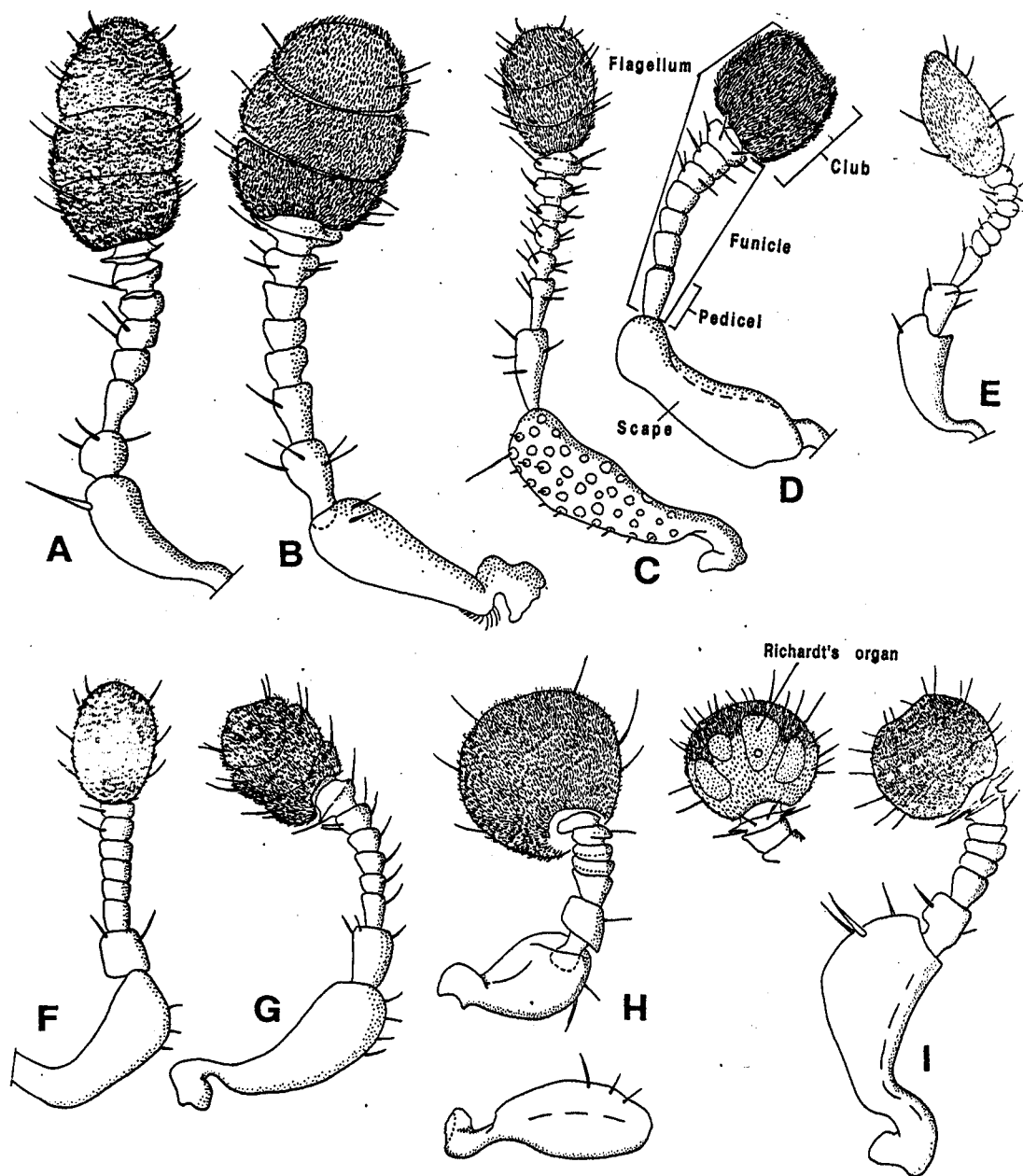


Fig. 7. Antennae. A: *Sphaerites politus* (Sphaeritidae). B: *Syntelia histeroides* (Synteliidae). C: *Onthophilus ostreatus* (Onthophilinae; Histeridae). D: *Epierus comptus* (Tribarinae; Histeridae). E: *Chaetabraeus bonzicus* (Abraeinae; Histeridae). F: *Plegaderus marseuli* (Abraeinae; Histeridae). G: *Dendrophilus xavieri* (Dendrophilinae; Histeridae). H: *Trypeticus fagi* (Trypeticinae; Histeridae). I: *Saprinus splendens* (Saprininae; Histeridae).

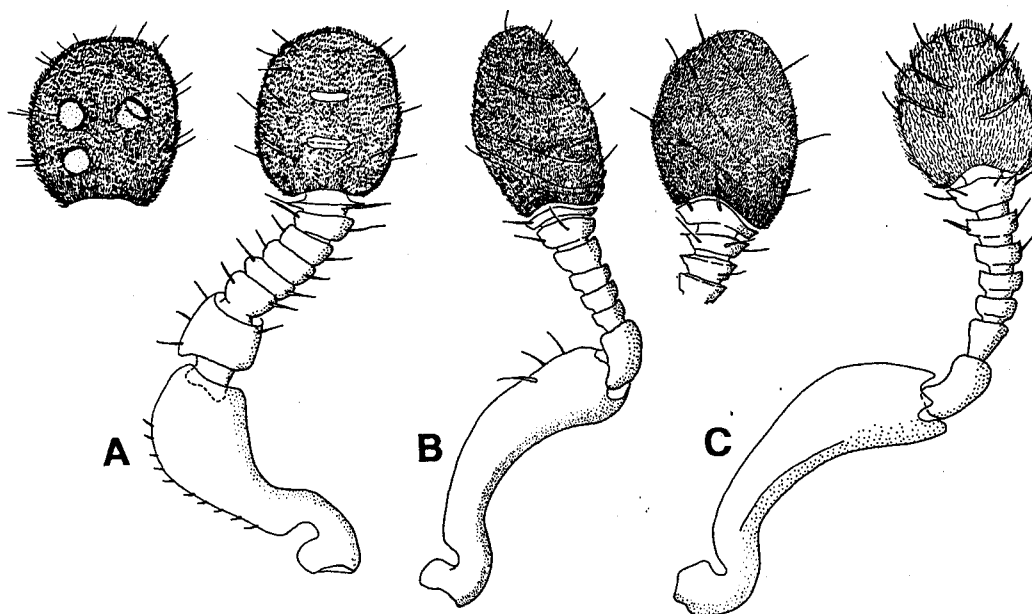


Fig. 8. Antennae. A: *Gnathoncus nannetensis* (Saprininae; Histeridae). B: *Hister concolor* (Histerini; Histerinae; Histeridae). C: *Platysoma vagans* (Platysomatini; Histerinae; Histeridae).

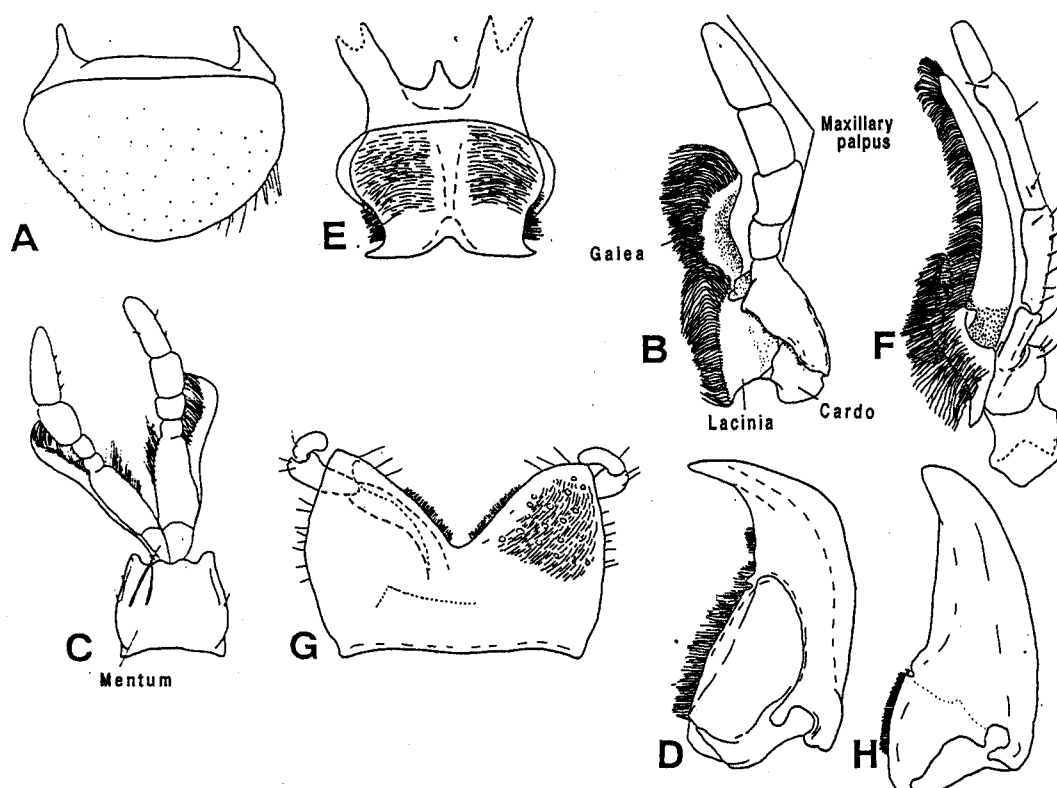


Fig. 9. Mouthparts. A - D: *Notodoma fungorum* (Exosternini; Histerinae). E - H: *Hololepta amurensis* (Hololeptini, Histerinae). A, E: Labrum. B, F: Maxilla. C, G: Labium. D, H: Right mandible, dorsal view.

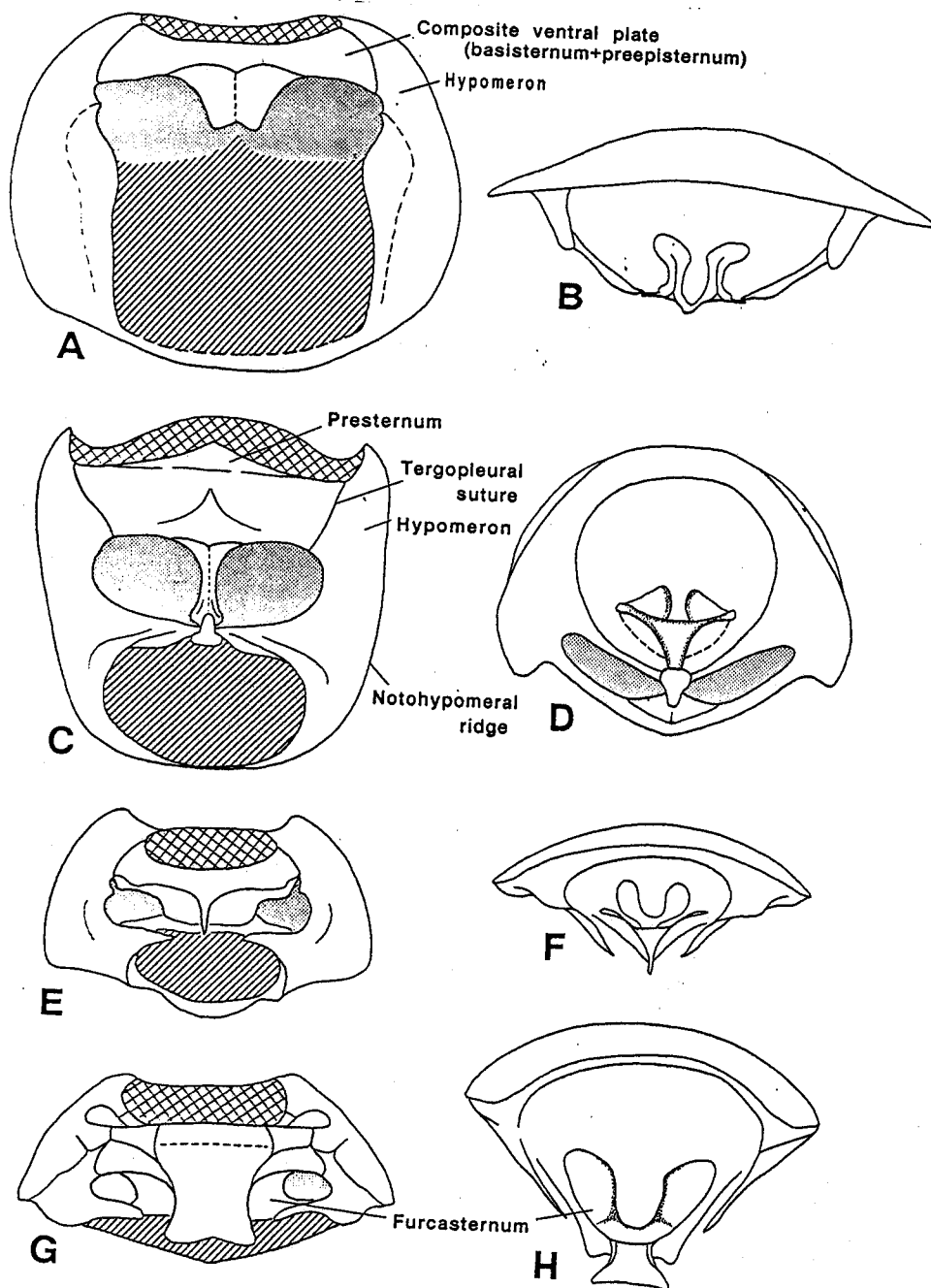


Fig. 10 Prothorax. A, B: *Necrodes asiaticus* (Silphidae). C, D: *Syntelia histeroidea* (Synteliidae). E, F: *Sphaerites politus* (Sphaeritidae). G, H: *Onthophilus ostreatus* (Onthophilinae; Histeridae). A, C, E, G: ventral view. B, D, F, H: caudal view.

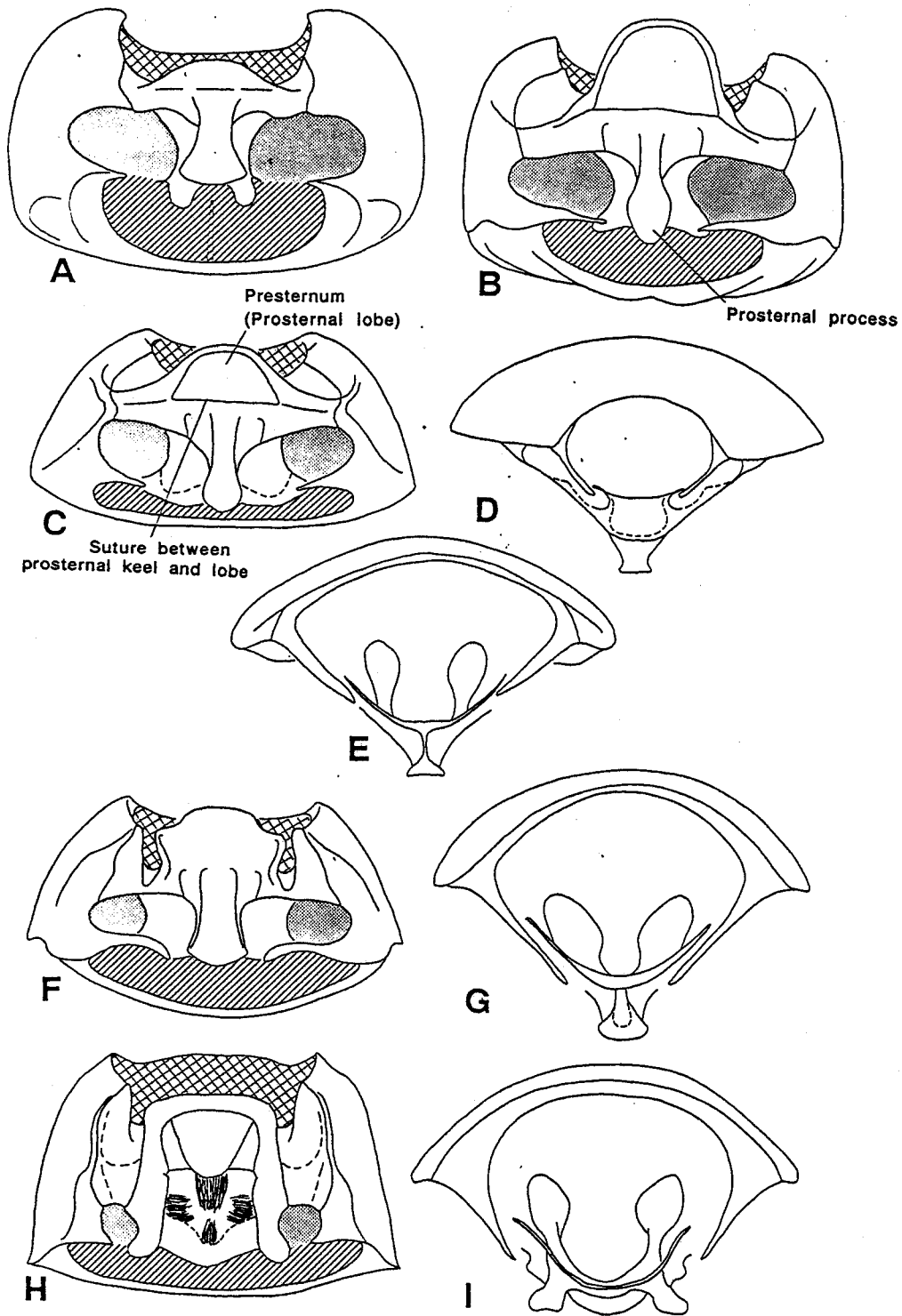


Fig. 11. Prothorax. A: *Hololepta amurensis* (Hololeptini; Histerinae). B: *Plaesius* sp. (Platysomatini; Histerinae). C, D, E: *Margarinotus cadavericola* (Histerini, Histerinae). F, G: *Dendrophilus xavieri* (Dendrophilini; Dendrophilinae). H, I: *Plegaderus marseuli* (Plegaderini; Abraeinae). A, B, C, F, H: ventral view. D: frontal view. E, G, I: caudal view.

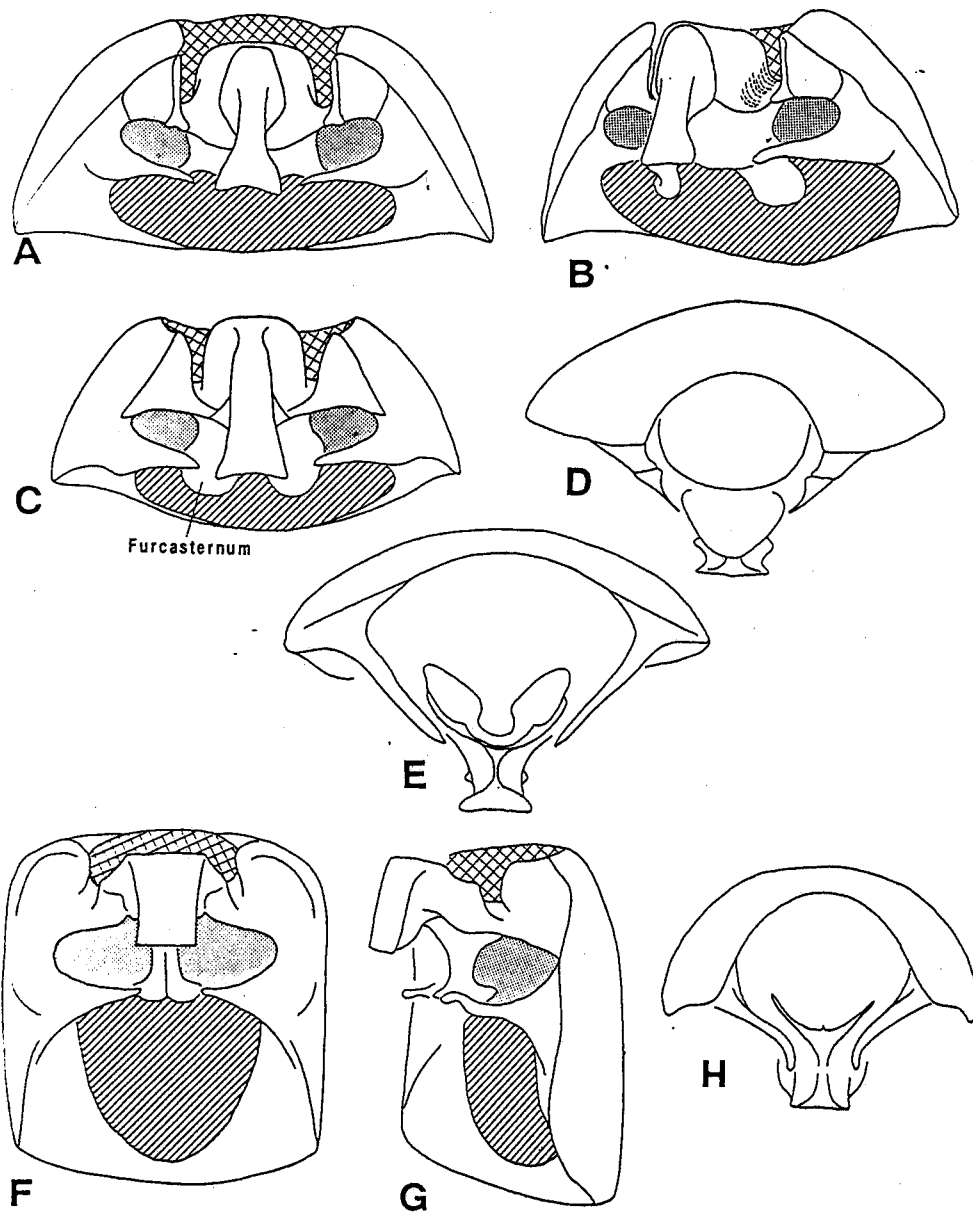


Fig. 12. Prothorax. A, B: *Saprinus splendens* (Saprininae). C, D, E: *Gnathoncus nannetensis* (Saprininae). F, G, H: *Trypeticus fagi* (Trypeticinae). A, C, F: ventral view. B, G: oblique view. D: frontal view. E, H: caudal view.

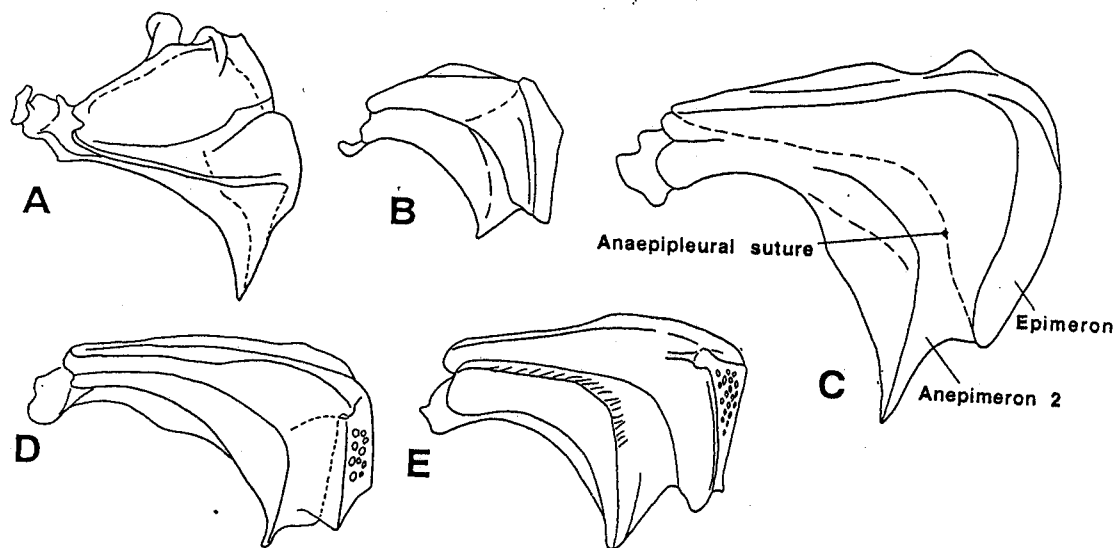


Fig. 13. Epimeron and anepimeron of the mesothorax. A: *Hololepta amurensis* (Hololeptini; Histerinae). B: *Onthophilus ostreatus* (Onthophilinae). C: *Saprinus splendens* (Saprininae). D: *Abraeus bonzicus* (Abraeini; Abraeinae). E: *Dendrophilus xavieri* (Dendrophilini; Dendrophilinae).

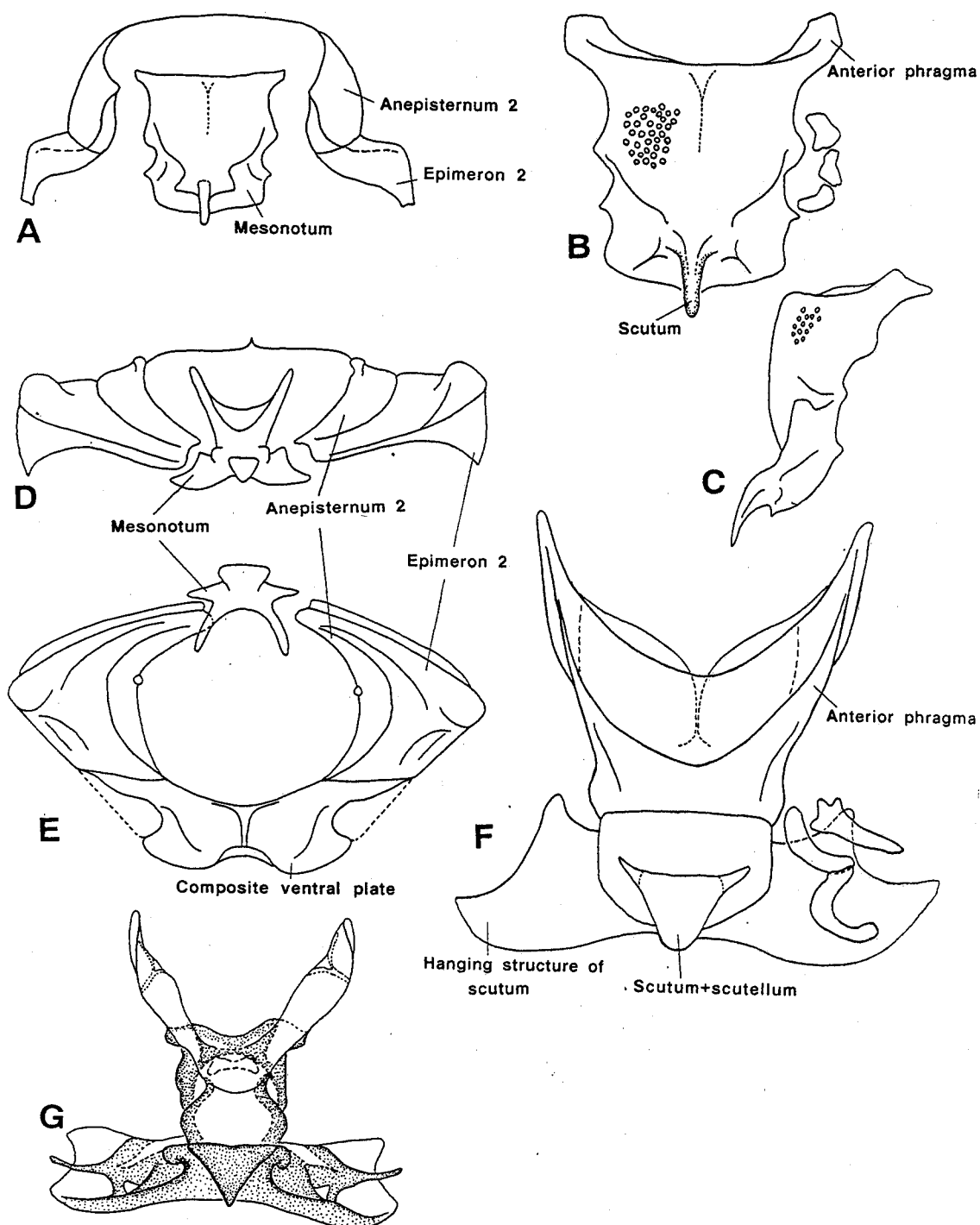


Fig. 14. Mesothorax. A, B, C: *Syntelia histeroides* (Synteliidae). D, E, F: *Plaesius* sp. (Platysomatini; Histerinae). G: *Hololepta amurensis* (Hololeptini; Histerinae). A, D: Metathorax, dorsal view. E: ditto, frontal view. B, F, G: Mesonotum, dorsal view. C: ditto, lateral view.

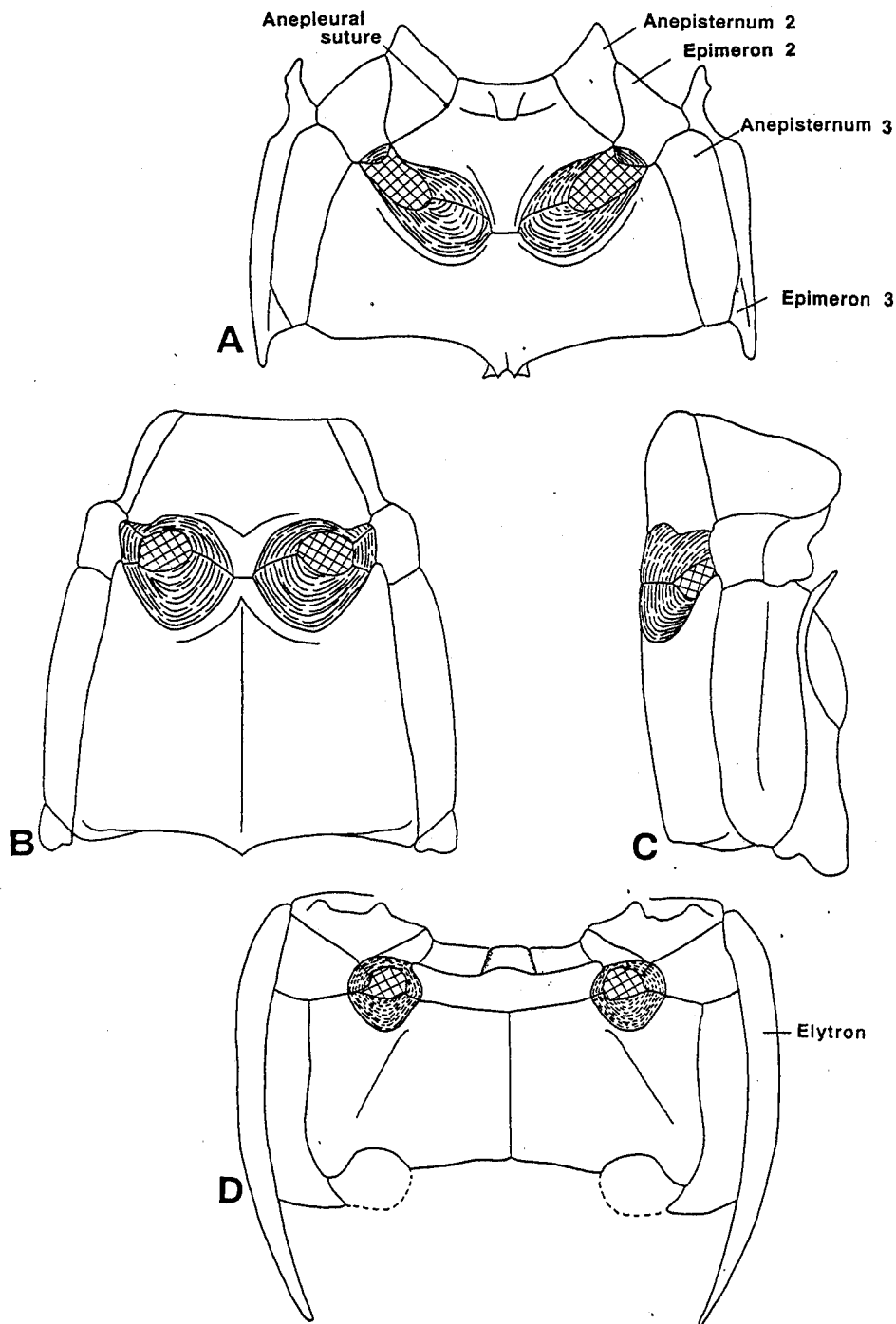


Fig. 15. Meso- and metathoraces in ventral (A, B, D) and lateral (C) views. A: *Sphaeritis politus* (Sphaeritidae). B, C: *Syntelia histeroides* (Synteliidae). D: *Onthophilus ostreatus* (Onthophilinae).

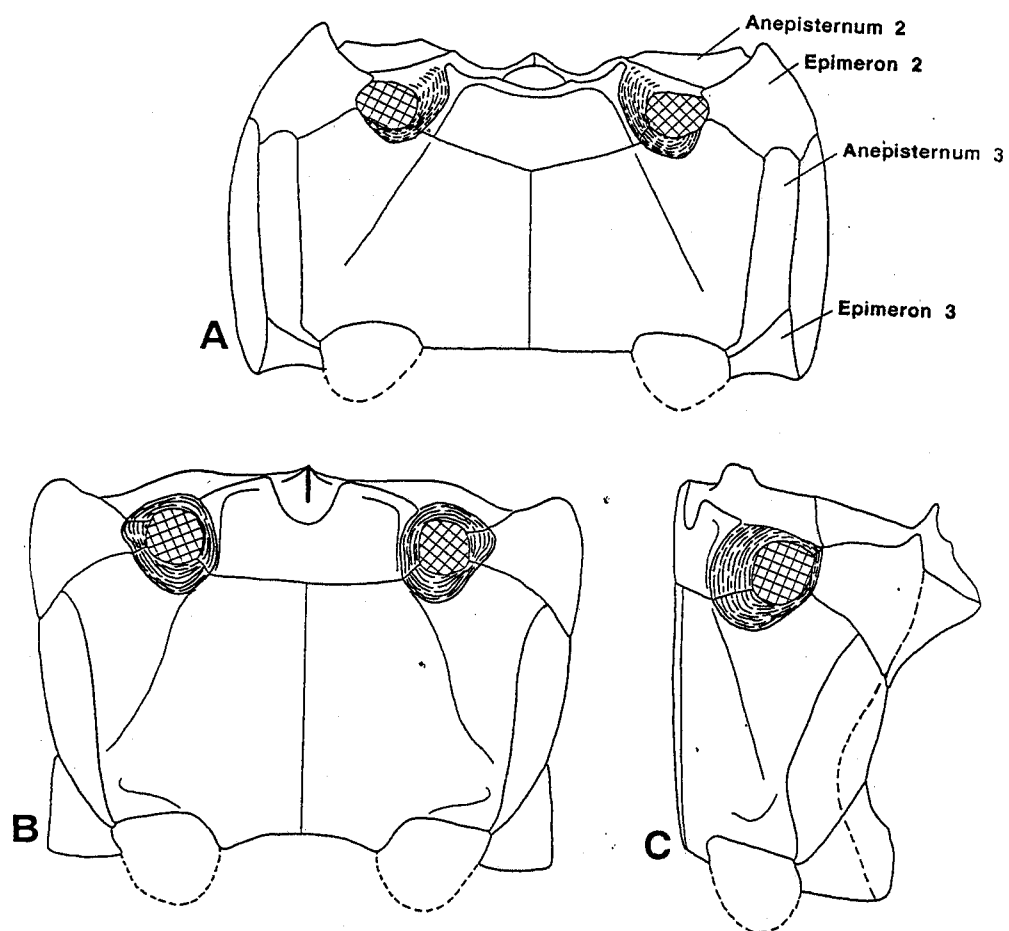


Fig. 16. Meso- and metathoraces in ventral (A, B) and lateral (C) views. A: *Saprinus splendens* (Saprininae). B, C: *Plaesius* sp. (Platysomatini; Histerinae).

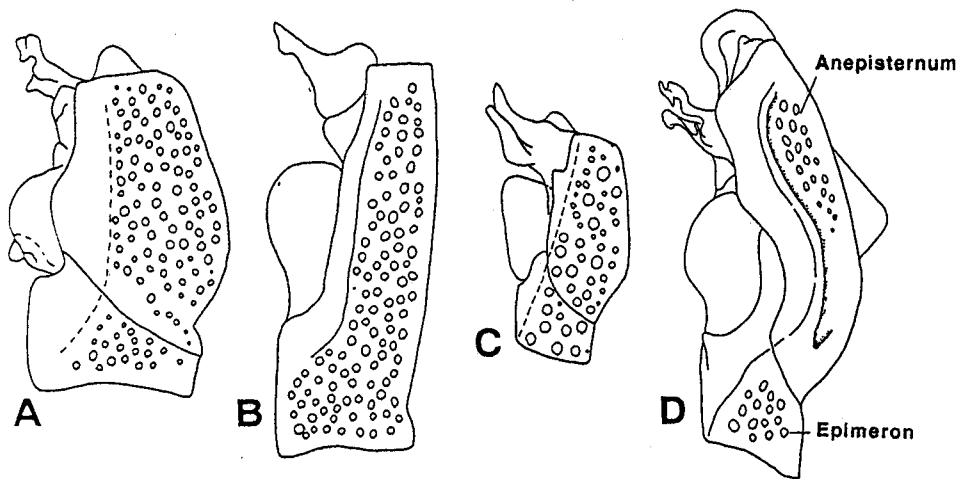


Fig. 17. Anepisternum and epimeron of the metathorax. A: *Saprinus splendens* (Saprininae). B: *Dendrophilus xavieri* (Dendrophilini; Dendrophilinae). C: *Onthophilus ostreatus* (Onthophilinae). D: *Hololepta amurensis* (Hololeptini; Histerinae).

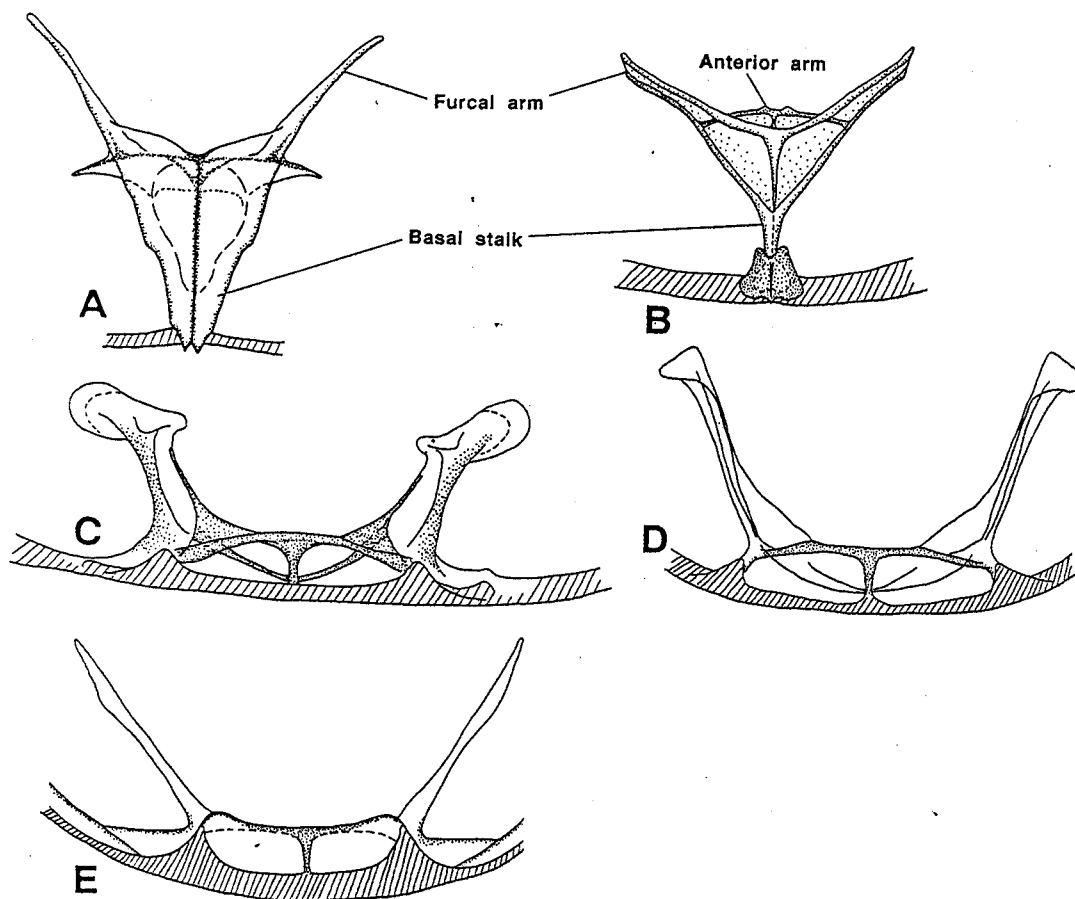


Fig. 18. Metendosternite in caudal view. A: *Sphaerites politus* (Sphaeritidae). B: *Syntelia histeroides* (Synteliidae). C: *Hololepta amurensis* (Hololeptini; Histerinae). D: *Onthophilus ostreatus* (Onthophilinae). E: *Dendrophilus xavieri* (Dendrophilini; Dendrophilinae).

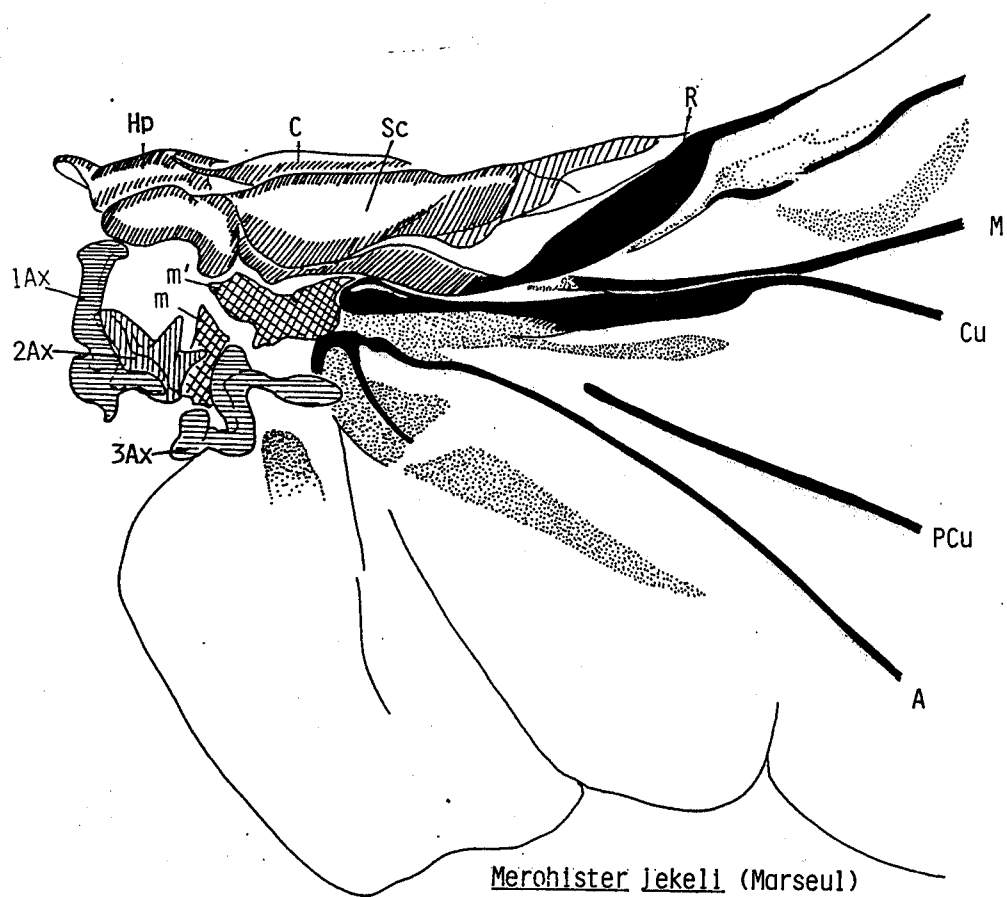


Fig. 19. Basal area of hind wing. *Merohister jekeli* (Histerini; Histerinae; Histeridae).

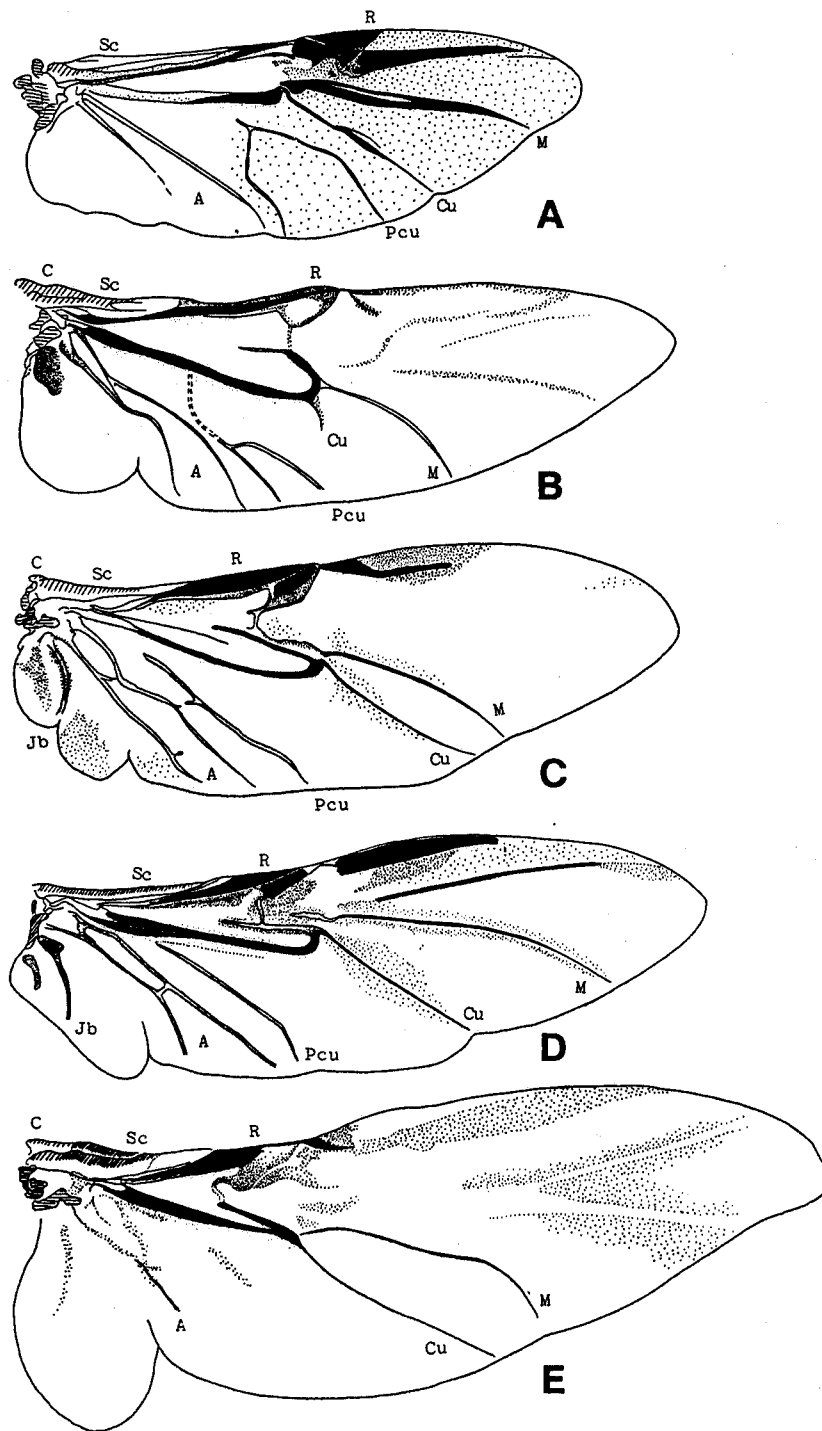


Fig. 20. Hind wings. A: *Thanatsphilus* sp. (Silphidae). B: *Spheridium scarabaeoides* (Hydrophilidae). C: *Sphaerites politus* (Sphaeritidae). D: *Syntelia histeroides* (Synteliidae). E: *Onthophilus ostreatus* (Onthophilinae; Histeridae).

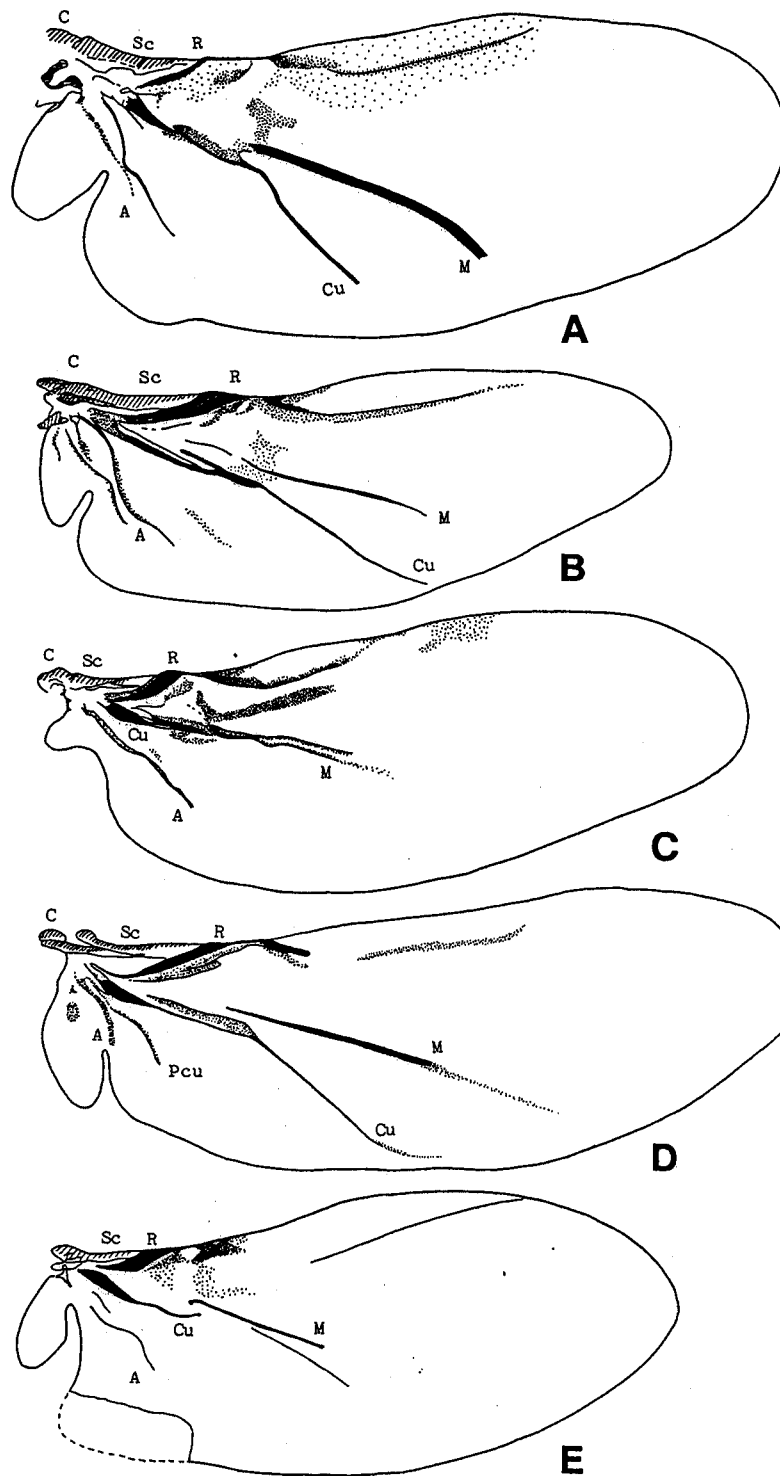


Fig. 21. Hind wings. A: *Epiechinus arboreus* (Onthophilinae). B: *Epierus* sp. (Tribalinae). C: *Trypeticus fagi* (Trypeticinae). D: *Niponius impressicollis* (Niponiinae). E: *Plegaderus marseuli* (Plegaderini; Abraeinae).

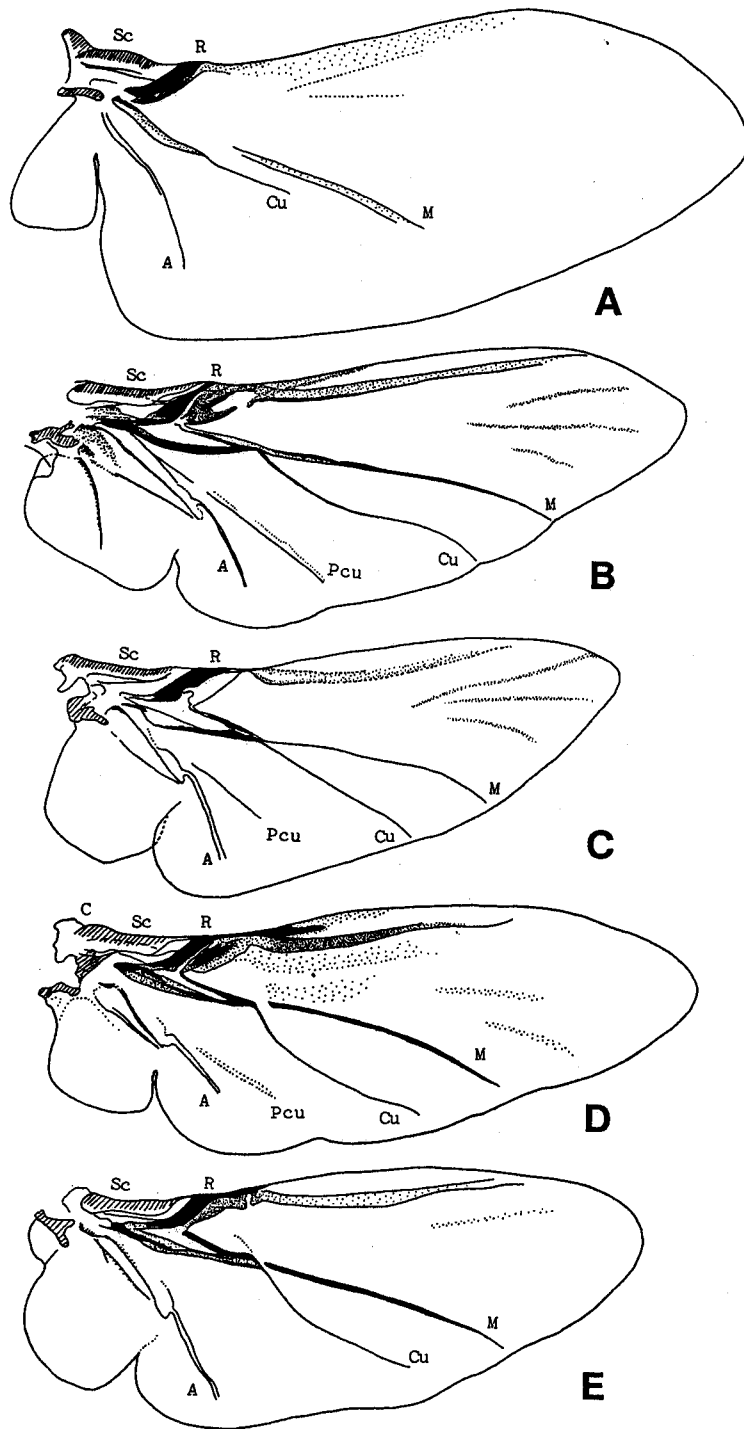


Fig. 22. Hind wings. A: *Chaetabraeus bonzicus* (Abraeini; Abraeinae). B: *Saprinus* sp. C: *Hypocaccus varians*. D: *Gnathoncus nannetensis*. E: *Eopachylopus riape* (B-E: Saprininae).

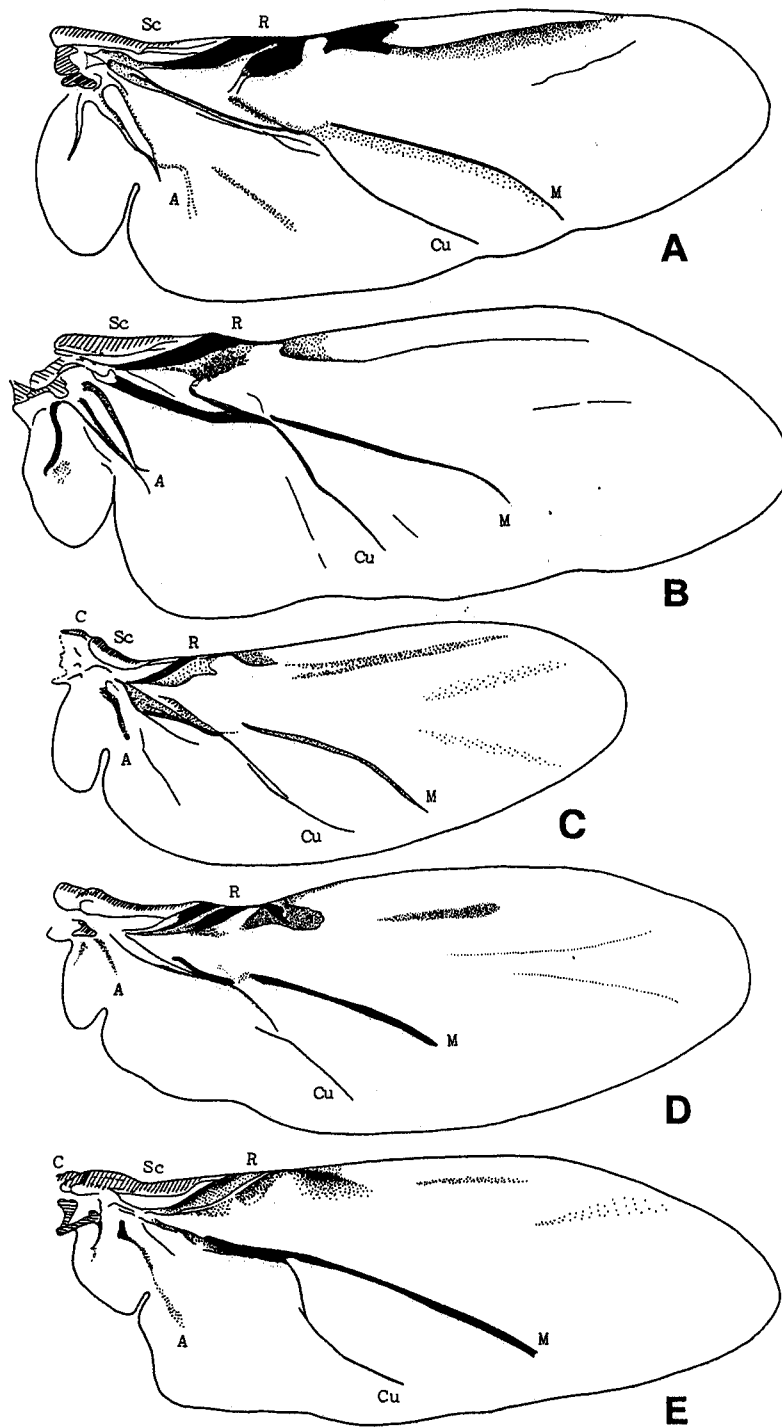


Fig. 23. Hind wings of the subfamily Dendrophilinae. A: *Dendrophilus xavieri* (Dendrophilini). B: *Anapleus* sp. (Anapleini). C: *Carcinops pumilio* (Paromalini). D: *Australomalus montivagus* (Paromalini). E: *Pachylomalus* sp. (Paromalini).

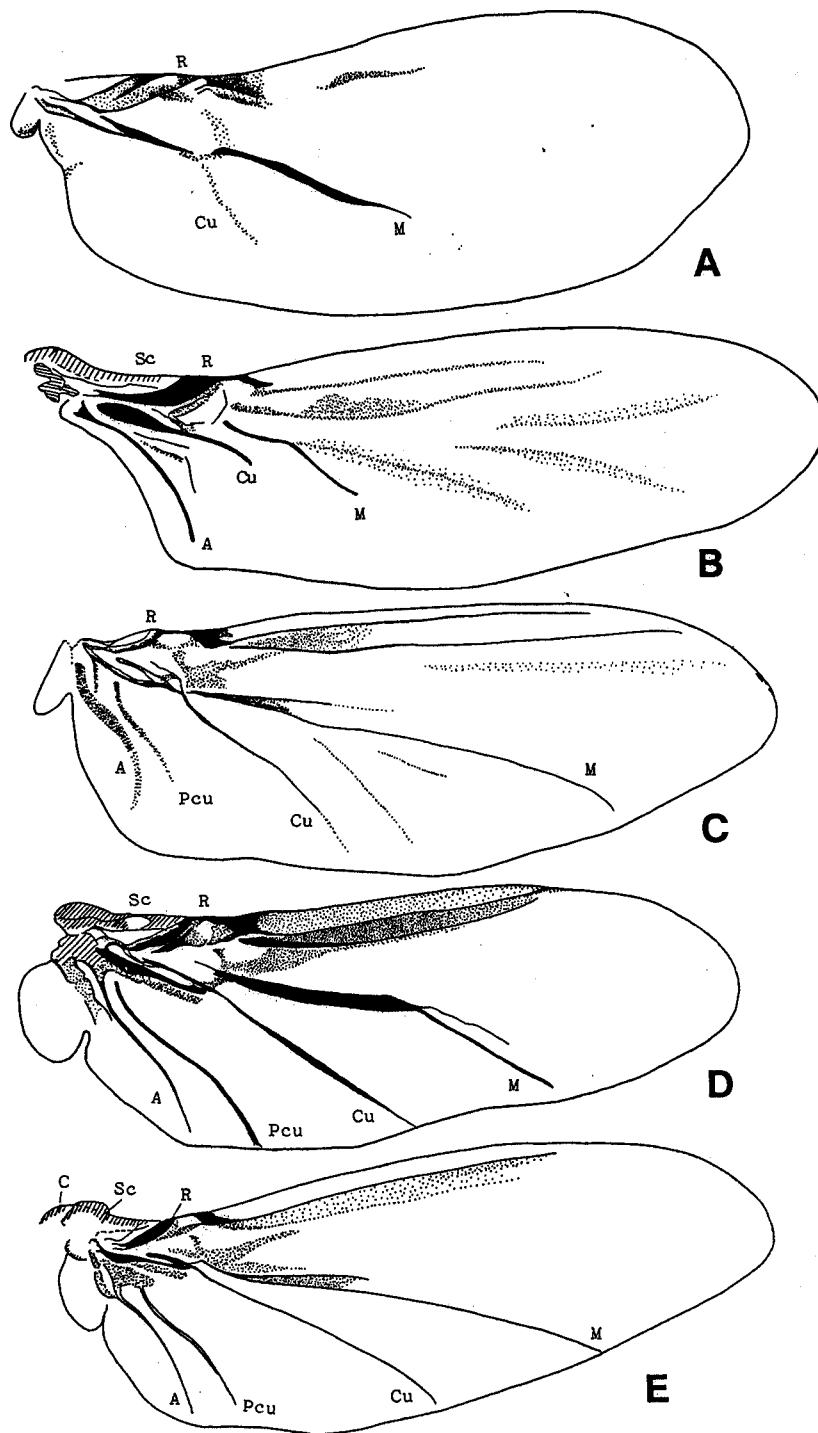


Fig. 24. Hind wings. A: *Eulomalus* sp. (Paromalini; Dendrophilinae). B: *Bacanius* sp. (Bacaniini; Dendrophilinae). C: *Hetaerius optatus* (Heateriinae). D: *Procoryhaeus* sp. (Exosternini; Histerinae). E: *Notodoma fungum* (Exosternini; Histerinae).

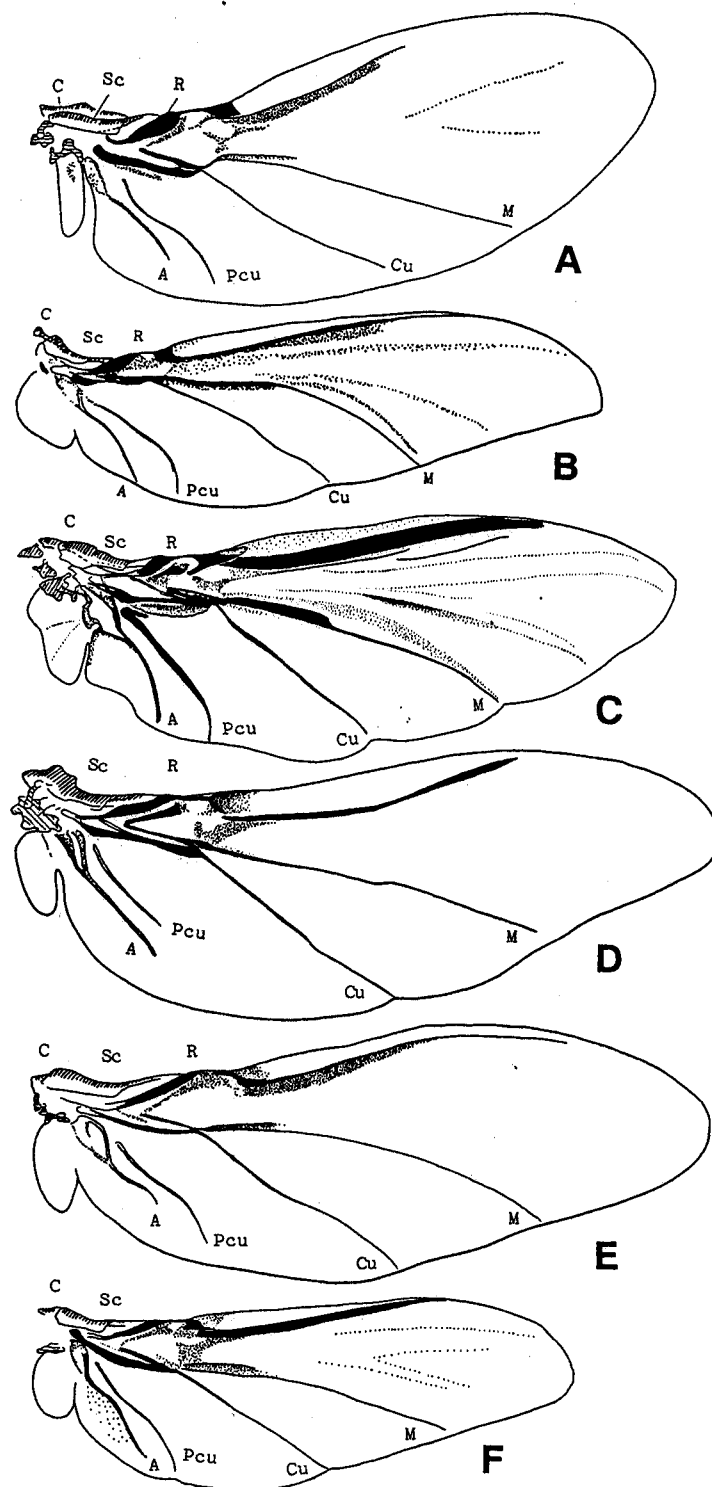


Fig. 25. Hind wings of the subfamily Histerinae. A: *Binhister chujoi* (Exosternini). B: *Hololepta amurensis* (Hololeptini) (after Ôhara, 1991a). C: *Omalodes* sp. (Omalodini). D: *Platysoma* (*Apobletes*) sp. (Platysomatini). E: *Platysoma* (*Plarlyster*) sp. (Platysomatini). F: *Platysoma* (*Cylister*) *lieicollis* (Platysomatini).

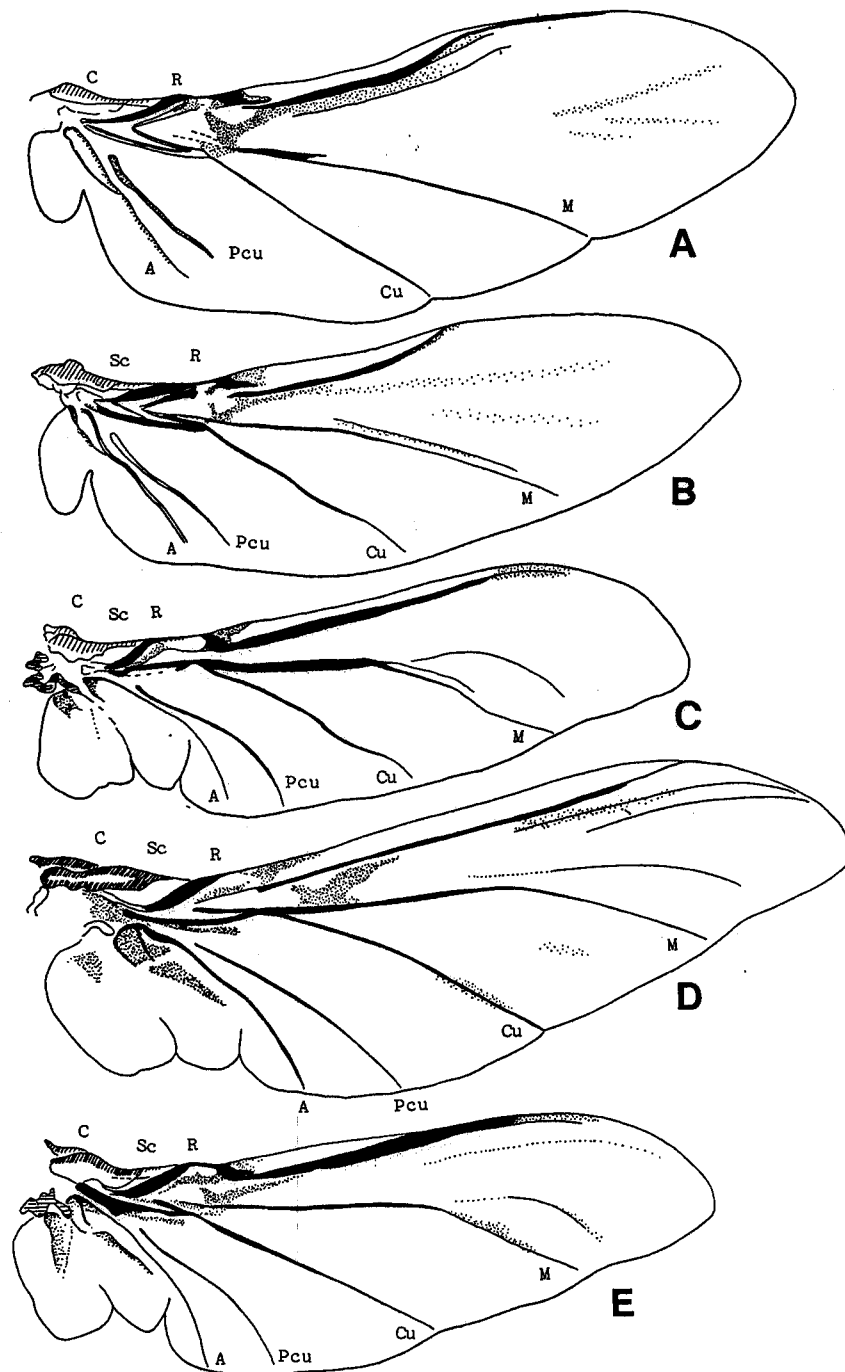


Fig. 26. Hind wings of the subfamily Histerinae. A: *Ebisia satzumae*. B: *Platysoma (Platysoma) vagans*. C: *Atholus duodecimstriatus quatordecimstriatus*. D: *Merohister jekeli*. E: *Hister concolor*. (A-B: Platysomatini; C-E: Histerini).

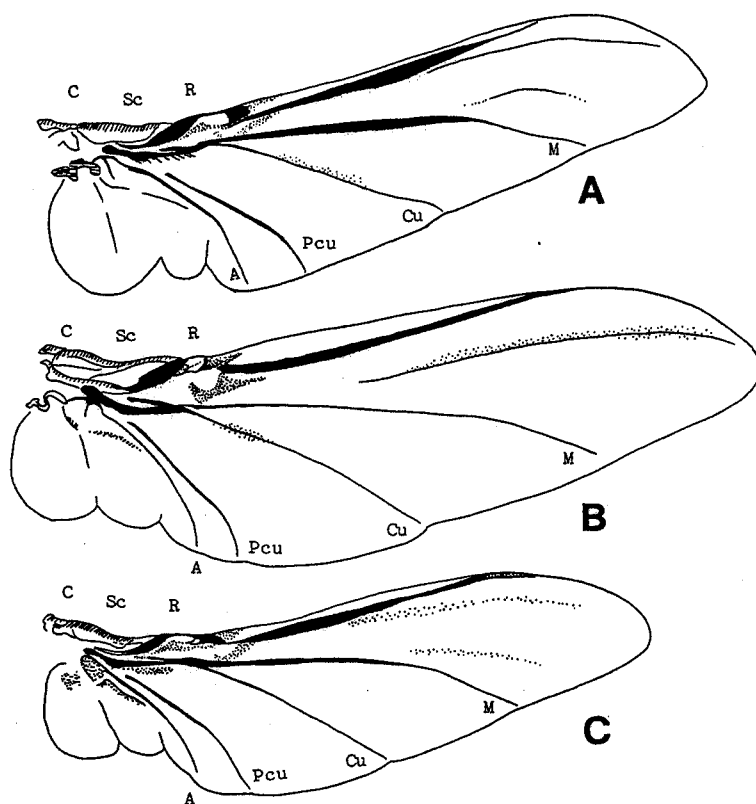


Fig. 27. Hind wings of the tribe Histerini of the subfamily Histerinae. A: *Pachylister chinensis*. B: *Margarinotus niponicus*. C: *Margarinotus agnatus*.

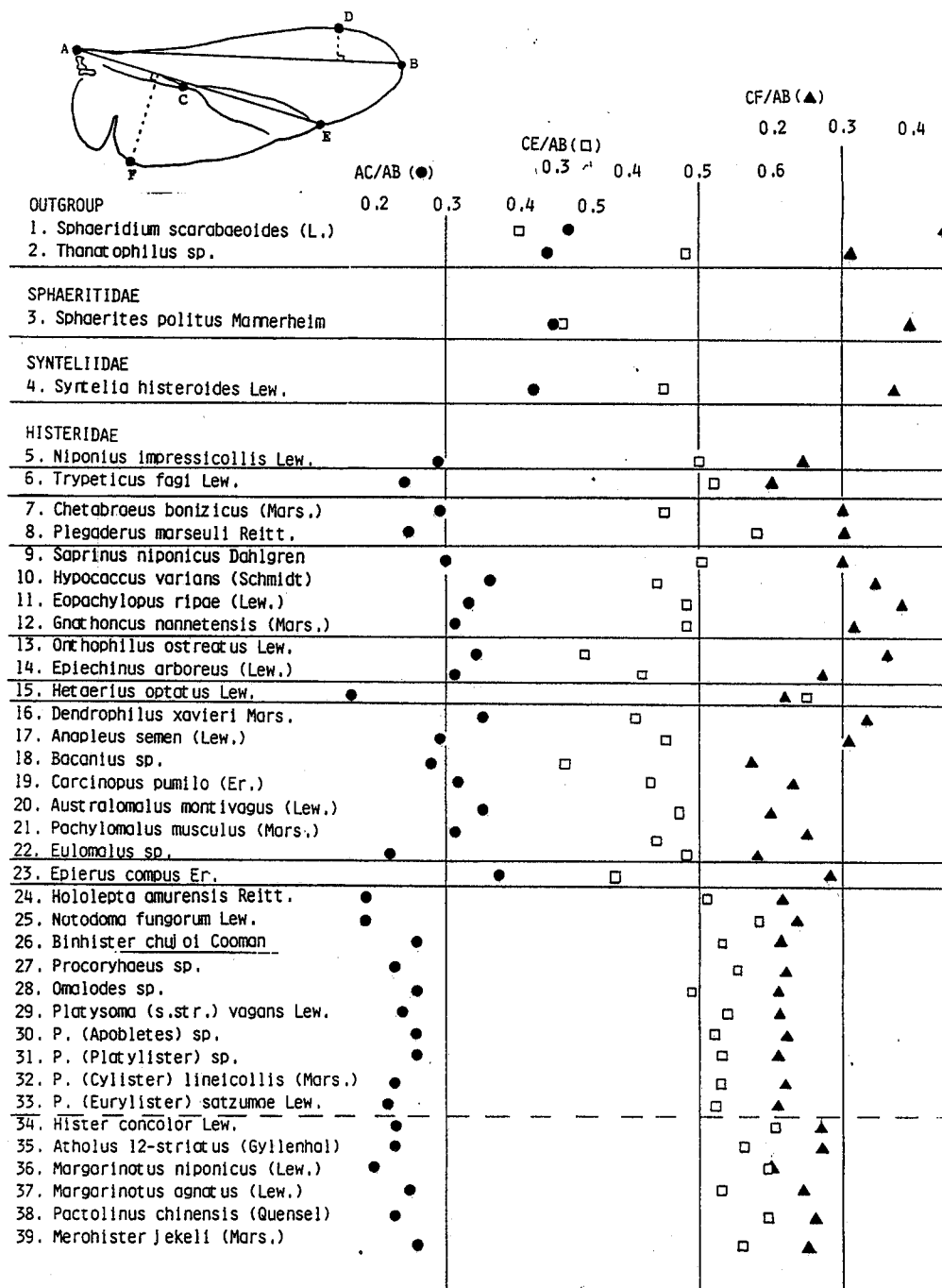


Fig. 28. Ratios in the hind wings.

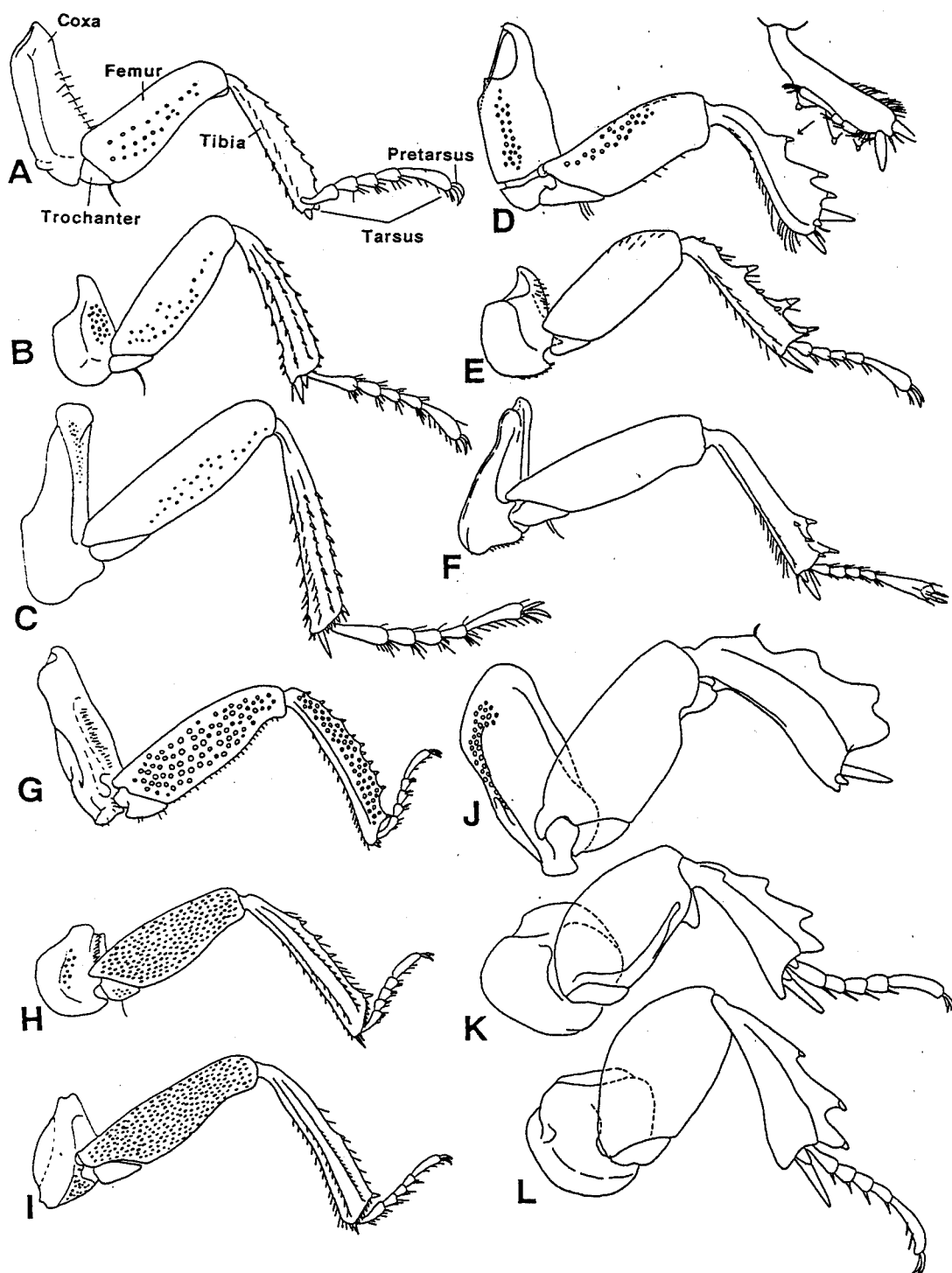


Fig. 29. Legs. A, B, C: *Sphaerites politus* (Sphaeritidae). D, E, F: *Syntelia histeroides* (Synteliidae). G, H, I: *Onthophilus ostreatus* (Onthophilinae; Histeridae). J, K, L: *Hololepta amurensis* (Hololeptini; Histerinae). A, D, G, J: Fore legs. B, E, H, K: Mid legs. C, F, I, L: Hind legs.

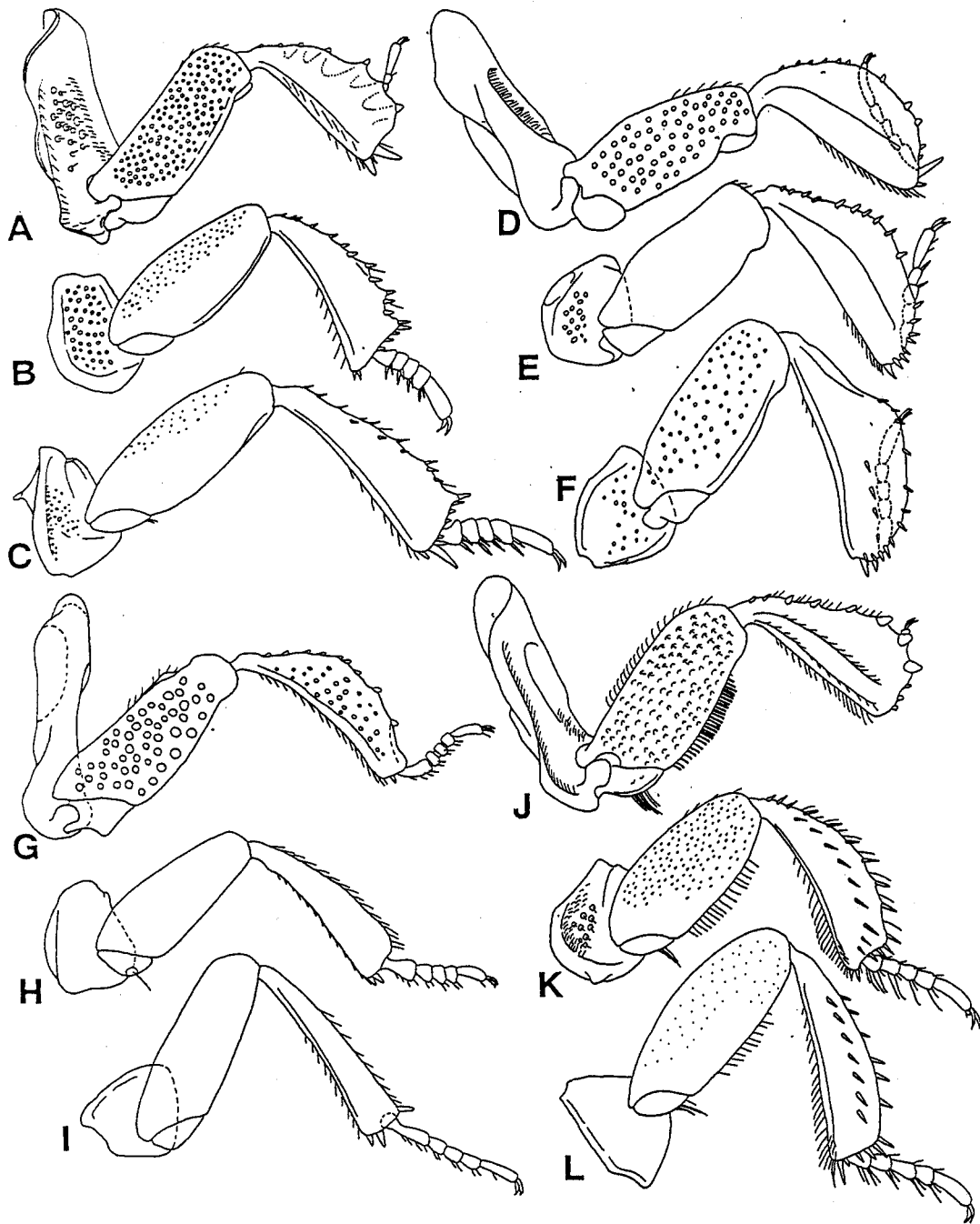


Fig. 30. Legs. A, B, C: *Margarinotus cadavericola* (Histerini; Histerinae; Histeridae). D, E, F: *Dendrophilus xavieri* (Dendrophilini; Dendrophilinae). G, H, I: *Chaetabraeus bonzicus* (Abraeini; Abraeinae). J, K, L: *Saprinus splendens* (Saprininae). A, D, G, J: Fore legs. B, E, H, K: Mid legs. C, F, I, L: Hind legs.

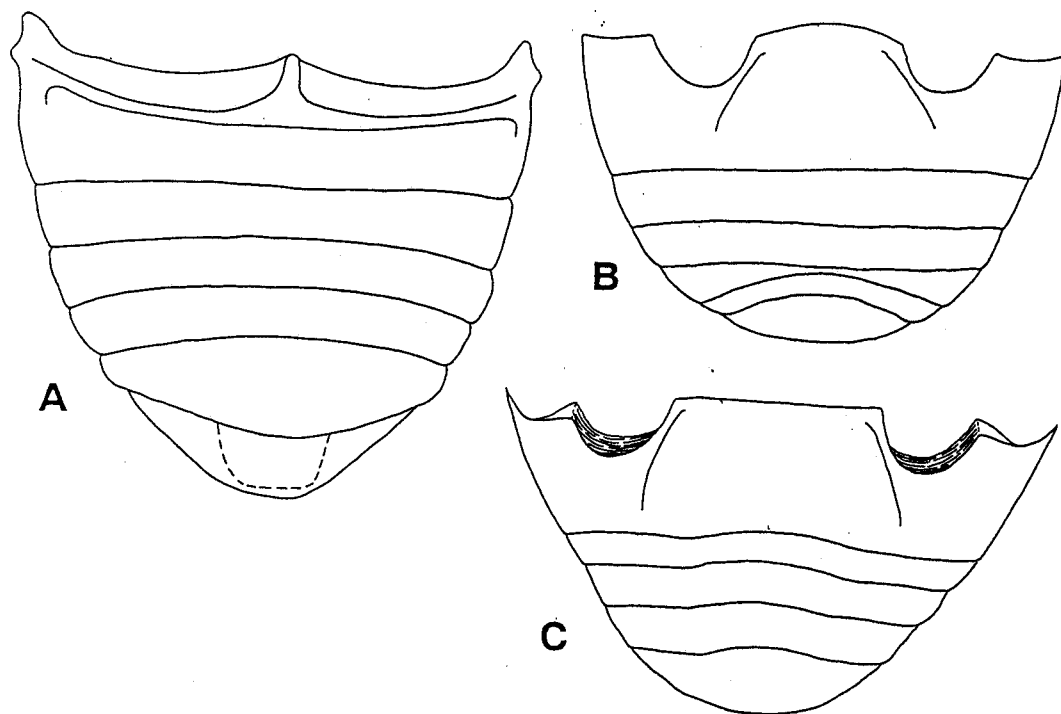


Fig. 31. Abdomen. A: *Sphaerites politus* (Sphaeritidae). B: *Saprinus splendens* (Saprininae). C: *Plaesus* sp. (Platysomatini; Histerinae).

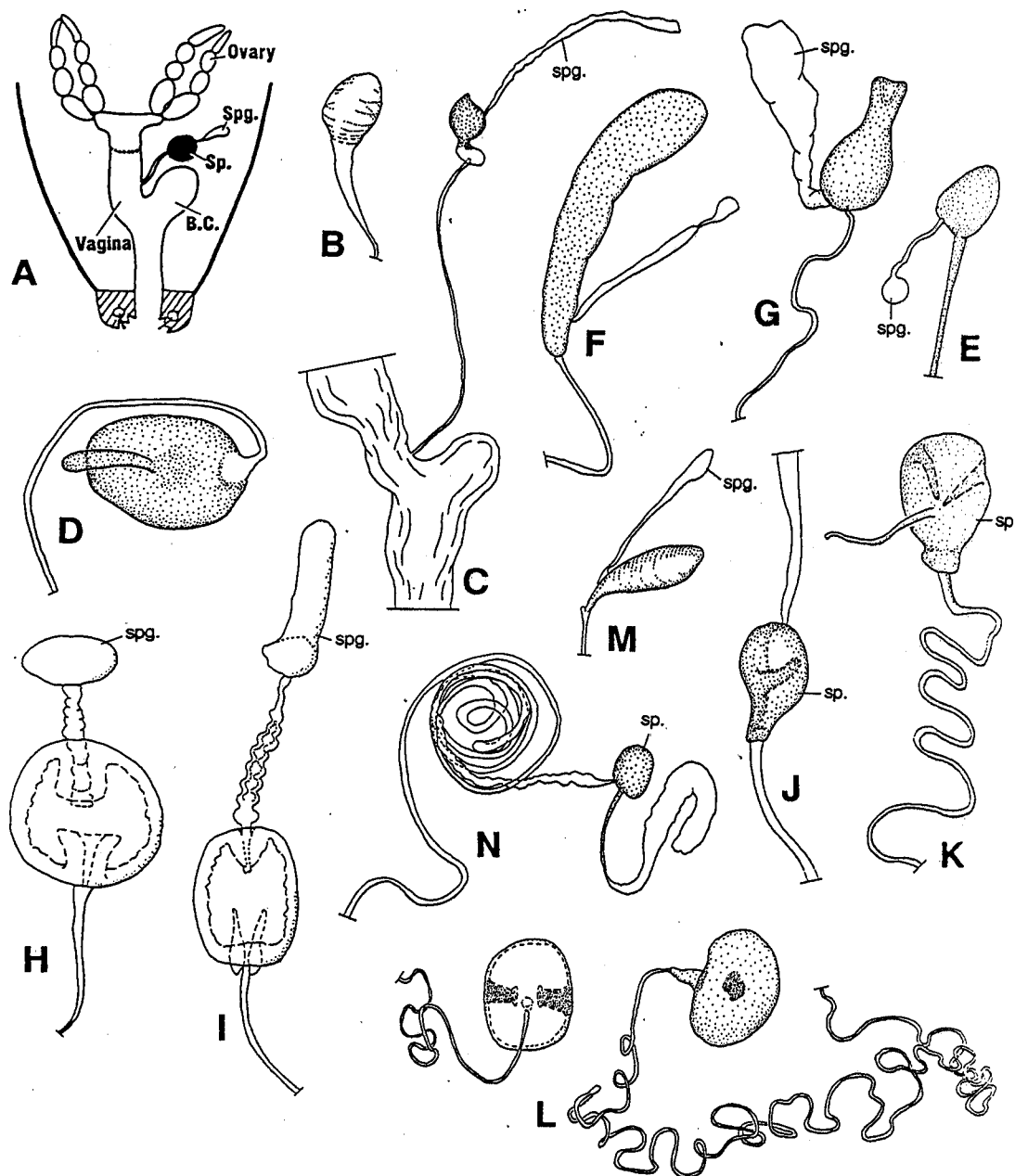


Fig. 32. Spermatheca and spermathecal glands of the female genitalia. A: schematic. B: *Sphaeritus politus* (Sphaeritidae). C: *Syntelia histeroides* (Synteliidae). D: *Niponius impressicollis* (Niponiinae; Histeridae). E: *Trypeticus fagi* (Trypeticinae). F: *Chaetabraeus bonzicus* (Abraeinae). G: *Plegaderus marseuli* (Plegaderini; Abraeinae). H: *Hypocaccus varians varians* (Saprininae). I: *Gnathoncus nannetensis* (Saprininae). J: *Carcinops pumilio* (Paromalini; Dendrophilinae). K: *Platylomalus niponensis* (Platysomatini; Dendrophilinae). L: *Eulomalus* sp. (Paromalini; Dendrophilinae). M: *Onthophilus ostreatus* (Onthophilinae). N: *Epierus* sp. sp: spermatheca; spg: spermathecal gland; bc: bursa copulatrix.

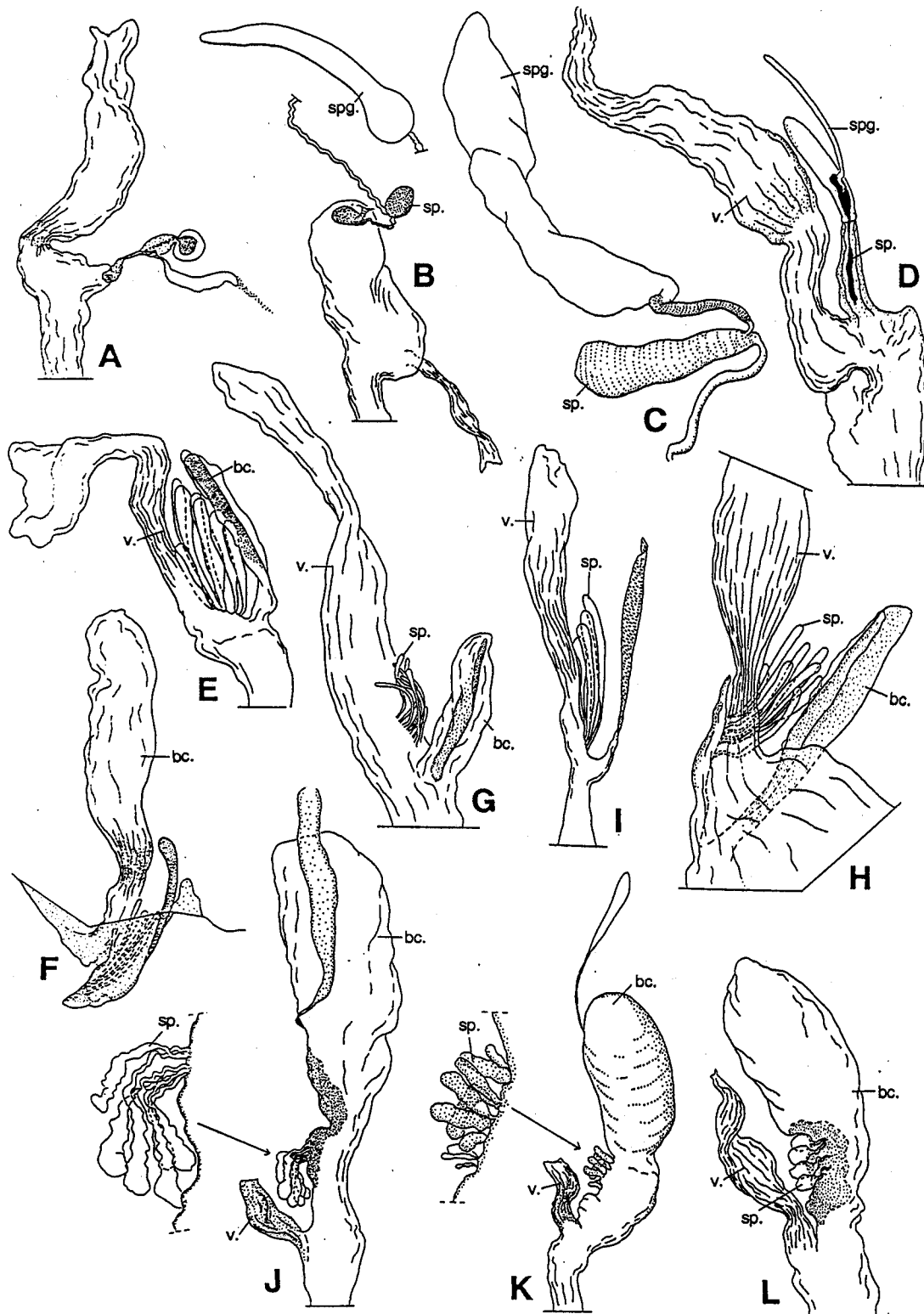


Fig. 33. Spermatheca and spermathecal glands of the female genitalia of the subfamily Histerinae. A: *Hololepta amurensis* (Hololeptini) (after Ôhara, 1991a). B: *Platysoma* sp. (Platysomatini). C: *Omalodes* sp. (Omalodini). D: *Notodoma fungorum* (Exosternini). E: *Merohister aino*. F: *Hister japonicus*. G: *Hister concolor*. H: *Hister congener*. I: *Atholus pirithous*. J: *Margarinotus* sp. K: *Margarinotus* sp. L: *Margarinotus* sp. (E-L: Histerini).

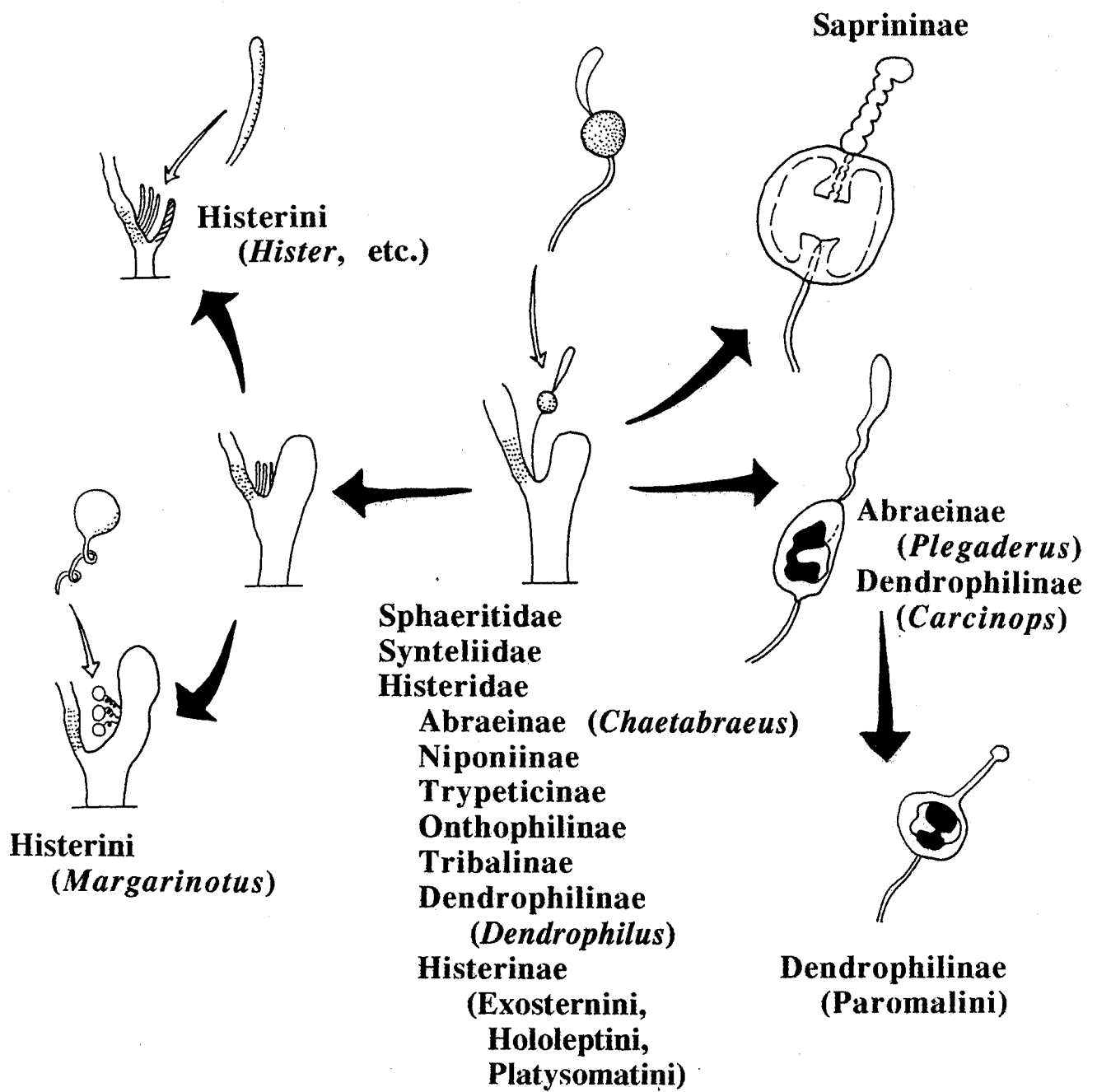


Fig. 34. Spermatheca and spermathecal gland: transformation series.

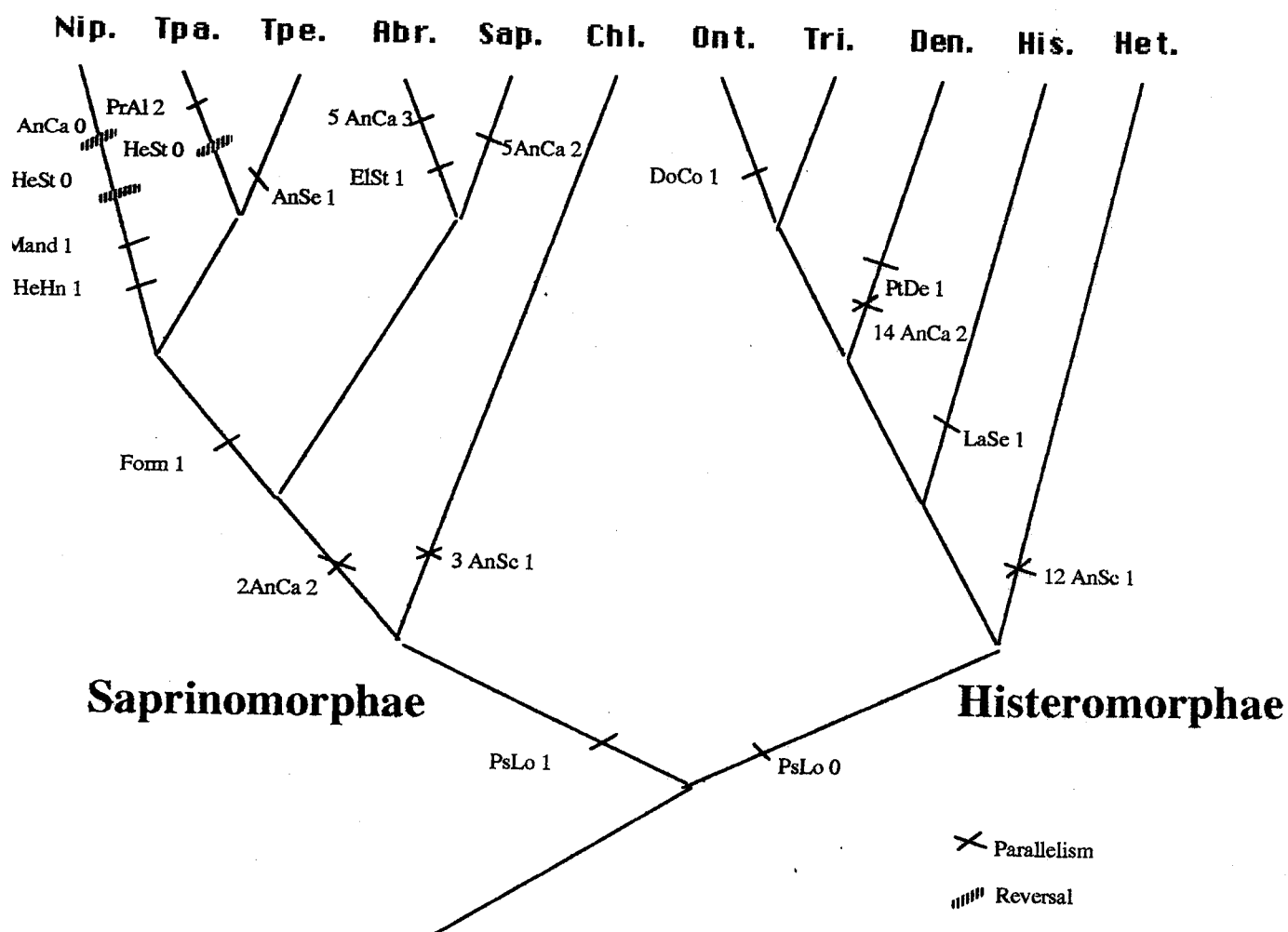


Fig. 35. Wenzel-Mazur System in a cladogram.

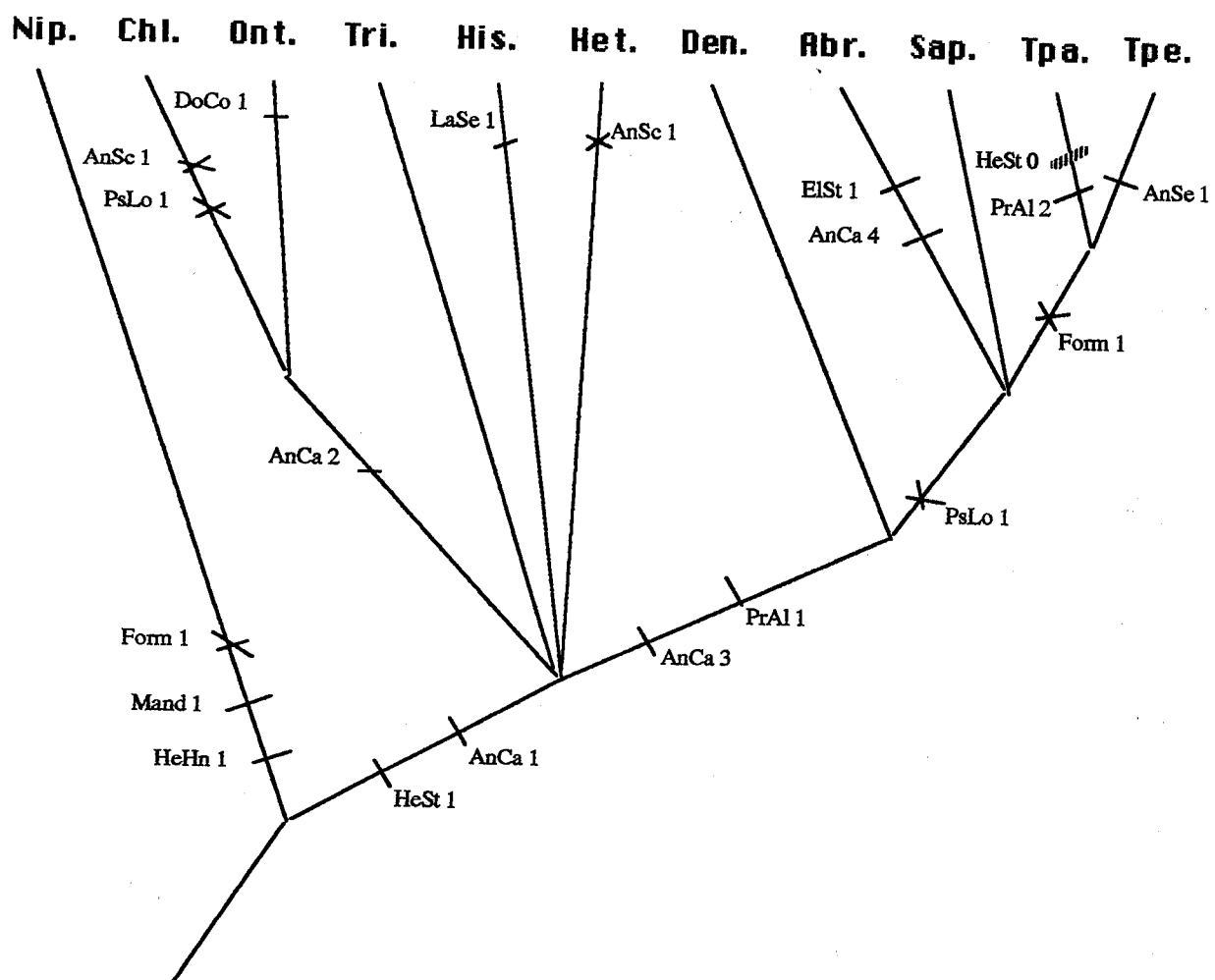


Fig. 36. Another cladogram proposed in the present paper.

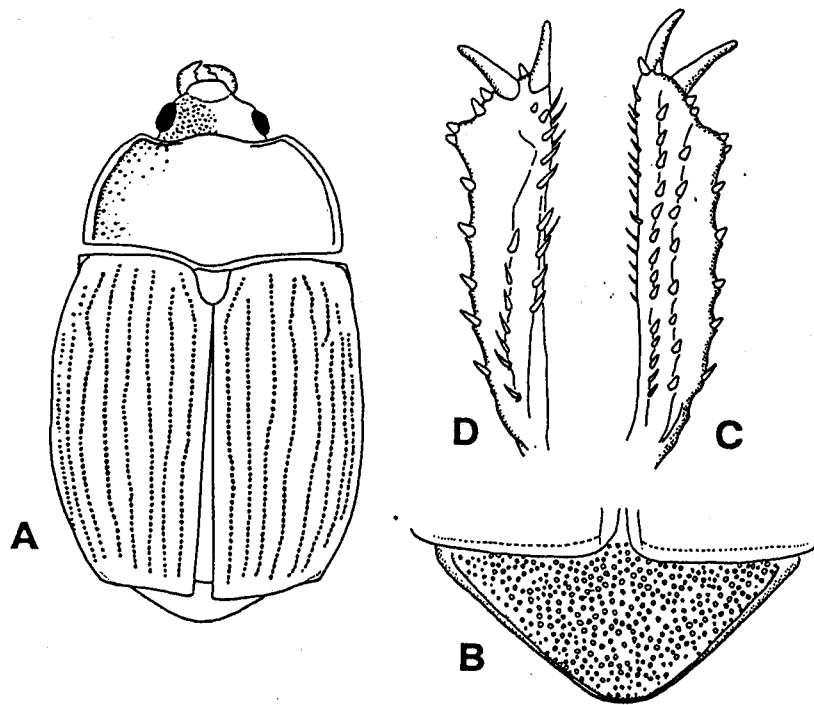


Fig. 37. *Sphaerites politus* Mannerhim. A: Adult, dorsal view. B: Pygidium, dorsal view. C: Right protibia, dorsal view. D: Ditto, ventral view.

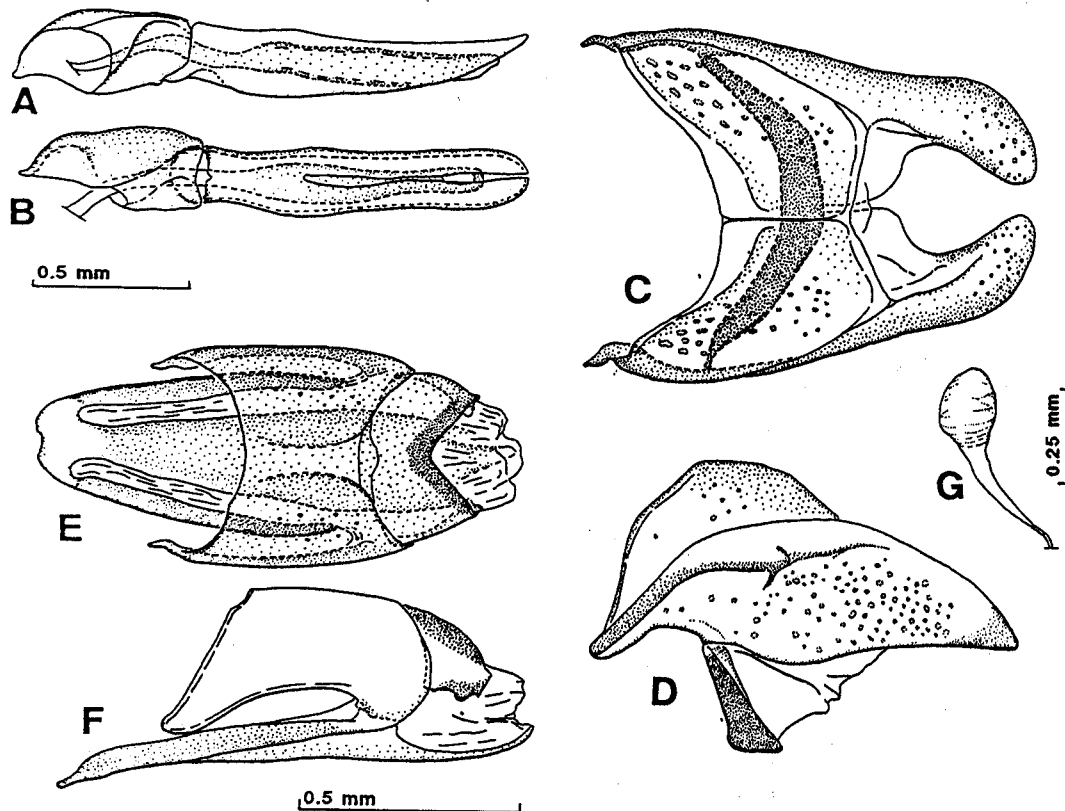


Fig. 38. *Sphaerites politus* Mannerheim. A: Aedeagus, lateral view. B: Ditto, dorsal view. C: Male genitalia, 8th tergite and sternum, dorsal view. D: Ditto, lateral view. E: Male genitalia, 9th and 10th tergites and 9th sternum (spicules), dorsal view. F: Ditto, lateral view. G: Spermatheca.

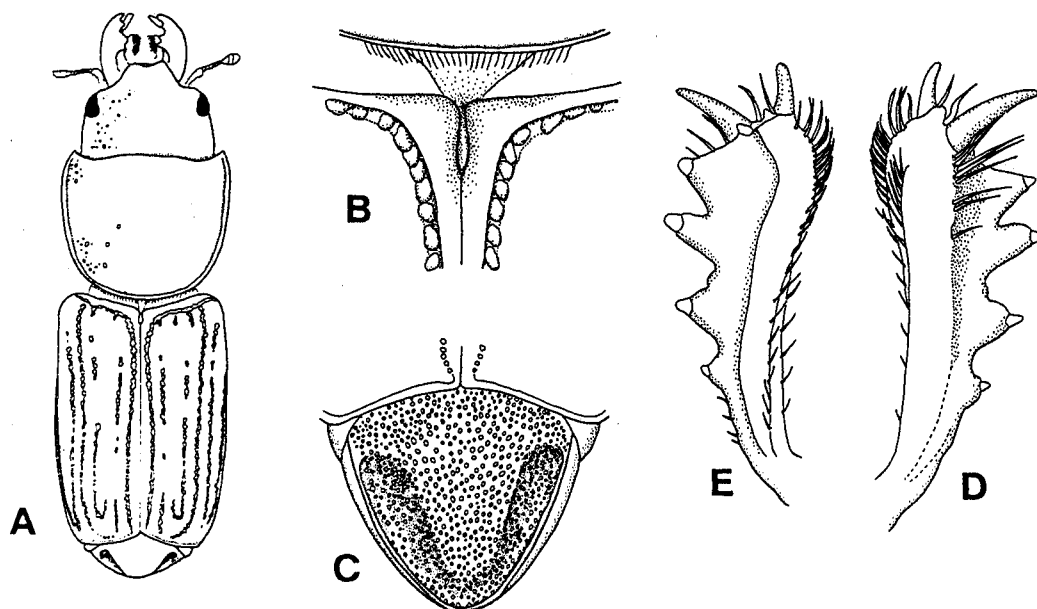


Fig. 39. *Syntelia histeroides* Lewis. A: Adult, dorsal view. B: Scutellum, dorsal view. C: Pygidium, dorsal view. D: Right protibia, dorsal view. E: Ditto, ventral view.

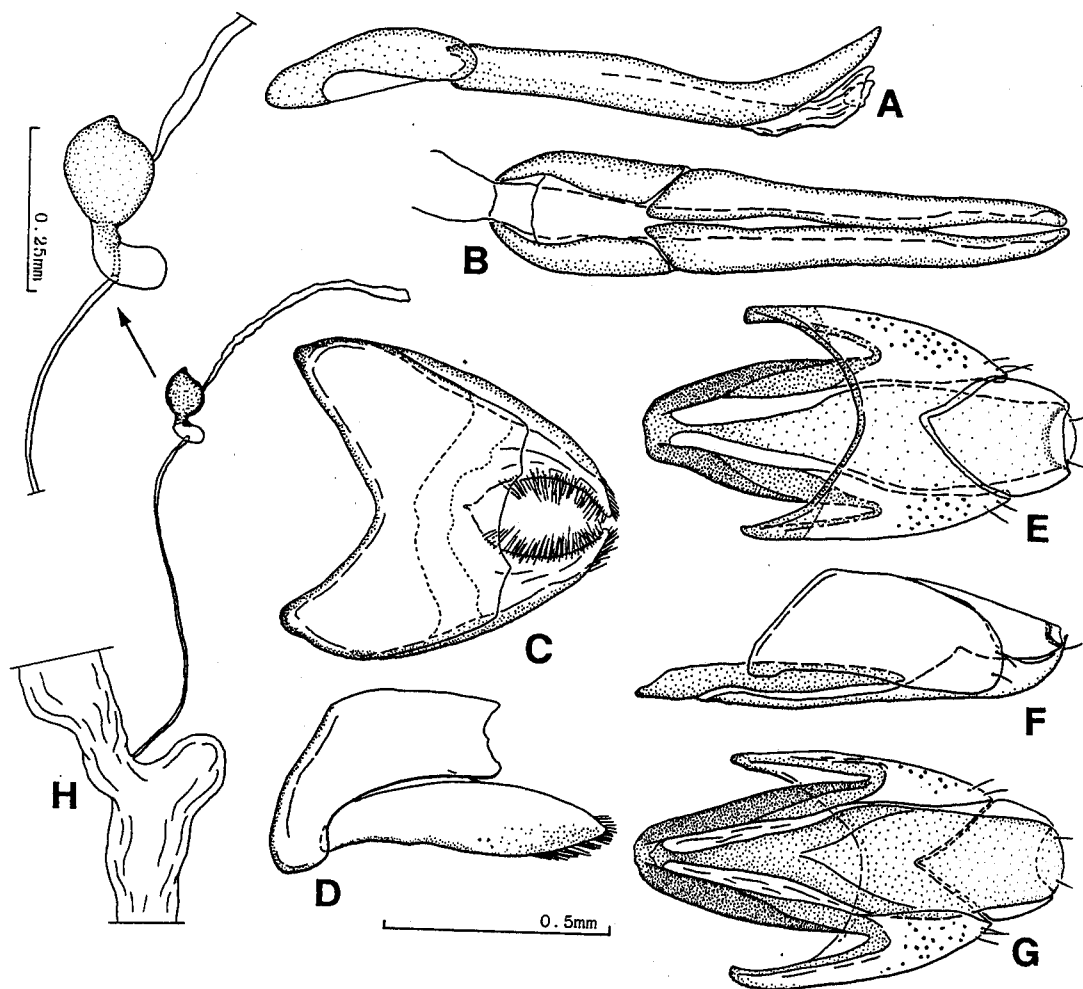


Fig. 40. *Syntelia histeroides* Lewis. A: Aedeagus, lateral view. B: Ditto, dorsal view. C: Male genitalia, 8th tergite and sternum, dorsal view. D: Ditto, lateral view. E: Male genitalia, 9th and 10th tergites and 9th sternum (spicules), dorsal view. F: Ditto, lateral view. G: Spermatheca.

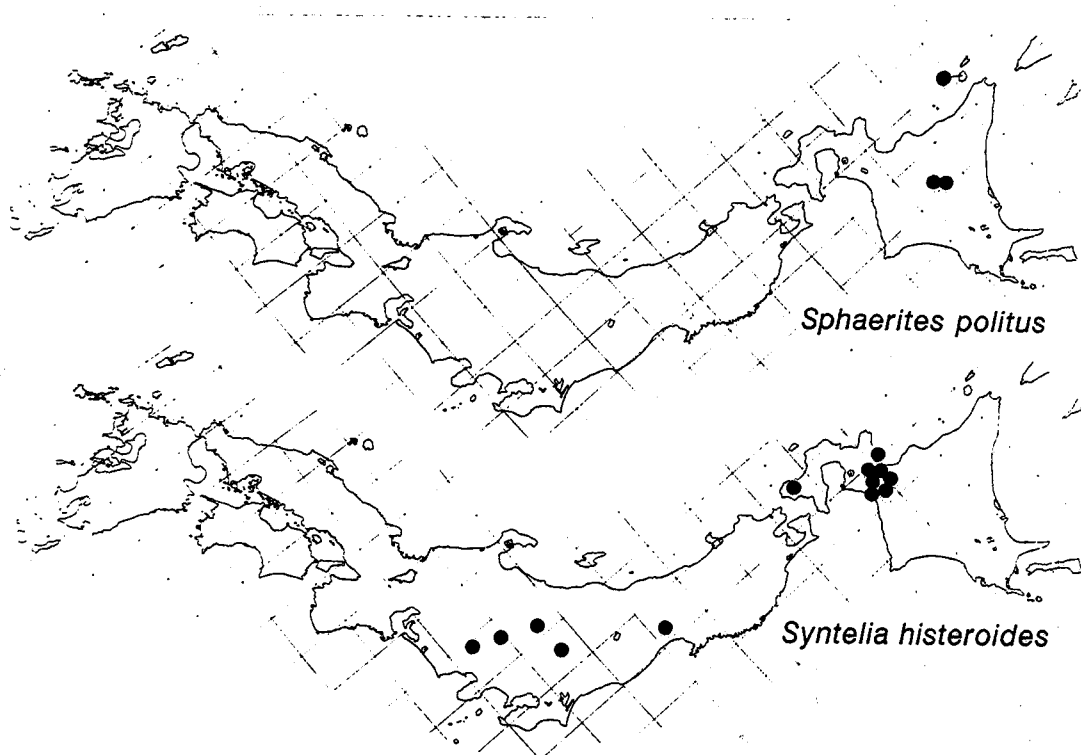


Fig. 41. Collection sites of *Sphaerites politus* and *Syntelia histeroides* in Japan.

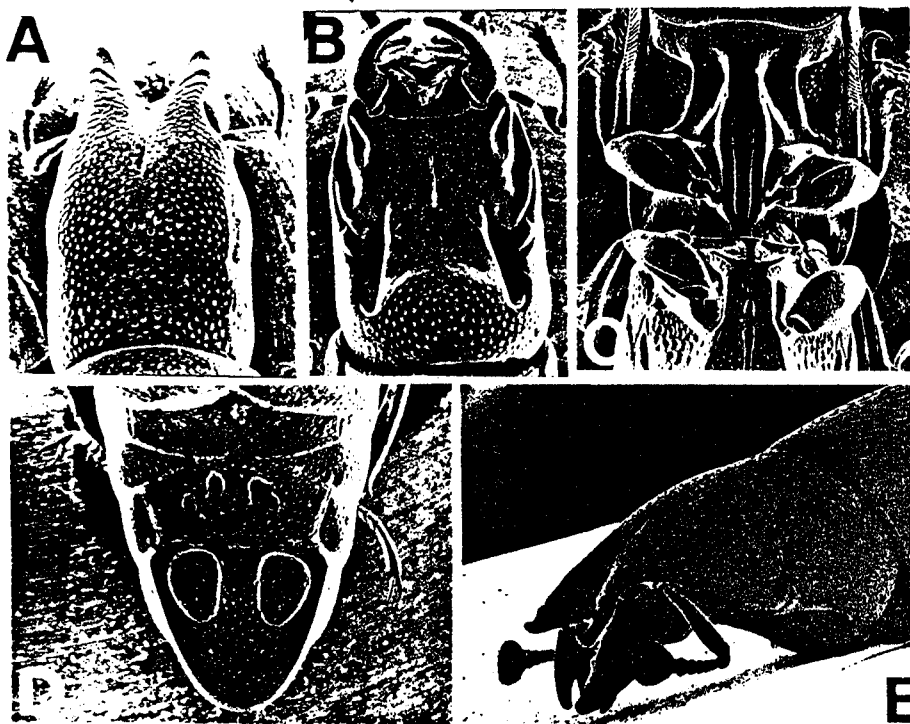


Fig. 42. *Niponius furcatus* Lewis. A: Head, dorsal view. B: Ditto, ventral view. C: Pro-, meso- and metasternum, ventral view. D: Propygidium and pygidium, dorsal view. E: Head, lateral view.

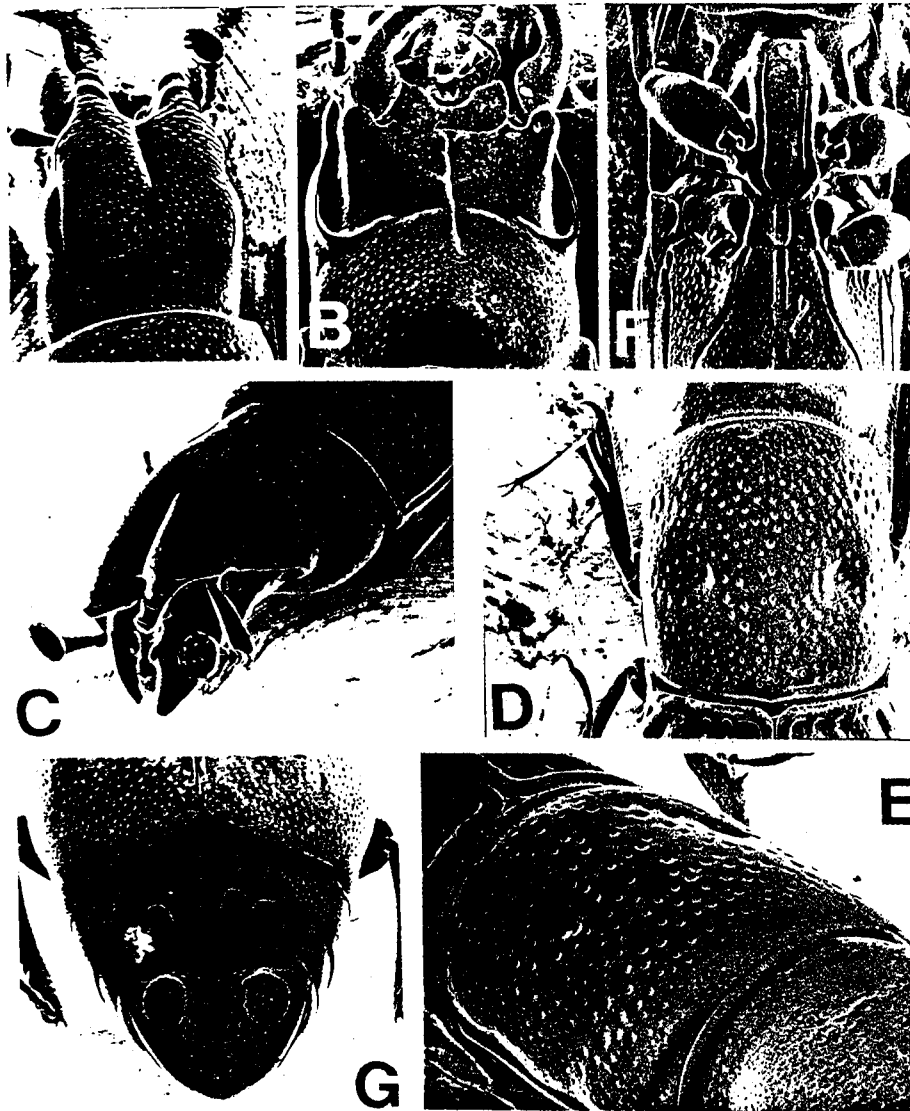


Fig. 43. *Niponius impressicollis* Lewis. A: Head, dorsal view. B: Ditto, ventral view. C: Ditto, frontal view. D: Ditto, lateral view. E: Pronotum, dorsal view. F: Ditto, dorso-oblique view. G: Pro-, meso- and metasternum, ventral view. H: Propygidium and pygidium, dorsal view.

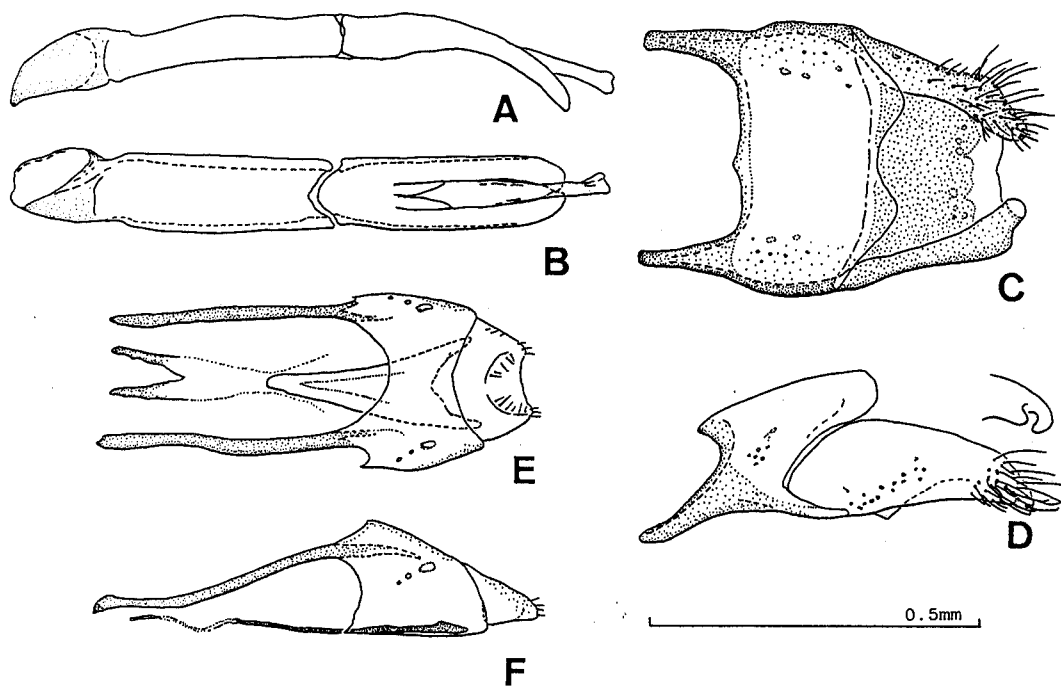


Fig. 44. *Niponius impressicollis* Lewis A: Aedeagus, lateral view. B: Ditto, dorsal view. C: Male genitalia, 8th tergite and sternum, dorsal view. D: Ditto, lateral view. E: Male genitalia, 9th and 10th tergites and 9th sternum (spicules), dorsal view. F: Ditto, lateral view.

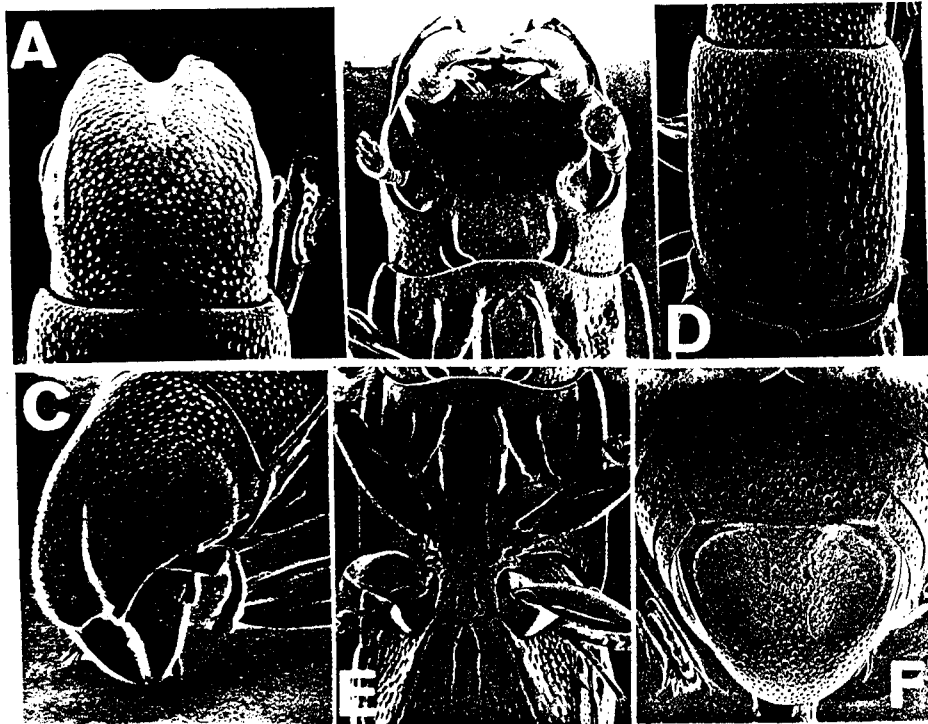


Fig. 45. *Niponius obtusiceps* Lewis. A: Head, dorsal view. B: Ditto, ventral view. C: Ditto, lateral view. D: Pronotum, dorsal view. E: Pro-, meso- and metasternum, ventral view. F: Propygidium and pygidium, dorsal view.

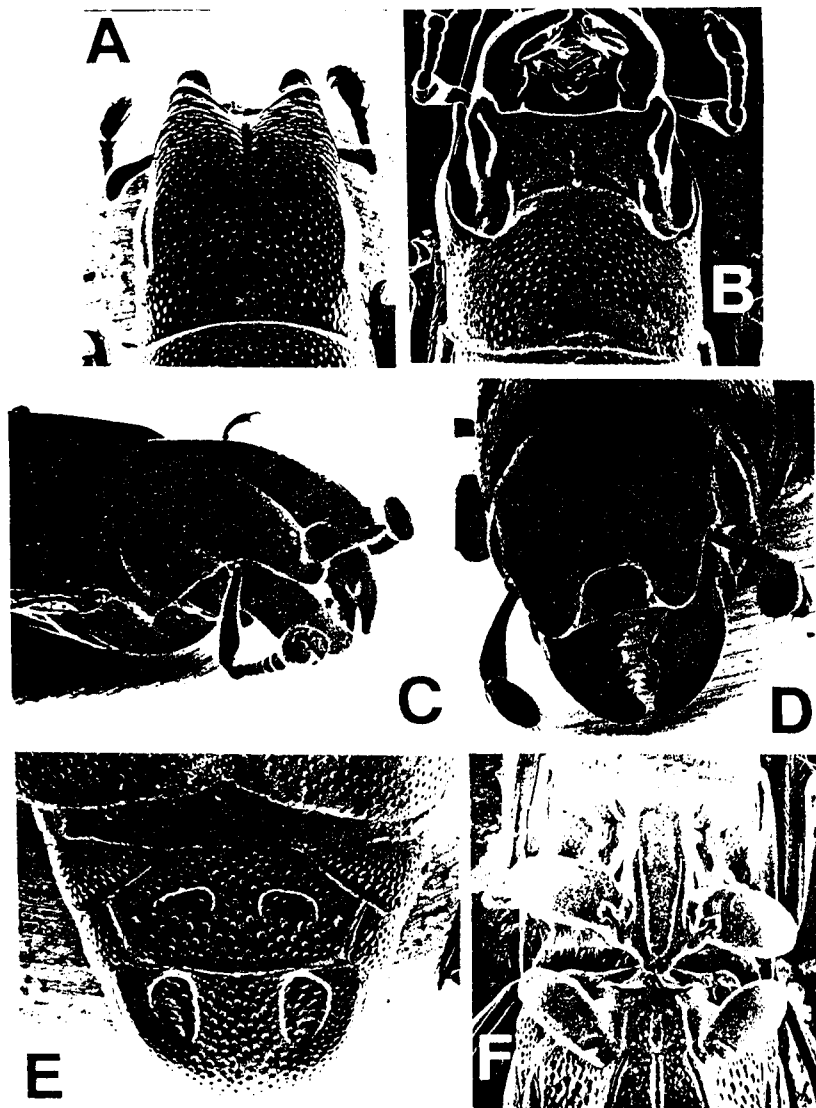


Fig. 46. *Niponius osoriocephus* Lewis. A: Head, dorsal view. B: Ditto, ventral view. C: Ditto, lateral view. D: Ditto, frontal view. E: Propygidium and pygidium, dorsal view. F: Pronotum, dorsal view.

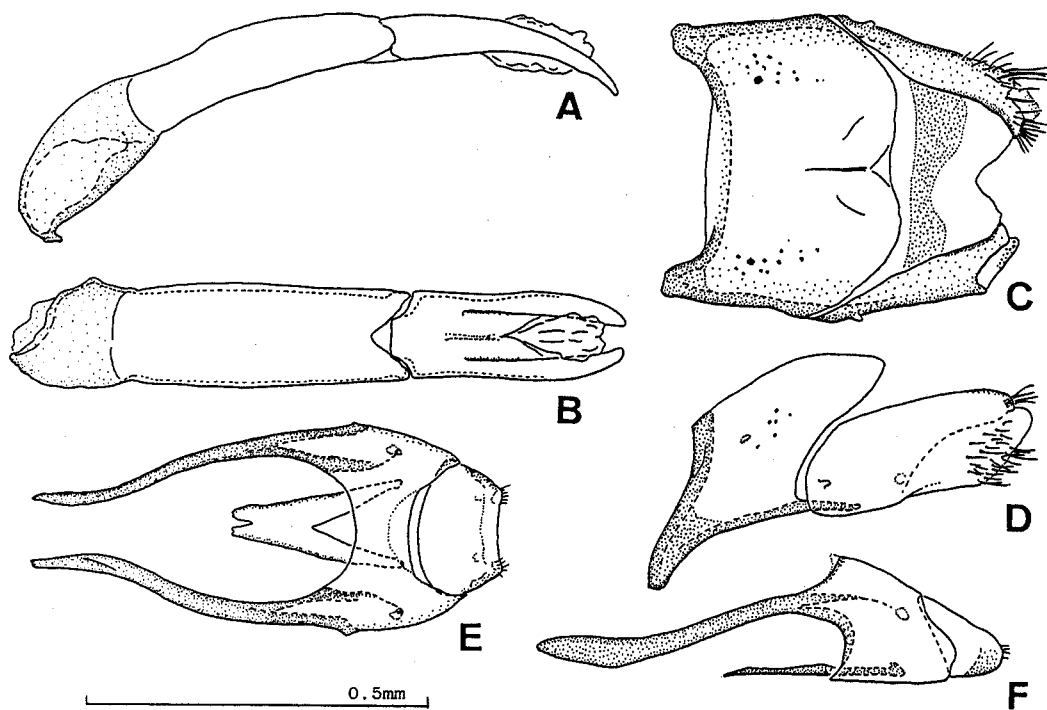


Fig. 47. *Niponius osorioceps* Lewis A: Aedeagus, lateral view. B: Ditto, dorsal view. C: Male genitalia, 8th tergite and sternum, dorsal view. D: Ditto, lateral view. E: Male genitalia, 9th and 10th tergites and 9th sternum (spicules), dorsal view. F: Ditto, lateral view.

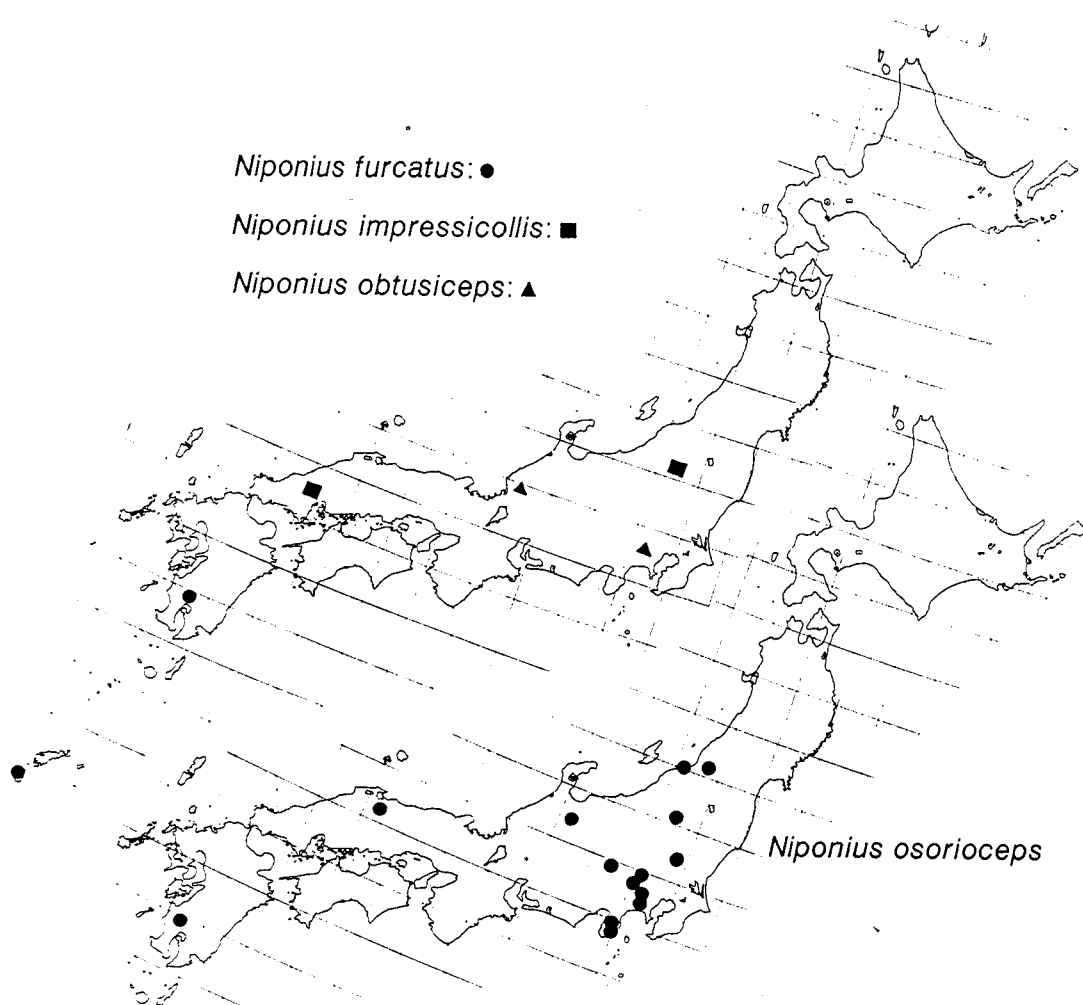


Fig. 48. Collection site of *Niponius* spp. in Japan.

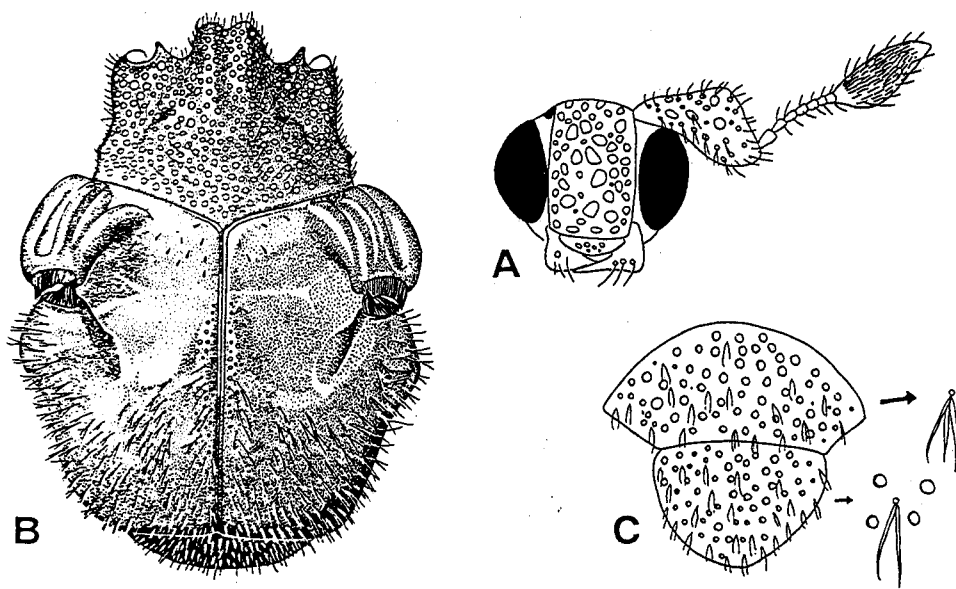


Fig. 49. *Eucuritopsis japonicus* M. Ôhara et Nakane, sp. nov. A: Head, frontal view. B: Pronotum and elytra, dorsal view. C: Propygidium and pygidium.

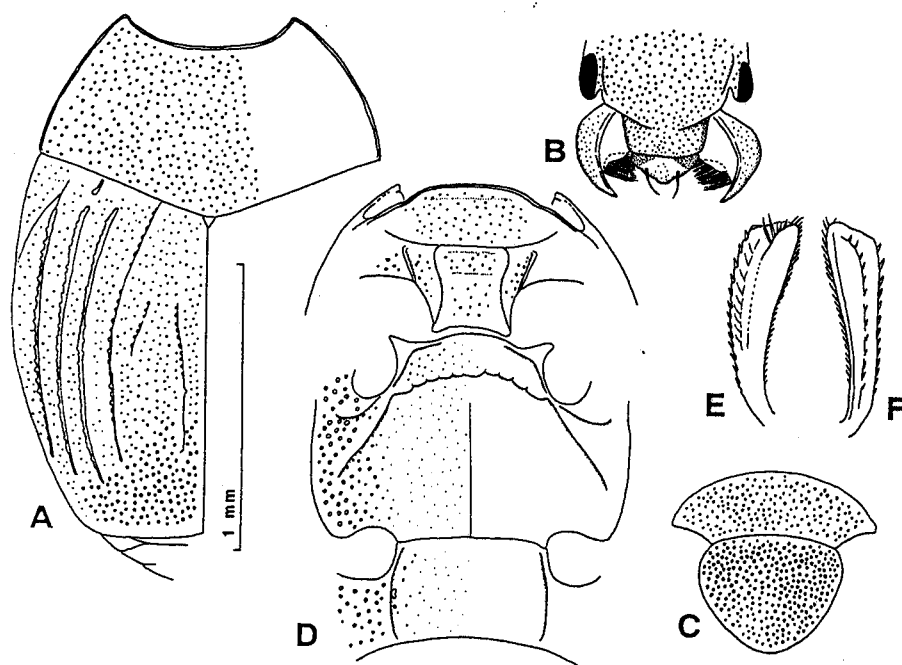


Fig. 50. *Epierus uenoi* M. Ôhara, sp. nov. A: Pronotum and left elytron. B: Head, frontal view. C: Propygidium and pygidium. D: Prosternum, mesosternum, metasternum and 1st abdominal sternum. E: Protibia, dorsal view. F: Ditto, ventral view.

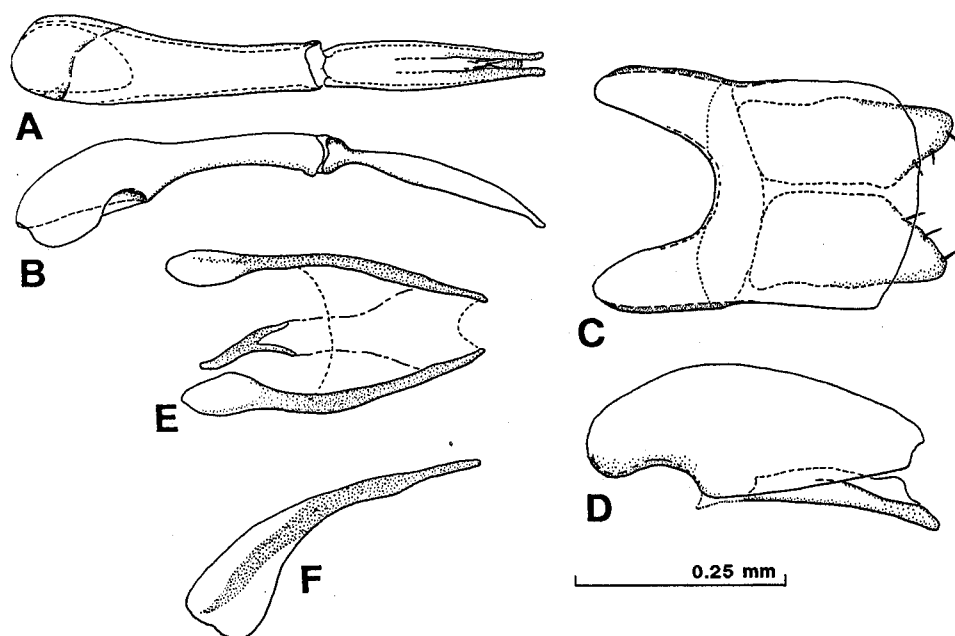


Fig. 51. *Epierus uenoi* M. Ôhara, sp. nov. A: Aedeagus, dorsal view. B: Ditto, lateral view. C: Male genitalia, 8th tergite and sternum, dorsal view. D: Ditto, lateral view. E: Male genitalia, 9th and 10th tergites and 9th sternum (spicules), dorsal view. F: Ditto, lateral view.

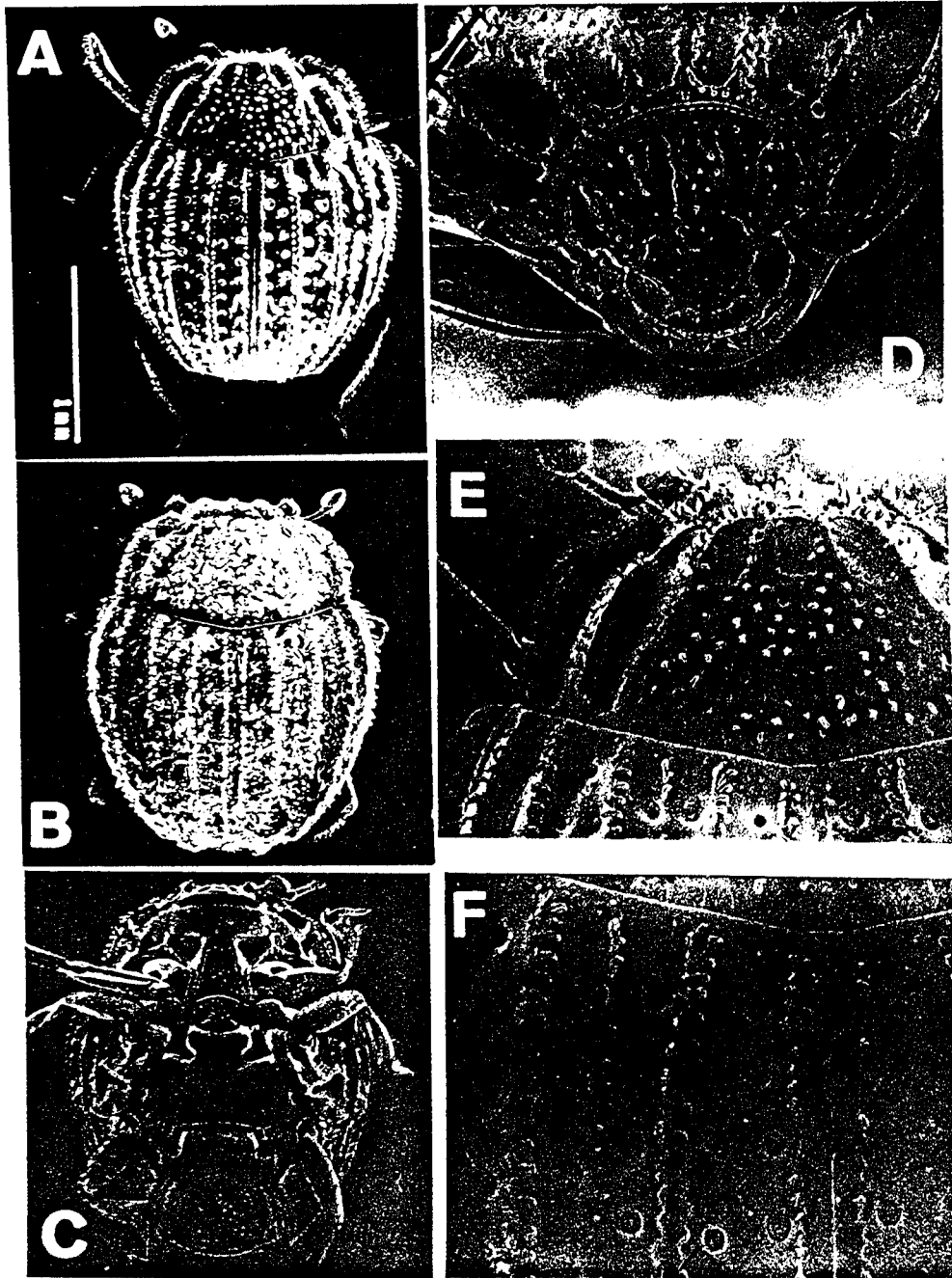


Fig. 52. *Epiechinus arboreus* (Lewis). A: Adult, dorsal view. B: Ditto, covered with mud-like scales, dorsal view. C: Ditto, ventral view. D: Head, frontal view. E: Pronotum, dorsal view. F: Left elytron, dorsal view.

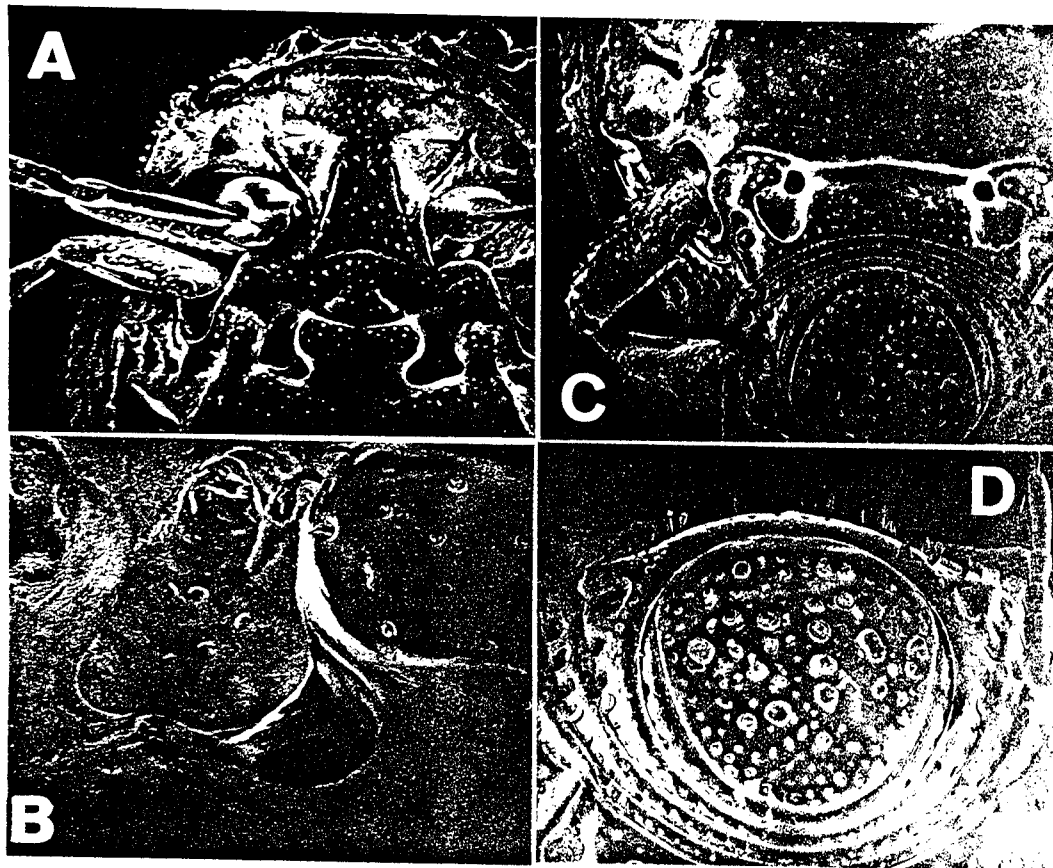


Fig. 53. *Epiechinus arboreus* (Lewis). A: Prosternum and mesosternum, ventral view. B: Fovea of mesosternum. C: Intercostal disk of 1st abdominal sternum, ventral view. D: Pygidium, caudal view.

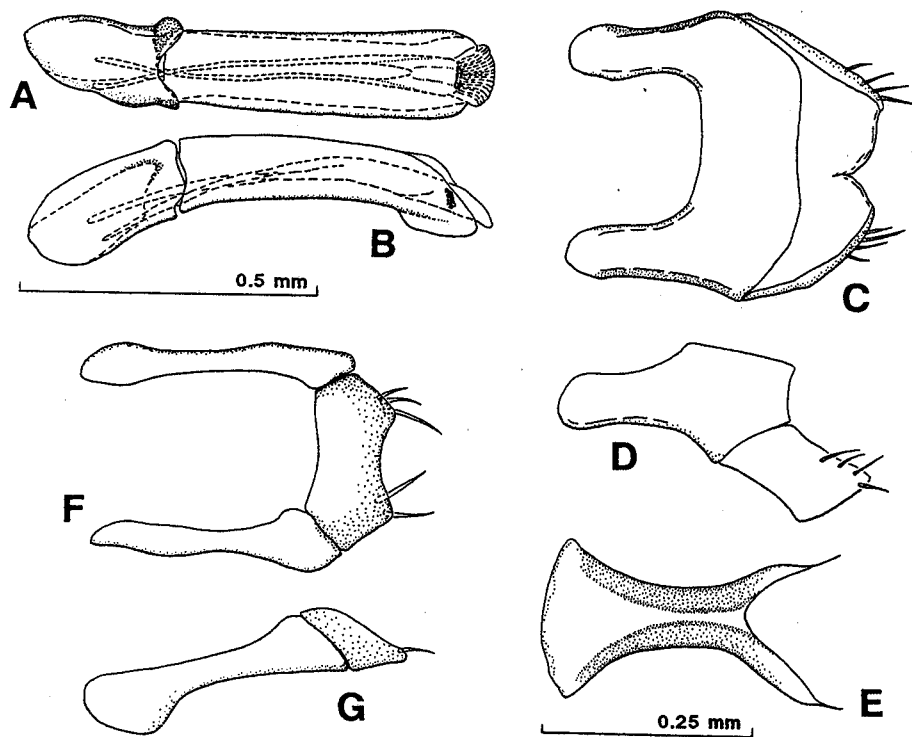


Fig. 54. *Epiechinus arboreus* (Lewis). A: Aedeagus, dorsal view. B: Ditto, lateral view. C: Male genitalia, 8th tergite and sternum, dorsal view. D: Ditto, lateral view. E: Male genitalia, 9th sternum (spicules), dorsal view. F: Male genitalia, 9th and 10th tergite, dorsal view. F: Ditto, lateral view.

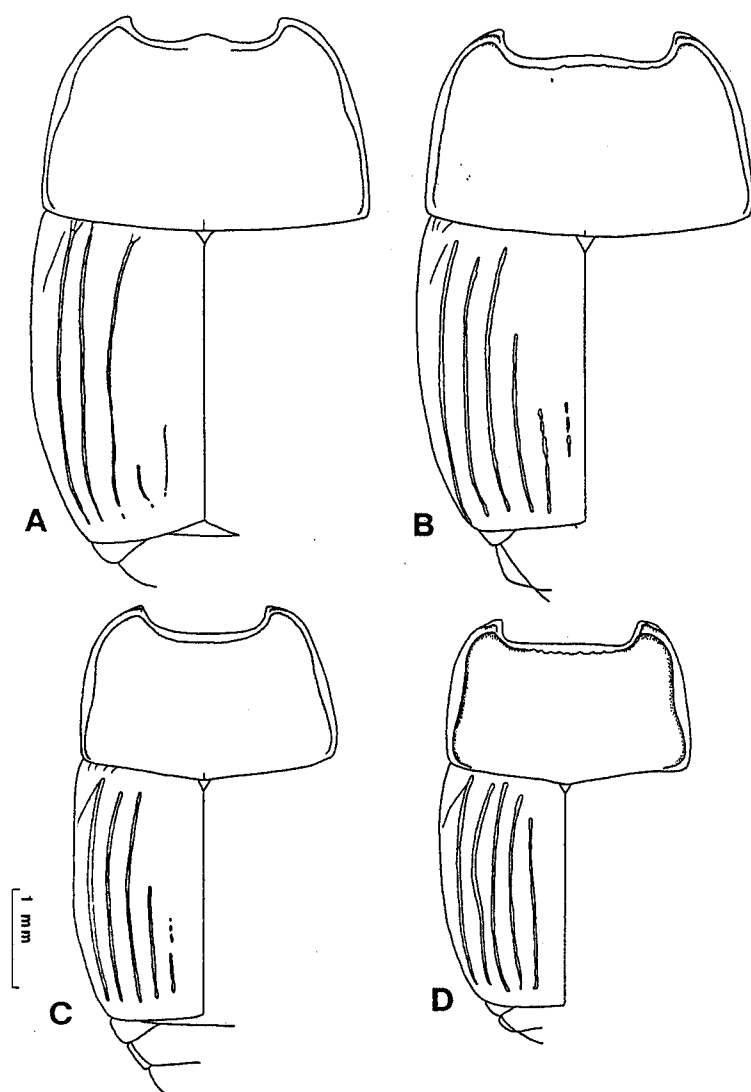


Fig. 55. *Platysoma* (*Platylister*) spp. Pronotum and left elytron. A: *P. (P.) atratum* Erichson. B: *P. (P.) combojense* Marseul. C: *P. (P.) horni* Bickhardt. D: *P. (P.) pini* Lewis.

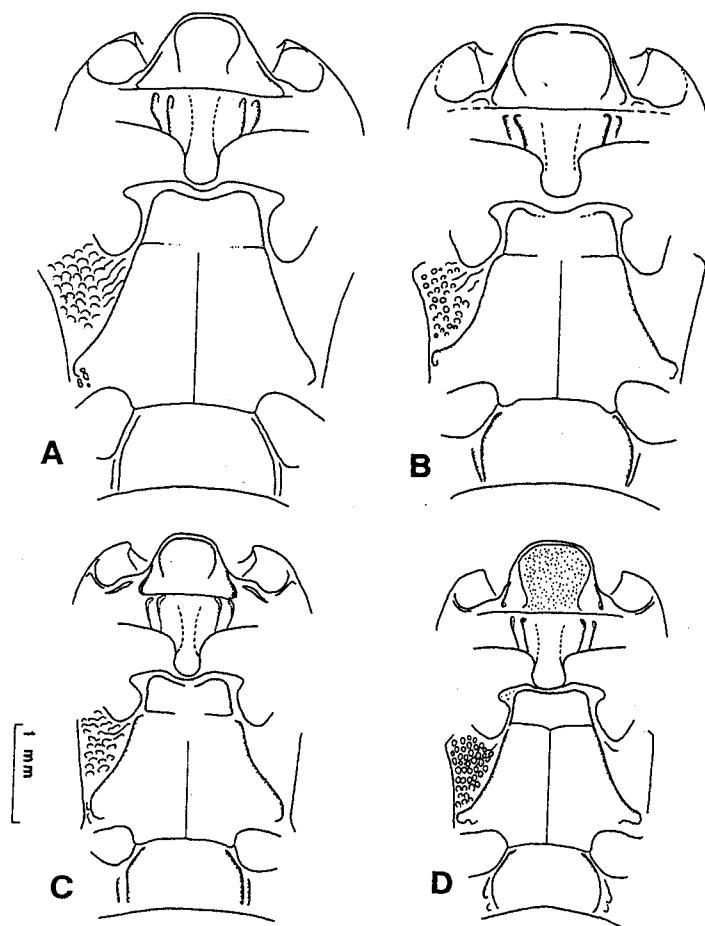


Fig. 56. *Platysoma* (*Platylistera*) spp. Prosternum, mesosternum, metasternum and 1st abdominal sternum. A: *P. (P.) atratum* Erichson. B: *P. (P.) combojense* Marseul. C: *P. (P.) horni* Bickhardt. D: *P. (P.) pini* Lewis.

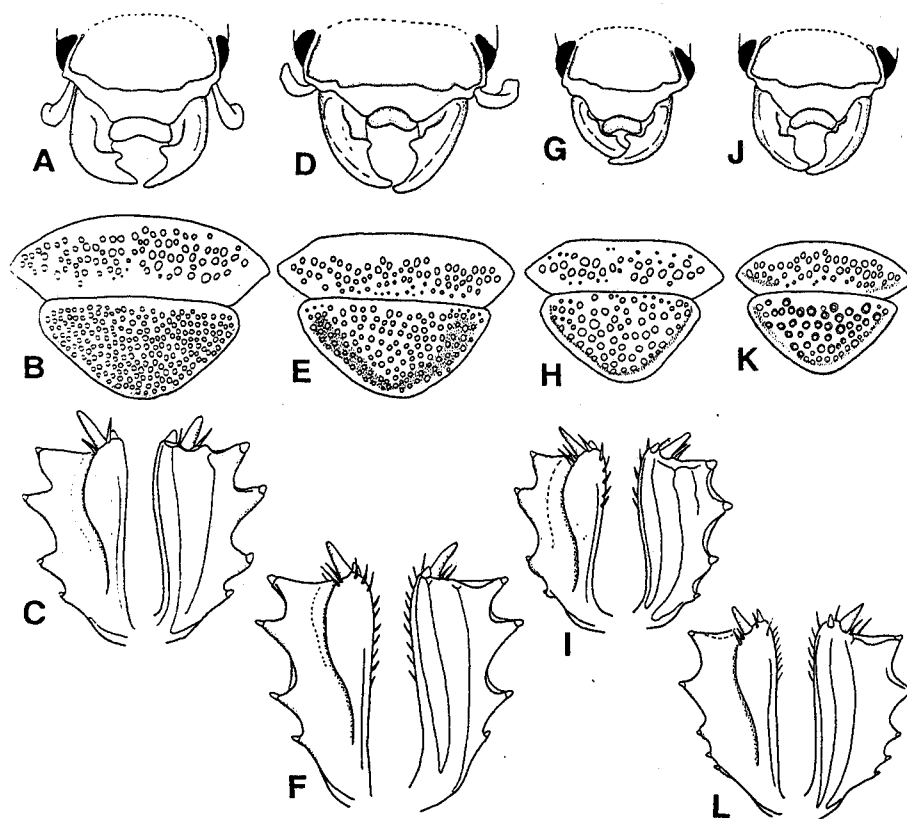


Fig. 57. *Platysoma* (*Platylister*) spp. A, D, G, J: Head, frontal view. B, E, H, K: Propygidium and pygidium. C, F, I, L: Protibiae, dorsal view (left) and ventral view (right). A-C: *P. (P.) atratum* Erichson. D-F: *P. (P.) cambojense* Marseul. G-I: *P. (P.) horni* Bickhardt. J-L: *P. (P.) pini* Lewis.

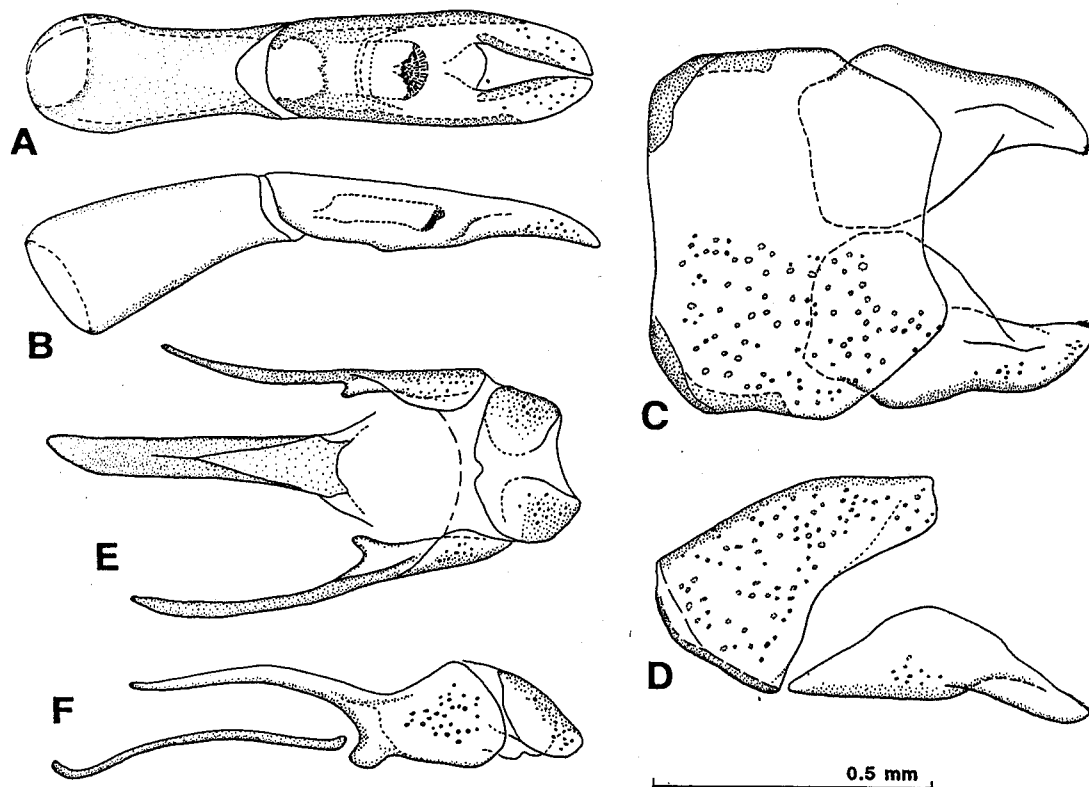


Fig. 58. *Platysoma (Platylistar) atratum* Erichson. A: Aedeagus, dorsal view. B: Ditto, lateral view. C: Male genitalia, 8th tergite and sternum, dorsal view. D: Ditto, lateral view. E: Male genitalia, 9th and 10th tergites and 9th sternum (spicules), dorsal view. F: Ditto, lateral view.

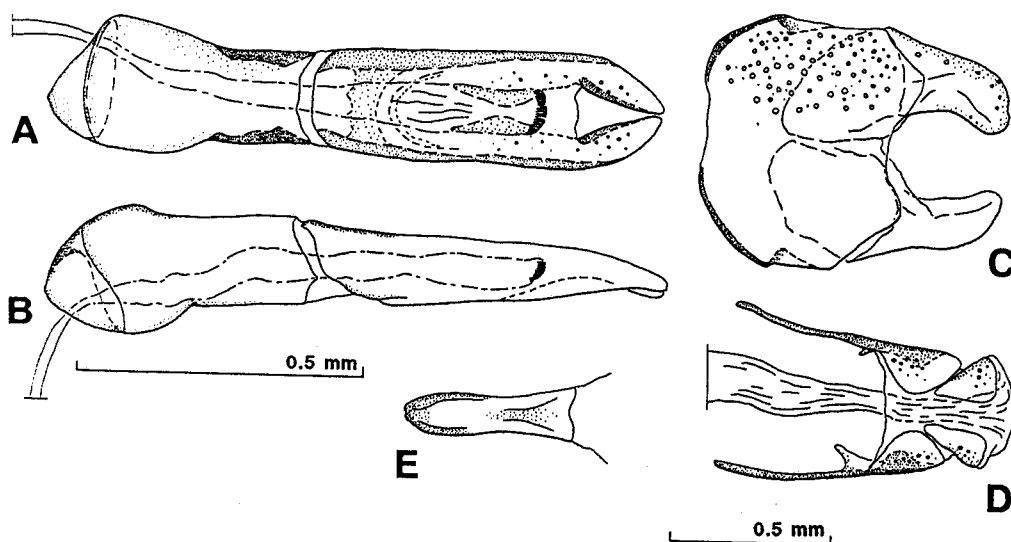


Fig. 59. *Platysoma (Platylistar) cambojense* Marseul. A: Aedeagus, dorsal view. B: Ditto, lateral view. C: Male genitalia, 8th tergite and sternum, dorsal view. D: Male genitalia, 9th and 10th tergites, dorsal view. E: Male genitalia, 9th sternum (spicules), ventral view.

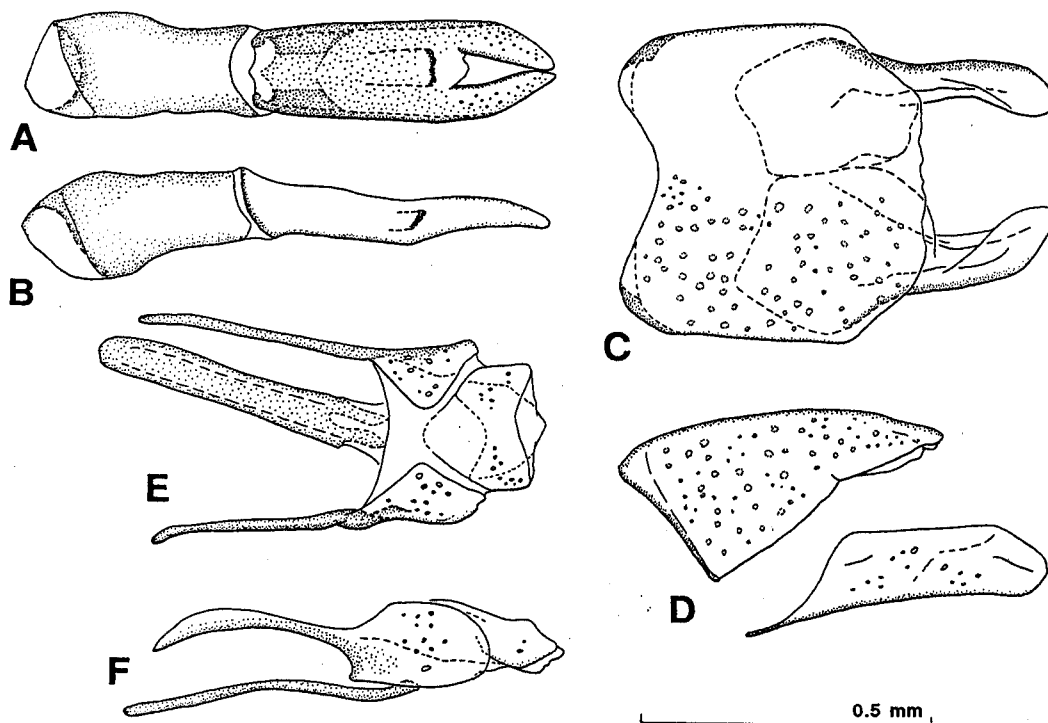


Fig. 60. *Platysoma (Platylister) pini* Lewis. A: Aedeagus, dorsal view. B: Ditto, lateral view. C: Male genitalia, 8th tergite and sternum, dorsal view. D: Ditto, lateral view. E: Male genitalia, 9th and 10th tergites and 9th sternum (spicules), dorsal view. F: Ditto, lateral view.

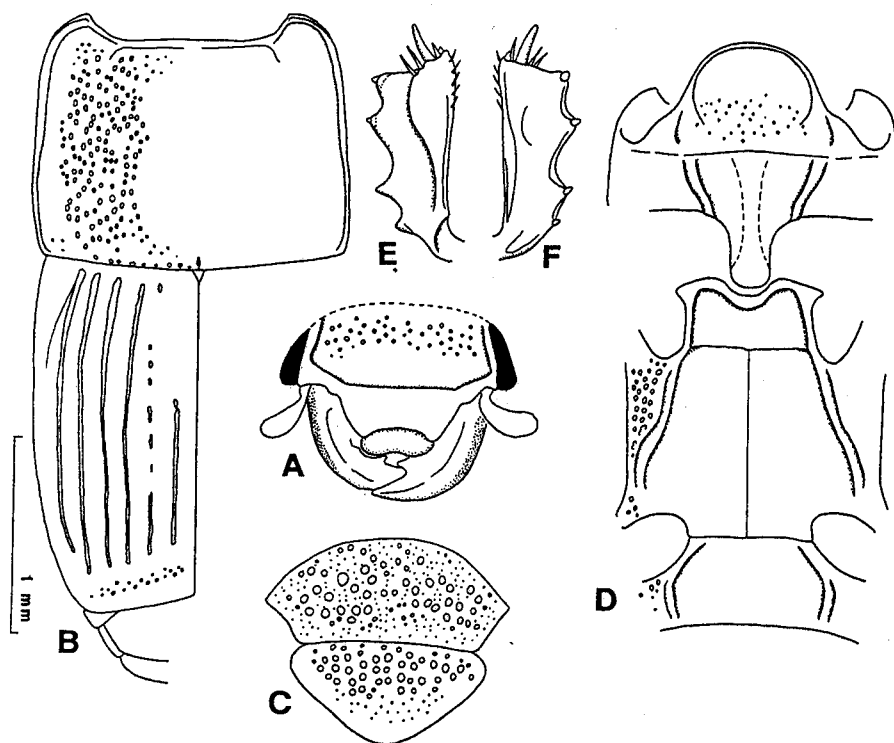


Fig. 61. *Platysoma (Cylister) lineicollis* Marseul. A: Head, dorsal view. B: Pronotum and left elytron. C: Propygidium and pygidium. D: Prosternum, mesosternum, metasternum and 1st abdominal sternum. E: Protibia, dorsal view. F: Ditto, ventral view.

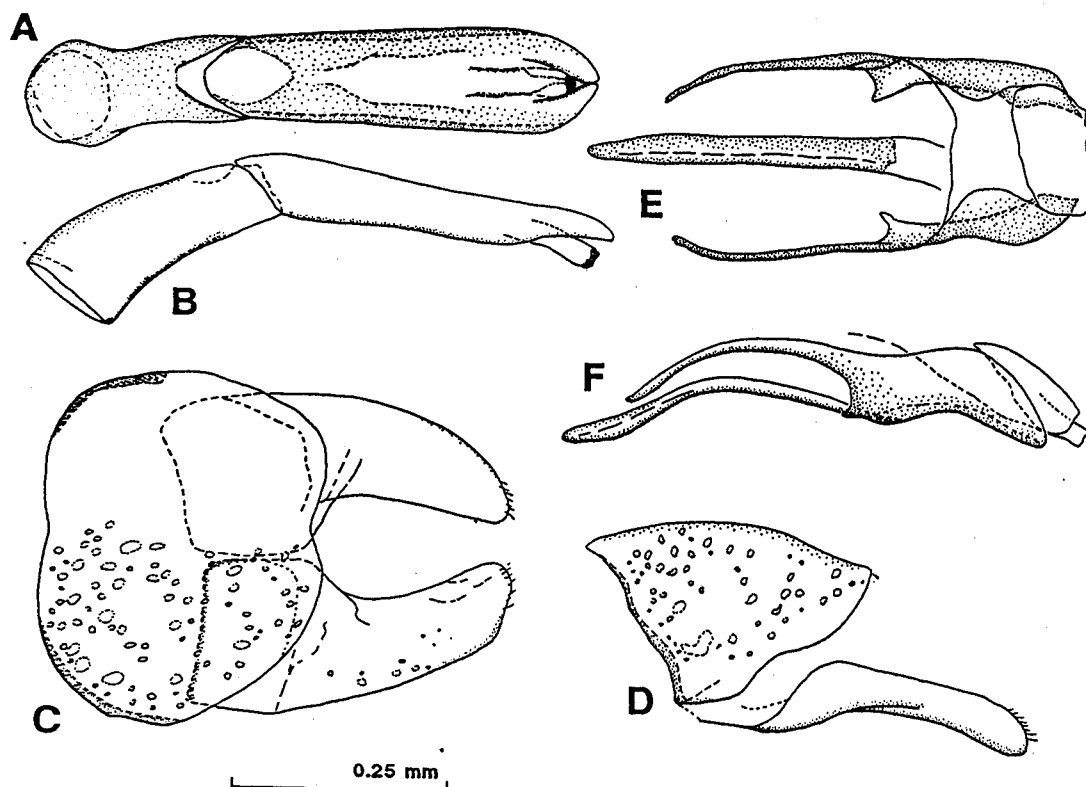


Fig. 62. *Platyssoma (Cylister) lineicollis* Marseul. A: Aedeagus, dorsal view. B: Ditto, lateral view. C: Male genitalia, 8th tergite and sternum, dorsal view. D: Ditto, lateral view. E: Male genitalia, 9th and 10th tergites and 9th sternum (spicules), dorsal view. F: Ditto, lateral view.

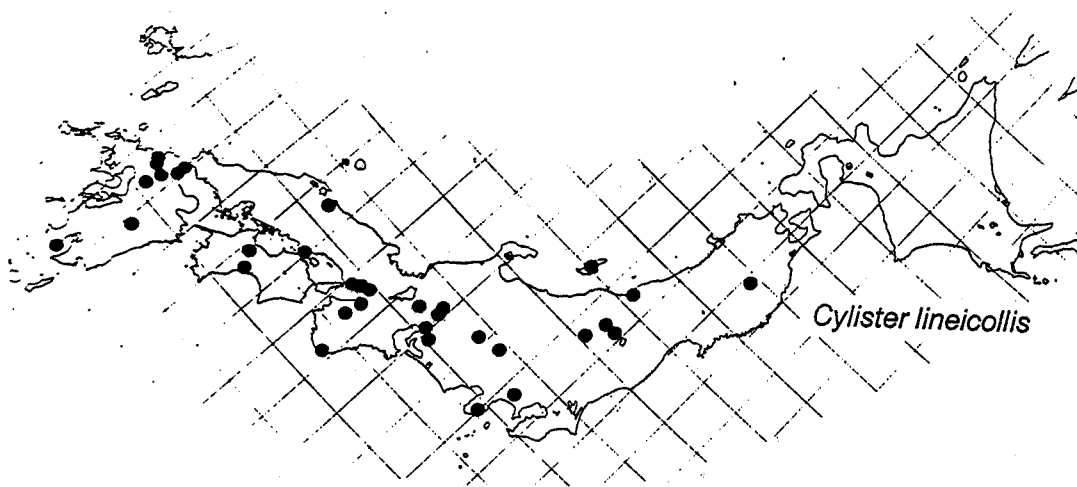


Fig. 63. Collection sites of *Platyssoma (Cylister) lineicollis* Marseul in Japan.

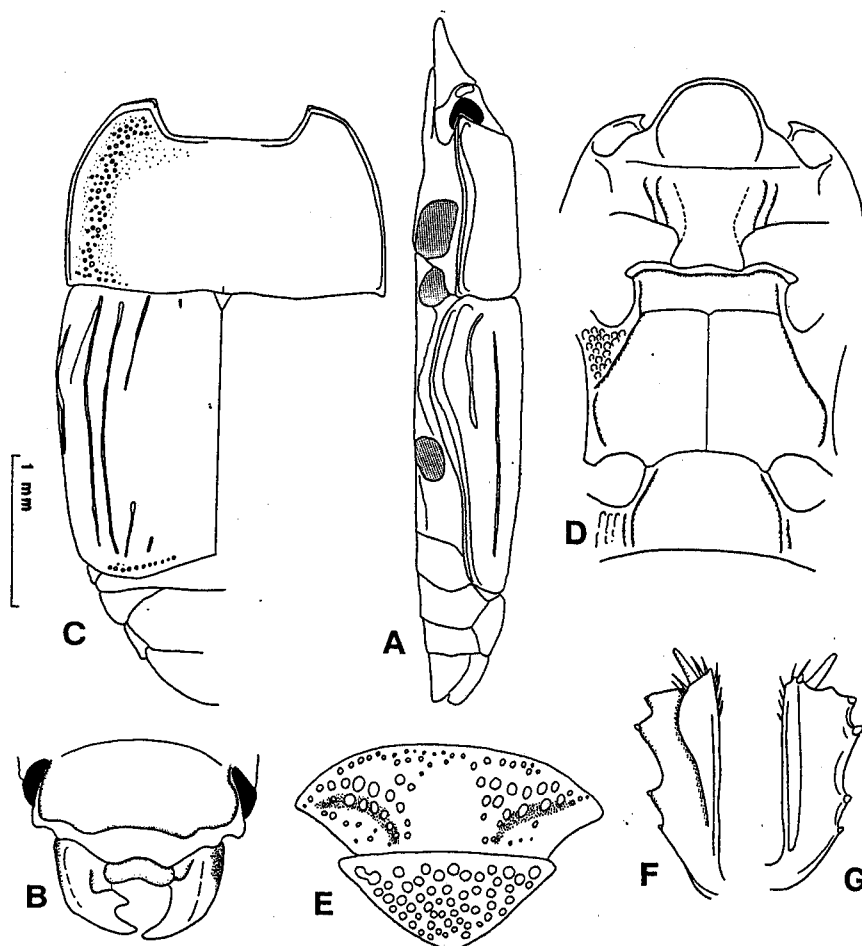


Fig. 64. *Platysoma (Apobletes) schaumei* Marseul. A: Adult, lateral view. B: Head, frontal view. C: Pronotum and left elytron. D: Prosternum, mesosternum, metasternum and 1st abdominal sternum. E: Propygidium and pygidium. F: Protibia, dorsal view. G: Ditto, ventral view.

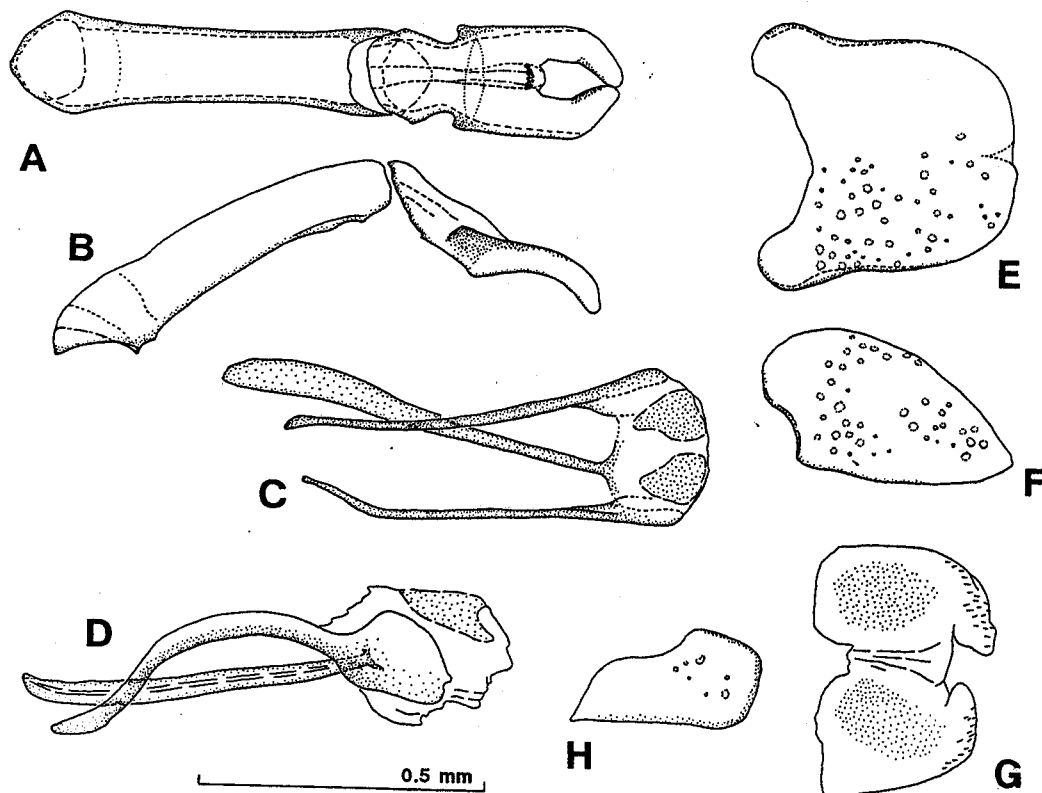


Fig. 65. *Platysoma* (*Apobletes*) *schaumei* Marseul. A: Aedeagus, dorsal view. B: Ditto, lateral view. C: Male genitalia, 9th and 10th tergites and 9th sternum (spicules), dorsal view. D: Ditto, lateral view. E: Male genitalia, 8th tergite. F: Ditto, lateral view. G: Male genitalia, 8th sternum, ventral view. H: Ditto, lateral view.

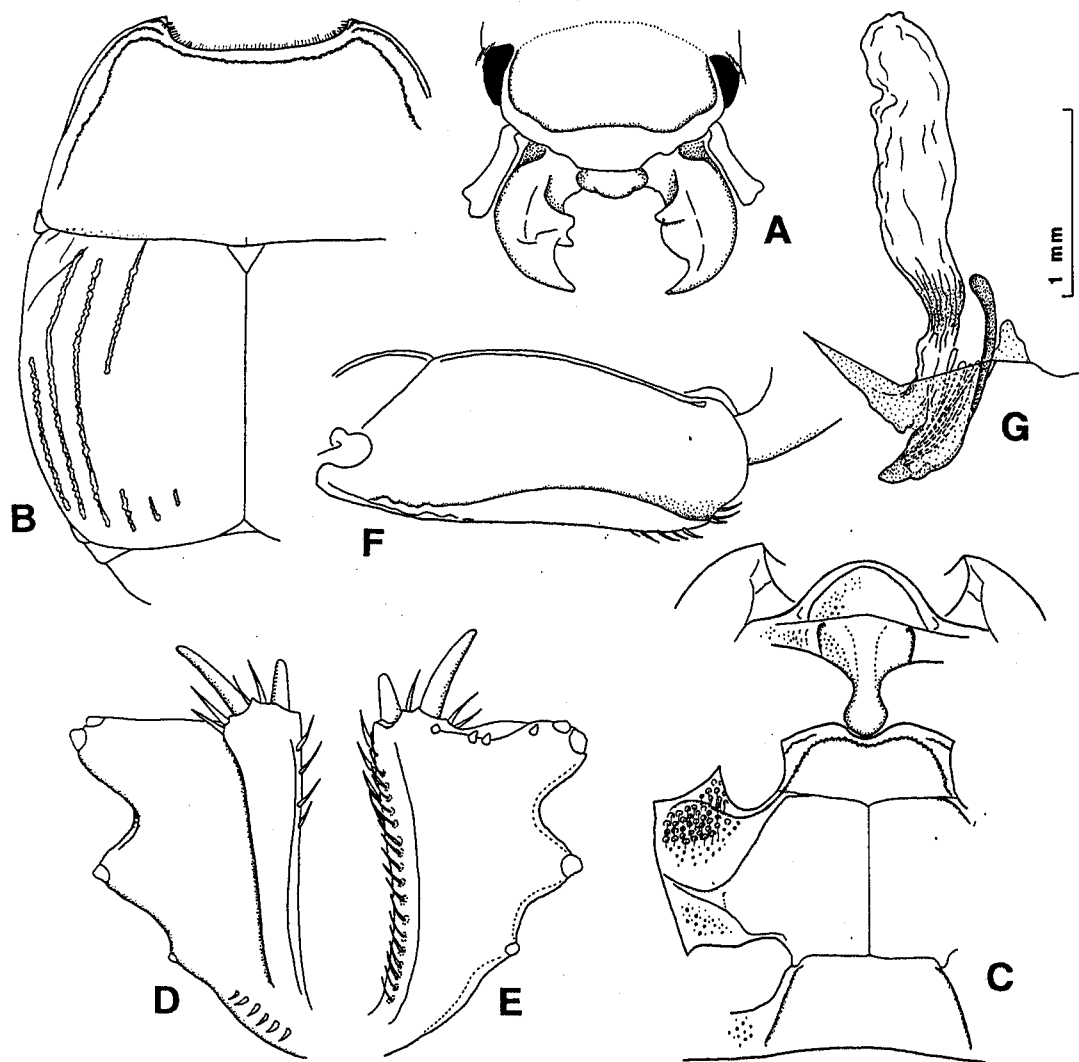


Fig. 66. *Hister japonicus* Marseul. A: Head, frontal view. B: pronotum and left elytron, dorsal view. C: pro-, meso-, metasterna and 1st abdominal sternum. D: protibia, dorsal view. E: Ditto, ventral view. F: profemur, ventral view. G: female genitalia, spermatheca and bursa copulatrix, lateral view (left side).

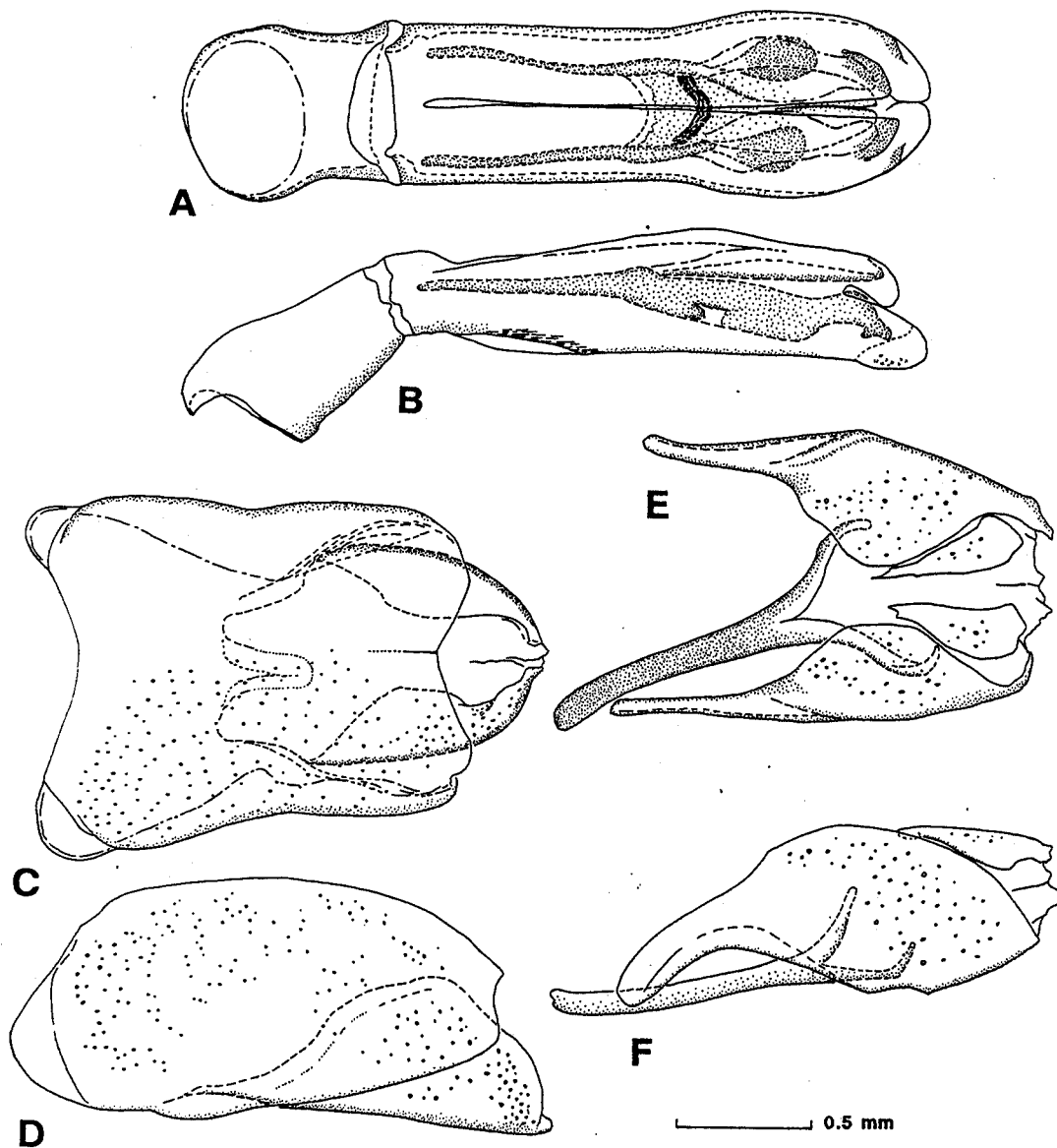


Fig. 67. *Hister japonicus* Marseul. Male genitalia. A: Aedeagus, dorsal view. B: Ditto, lateral view. C: caudal apex of aedeagus, dorsal view. D: 8th tergite and sternum, dorsal view. E: Ditto, lateral view. F: 9th and 10th tergites and 9th sternum (spicules), dorsal view. G: Ditto, lateral view.

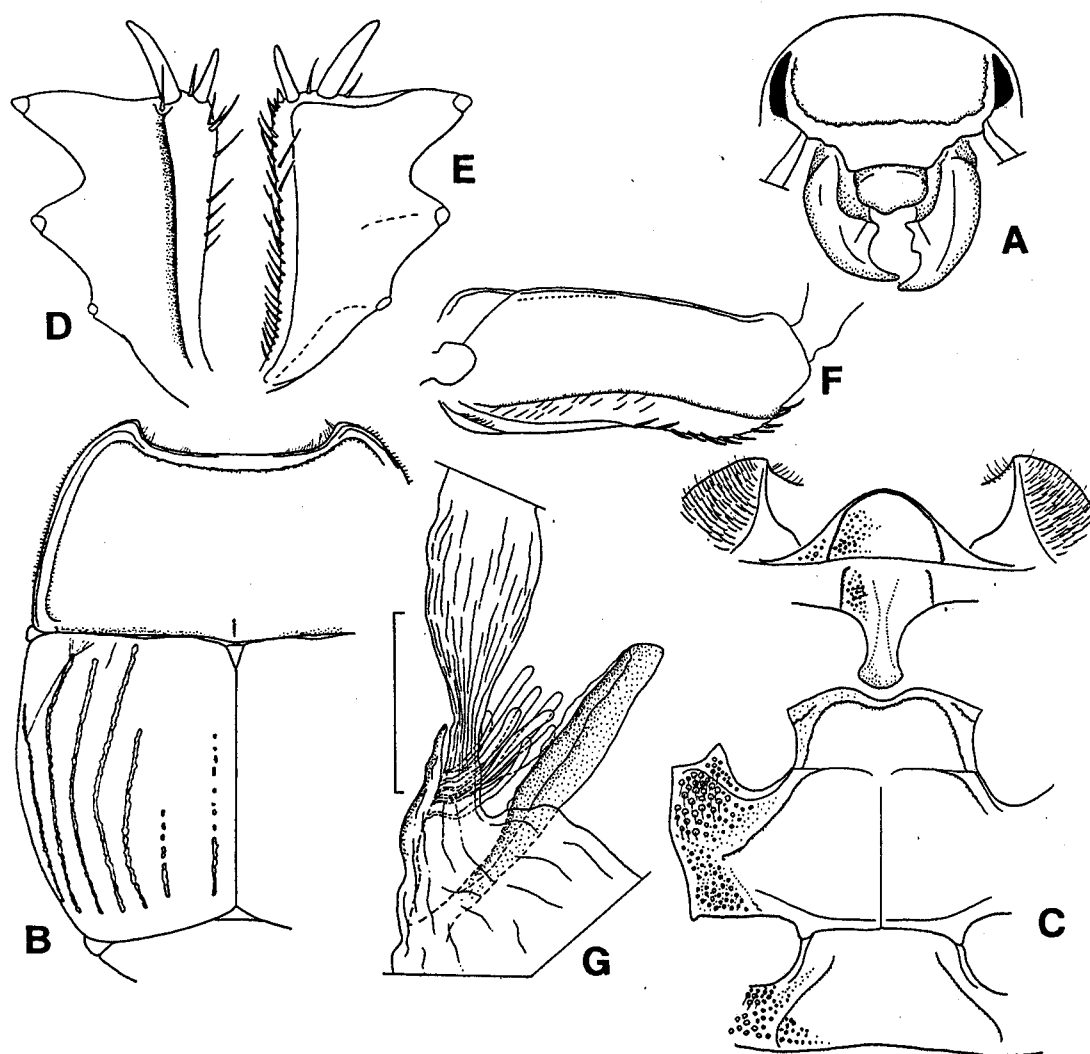


Fig. 68. *Hister conger* Schmidt. A: Head, frontal view. B: pronotum and left elytron, dorsal view. C: prosternum. D: meso-, metasterna and 1st abdominal sternum. E: protibia, dorsal view. F: Ditto, ventral view. G: profemur, ventral view.

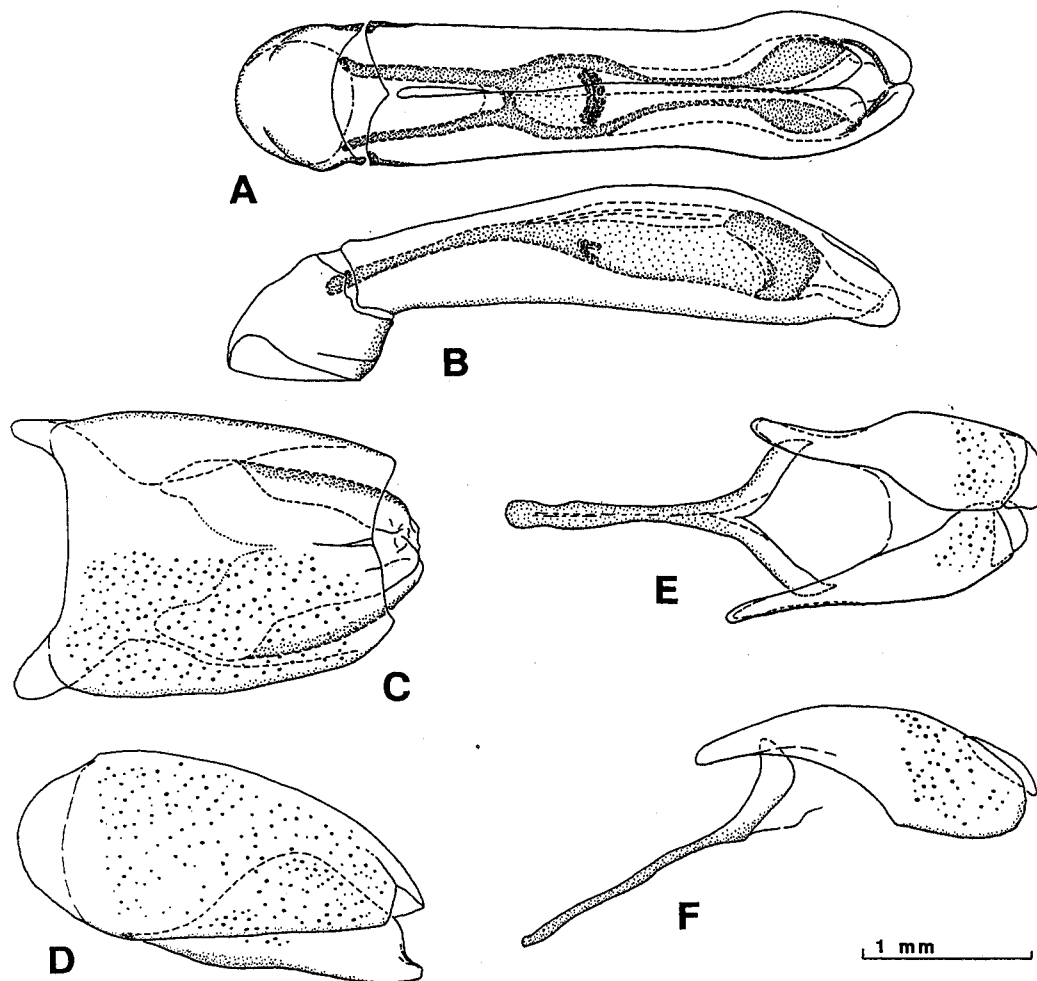


Fig. 69. *Hister conger* Schmidt. A: Aedeagus, dorsal view. B: Ditto, lateral view. C: 8th tergite and sternum, dorsal view. D: Ditto, lateral view. E: 9th and 10th tergites and 9th sternum (spicules), dorsal view. F: Ditto, lateral view. G: female genitalia, spermatheca and bursa copulatrix, lateral view (left side).

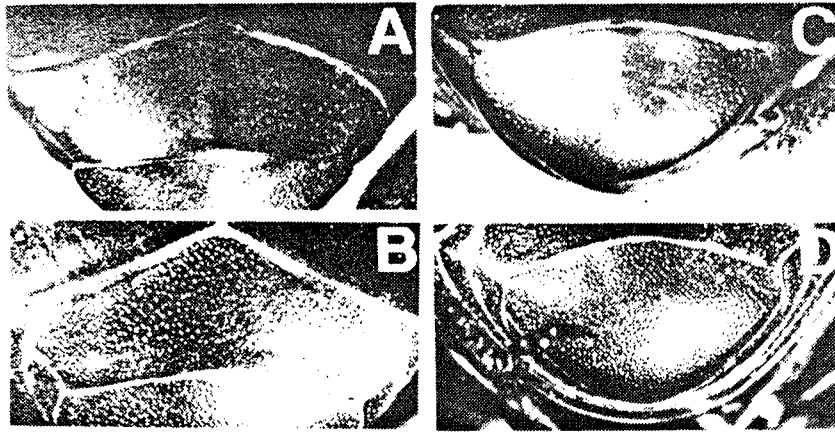


Fig. 70. Propygidia (A, C) and pygidia (B, D). A, C: *Hister japonicus* Marseul. B, D: *Hister conger* Schmidt.

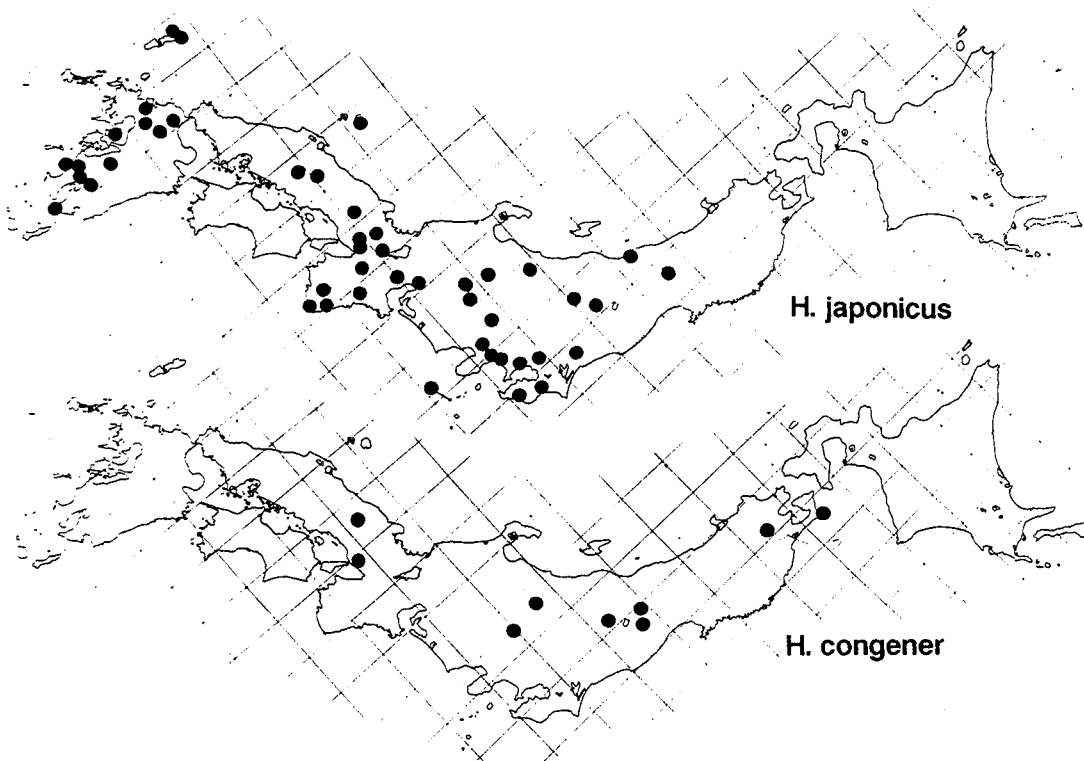


Fig. 71. Collection sites of *Hister japonicus* Marseul and *Hister conger* Schmidt in Japan.

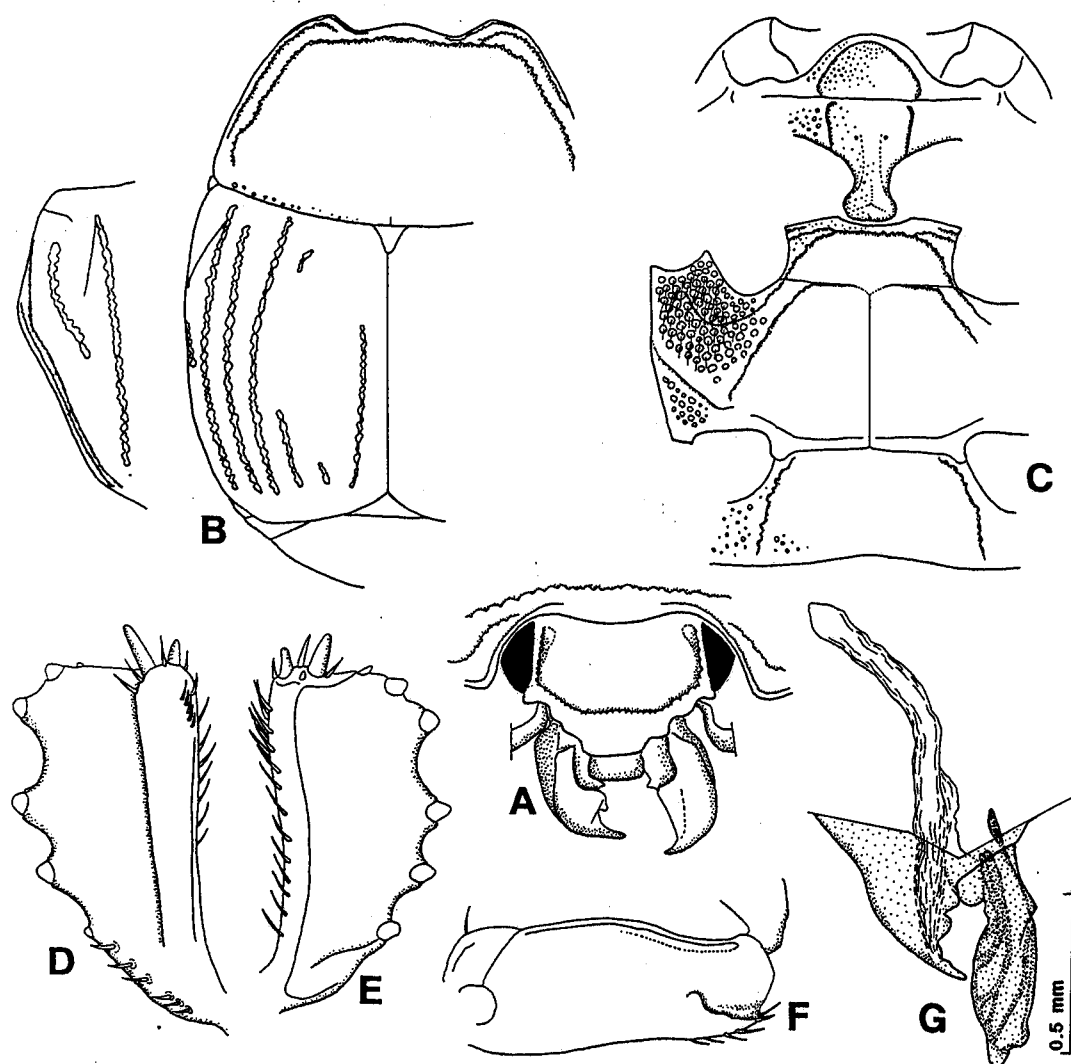


Fig. 72. *Hister simplicisternus* Lewis. A: Head, frontal view. B: pronotum and left elytron, dorsal view. C: pro-, meso-, metasterna and 1st abdominal sternum. D: protibia, dorsal view. E: Ditto, ventral view. F: profemur, ventral view. G: female genitalia, spermatheca and bursa copulatrix, lateral view (left side).

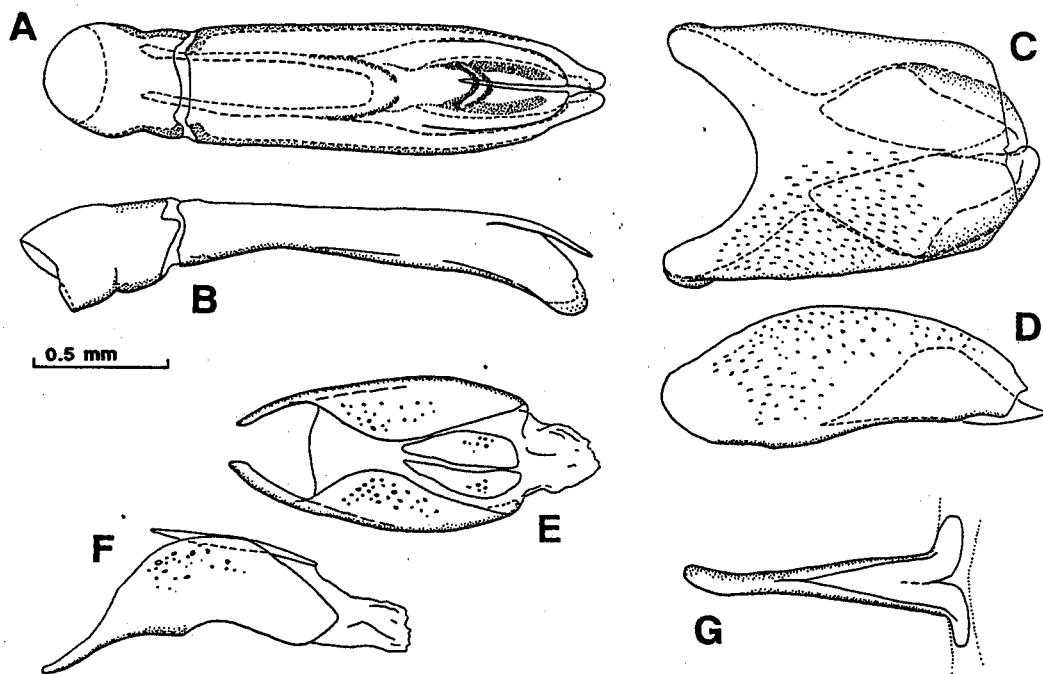


Fig. 73. *Hister simplicisternus* Lewis. Male genitalia. A: Aedeagus, dorsal view. B: Ditto, lateral view. C: caudal apex of aedeagus, dorsal view. D: 8th tergite and sternum, dorsal view. E: Ditto, lateral view. F: 9th and 10th tergites and 9th sternum (spicules), dorsal view. G: Ditto, lateral view.

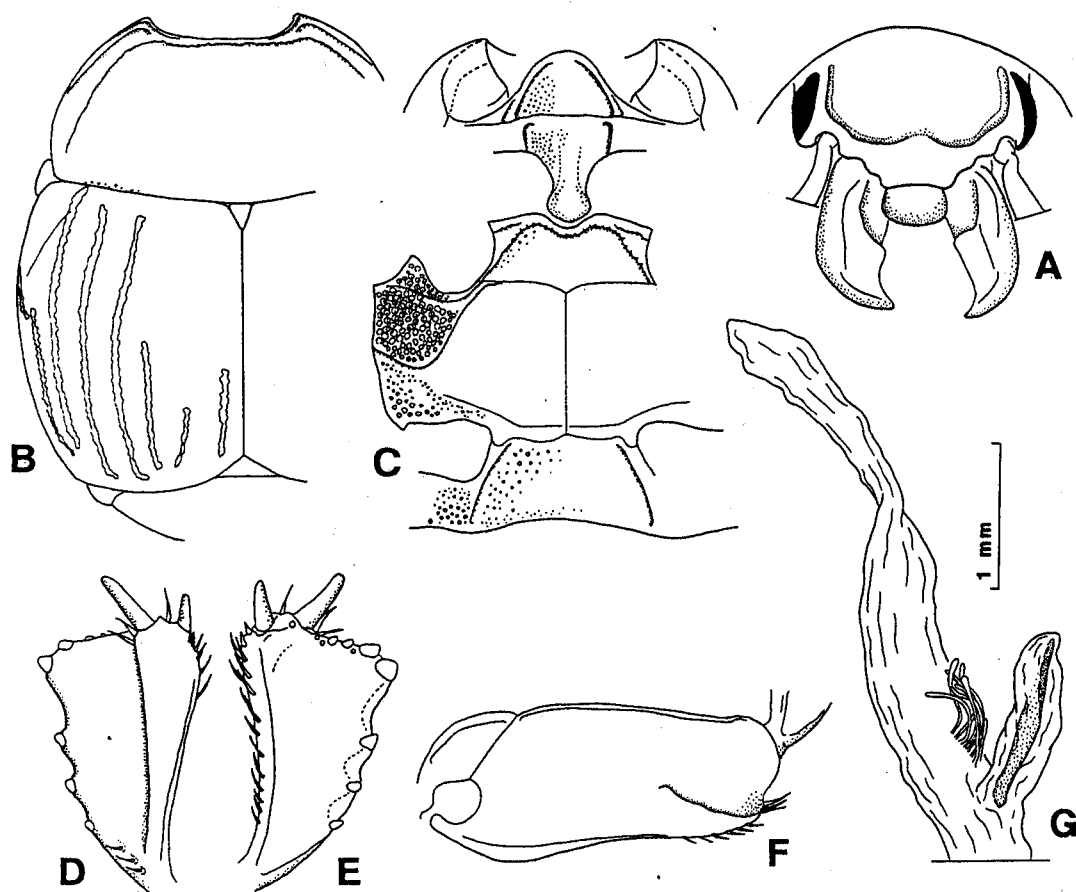


Fig. 74. *Hister concolor* Lewis. A: Head, frontal view. B: pronotum and left elytron, dorsal view. C: pro-, meso-, metasterna and 1st abdominal sternum. D: protibia, dorsal view. E: Ditto, ventral view. F: profemur, ventral view. G: female genitalia, spermatheca and bursa copulatrix, lateral view (left side).

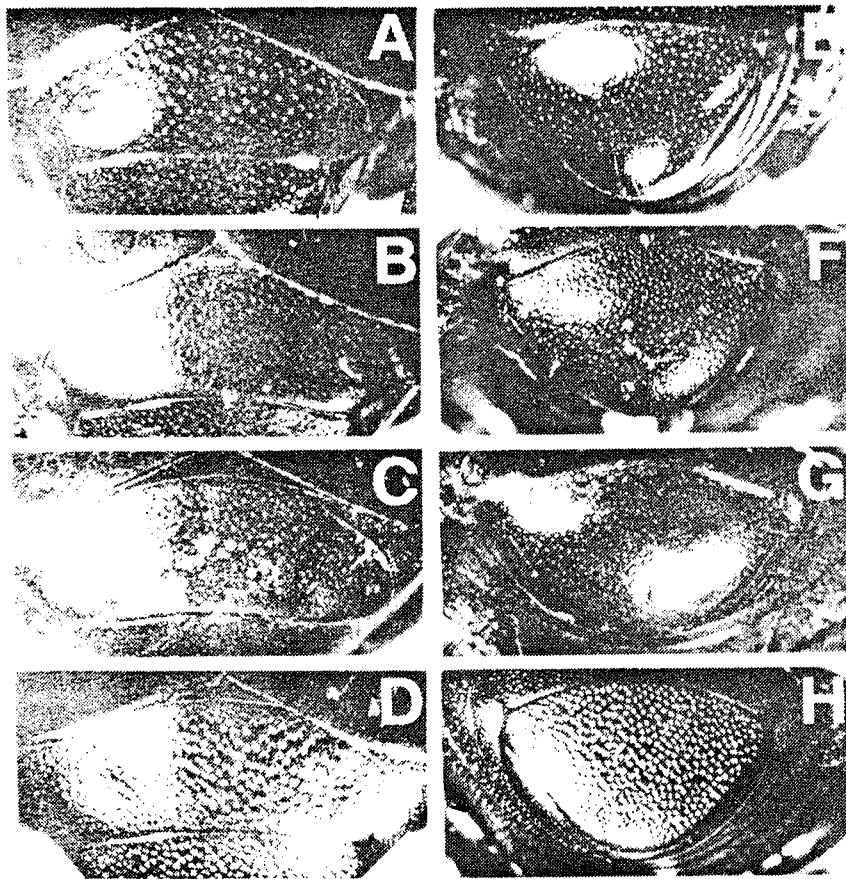


Fig. 75. Propygidia (A, B, C, D) and pygidia (E, F, G, H). A, E: *H. simplicisternus* Lewis. B, F: *H. unicolor leonhardi* Bickhardt. C, G: *H. u. unicolor* Linné. D, H: *H. concolor* Lewis.

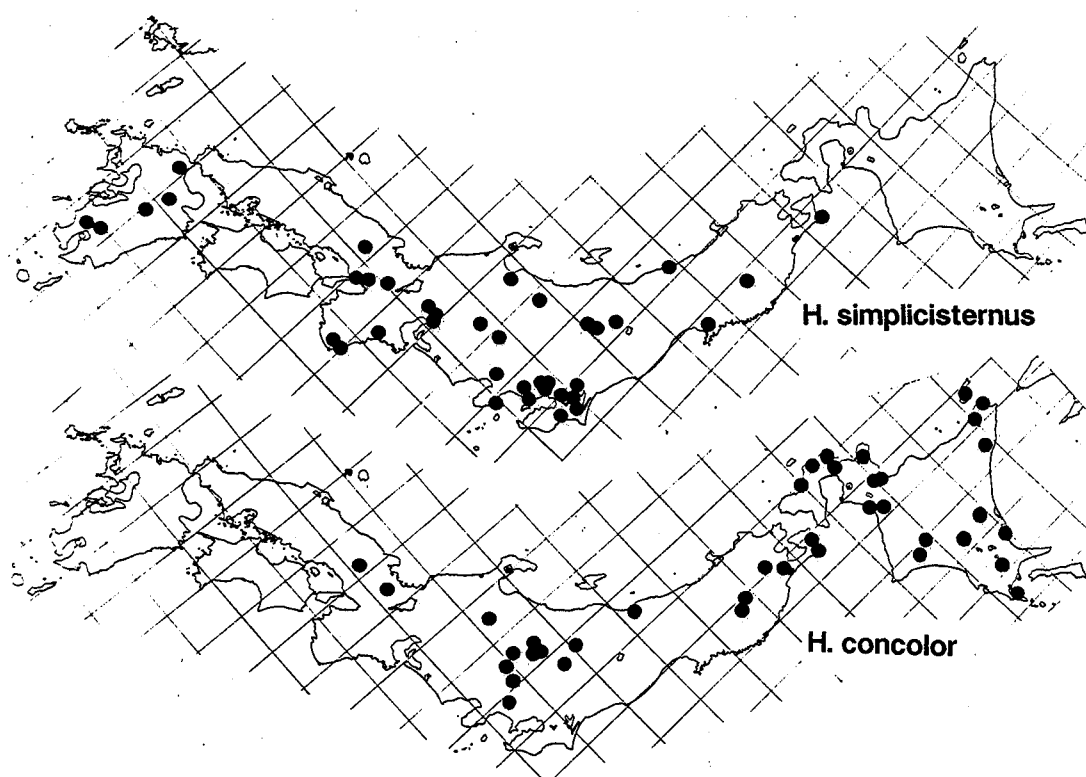


Fig. 76. Collection sites of *Hister simplicisternus* Lwies and *H. concolor* Lewis in Japan.

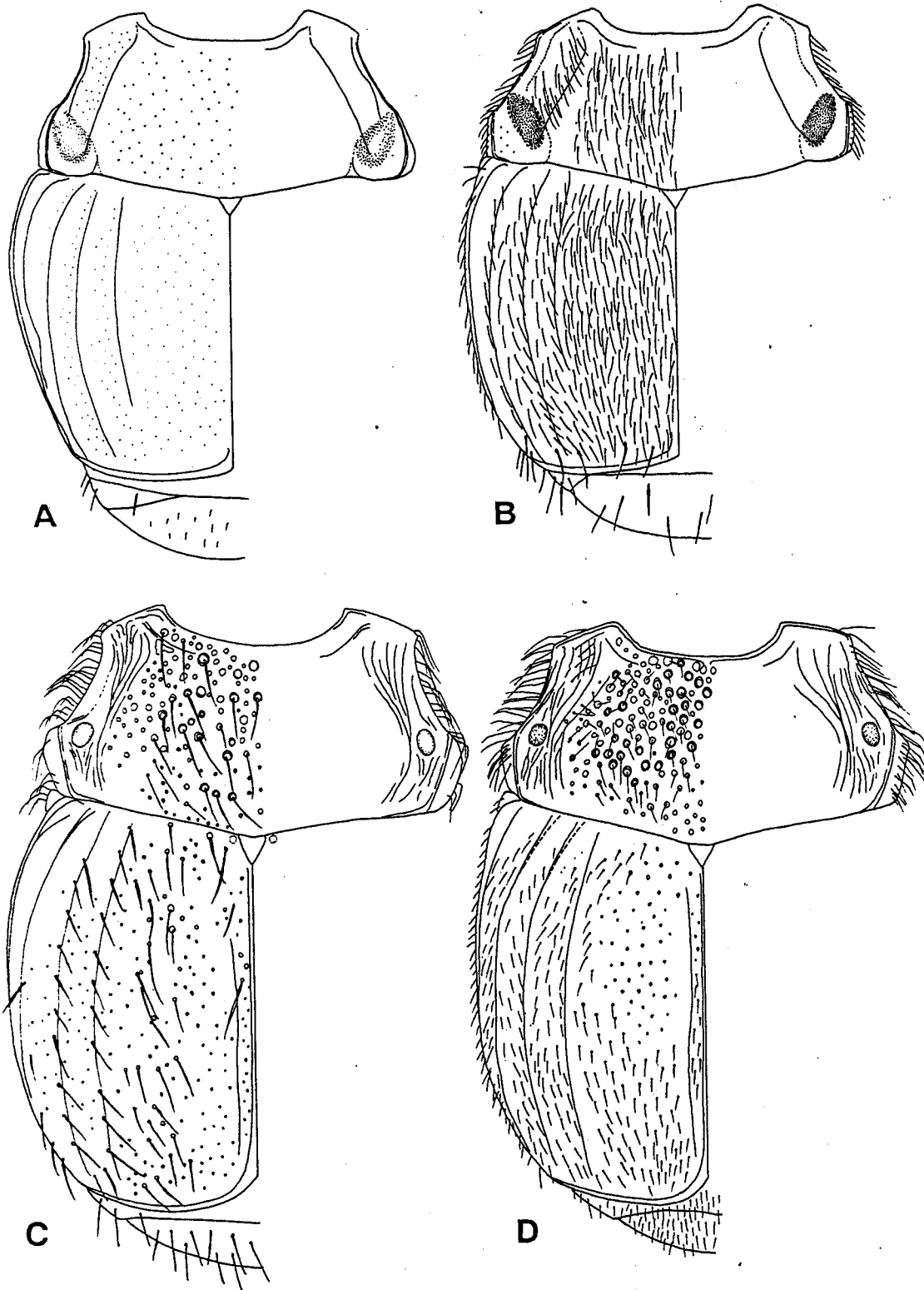


Fig. 77. *Hetaerius* spp. A: *H. otaruensis* M. Ôhara, sp. nov. B: *H. gratus* Lewis. C: *H. optatus* Lewis. D: *H. kubotai* M. Ôhara, sp. nov.

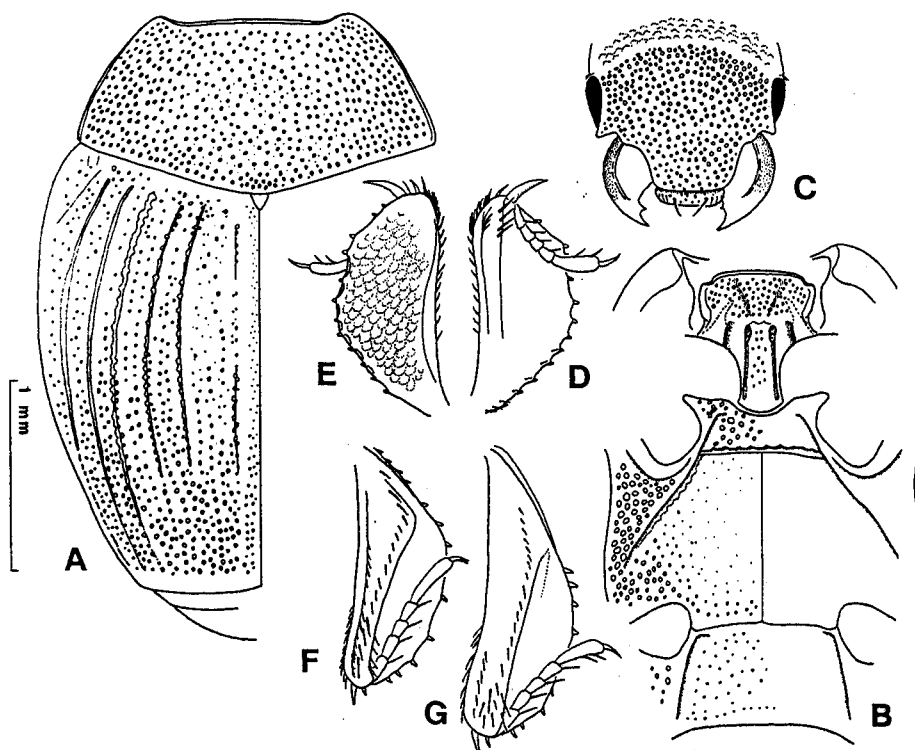


Fig. 78. *Dendrophilus xavieri* Marseul. A: Pronotum and left elytron. B: Prosternum and meso- and metasterna. D: Head. E: Protibia, dorsal view. F: Ditto, ventral view. G: Mesotibia, dorsal view. H: Metatibia, dorsal view.

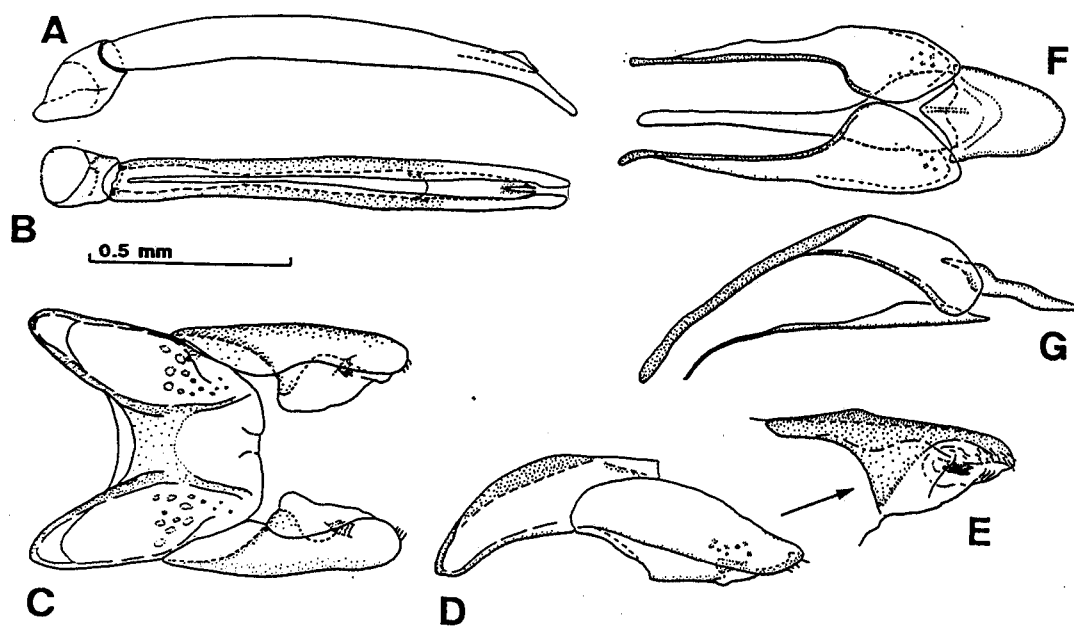


Fig. 79. *Dendrophilus xavieri* Marseul. A: Aedeagus, lateral view. B: Ditto, dorsal view. C: Male genitalia, 8th tergite and sternum, dorsal view. D: Ditto, lateral view. E: Apex of 8th sternum, ventral view. F: Male genitalia, 9th and 10th tergites and 9th sternum (spicules), dorsal view. G: Ditto, lateral view.

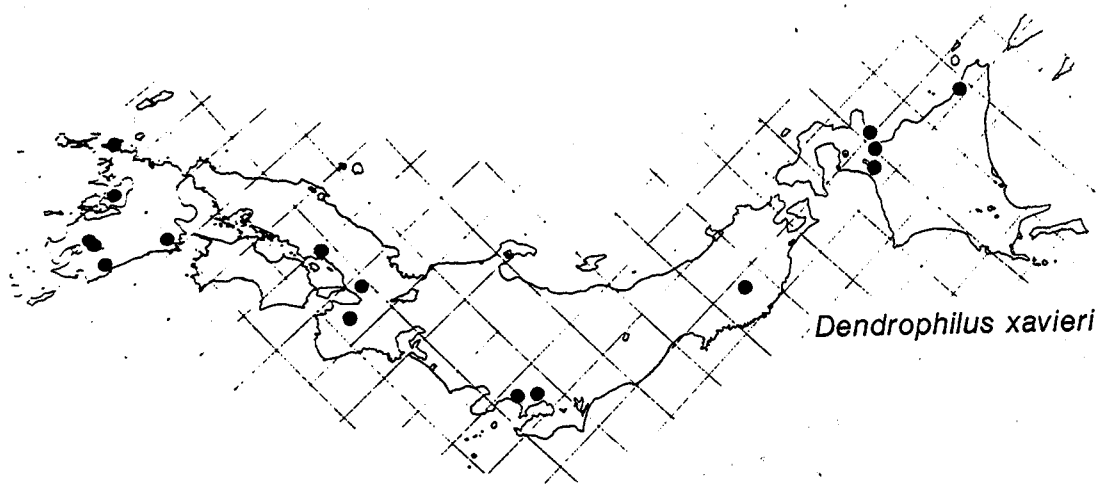


Fig. 80. Collection sites of *Dendrophilus xavieri* Marseul in Japan.

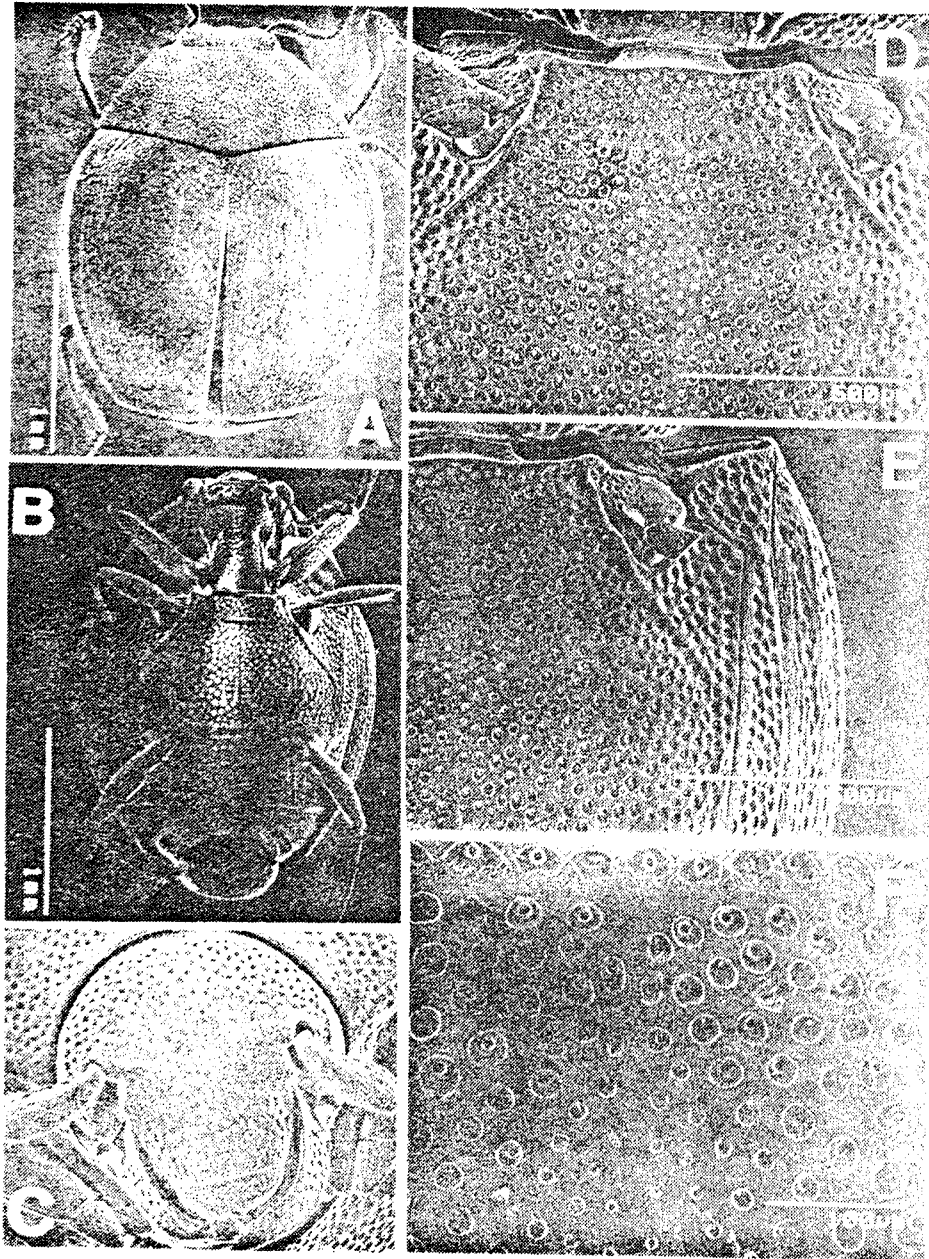


Fig. 81. *Anapleus semen* (Lewis), adult. A: Dorsal view. B: Ventral view. C: Head, frontal view. D: Meso- and metasterna. E: Lateral side of metasternum. F: Punctuation of middle area of intercoxal disk of metasternum.

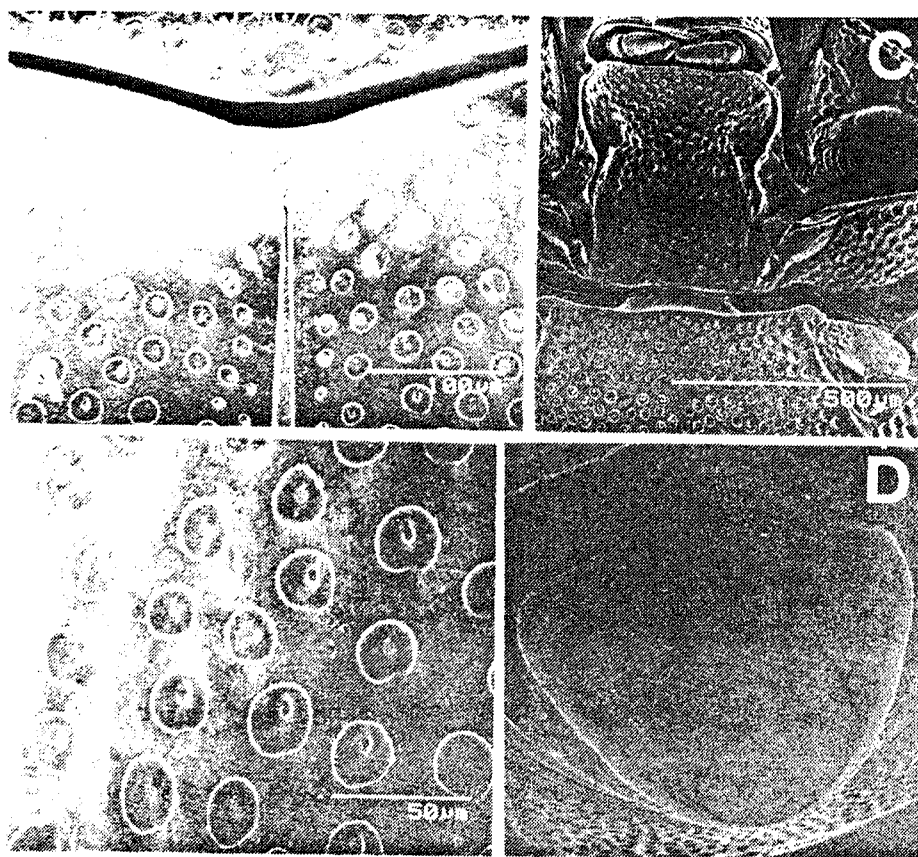


Fig. 82. *Anapleus semen* (Lewis), adult. A: Elytra around scutellum, dorsal view. B: Punctuation of medio-basal area of elytron. C: Prosternum, ventral view. D: Pygidium.

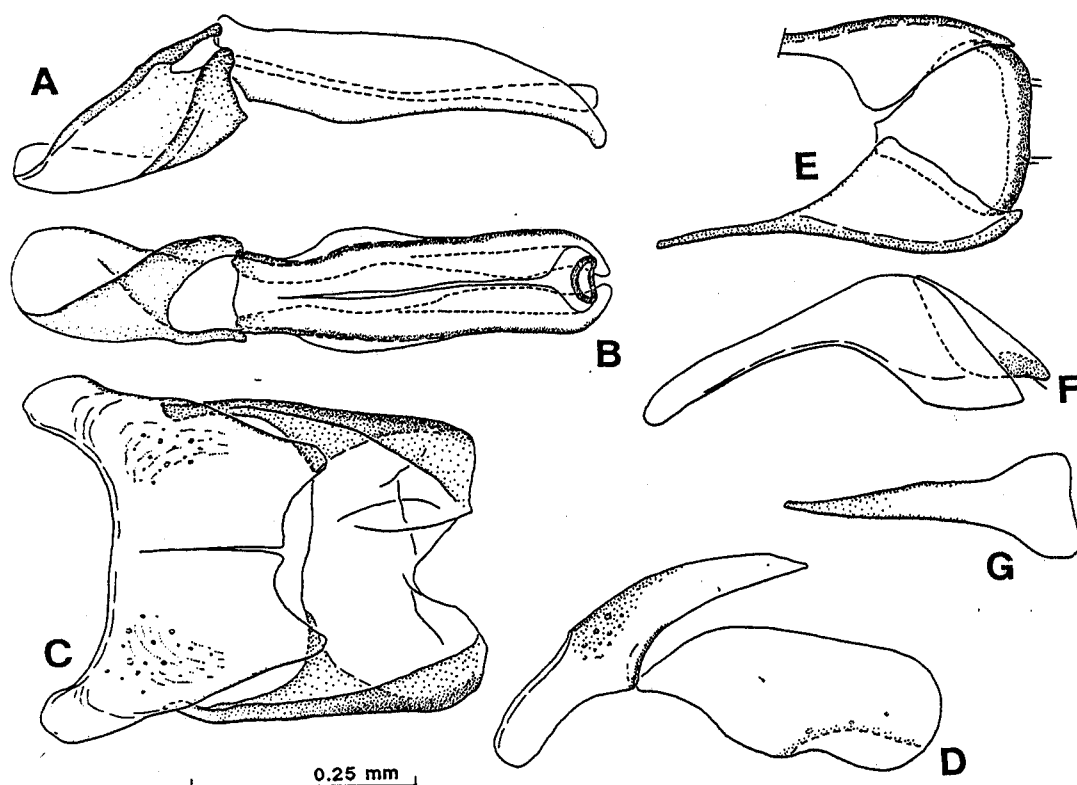


Fig. 83. *Anapleus semen* (Lewis) A: Aedeagus, lateral view. B: Ditto, dorsal view. C: Male genitalia, 8th tergite and sternum, dorsal view. D: Ditto, lateral view. E: Male genitalia, 9th and 10th tergites, dorsal view. F: Ditto, lateral view. G: Ninth sternum (spicules), dorsal view.

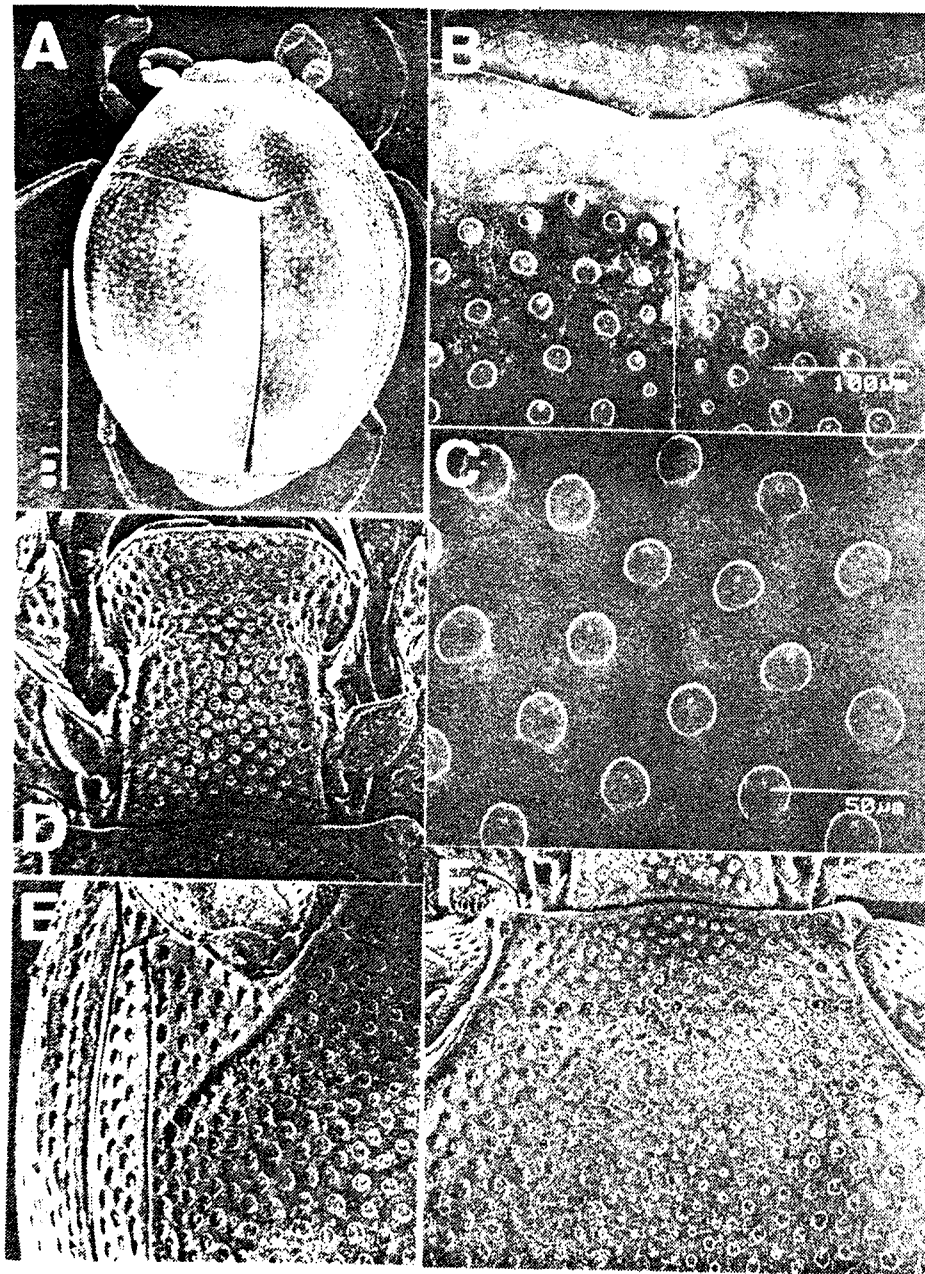


Fig. 84. *Anapleus nakanei* M. Ôhara, sp. nov., adult. A: Dorsal view. B: Elytra around scutellum. C: Punctuation of medio-basal area of elytron. D: Prosternum, ventral view. E: Lateral side of metasternum. F: Meso- and metasterna, ventral view.

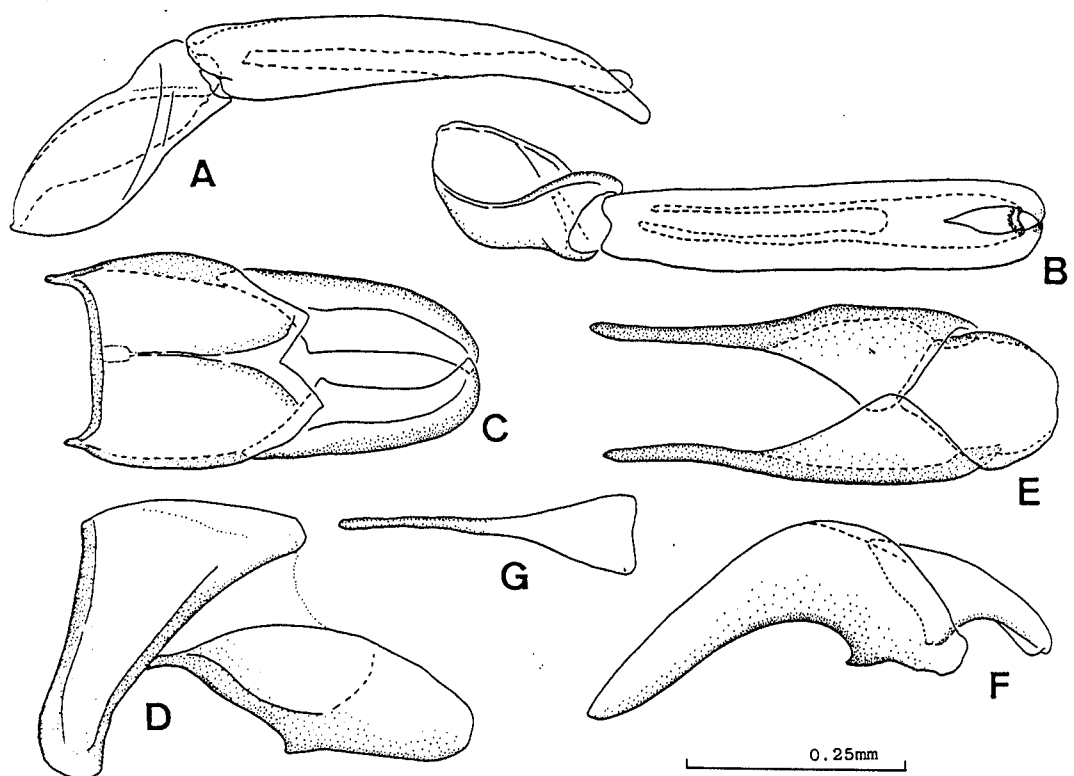


Fig. 85. *Anapleus nakanei* M. Ôhara, sp. nov. A: Aedeagus, lateral view. B: Ditto, dorsal view. C: Male genitalia, 8th tergite and sternum, dorsal view. D: Ditto, lateral view. E: Male genitalia, 9th and 10th tergites, dorsal view. F: Ditto, lateral view. G: Ninth sternum (spicules), dorsal view.

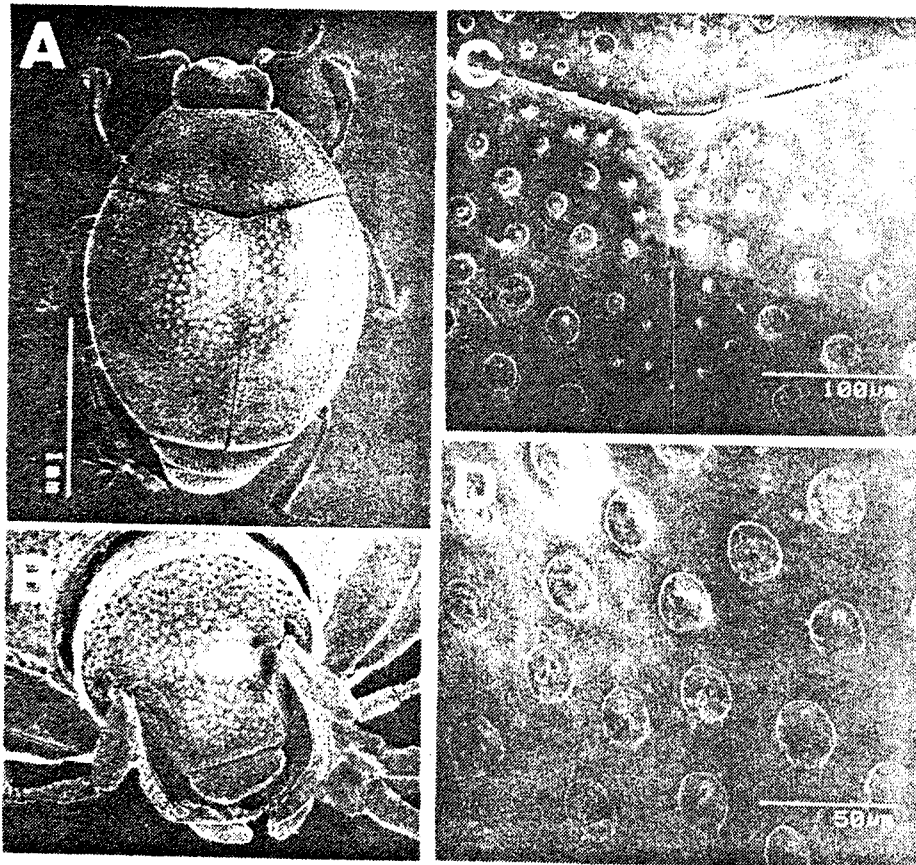


Fig. 86. *Anapleus nomurai* M. Ôhara, sp. nov., adult. A: Dorsal view. B: Head, frontal view. C: Elytra around scutellum. D: Punctuation of medio-basal area of elytra.

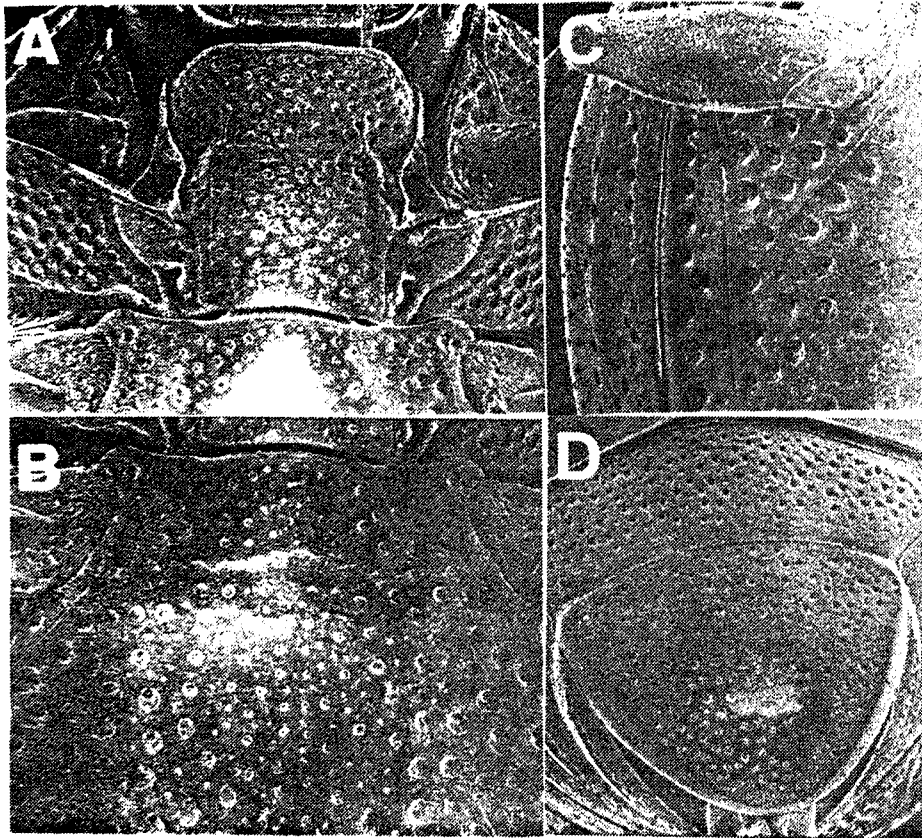


Fig. 87. *Anapleus nomurai* M. Ôhara, sp. nov. A: Prosternum, ventral view. B: Meso- and metasterna. C: Lateral side of metasternum. D: Propygidium and pygidium, caudal view.

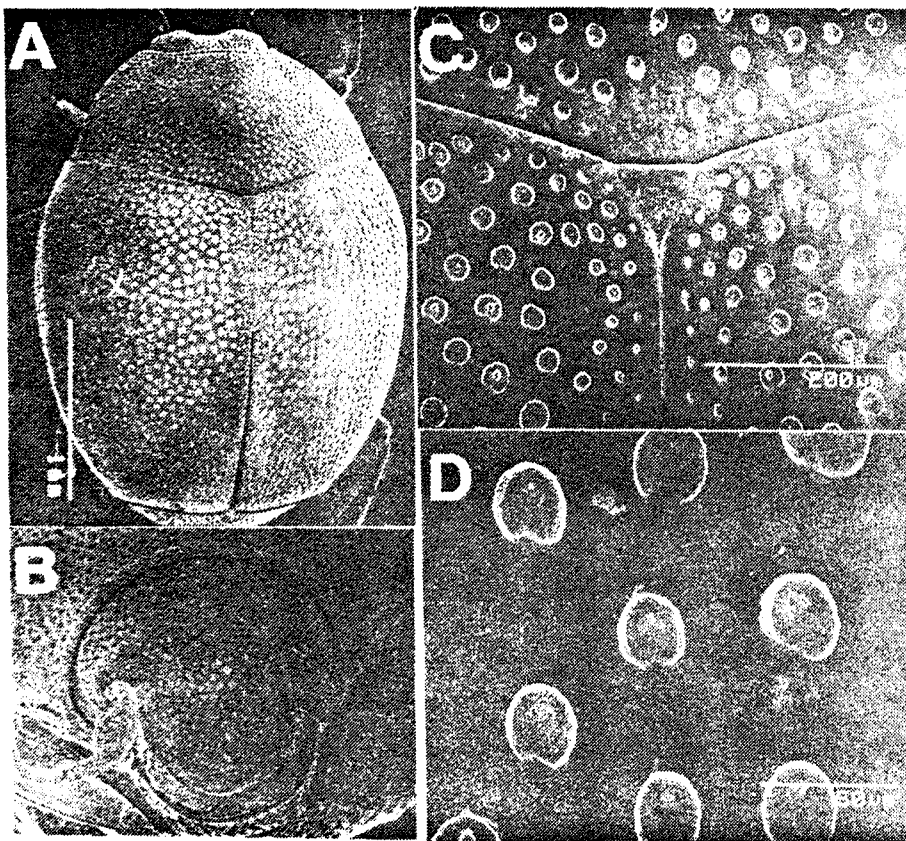


Fig. 88. *Anapleus hagai* M. Ôhara, sp. nov., adult. A: Dorsal view. B: Head, frontal view. C: Elytra around scutellum. D: Punctation of medio-basal area of elytron.

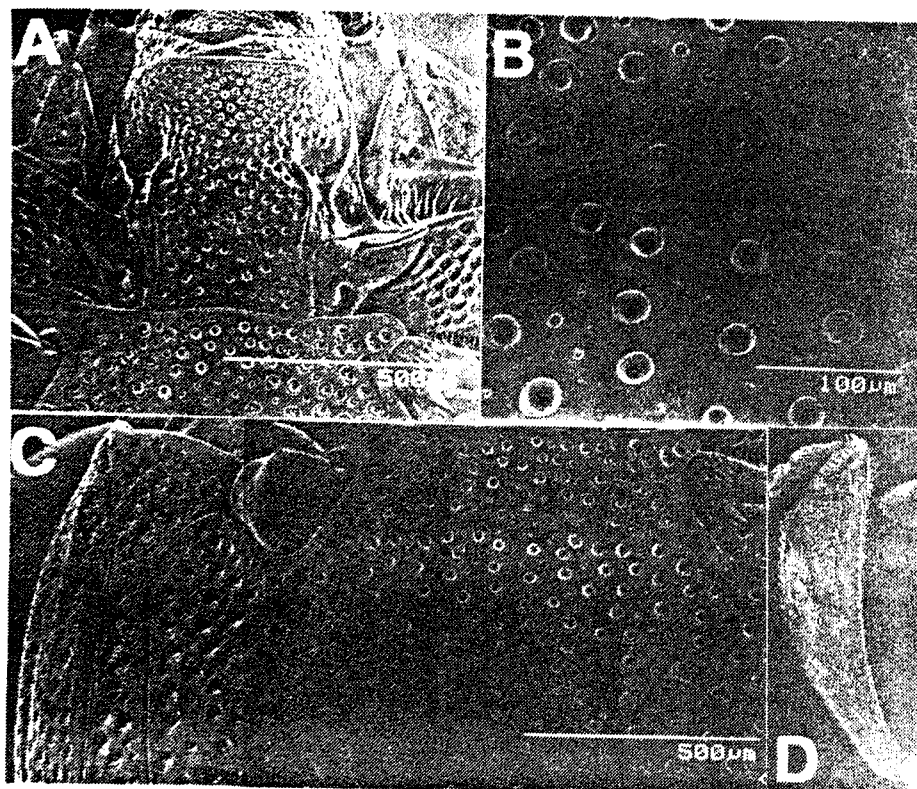


Fig. 89. *Anapleus hagai* M. Ôhara, sp. nov., adult. A: Prosternum, ventral view. B: Punctuation of intercoxal disk of metasternum. C: Meso- and metasterna. D: Protibia, ventral view.

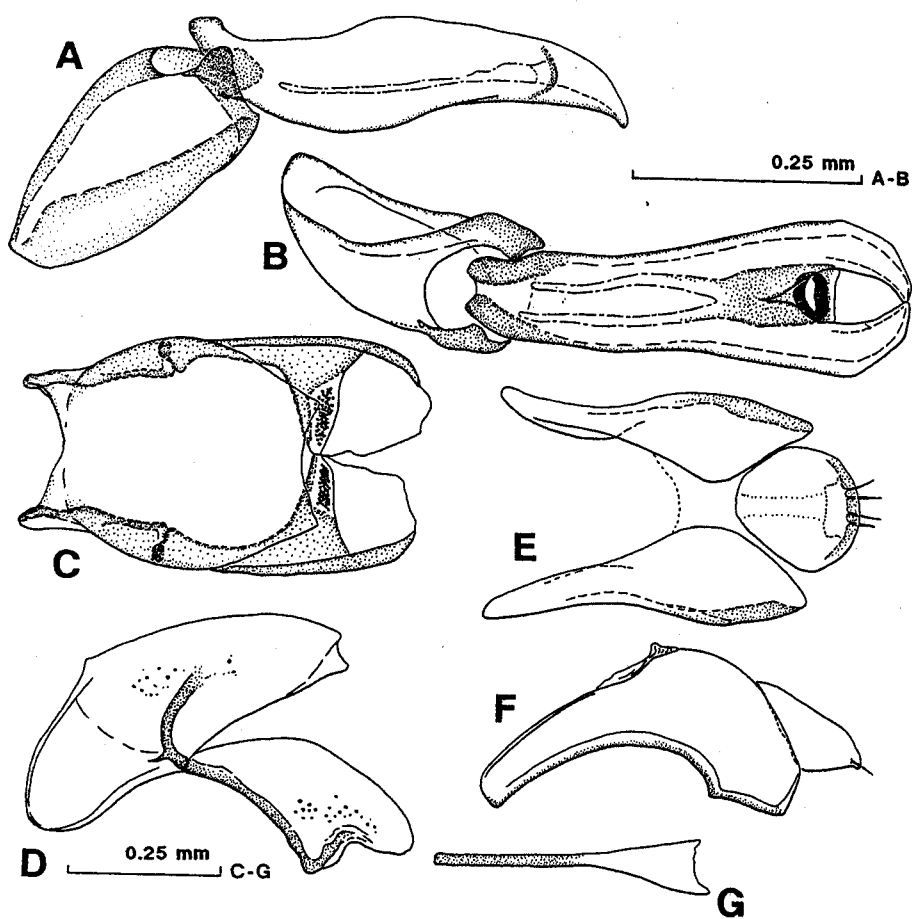


Fig. 90. *Anapleus hagai* M. Ôhara, sp. nov. A: Aedeagus, lateral view. B: Ditto, dorsal view. C: Male genitalia, 8th tergite and sternum, dorsal view. D: Ditto, lateral view. E: Male genitalia, 9th and 10th tergites and 9th sternum (spicules), dorsal view. F: Ditto, lateral view. G: 9th sternum (spicules), dorsal view.

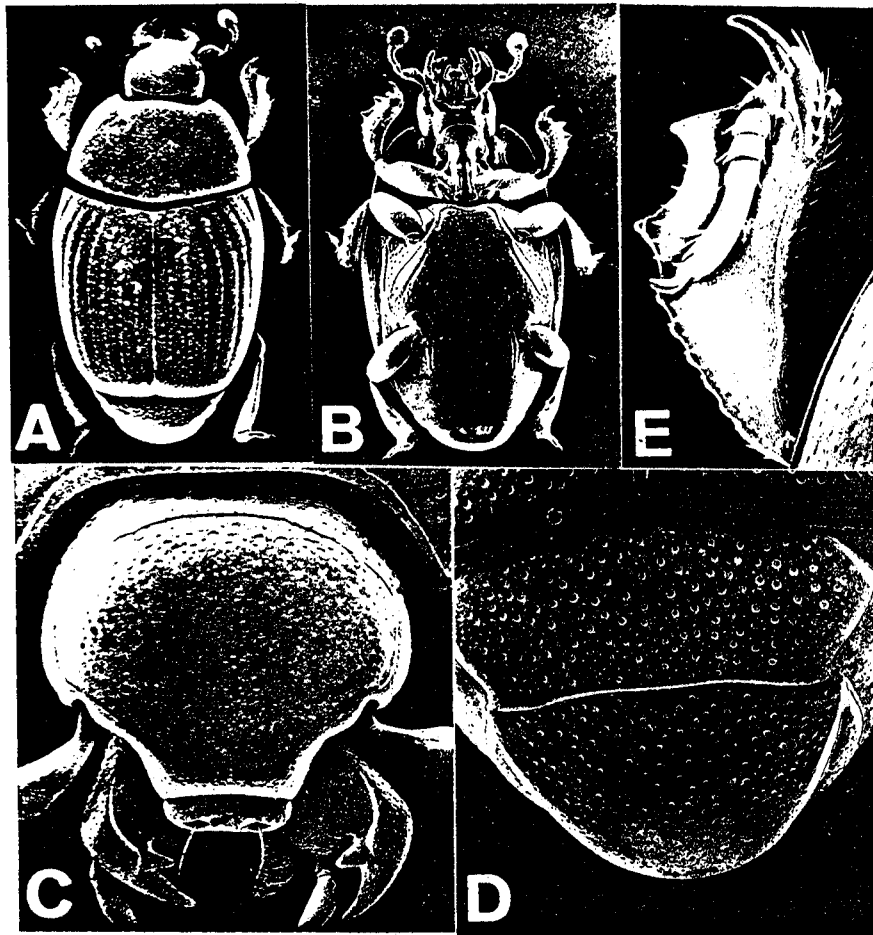


Fig. 91. *Carcinops (Carcinops) pumilio* (Erichson). A: Adult, dorsal view. B: Ditto, ventral view. C: Head, frontal view. D: Propygidium and pygidium. E: Protibia, dorsal view.

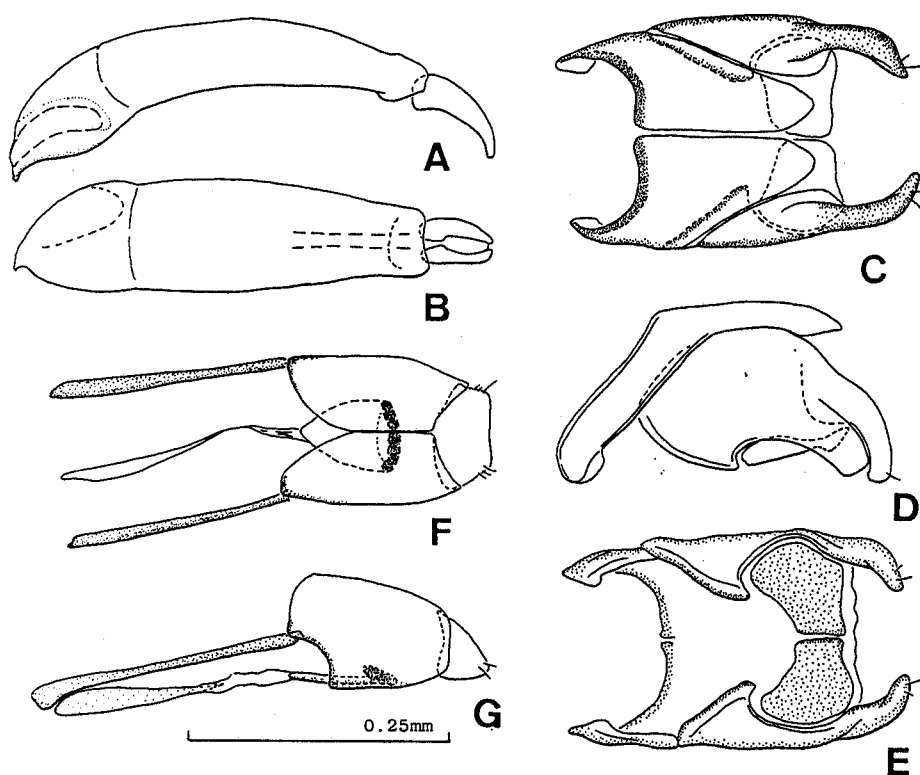


Fig. 92. *Carcinops (Carcinops) pumilio* (Erichson): A: Aedeagus, lateral view. B: Ditto, dorsal view. C: Male genitalia, 8th tergite and sternum, dorsal view. D: Ditto, lateral view. E: Ditto, ventral view. F: Male genitalia, 9th and 10th tergites and 9th sternum (spicules), dorsal view. G: Ditto, lateral view.

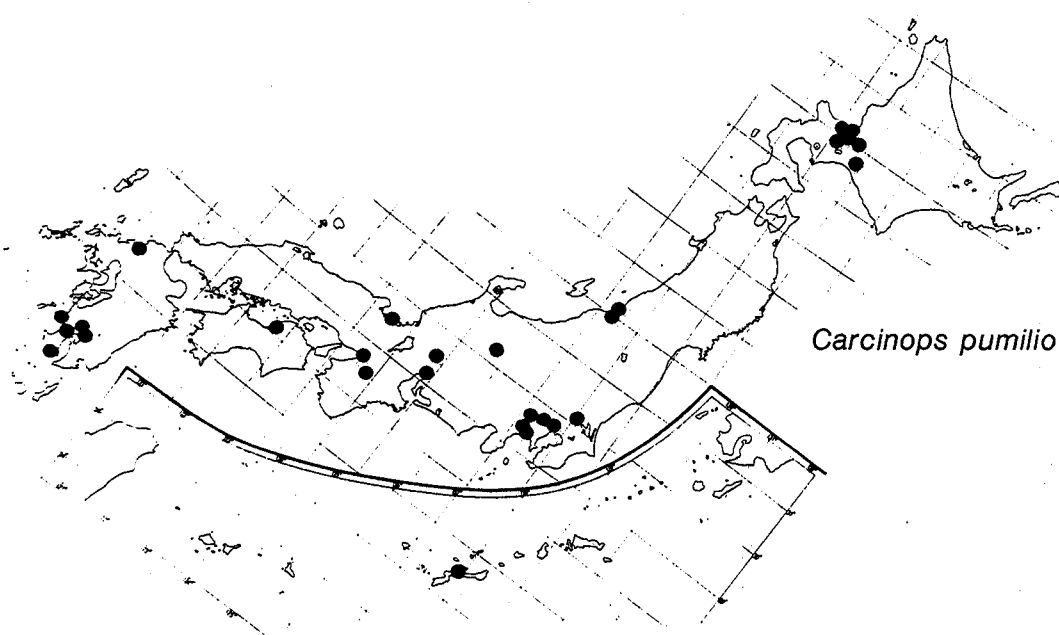


Fig. 93. Collection sites of *Carcinops* (*Carcinops*) *pumilio* (Erichson) in Japan.

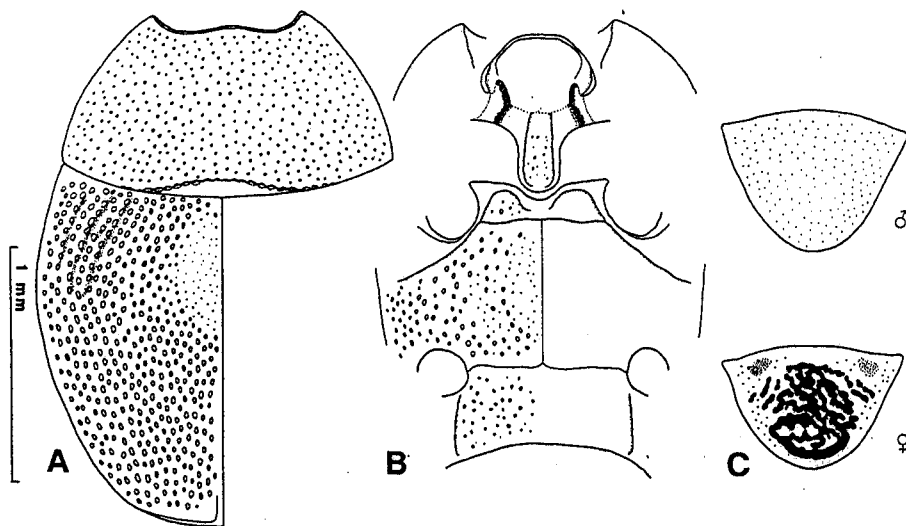


Fig. 94. *Australomalus montivagus* (Lewis). A: Pronotum and left elytron, dorsal view. B: Prosternum, mesosternum, metasternum and 1st abdominal sternum. C: Pygidium.

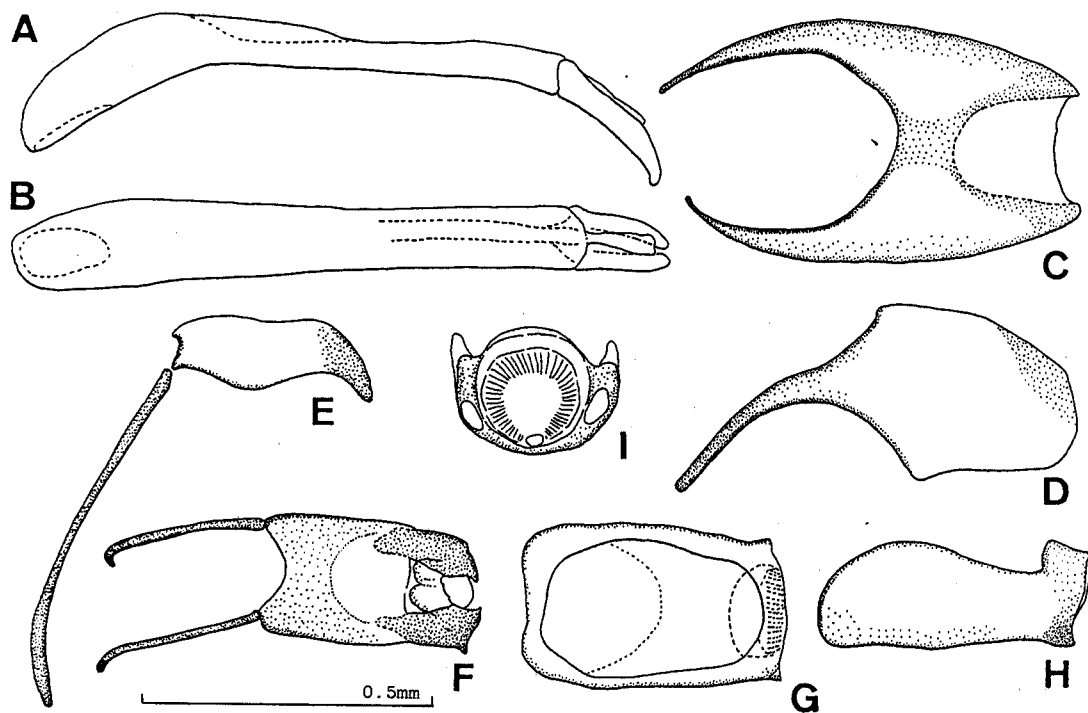


Fig. 95. *Australomalus montivagus* (Lewis). A: Aedeagus, lateral view. B: Ditto, dorsal view. C: Male genitalia, 8th tergite, dorsal view. D: Ditto, lateral view. E: Male genitalia, 9th and 10th tergites, dorsal view. F: Ditto, lateral view. G: Male genitalia, 8th sternum, dorsal view. H: Ditto, lateral view. I: Ditto, caudal view.

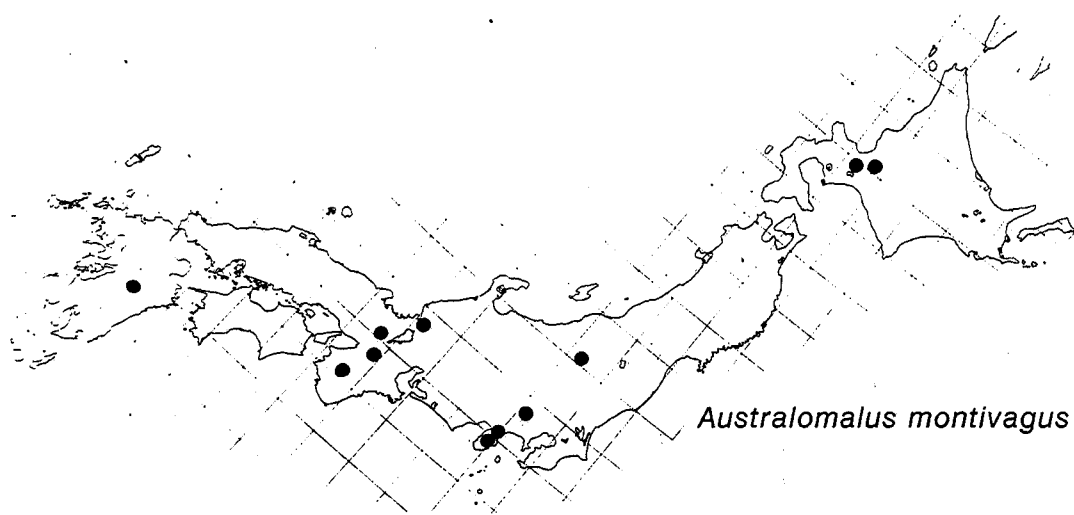


Fig. 96. Collection sites of *Australomalus montivagus* (Lewis) in Japan.

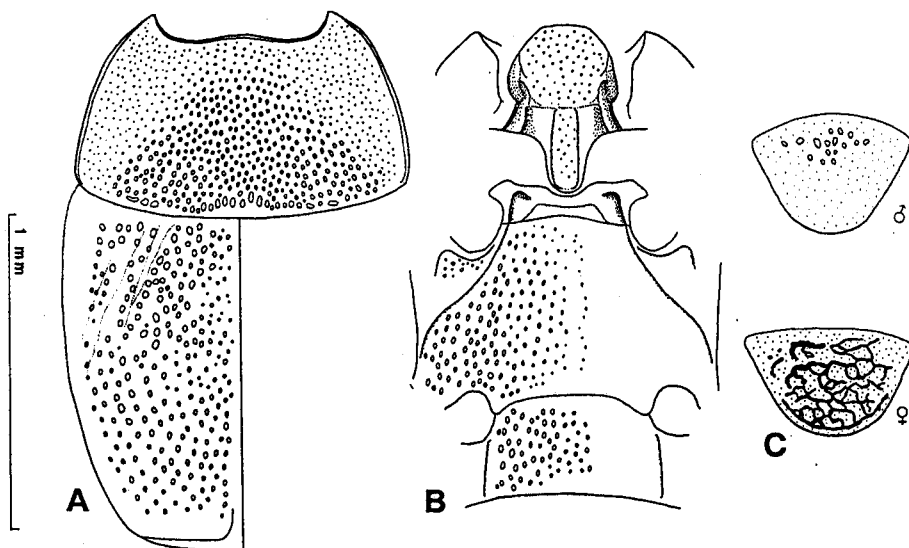


Fig. 97. *Platylomalus fujisanus* (Lewis). A: Pronotum and left elytron, dorsal view. B: Prosternum, mesosternum, metasternum and 1st abdominal sternum. C: Pygidium.

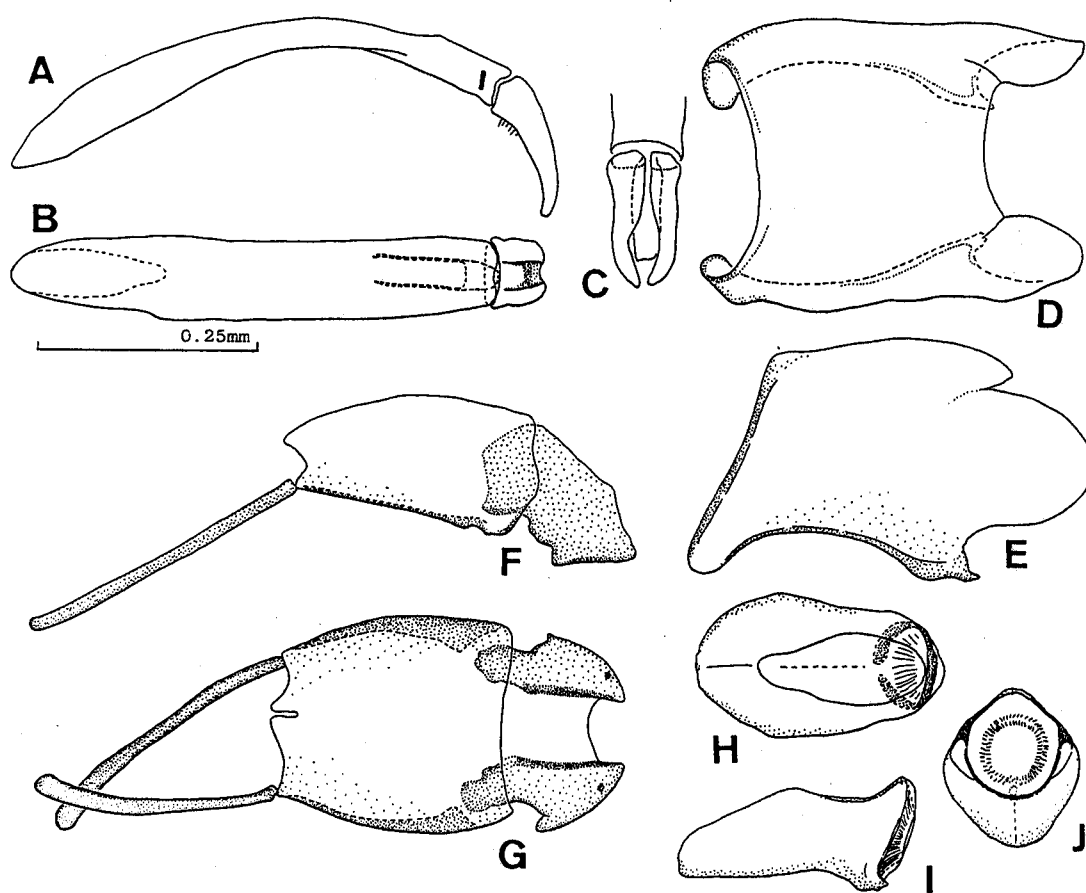


Fig. 98. *Platylomalus fujisanus* (Lewis). A: Aedeagus, lateral view. B: Ditto, dorsal view. C: Apex of aedeagus, caudal view. D: Male genitalia, 8th tergite, dorsal view. E: Ditto, lateral view. F: Male genitalia, 9th and 10th tergites, dorsal view. G: Ditto, lateral view. H: Male genitalia, 8th sternum, dorsal view. I: Ditto, lateral view. J: Ditto, caudal view.

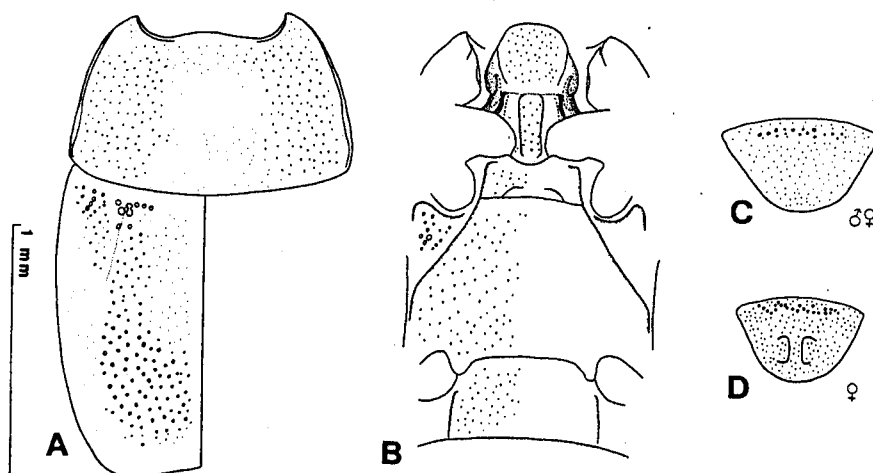


Fig. 99. *Platylomalus mendicus* (Lewis). A: Pronotum and left elytron, dorsal view. B: Prosternum, mesosternum, metasternum and 1st abdominal sternum. C: Pygidium of the specimens from Fukushima pref., Honshû. D: Ditto, from Okinawa, Ryûkyû Isles.

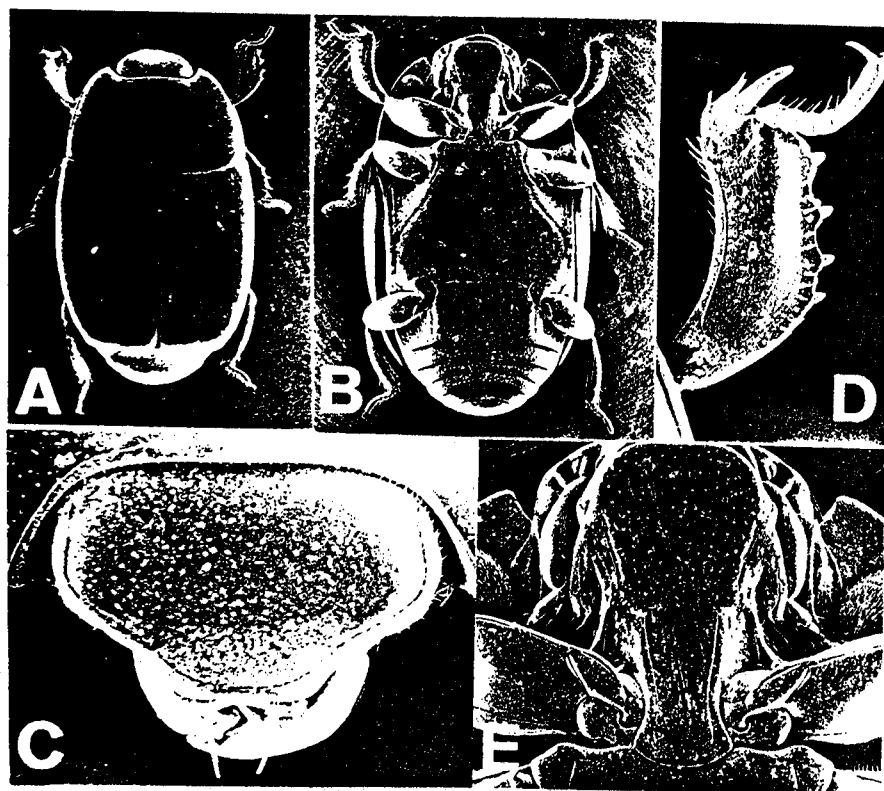


Fig. 100. *Platylomalus mendicus* (Lewis). A: Adult, dorsal view. B: Ditto, ventral view. C: Head, frontal view. D: Protibia, dorsal view. E: Prosternum, ventral view.

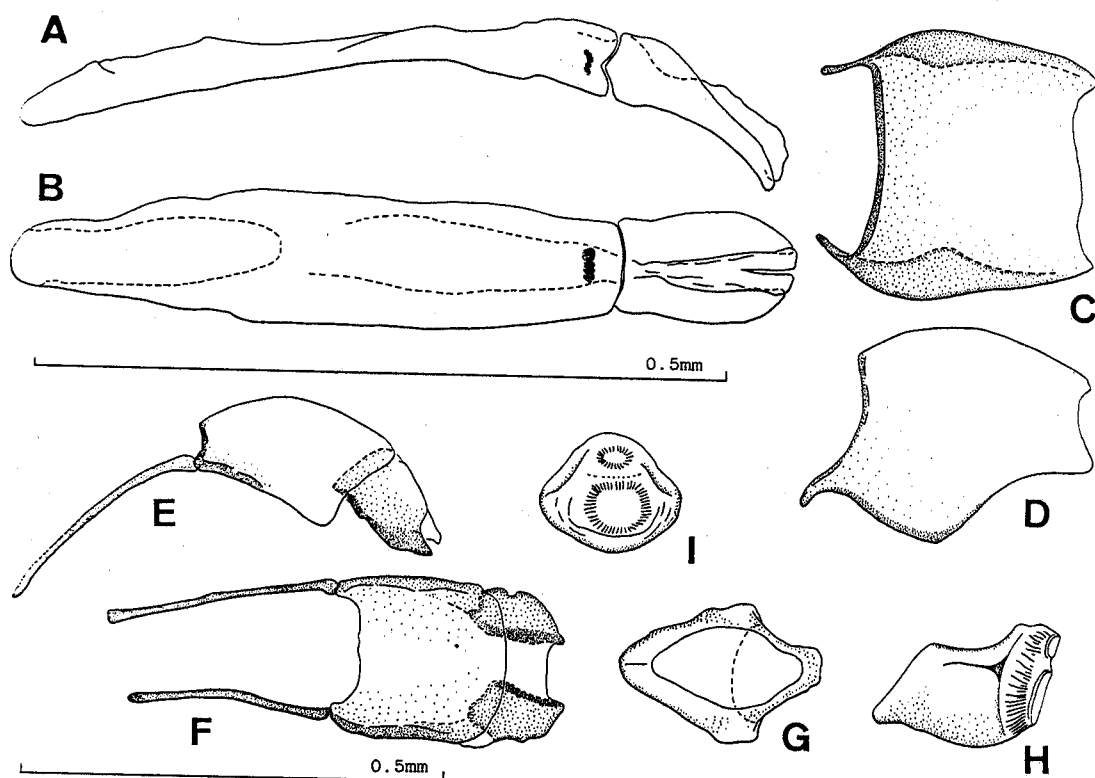


Fig. 101. *Platylomalus mendicus* (Lewis) A: Aedeagus, lateral view. B: Ditto, dorsal view. C: Male genitalia, 8th tergite, dorsal view. D: Ditto, lateral view. E: Male genitalia, 9th and 10th tergites, dorsal view. F: Ditto, lateral view. G: Male genitalia, 8th sternum, dorsal view. H: Ditto, lateral view. I: Ditto, caudal view.

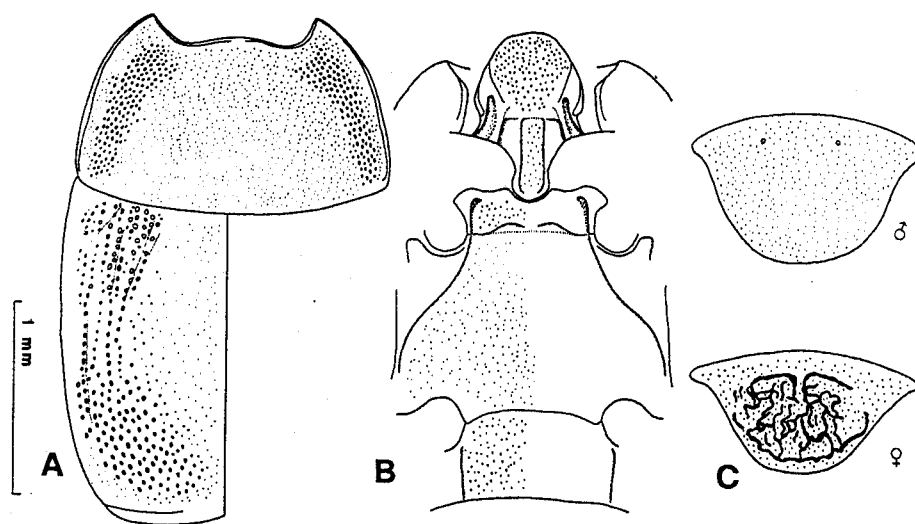


Fig. 102. *Platylomalus niponensis* (Lewis). A: Pronotum and left elytron, dorsal view. B: Prosternum, mesosternum, metasternum and 1st abdominal sternum. C: Pygidium.

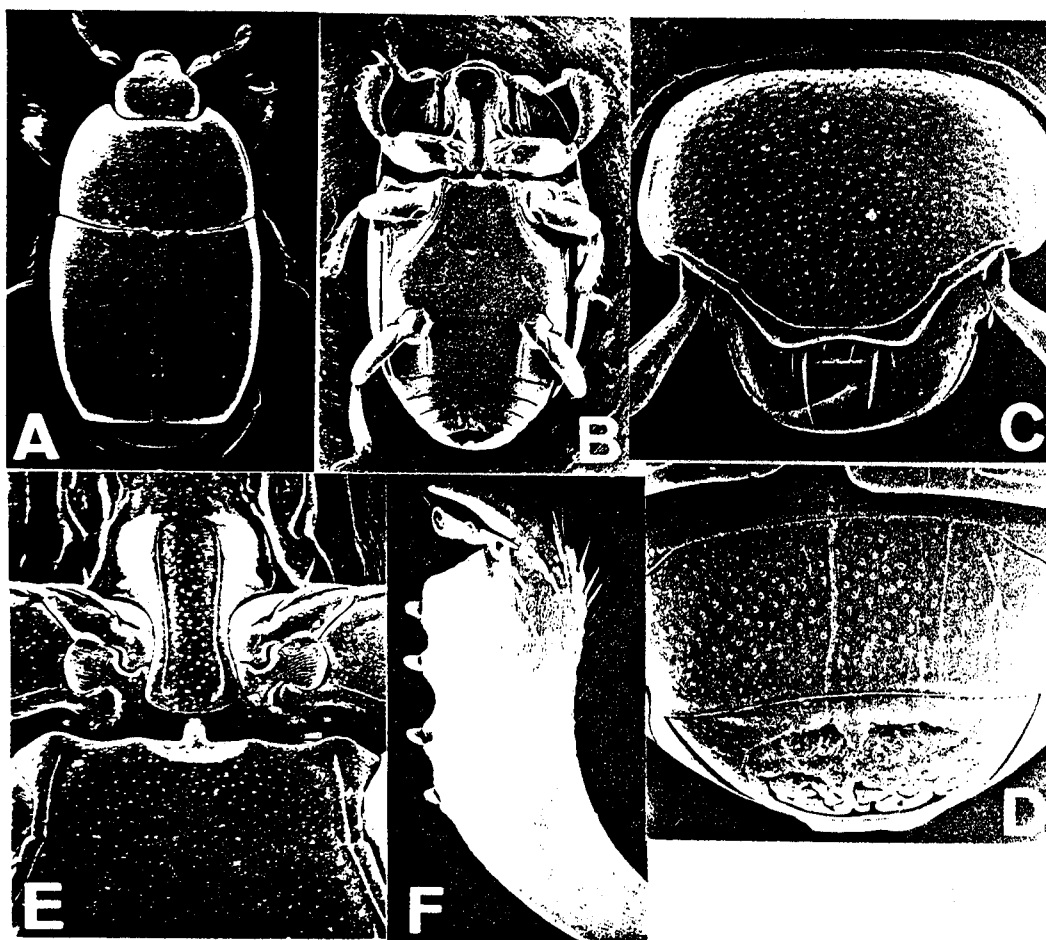


Fig. 103. *Platylomalus niponensis* (Lewis). A: Adult, dorsal view. B: Ditto, ventral view. C: Head, frontal view. D: Propygidium and pygidium. E: Pro-, meso- and metasterna, ventral view. F: Protibia, dorsal view.

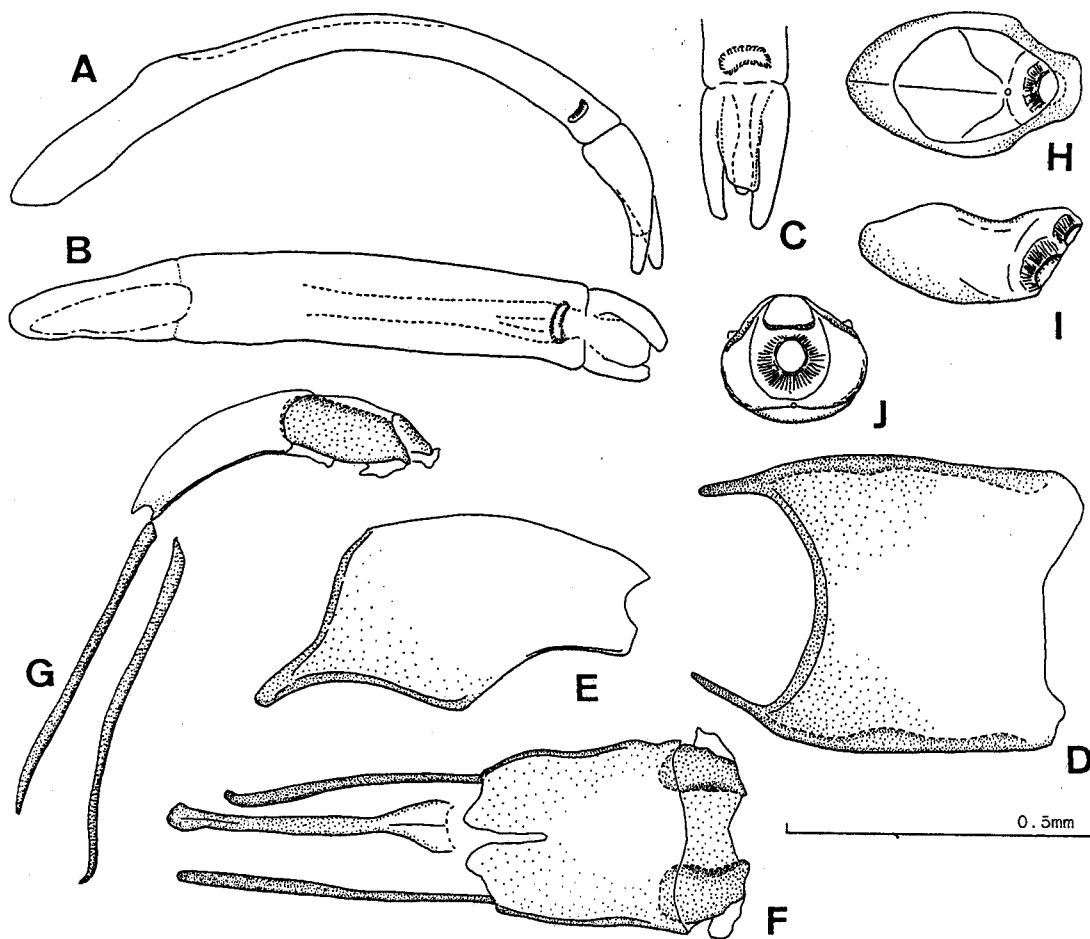


Fig. 104. *Platylomalus niponensis* (Lewis). A: Aedeagus, lateral view. B: Ditto, dorsal view. C: Apex of aedeagus, caudal view. D: Male genitalia, 8th tergite, dorsal view. E: Ditto, lateral view. F: Male genitalia, 9th and 10th tergites and 9th sternum (spicules), dorsal view. G: Ditto, lateral view. H: Male genitalia, 8th sternum, lateral view. I: Ditto, lateral view. J: Ditto, caudal view.

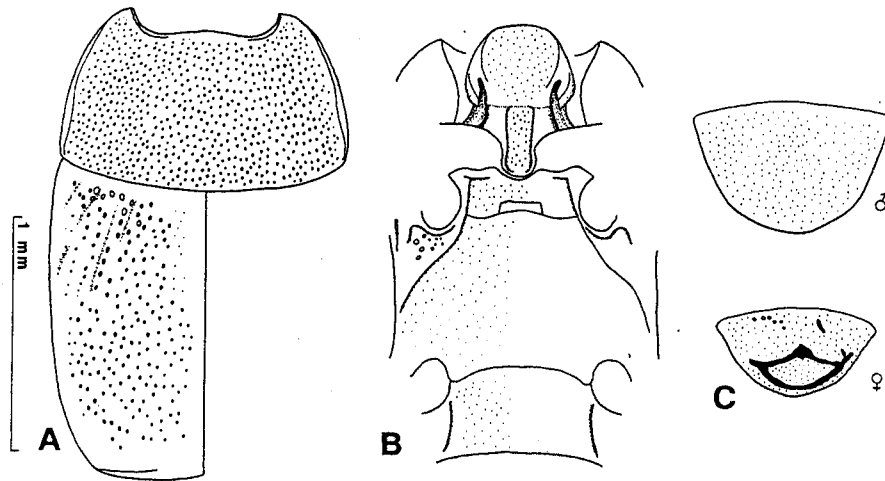


Fig. 105. *Platylomalus persimilis* (Lewis). A: Pronotum and left elytron, dorsal view. B: Prosternum, mesosternum, metasternum and 1st abdominal sternum. C: Pygidium.

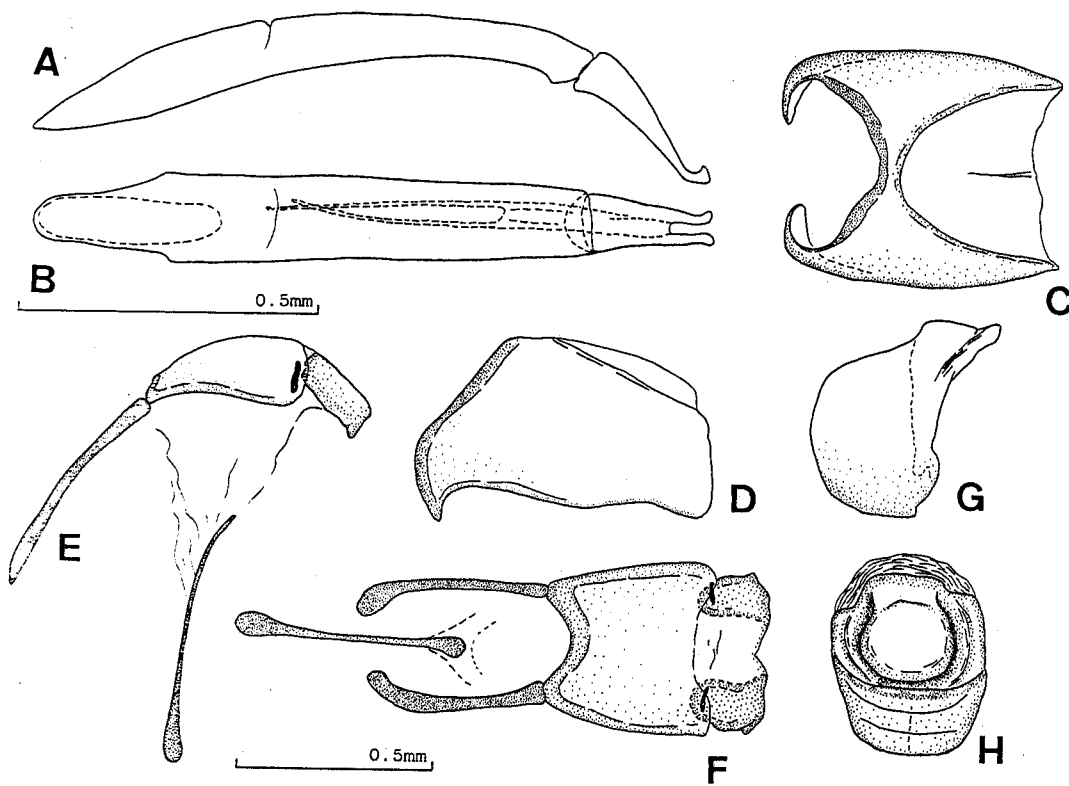


Fig. 106. *Platylomalus persimilis* (Lewis) A: Aedeagus, lateral view. B: Ditto, dorsal view. C: Male genitalia, 8th tergite, dorsal view. D: Ditto, lateral view. E: Male genitalia, 9th and 10th tergites and 9th sternum (spicules), dorsal view. F: Ditto, lateral view. G: Male genitalia, 8th sternum, lateral view. I: Ditto, caudal view.

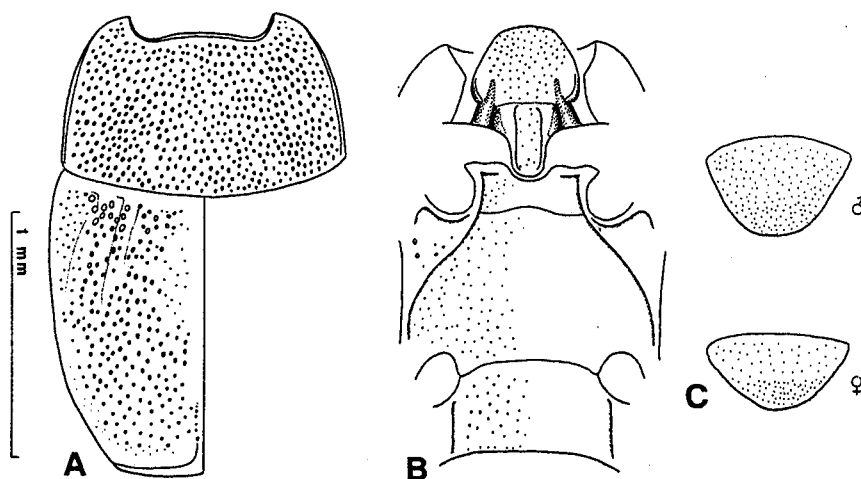


Fig. 107. *Platyломalus viaticus* (Lewis). A: Pronotum and left elytron, dorsal view. B: Prosternum, mesosternum, metasternum and 1st abdominal sternum. C: Pygidium.

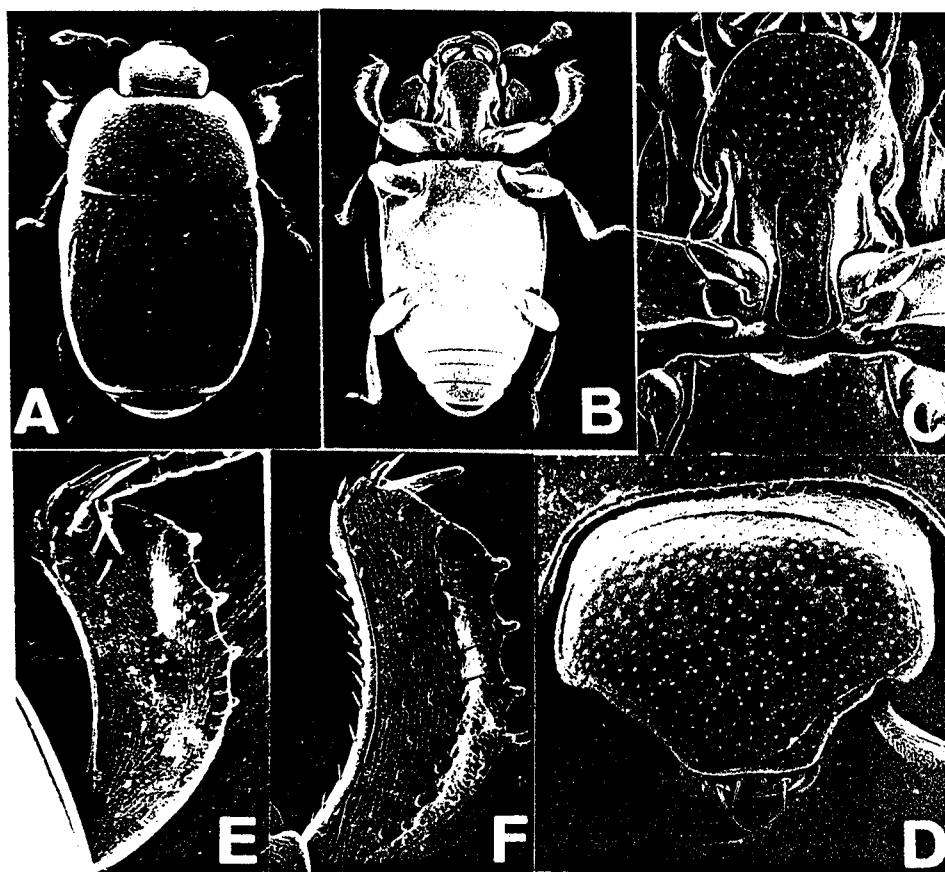


Fig. 108. *Platyломalus viaticus* (Lewis). A: Adult, dorsal view. B: Ditto, ventral view. C: Prosternum, ventral view. D: Head, frontal view. E: Protibia, dorsal view. F: Ditto, ventral view.

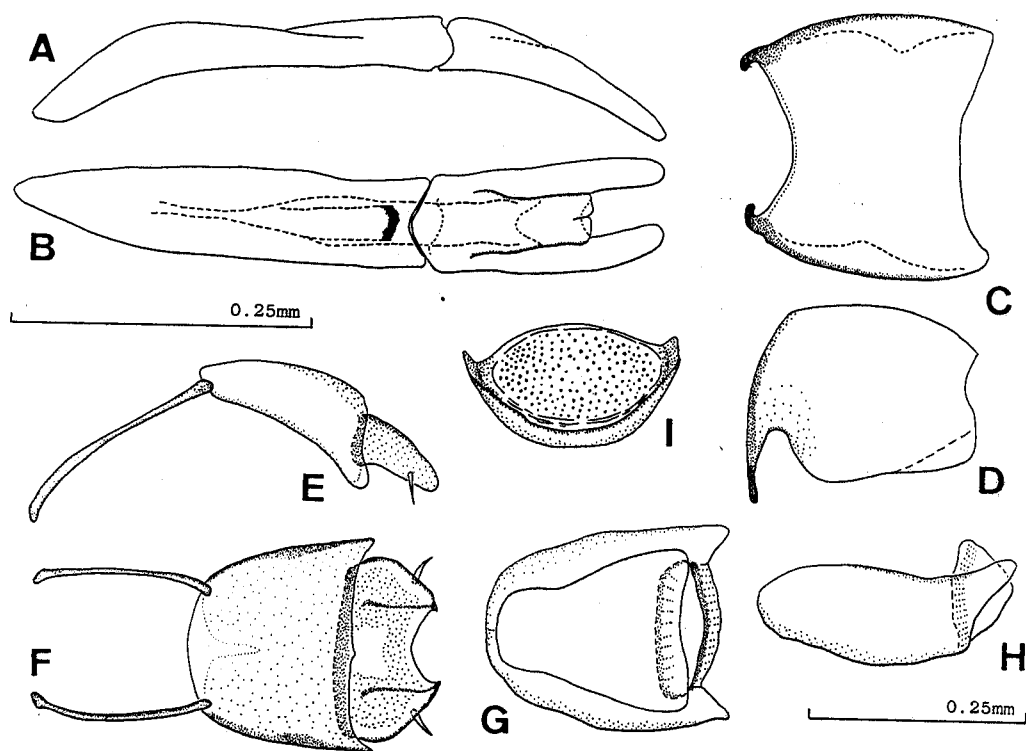


Fig. 109. *Platylomalus viaticus* (Lewis). A: Aedeagus, lateral view. B: Ditto, dorsal view. C: Male genitalia, 8th tergite, dorsal view. D: Ditto, lateral view. E: Male genitalia, 9th and 10th tergites, dorsal view. F: Ditto, lateral view. G: Male genitalia, 8th sternum, dorsal view. H: Ditto, lateral view. I: Ditto, caudal view.

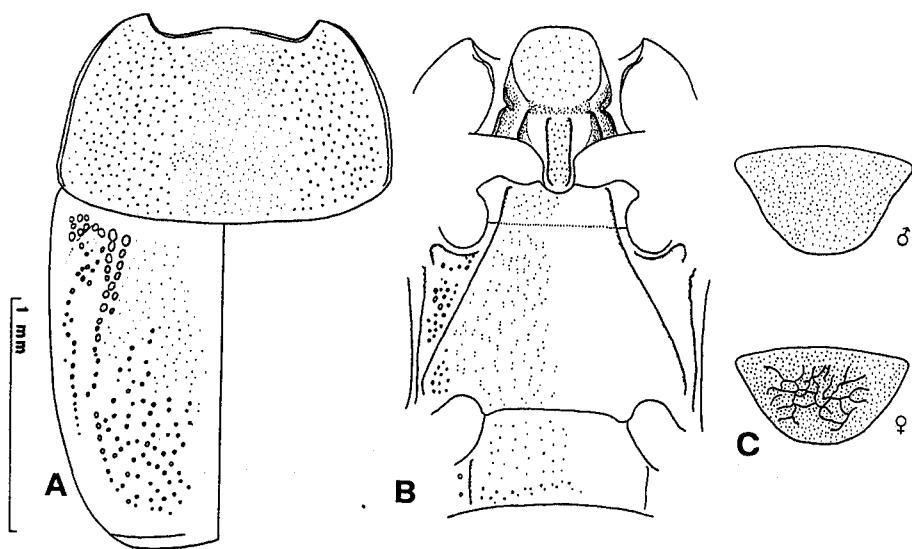


Fig. 110. *Platyomalus kusuii* sp. nov. A: Pronotum and left elytron, dorsal view. B: Prosternum, mesosternum, metasternum and 1st abdominal sternum. C: Pygidium.

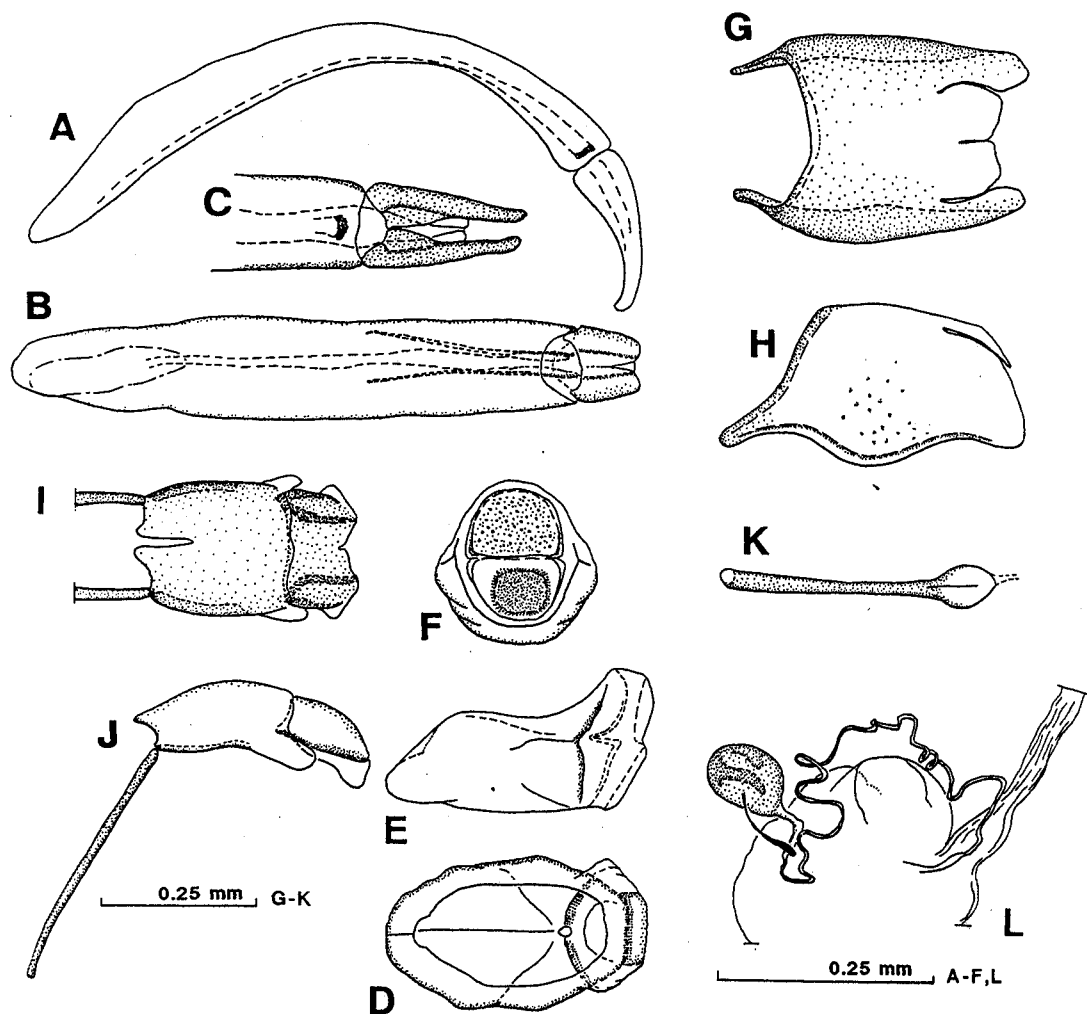


Fig. 111. *Platylomalus kusuii* sp. nov. A: Aedeagus, lateral view. B: Ditto, dorsal view. C: Apex of aedeagus, caudal view. D: Male genitalia, 8th sternum, dorsal view. E: Ditto, lateral view. F: Ditto, caudal view. G: Male genitalia, 8th tergite, dorsal view. H: Ditto, lateral view. I: Male genitalia, 9th and 10th tergites, dorsal view. J: Ditto, lateral view. K: Male genitalia, 9th sternum (spicules), dorsal view. L: Female genitalia, spermatheca.

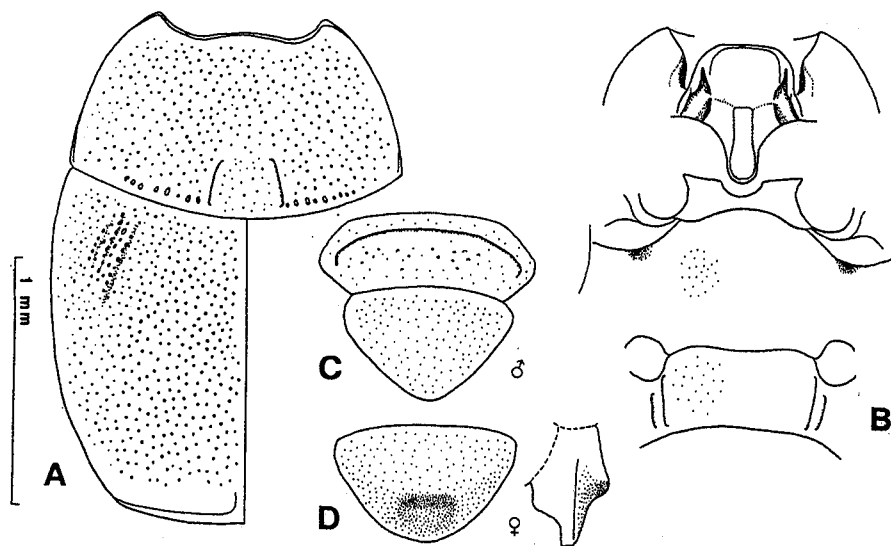


Fig. 112. *Pachylomalus (Canidius) musculus* (Marseul). A: Pronotum and left elytron, dorsal view. B: Prosternum, mesosternum, metasternum and 1st abdominal sternum. C: Propygidium and pygidium, male. D: Pygidium, female, caudal (left) and lateral views.

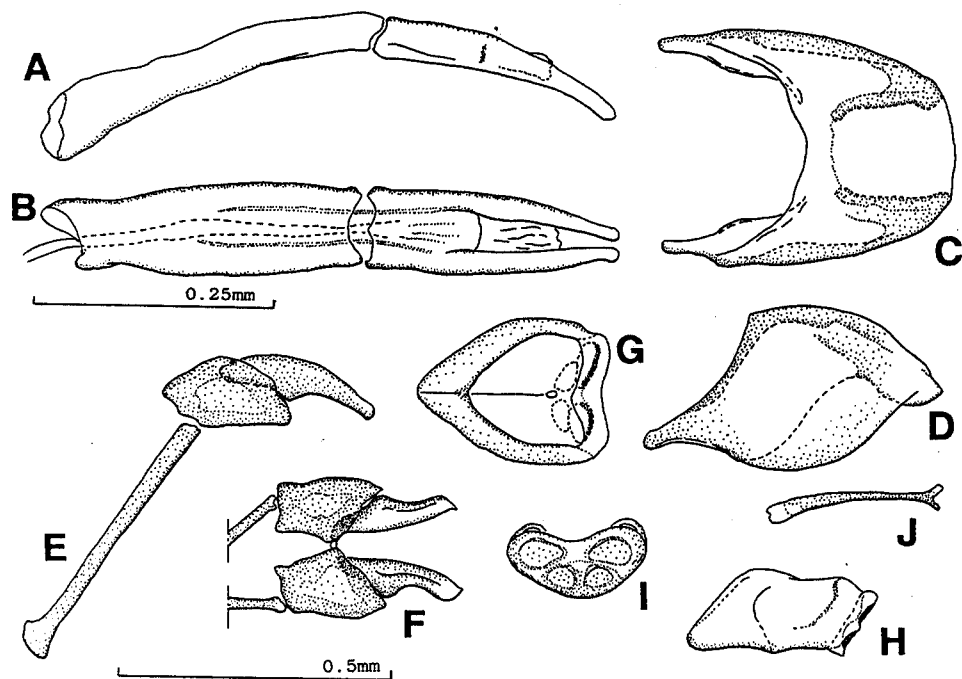


Fig. 113. *Pachylomalus (Canidius) musculus* (Marseul). A: Aedeagus, lateral view. B: Ditto, dorsal view. C: Male genitalia, 9th tergite, dorsal view. D: Ditto, lateral view. E: Male genitalia, 9th and 10th tergites, lateral view. F: Ditto, dorsal view. G: Male genitalia, 8th sternum, dorsal view. H: Ditto, lateral view. I: Ditto, caudal view. J: Male genitalia, 9th sternum (spicules), dorsal view.

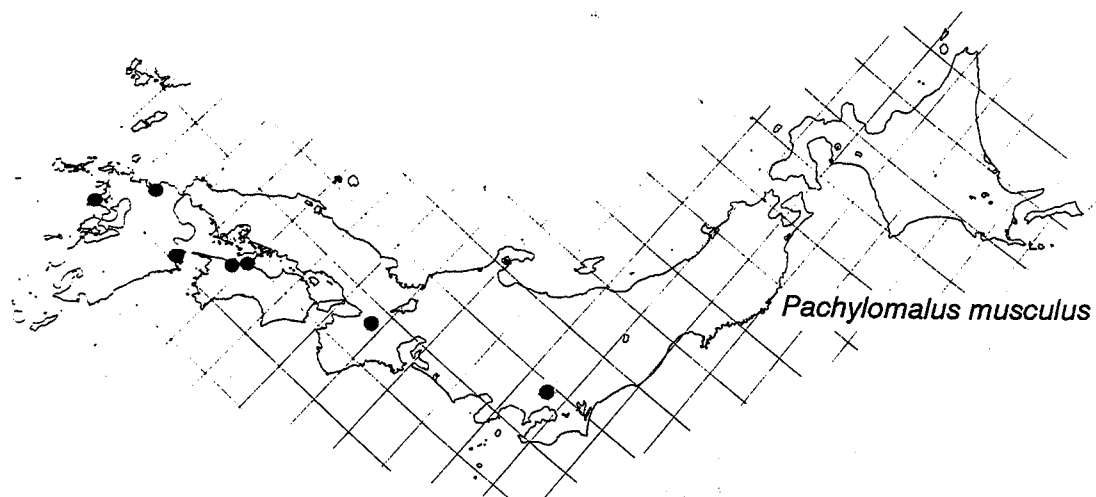


Fig. 114. Collection sites of *Pachylomalus (Canidius) musculus* (Marseul) in Japan.

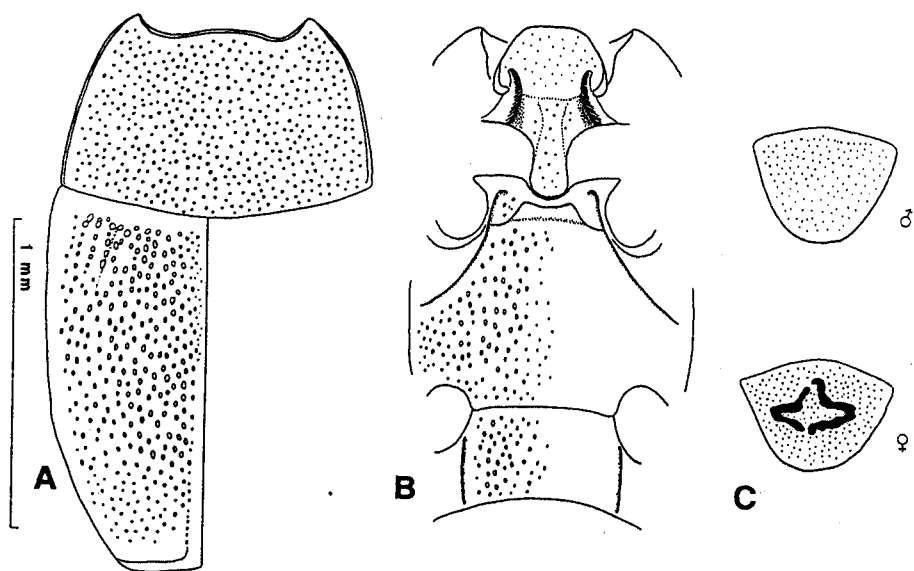


Fig. 115. *Paromalus parallelepipedus* (Herbst). A: Pronotum and left elytron, dorsal view. B: Prosternum, mesosternum, metasternum and 1st abdominal sternum. C: Pygidium.

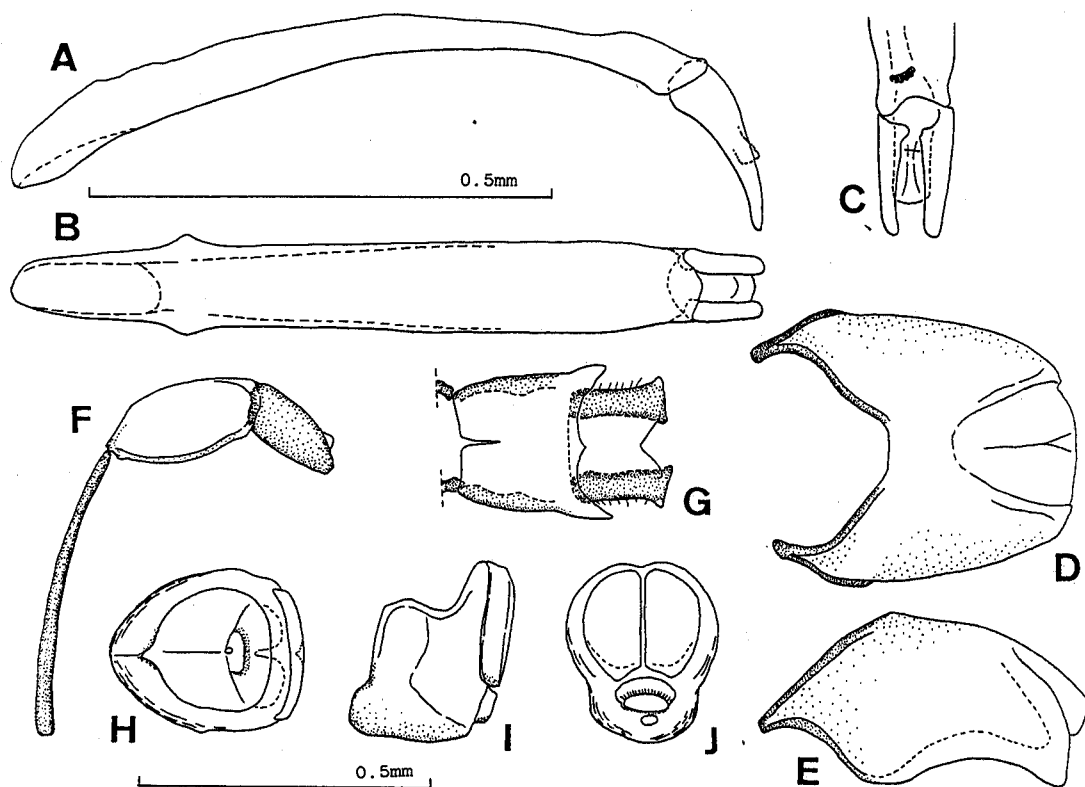


Fig. 116. *Paromalus parallelepipedus* (Herbst). A: Aedeagus, lateral view. B: Ditto, dorsal view. C: Apex of aedeagus, caudal view. D: Male genitalia, 9th tergite, dorsal view. E: Ditto, lateral view. F: Male genitalia, 9th and 10th tergites, lateral view. G: Ditto, dorsal view. H: Male genitalia, 8th sternum, dorsal view. I: Ditto, lateral view. J: Ditto, caudal view.

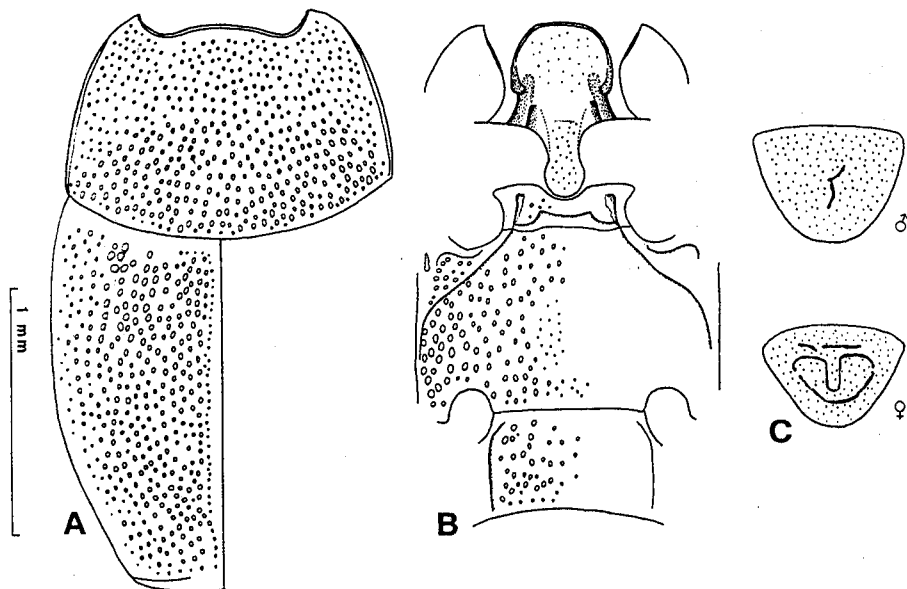


Fig. 117. *Paromalus vernalis* Lewis. A: Pronotum and left elytron, dorsal view. B: Prosternum, mesosternum, metasternum and 1st abdominal sternum. C: Pygidium.

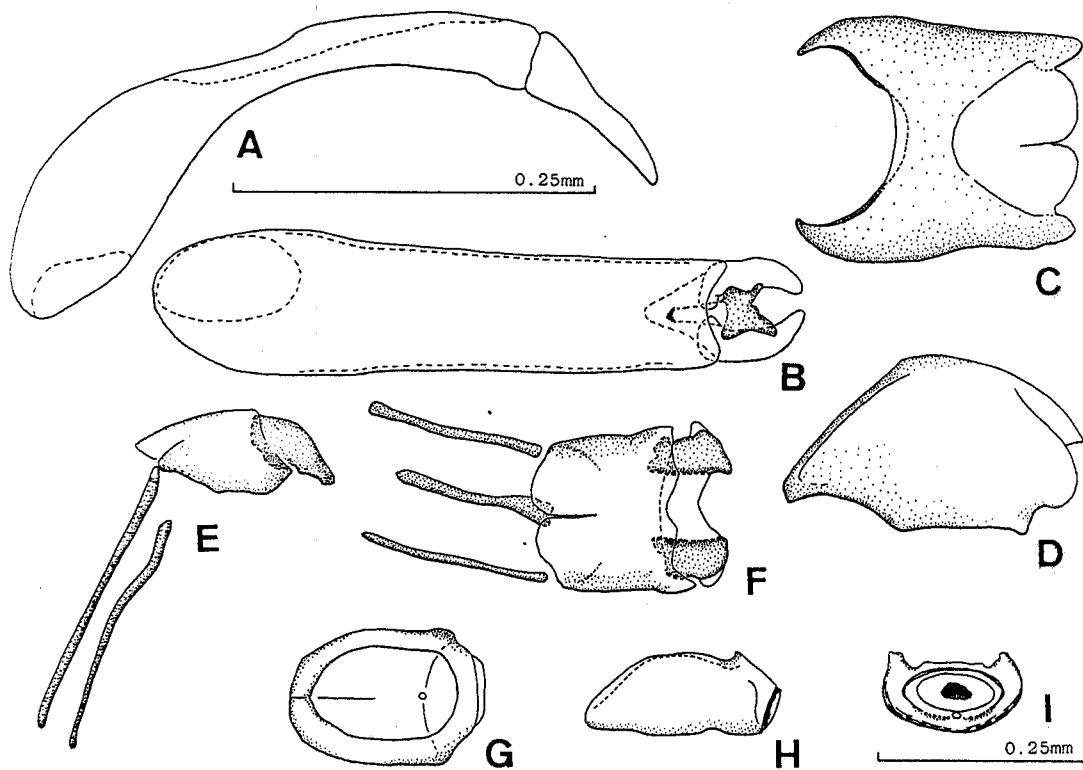


Fig. 118. *Paromalus vernalis* Lewis. A: Aedeagus, lateral view. B: Ditto, dorsal view. C: Male genitalia, 9th tergite, dorsal view. D: Ditto, lateral view. E: Male genitalia, 9th and 10th tergites and 9th sternum (spicules), lateral view. F: Ditto, dorsal view. G: Male genitalia, 8th sternum, dorsal view. H: Ditto, lateral view. I: Ditto, caudal view.

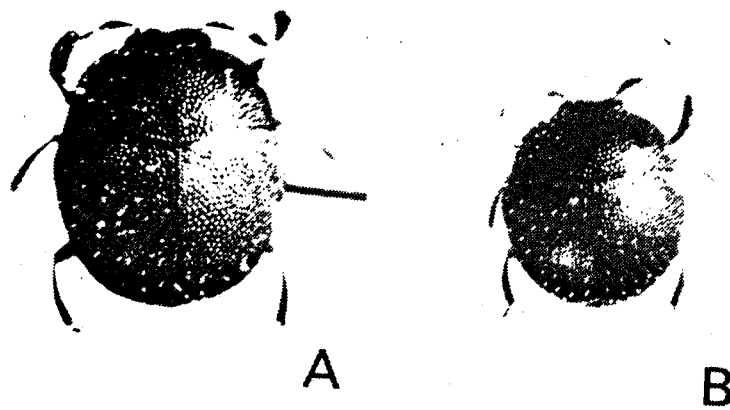


Fig. 119. Adults in dorsal view. A: *Chaetabraeus bonzicus* (Marseul). B: *C. cohaeres* (Lewis.)

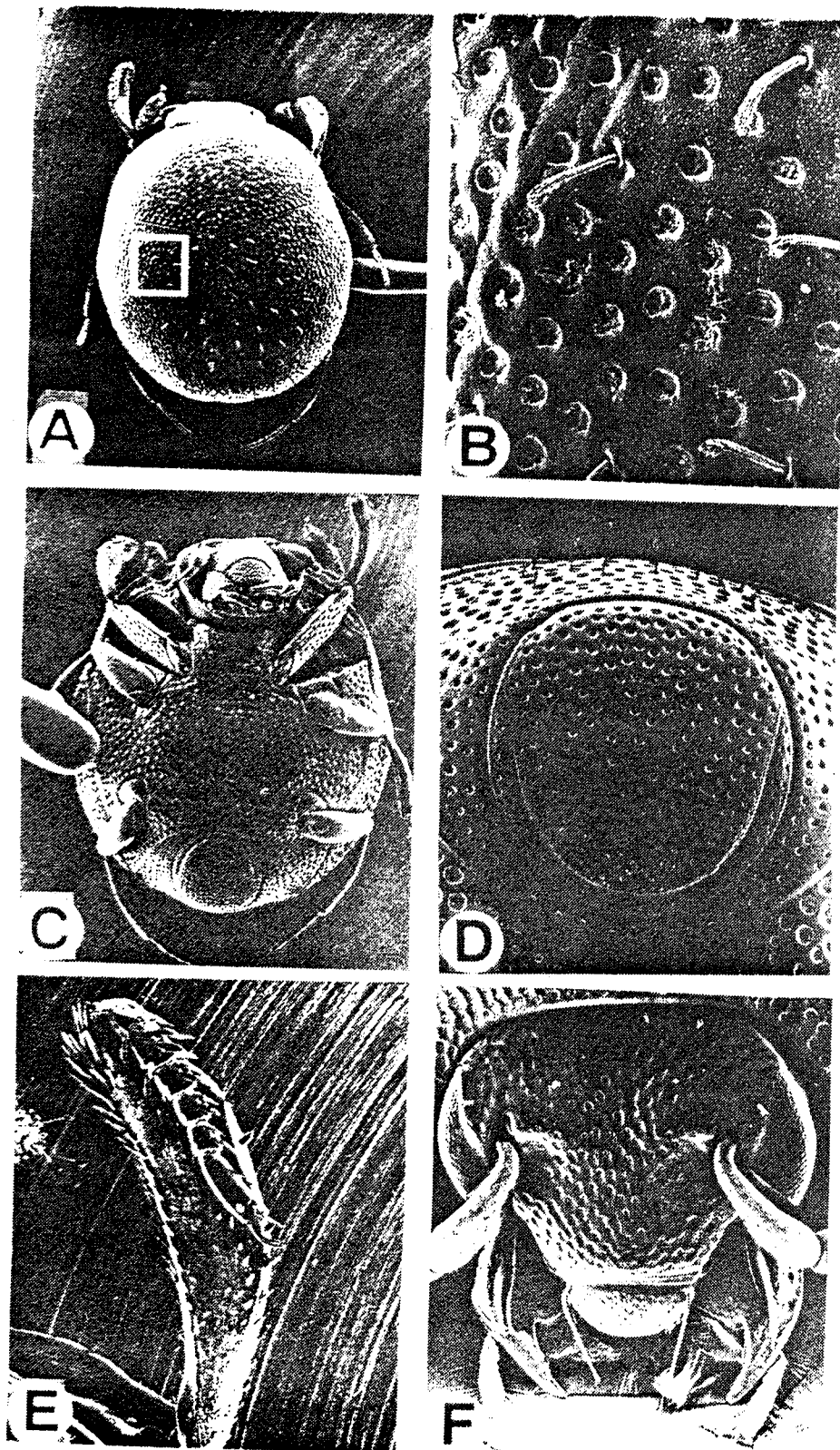


Fig. 120. A - E: *Chaetabraeus cohaeres* (Lewis). F: *C. bonzicus* (Marseul). A: Adult, dorsal view. B: Surface of elytron. C: Adult, ventral view. D: Pygidium. E: Right protibia, dorsal view. F: Head, frontal view.

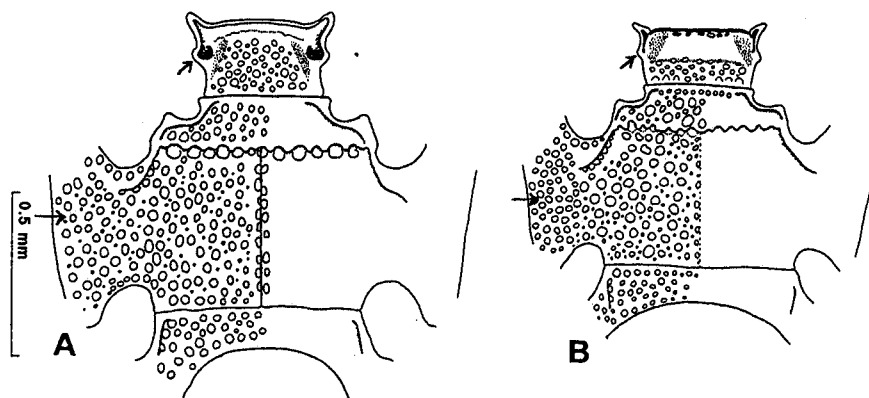


Fig. 121. Prosternal process and meso- and metasternum. A: *Chaetabraeus bonzicus* (Marseul). B: *C. cohaeres* (Lewis).

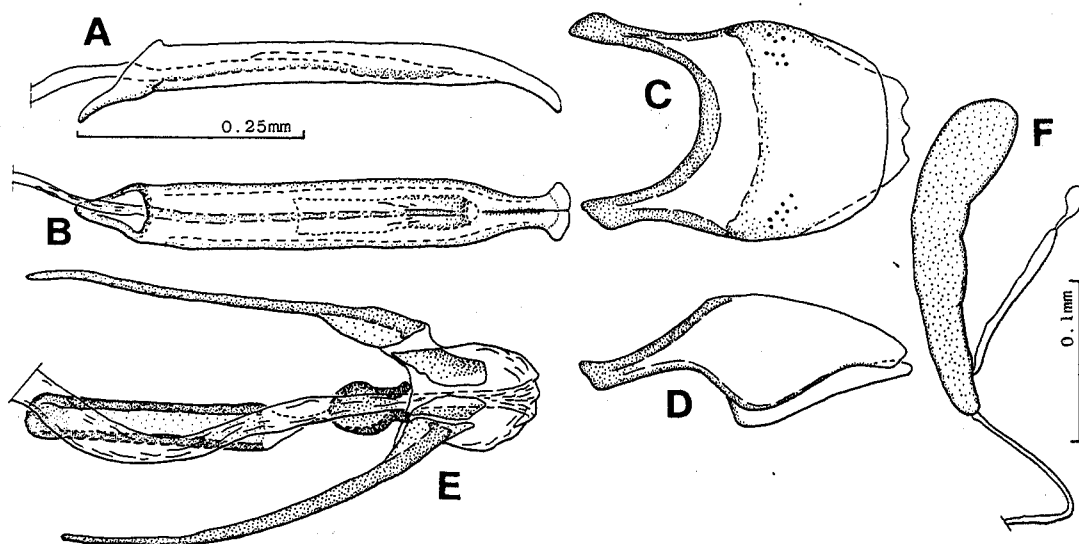


Fig. 122. *Chaetabraeus bonzicus* (Marseul). A: Aedeagus, lateral view. B: Ditto, dorsal view. C: Male genitalia, 8th tergite and sternum, dorsal view. D: Ditto, lateral view. E: Male genitalia, 9th and 10th tergites and 9th sternum (spicules), dorsal view. F: Spermatheca.

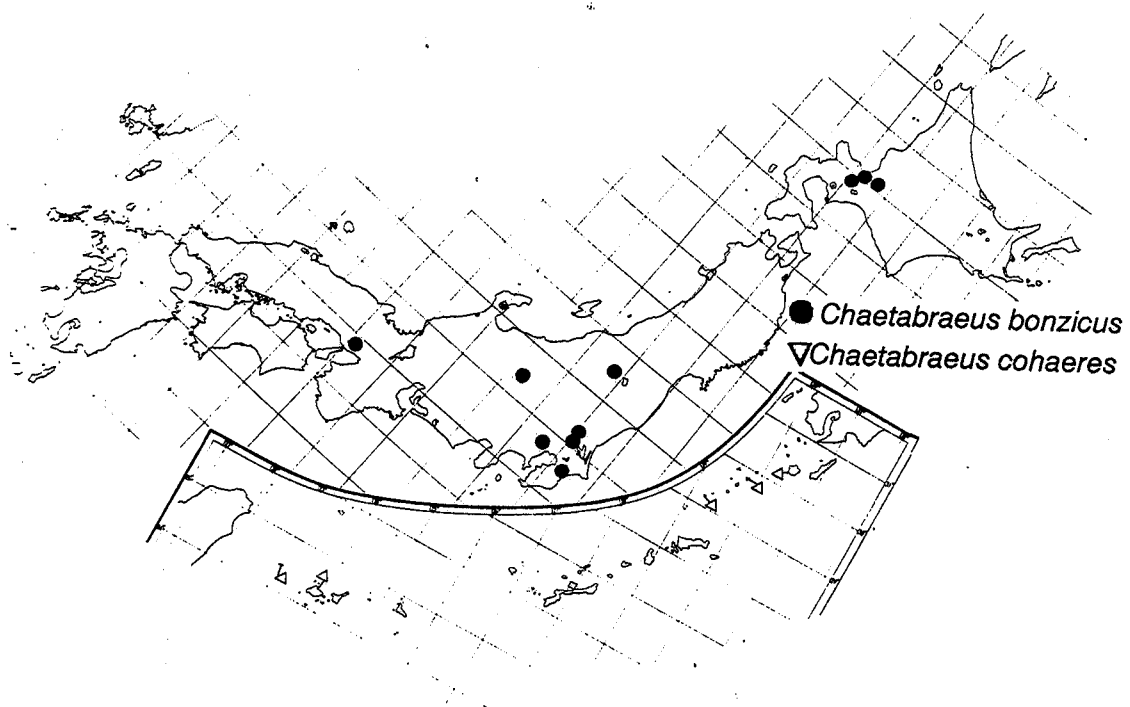


Fig. 123. Collection sites of *Chaetabraeus bonzicus* (Marseul) and *C. cohaeres* (Lewis) in Japan.

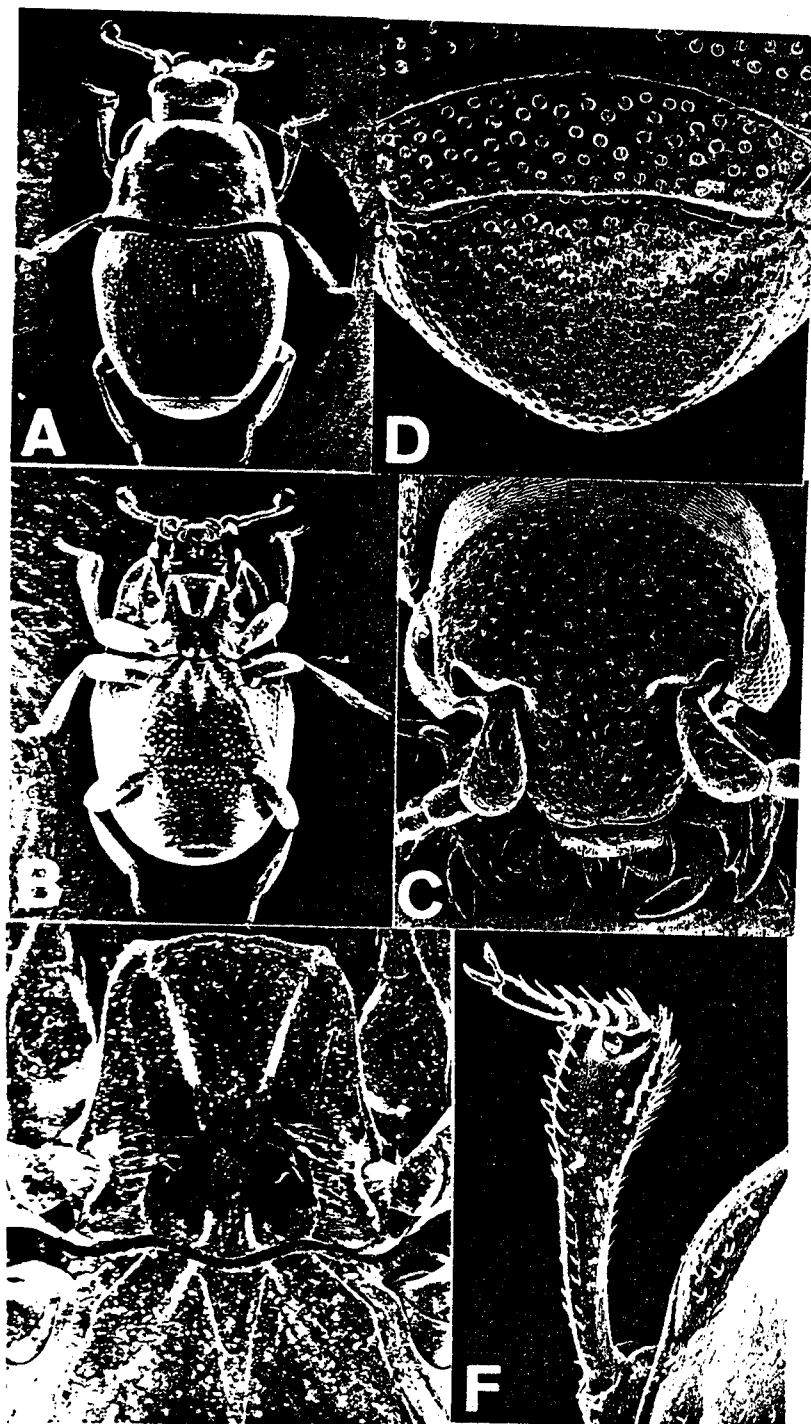


Fig. 124. *Plegaderus maruseuli* Reitter. A: Adult, dorsal view. B: Ditto, ventral view. C: Head. D: Propygidium and pygidium. E: Prosternum and mesosternum, ventral view. F: Protibia, dorsal view.

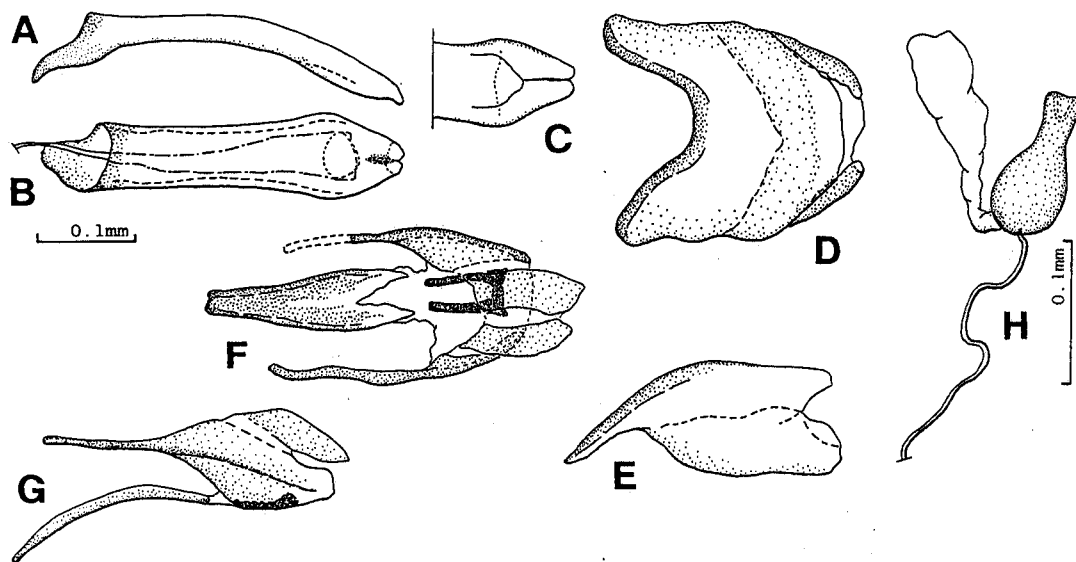


Fig. 125. *Plegaderus marseuli* Reitter. A: Aedeagus, lateral view. B: Ditto, dorsal view. C: Apex of aedeagus, ventral view. D: Male genitalia, 8th tergite and sternum, dorsal view. E: Ditto, lateral view. F: Male genitalia, 9th and 10th tergites and 9th sternum (spicules), dorsal view. G: Ditto, lateral view. H: Spermatheca and spermathecal gland.

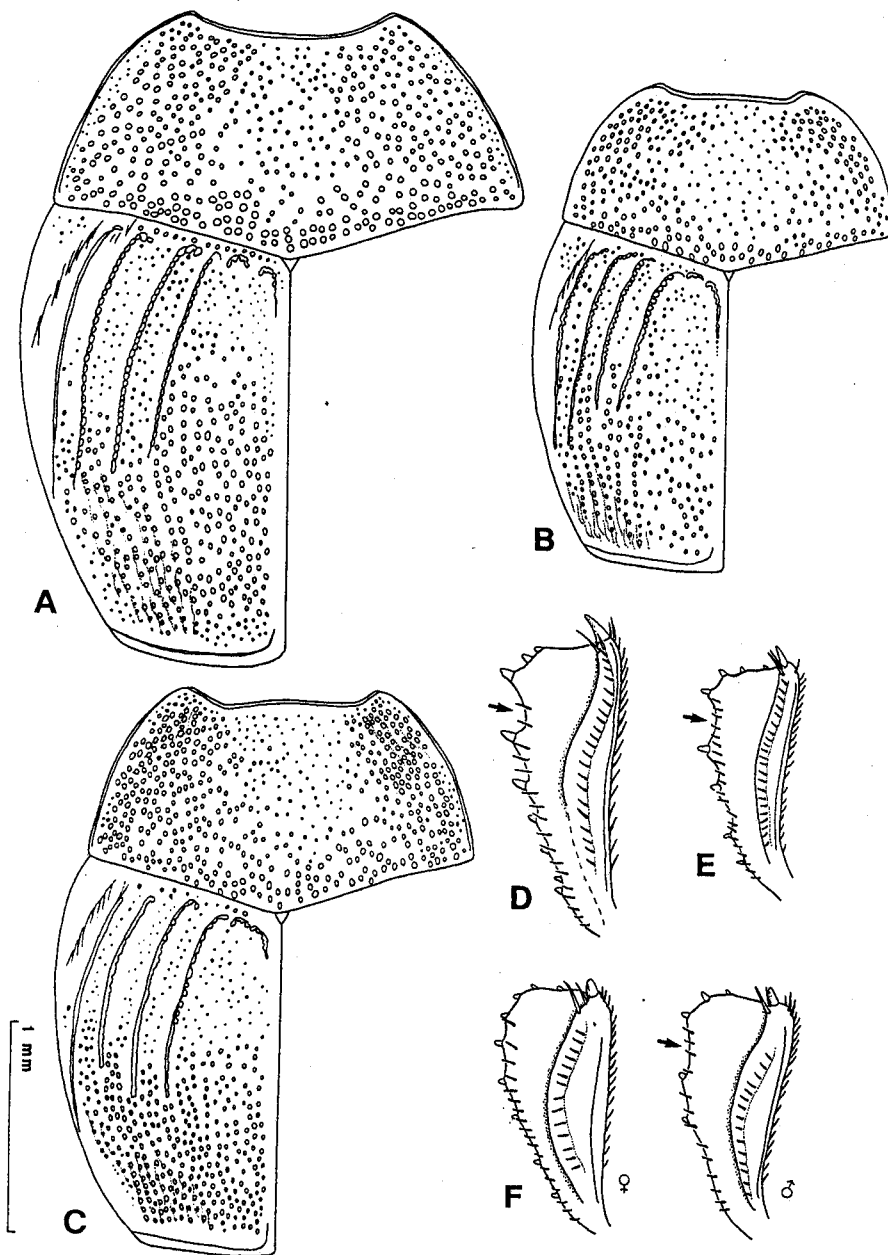


Fig. 126. *Gnathoncus* spp. A-C: Pronotum and left elytron. D-F: Left protibia, dorsal view. A, D: *G. nannetensis* (Marseul). B, E: *G. rotundatus* (Kugelann). C, F: *G. communis* (Marseul).

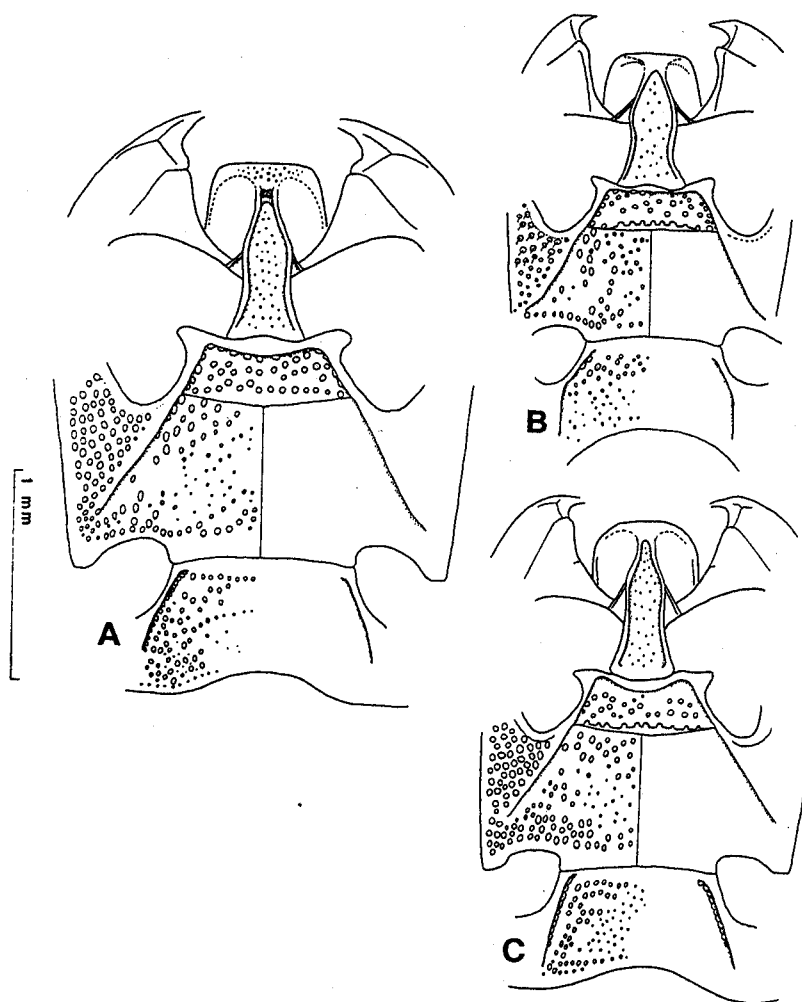


Fig. 127. *Gnathoncus* spp. Prosternum, mesosternum, metasternum and 1st abdominal sternum. A: *G. nannetensis* (Marseul). B: *G. rotundatus* (Kugelann). C: *G. communis* (Marseul).

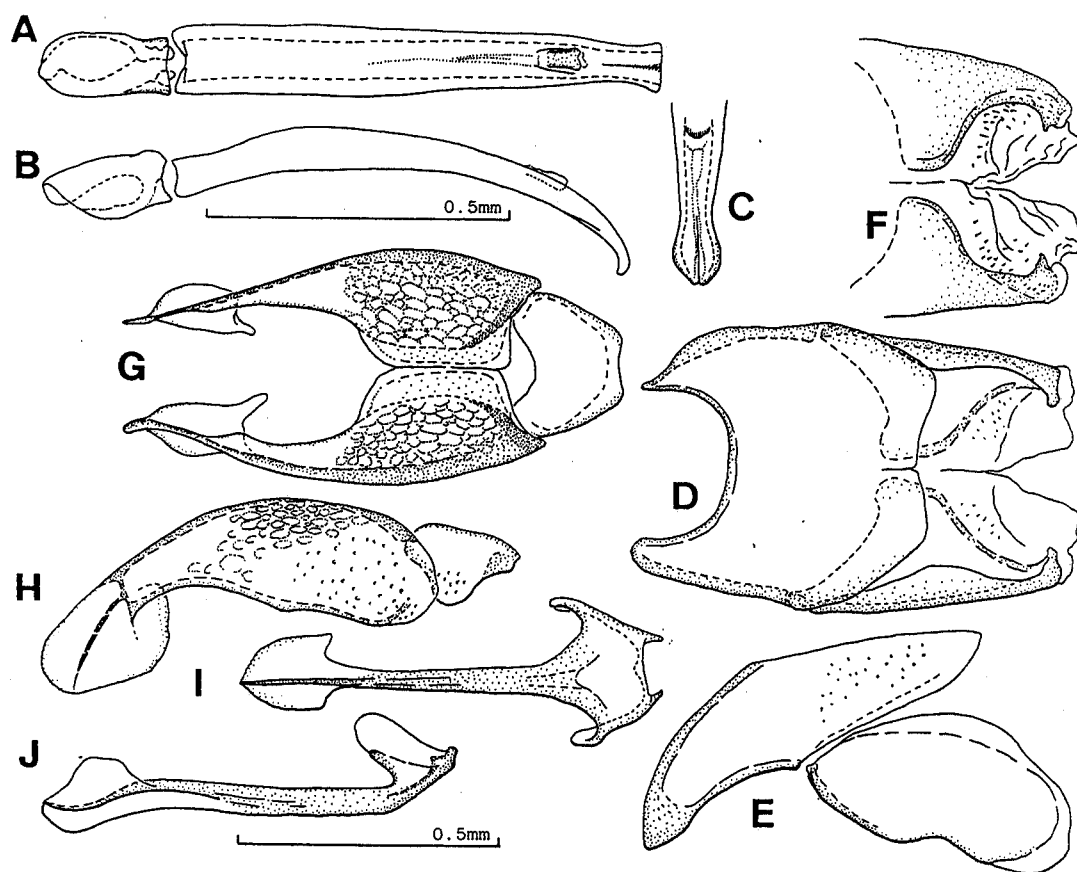


Fig. 128. *Gnathoncus nannetensis* (Marseul) A: Aedeagus, dorsal view. B: Ditto, lateral view. C: Apex of aedeagus, caudal view. D: Male genitalia, 8th tergite and sternum, dorsal view. E: Apex of 8th sternum, ventral view. F: Eighth tergite and sternum, lateral view. G: Male genitalia, 9th and 10th tergites and 9th sternum (spicules), dorsal view. H: Ditto, lateral view. I: Ninth sternum (spicules), dorsal view. J: Ditto, lateral view.

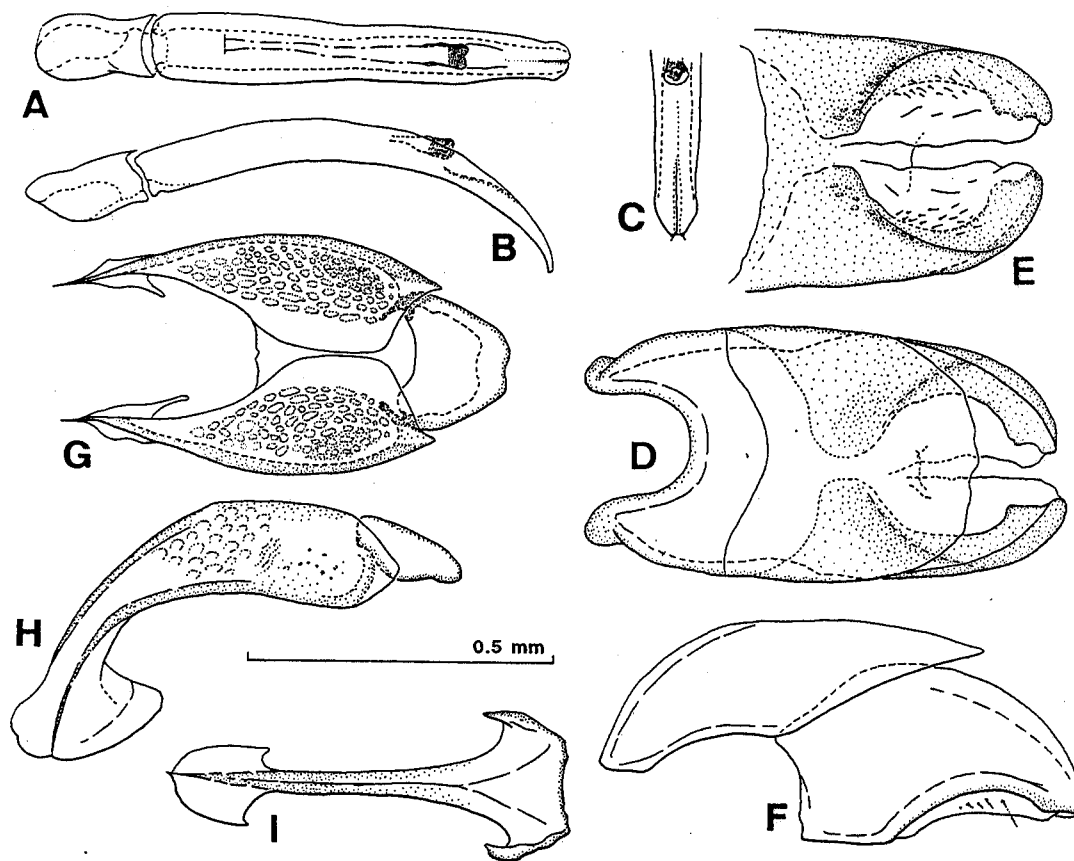


Fig. 129. *Gnathoncus rotundatus* (Kugelann) A: Aedeagus, dorsal view. B: Ditto, lateral view. C: Apex of aedeagus, caudal view. D: Male genitalia, 8th tergite and sternum, dorsal view. E: Apex of 8th sternum, ventral view. F: Eighth tergite and sternum, lateral view. G: Male genitalia, 9th and 10th tergites and 9th sternum (spicules), dorsal view. H: Ditto, lateral view. I: Ninth sternum (spicules), dorsal view.

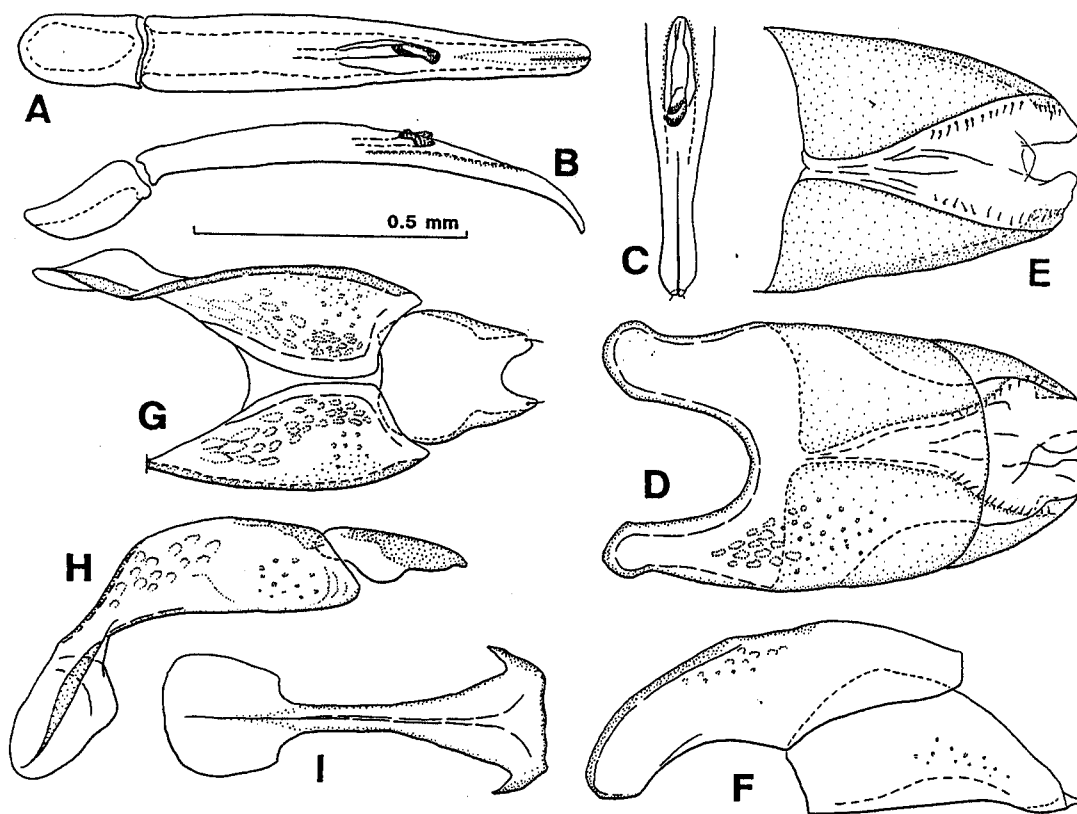


Fig. 130. *Gnathoncus communis* (Marseul). A: Aedeagus, dorsal view. B: Ditto, lateral view. C: Apex of aedeagus, caudal view. D: Male genitalia, 8th tergite and sternum, dorsal view. E: Apex of 8th sternum, ventral view. F: Eighth tergite and sternum, lateral view. G: Male genitalia, 9th and 10th tergites and 9th sternum (spicules), dorsal view. H: Ditto, lateral view. I: Ninth sternum (spicules), dorsal view.

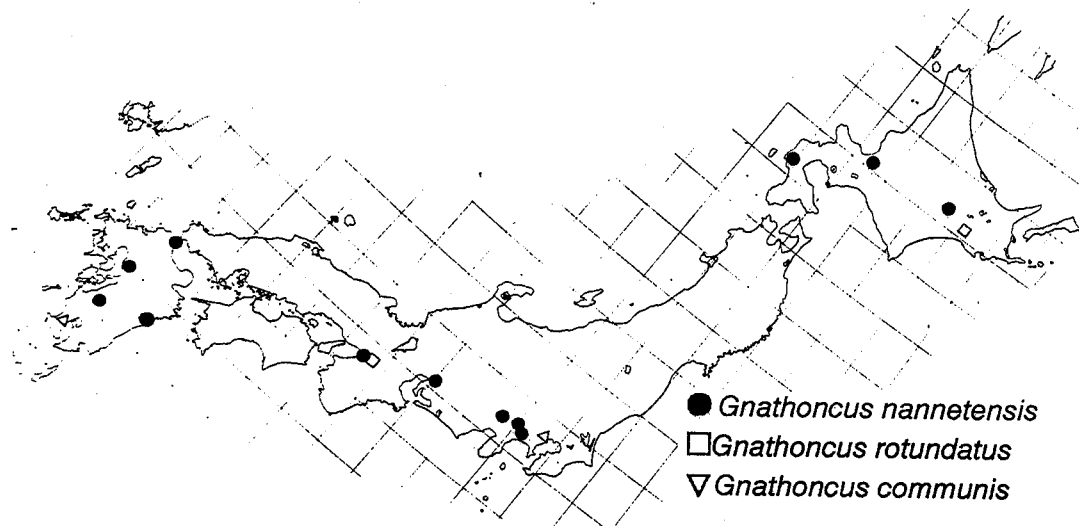


Fig. 131. Collection sites of *Gnathoncus* spp. in Japan.

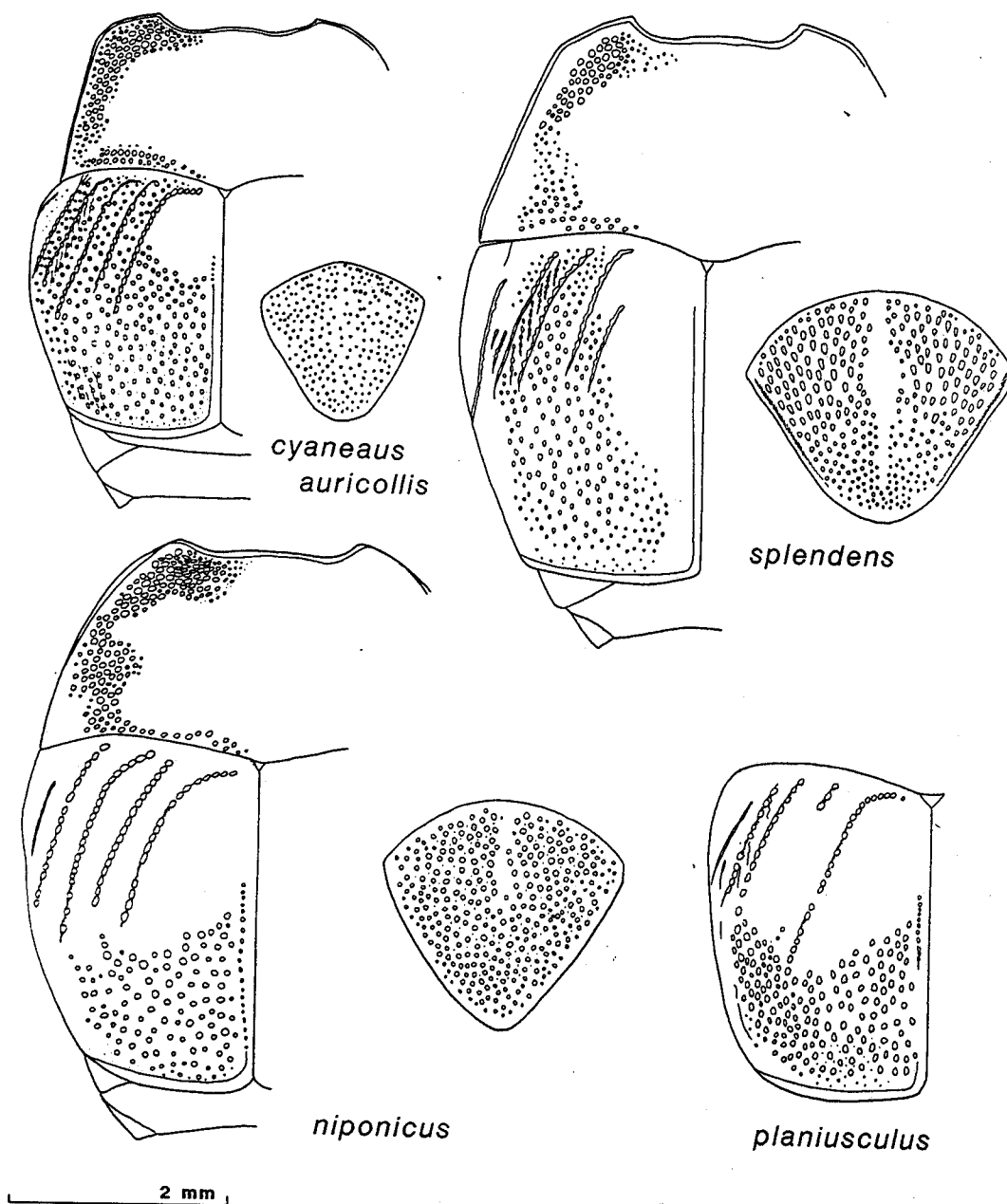


Fig. 132. *Saprinus* spp., dorsal view. of pronotum and left elytron, and pygidia.

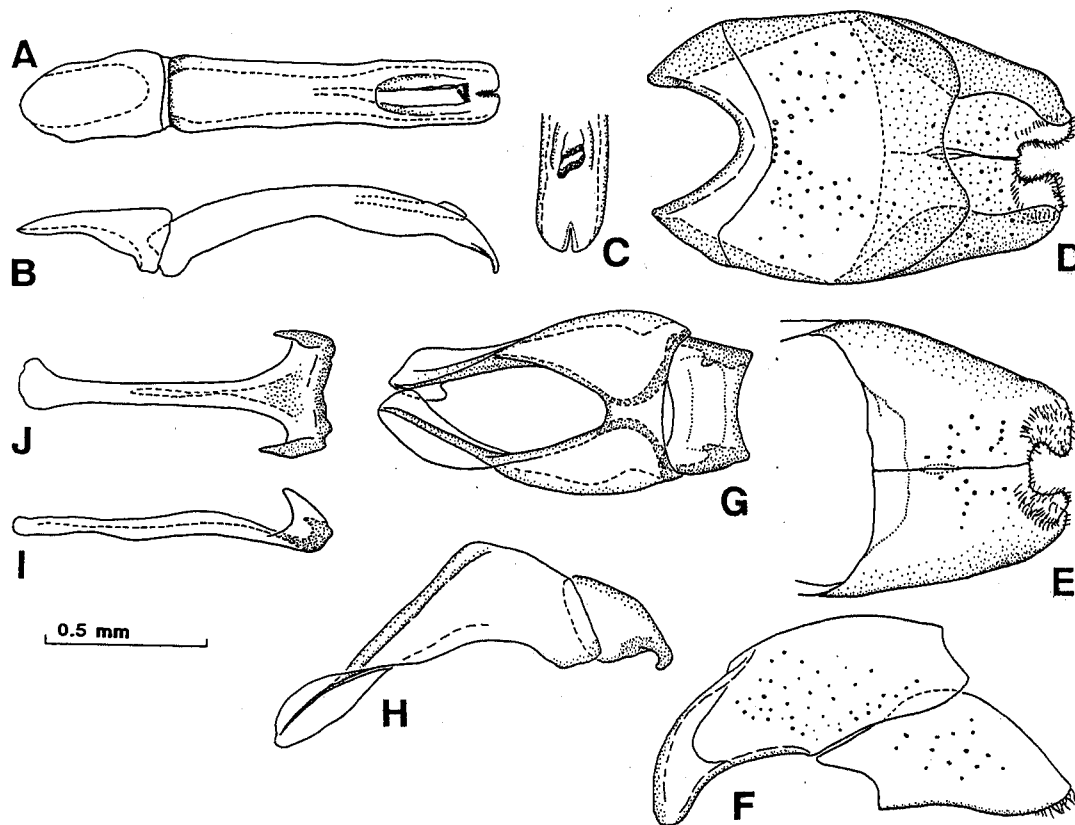


Fig. 133. *Saprinus* (*Saprinus*) *cyaneus auricollis* Marseul. A: Aedeagus, dorsal view. B: Ditto, lateral view. C: Apex of aedeagus, caudal view. D: Male genitalia, 8th tergite and sternum, dorsal view. E: Apex of 8th sternum, ventral view. F: Eighth tergite and sternum, lateral view. G: Male genitalia, 9th and 10th tergites and 9th sternum (spicules), dorsal view. H: Ditto, lateral view. I: Ninth sternum (spicules), lateral view. J: Ditto, dorsal view.

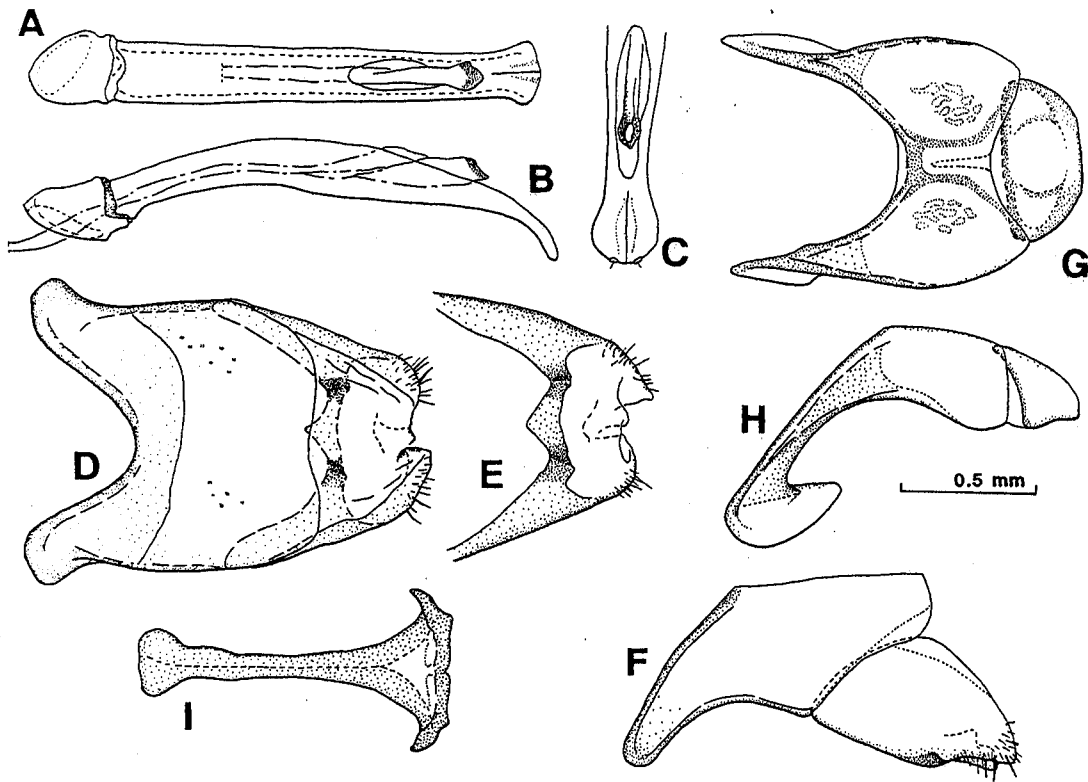


Fig. 134. *Saprinus (Saprinus) niponicus* Dahlgren. A: Aedeagus, dorsal view. B: Ditto, lateral view. C: Apex of aedeagus, caudal view. D: Male genitalia, 8th tergite and sternum, dorsal view. E: Apex of 8th sternum, ventral view. F: Eighth tergite and sternum, lateral view. G: Male genitalia, 9th and 10th tergites and 9th sternum (spicules), dorsal view. H: Ditto, lateral view. I: Ninth sternum (spicules), dorsal view.

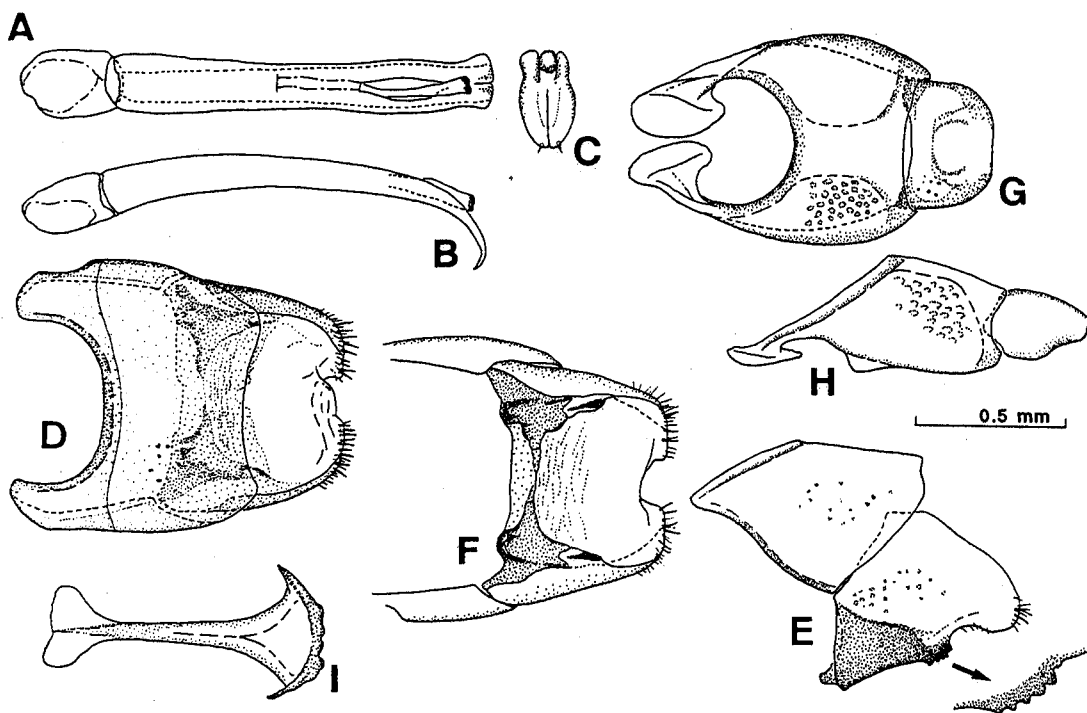


Fig. 135. *Saprinus planiusculus* Motschulsky. A: Aedeagus, dorsal view. B: Ditto, lateral view. C: Apex of aedeagus, caudal view. D: Male genitalia, 8th tergite and sternum, dorsal view. E: Ditto, lateral view. F: Apex of 8th sternum, ventral view. G: Male genitalia, 9th and 10th tergites and 9th sternum (spicules), dorsal view. H: Ditto, lateral view. I: Ninth sternum (spicules), dorsal view.

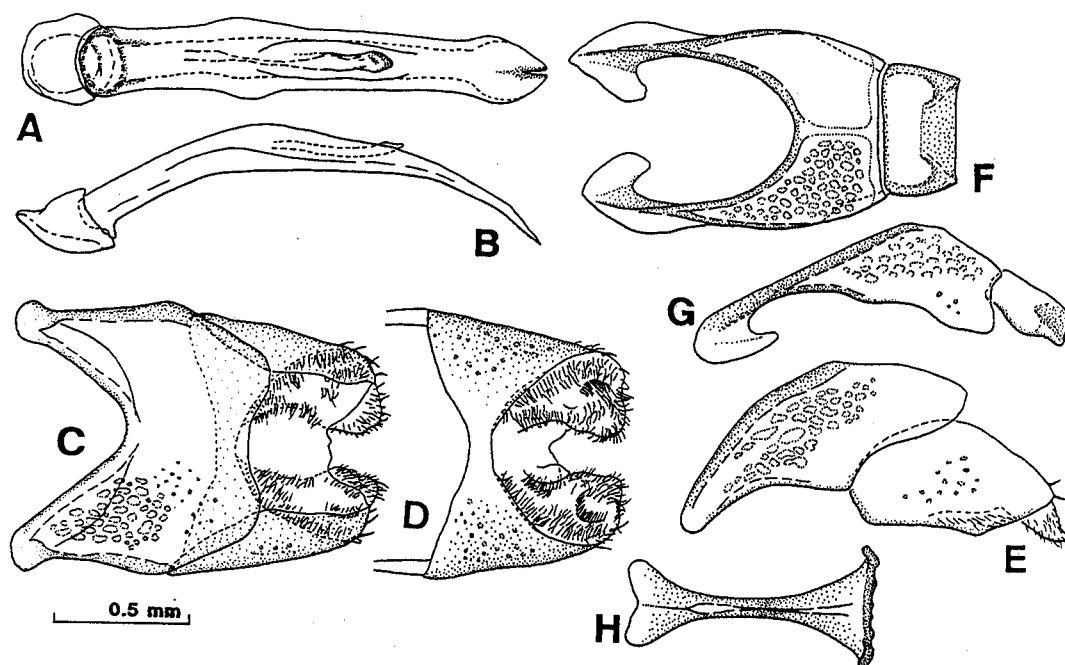


Fig. 136. *Saprinus splendens* (Paykull). A: Aedeagus, dorsal view. B: Ditto, lateral view. C: Male genitalia, 8th tergite and sternum, dorsal view. D: Apex of 8th sternum, ventral view. E: Eighth tergite and sternum, lateral view. F: Male genitalia, 9th and 10th tergites and 9th sternum (spicules), dorsal view. G: Ditto, lateral view. H: Ninth sternum (spicules), dorsal view.

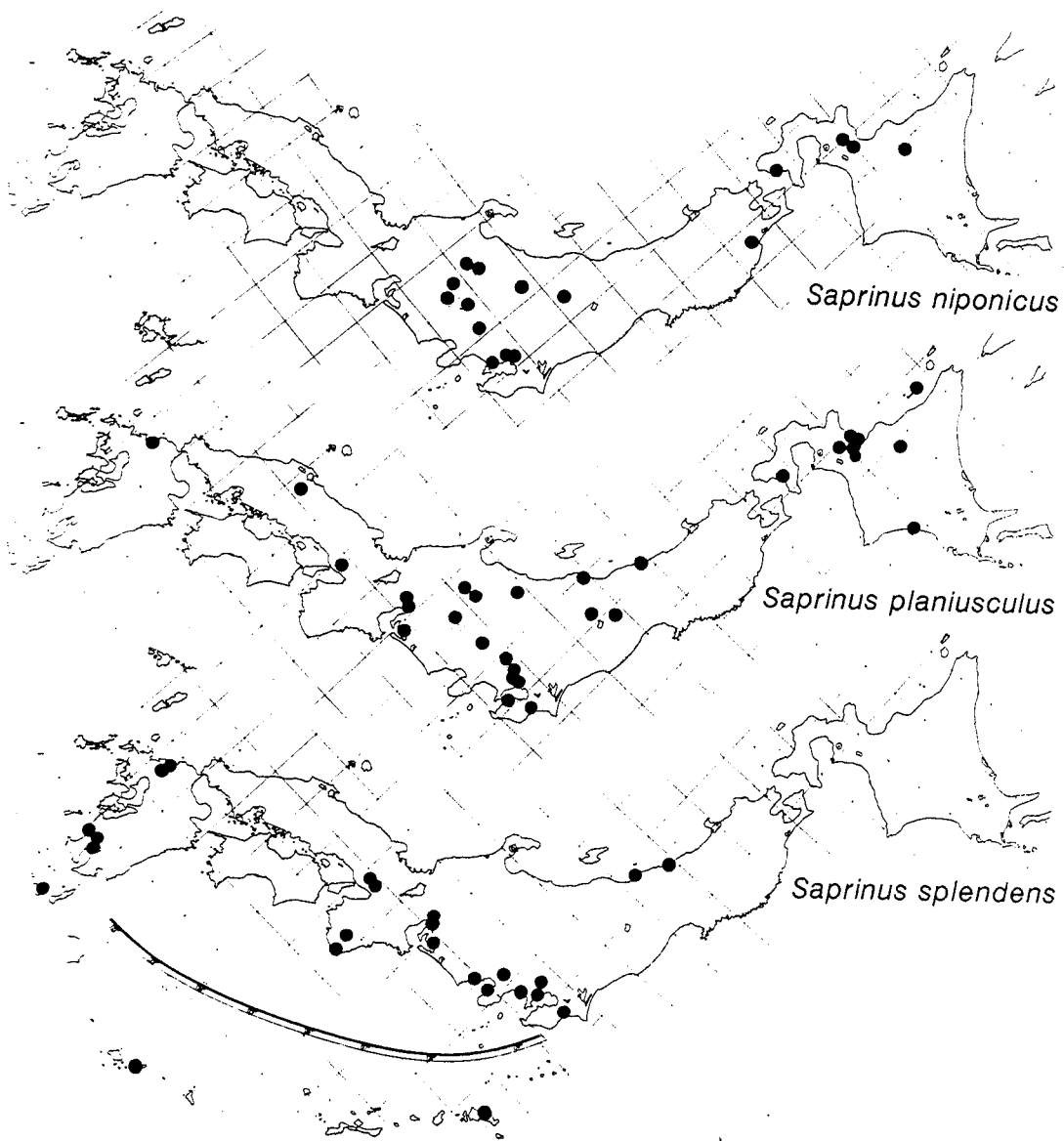


Fig. 137. Collection sites of *Saprinus* spp. in Japan.

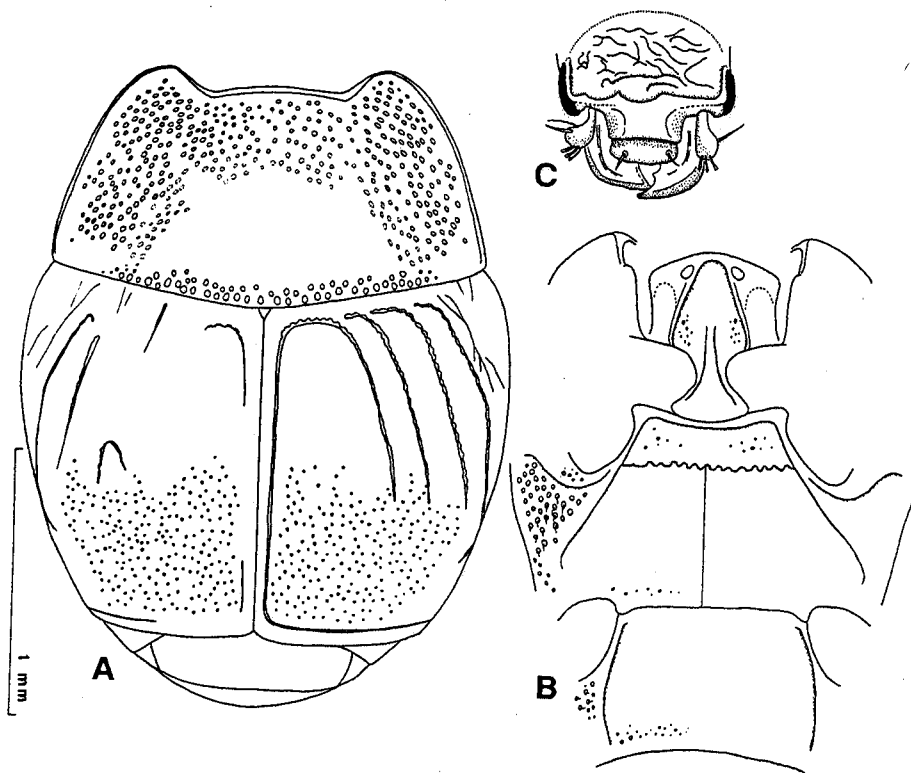


Fig. 138. *Hypocacclus (Nessus) asticus* Lewis. A: Pronotum and elytra, the right elytron with normal striation and the left with strongly reduced striation. B: Prosternum and meso- and metasterna. C: Head.

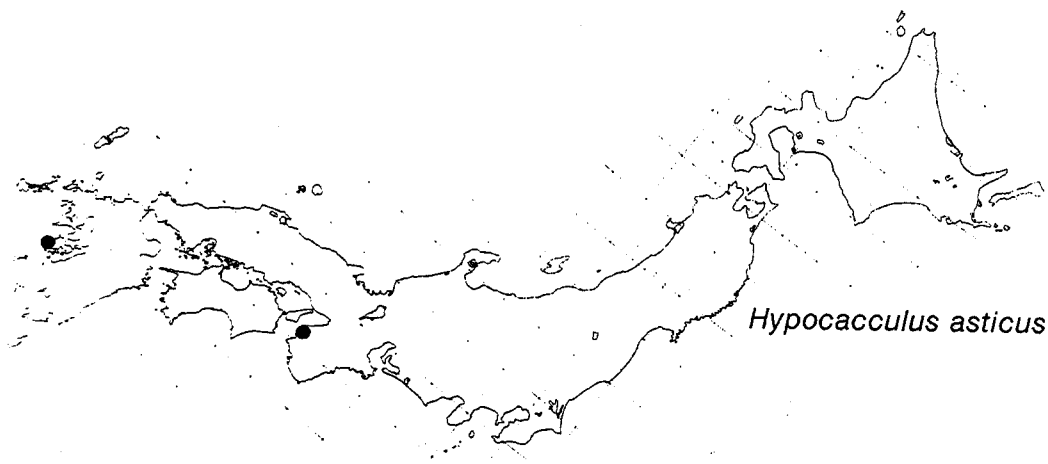


Fig. 139. Collection sites of *Hypocacclus (Nessus) asticus* Lewis in Japan.

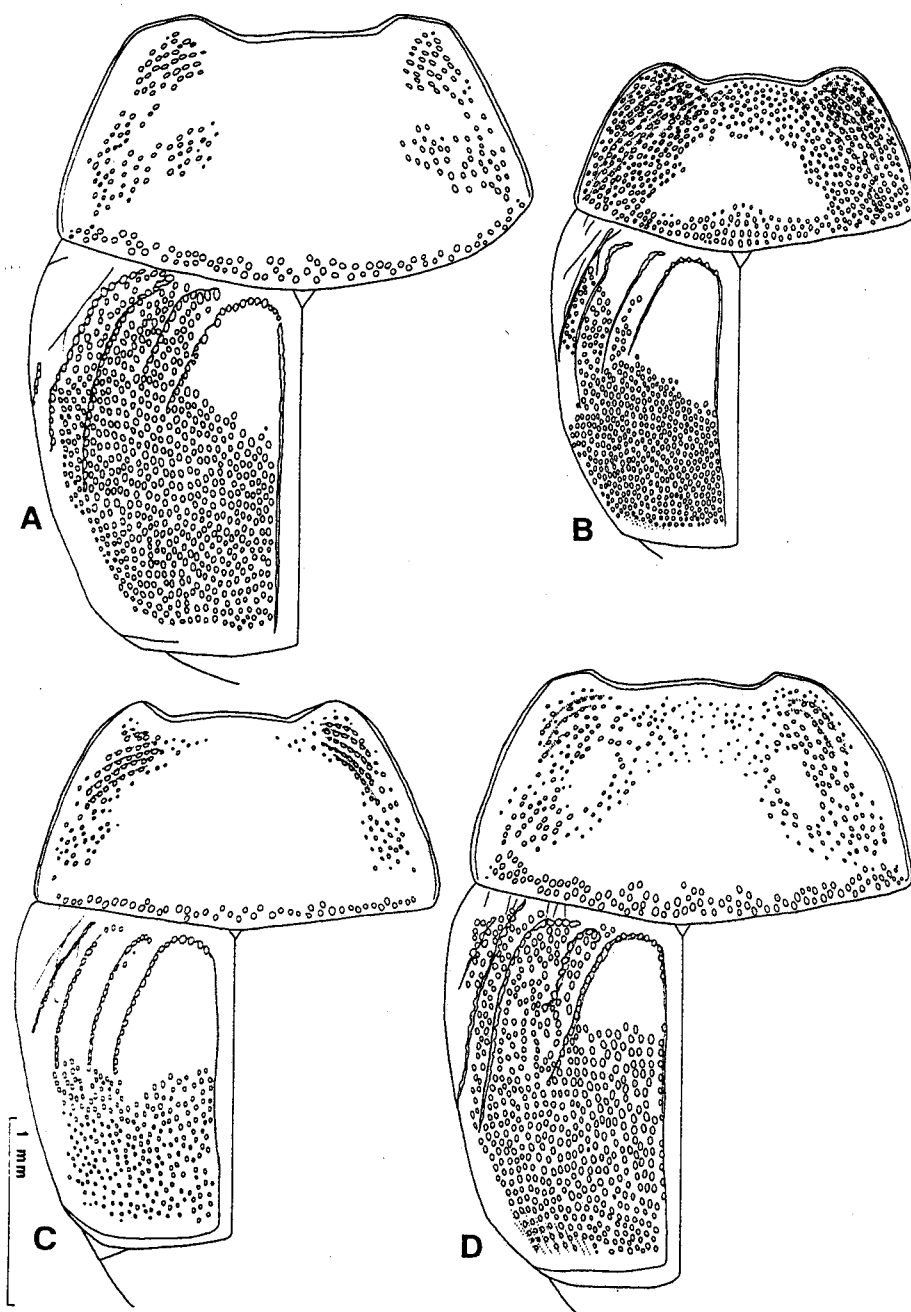


Fig. 140. *Hypocaccus* spp. Pronotum and left elytron. A: *H. axeli* Kryzhanovskij. B: *H. subaenus* (Schmidt). C: *H. siniae* (Marseul). D: *H. lewsii* (Schmidt).

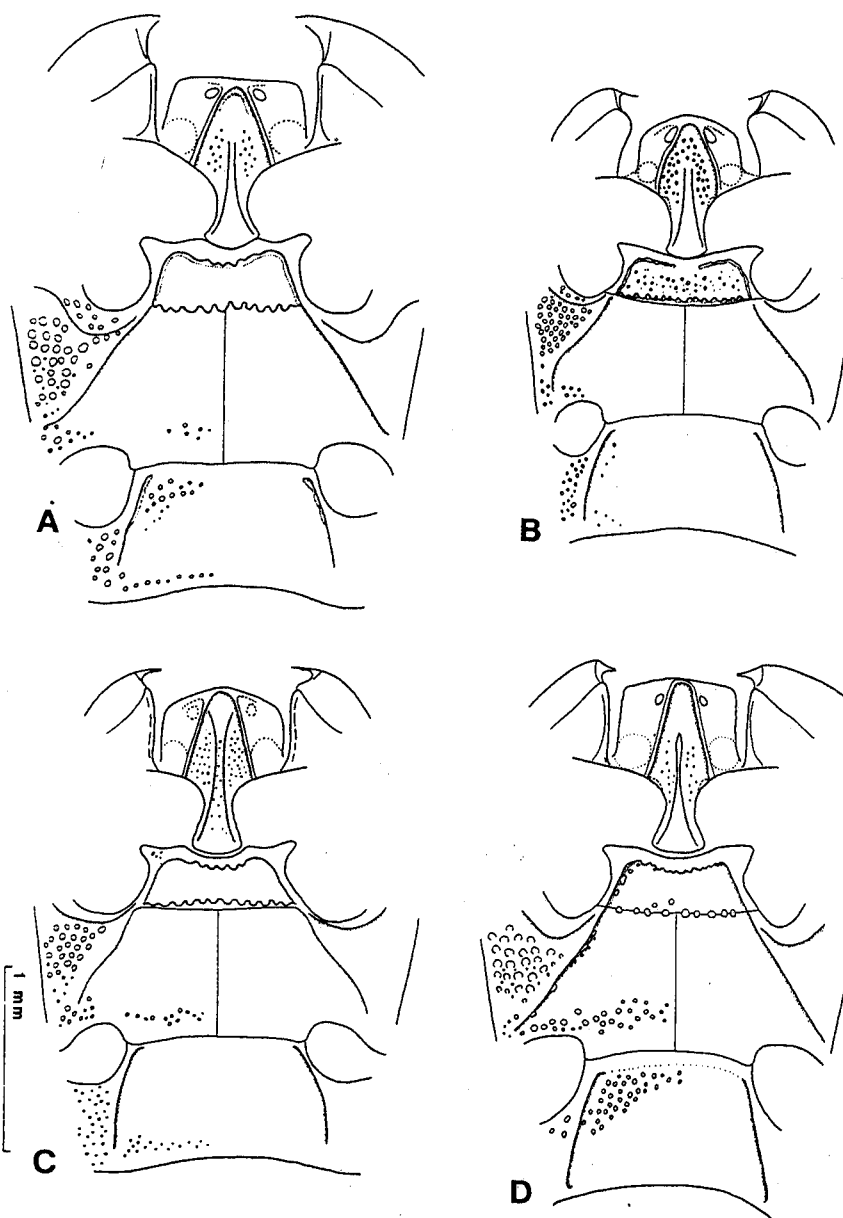


Fig. 141. *Hypocaccus* spp. Prosternum, mesosternum, metasternum and 1st abdominal sternum. A: *H. axeli* Kryzhanovskij. B: *H. subaenus* (Schmidt). C: *H. siniae* (Marseul). D: *H. lewsii* (Schmidt).

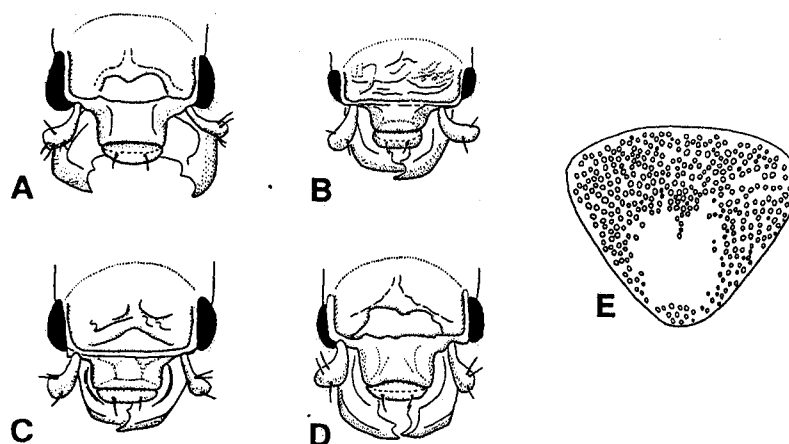


Fig. 142. *Hypocaccus* spp. Head (A - D) and pygidium (E). A, E: *H. axeli* Kryzhanovskij. B: *H. subaenus* (Schmidt). C: *H. sinae* (Marseul). D: *H. lewisii* (Schmidt).

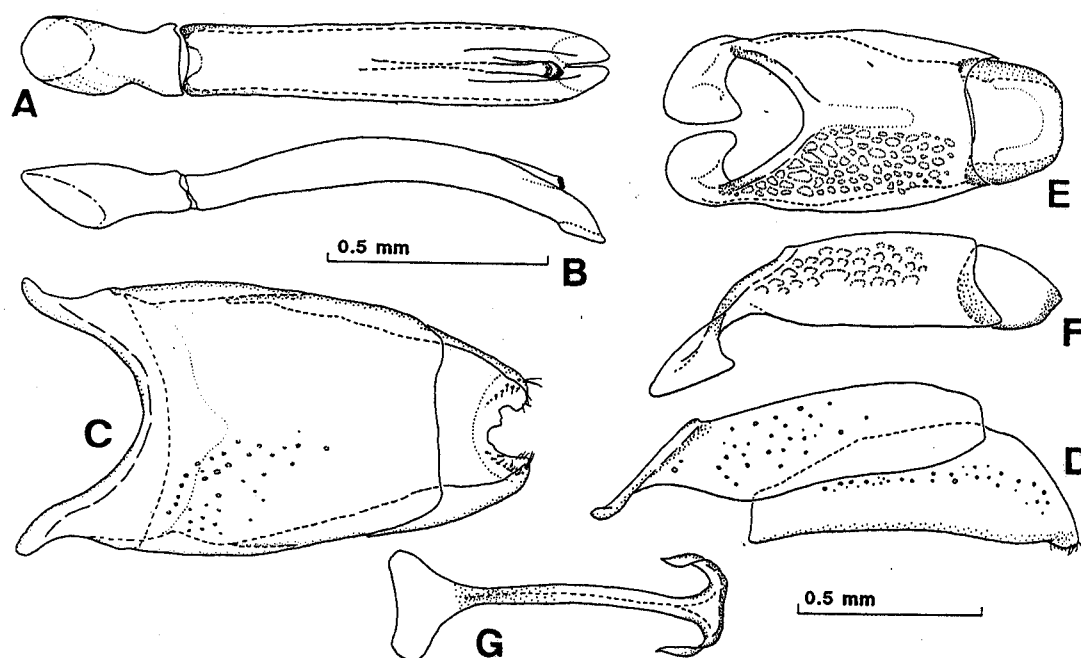


Fig. 143. *Hypocaccus* (*Hypocaccus*) *axeli* Kryzhanovskij. A: Aedeagus, dorsal view. B: Ditto, lateral view. C: Male genitalia, 8th tergite and sternum, dorsal view. D: Ditto, lateral view. E: Male genitalia, 9th and 10th tergites and 9th sternum (spicules), dorsal view. F: Ditto, lateral view. G: Ninth sternum (spicules), dorsal view.

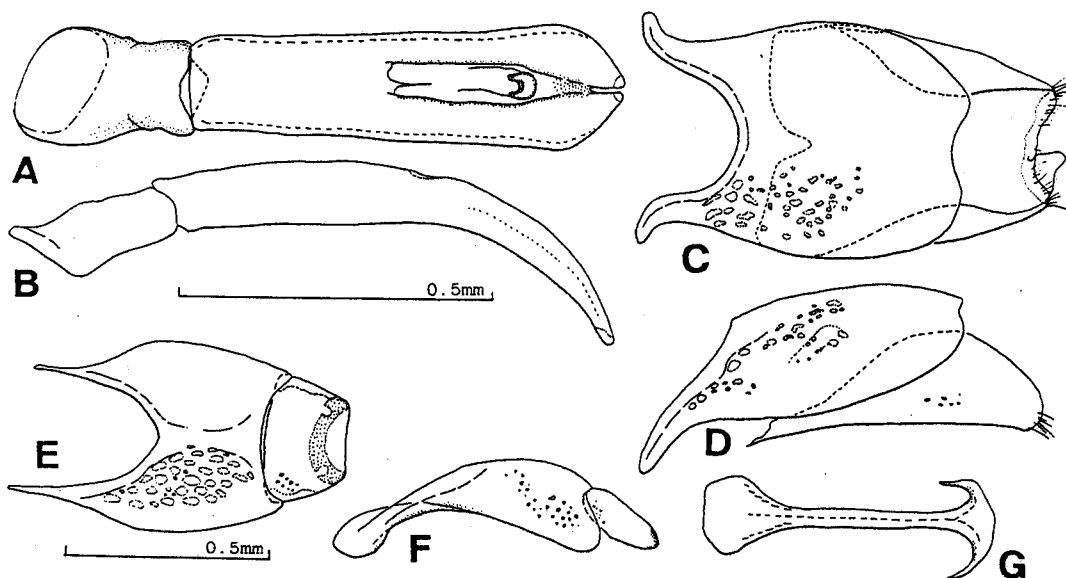


Fig. 144. *Hypocaccus (Hypocaccus) lewisii* (Schmidt). A: Aedeagus, dorsal view. B: Ditto, lateral view. C: Male genitalia, 8th tergite and sternum, dorsal view. D: Ditto, lateral view. E: Male genitalia, 9th and 10th tergites and 9th sternum (spicules), dorsal view. F: Ditto, lateral view. G: Ninth sternum (spicules), dorsal view.

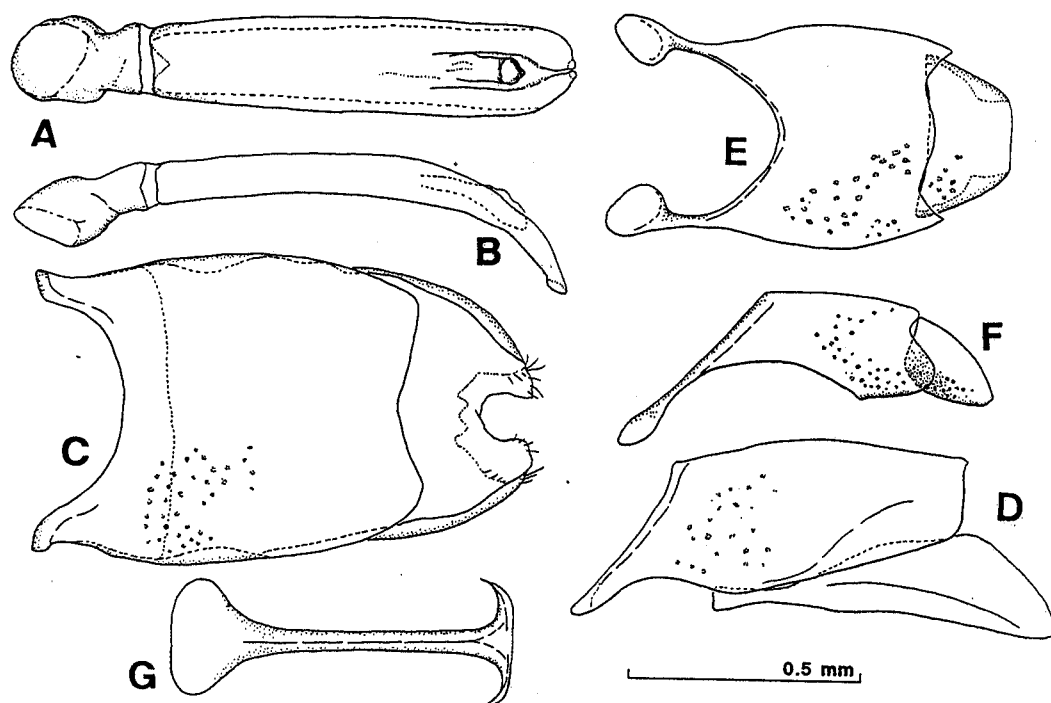


Fig. 145. *Hypocaccus (Hypocaccus) sinae* (Marseul). A: Aedeagus, dorsal view. B: Ditto, lateral view. C: Male genitalia, 8th tergite and sternum, dorsal view. D: Ditto, lateral view. E: Male genitalia, 9th and 10th tergites and 9th sternum (spicules), dorsal view. F: Ditto, lateral view. G: Ninth sternum (spicules), dorsal view.

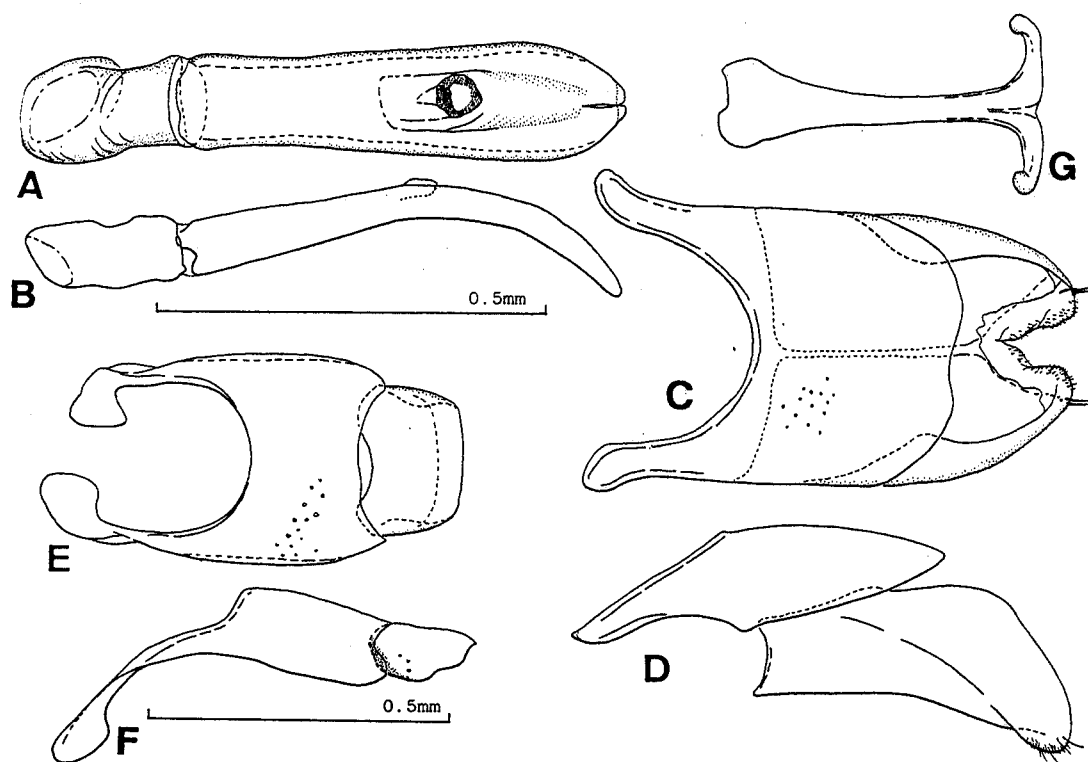


Fig. 146. *Hypocaccus (Hypocaccus) subaenus* (Schmidt). A: Aedeagus, dorsal view. B: Ditto, lateral view. C: Male genitalia, 8th tergite and sternum, dorsal view. D: Ditto, lateral view. E: Male genitalia, 9th and 10th tergites and 9th sternum (spicules), dorsal view. F: Ditto, lateral view. G: Ninth sternum (spicules), dorsal view.

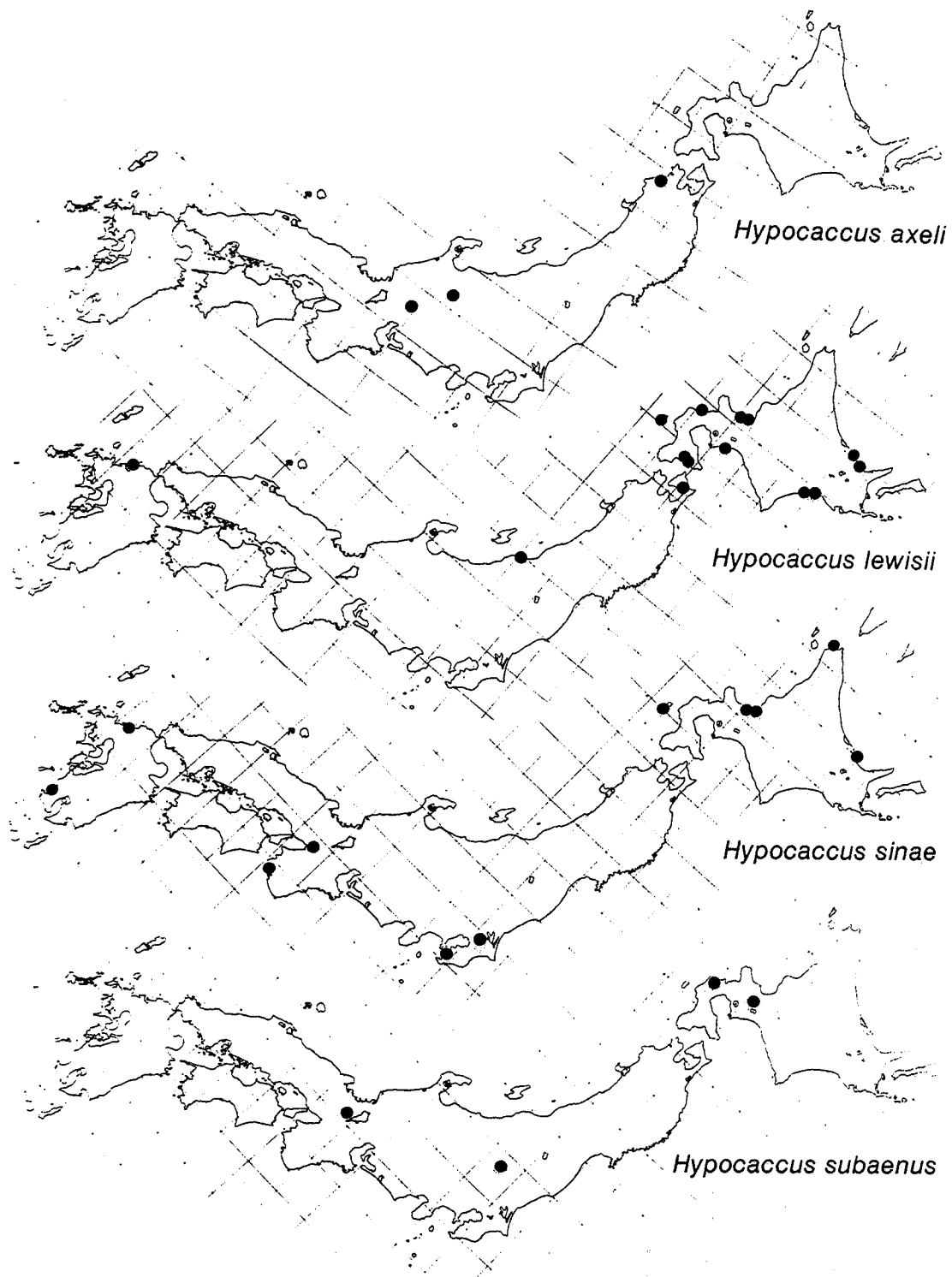


Fig. 147. Collection sites of *Hypocaccus* spp. in Japan.

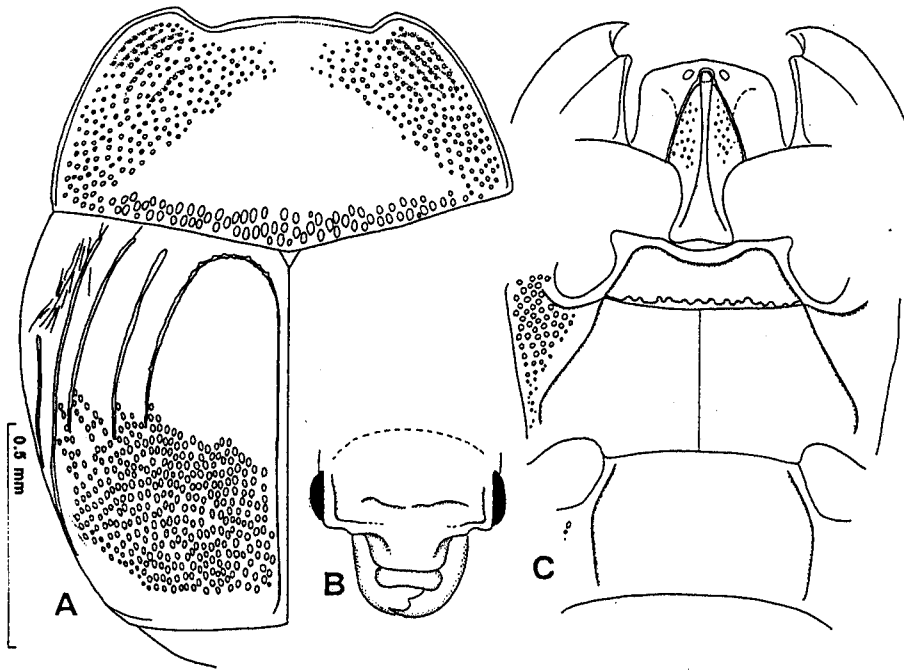


Fig. 148. *Hypocaccus (Hypocaccus) akanensis* M. Ôhara, sp. nov. A: Pronotum and left elytron. B: Head, frontal view. C: Prosternum, mesosternum, metasternum and 1st abdominal sternum.

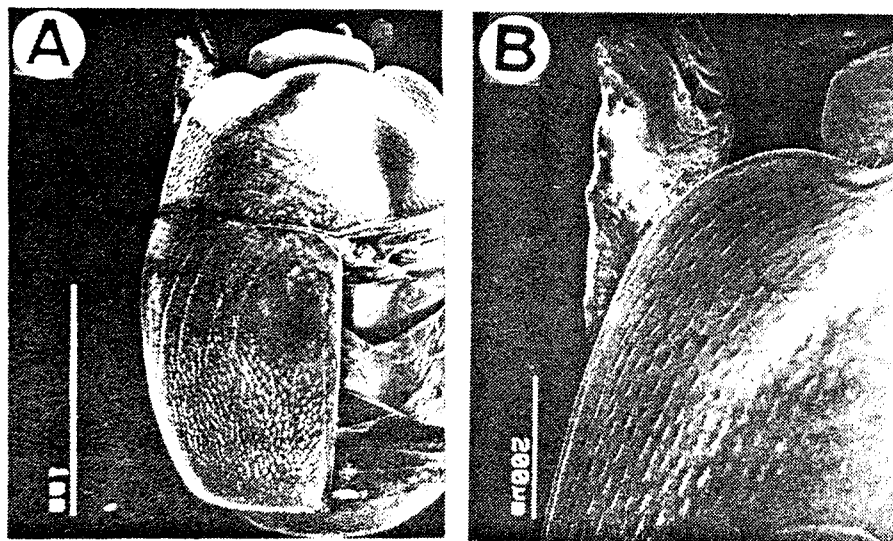


Fig. 149. *Hypocaccus (Hypocaccus) akanensis* M. Ôhara, sp. nov. A: Holotype, dorsal view. B: Left antero-lateral area of pronotum, dorsal view.

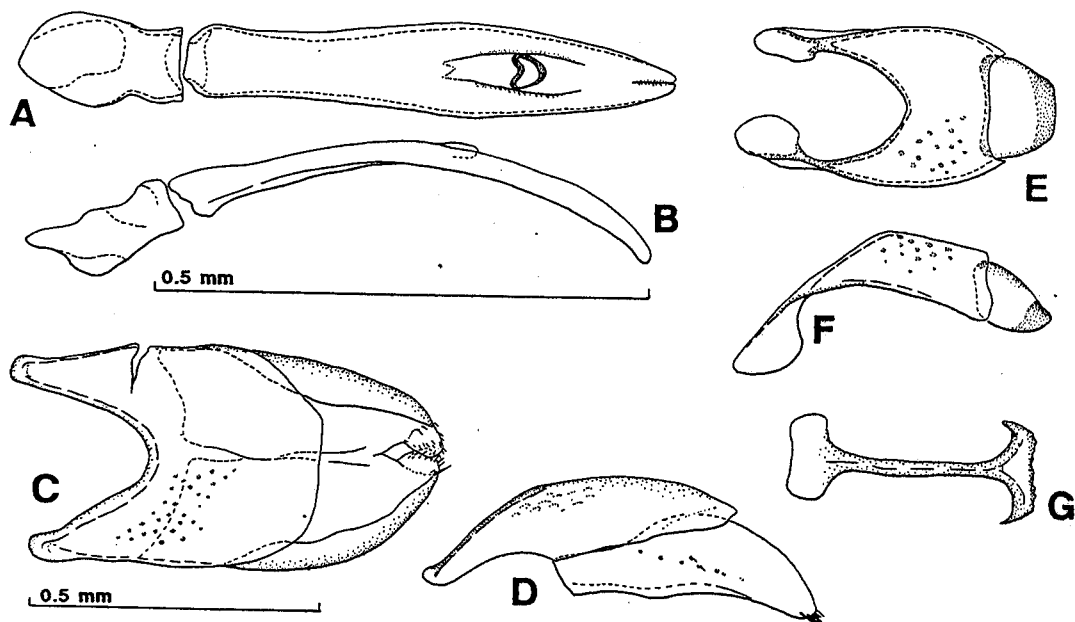


Fig. 150. *Hypocaccus (Hypocaccus) akanensis* M. Ôhara, sp. nov. A: Aedeagus, dorsal view. B: Ditto, lateral view. C: Male genitalia, 8th tergite and sternum, dorsal view. D: Ditto, lateral view. E: Male genitalia, 9th and 10th tergites and 9th sternum (spicules), dorsal view. F: Ditto, lateral view. G: Ninth sternum (spicules), dorsal view.

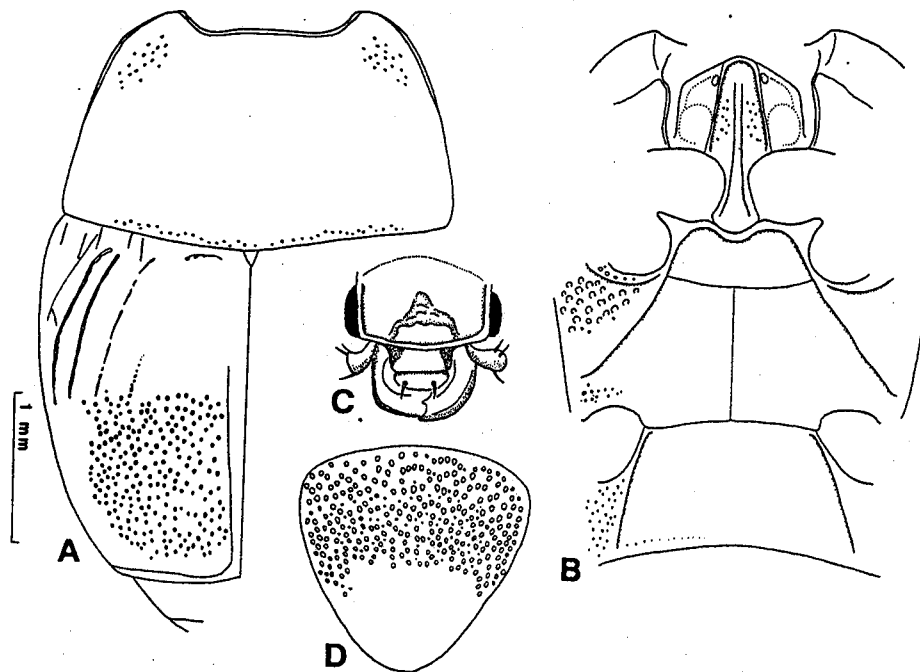


Fig. 151. *Hypocaccus (Baeckmanniolus) varians varians* (Schmidt). A: Pronotum and left elytron. B: Prosternum and meso- and metasterna. C: Head. D: Pygidium.

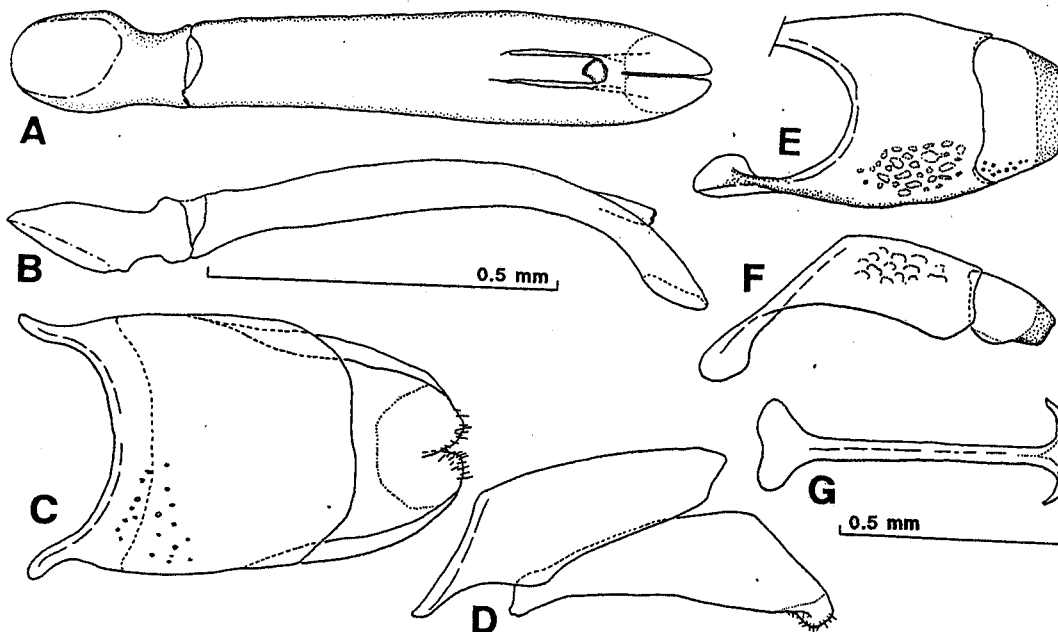


Fig. 152. *Hypocacaccus (Baeckmanniolus) varians varians* (Schmidt). A: Aedeagus, dorsal view. B: Ditto, lateral view. C: Male genitalia, 8th tergite and sternum, dorsal view. D: Ditto, lateral view. E: Male genitalia, 9th and 10th tergites and 9th sternum (spicules), dorsal view. F: Ditto, lateral view. G: Ninth sternum (spicules), dorsal view.

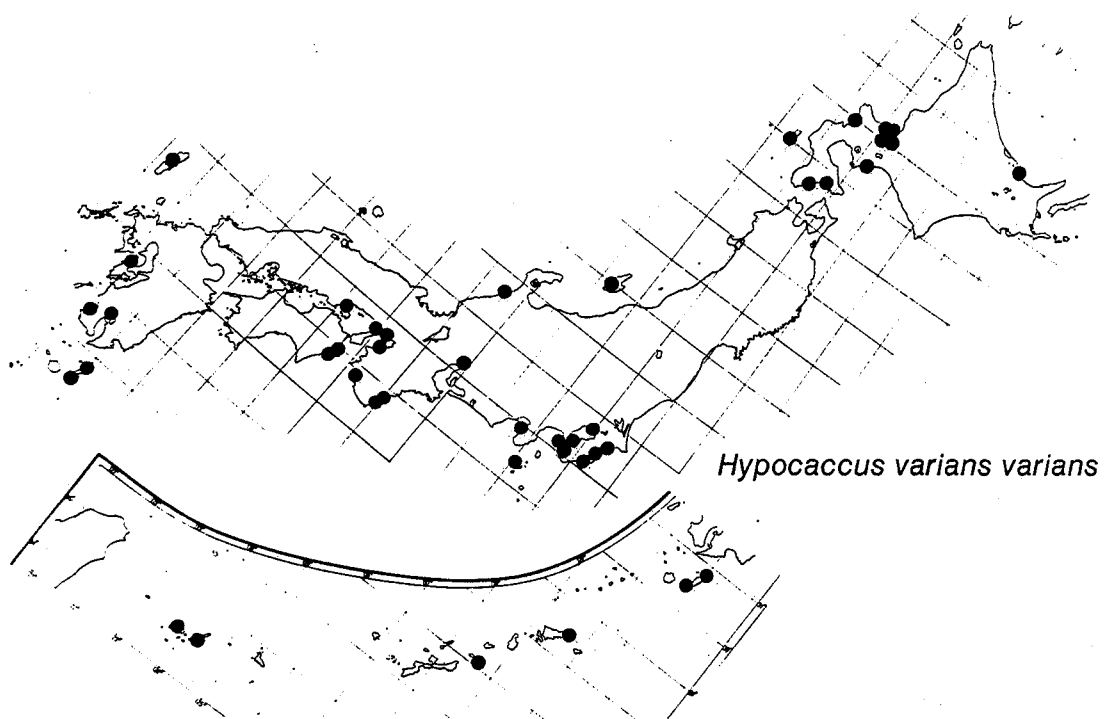


Fig. 153. Collection sites of *Hypocaccus (Baeckmanniolus) varians varians* (Schmidt) in Japan.

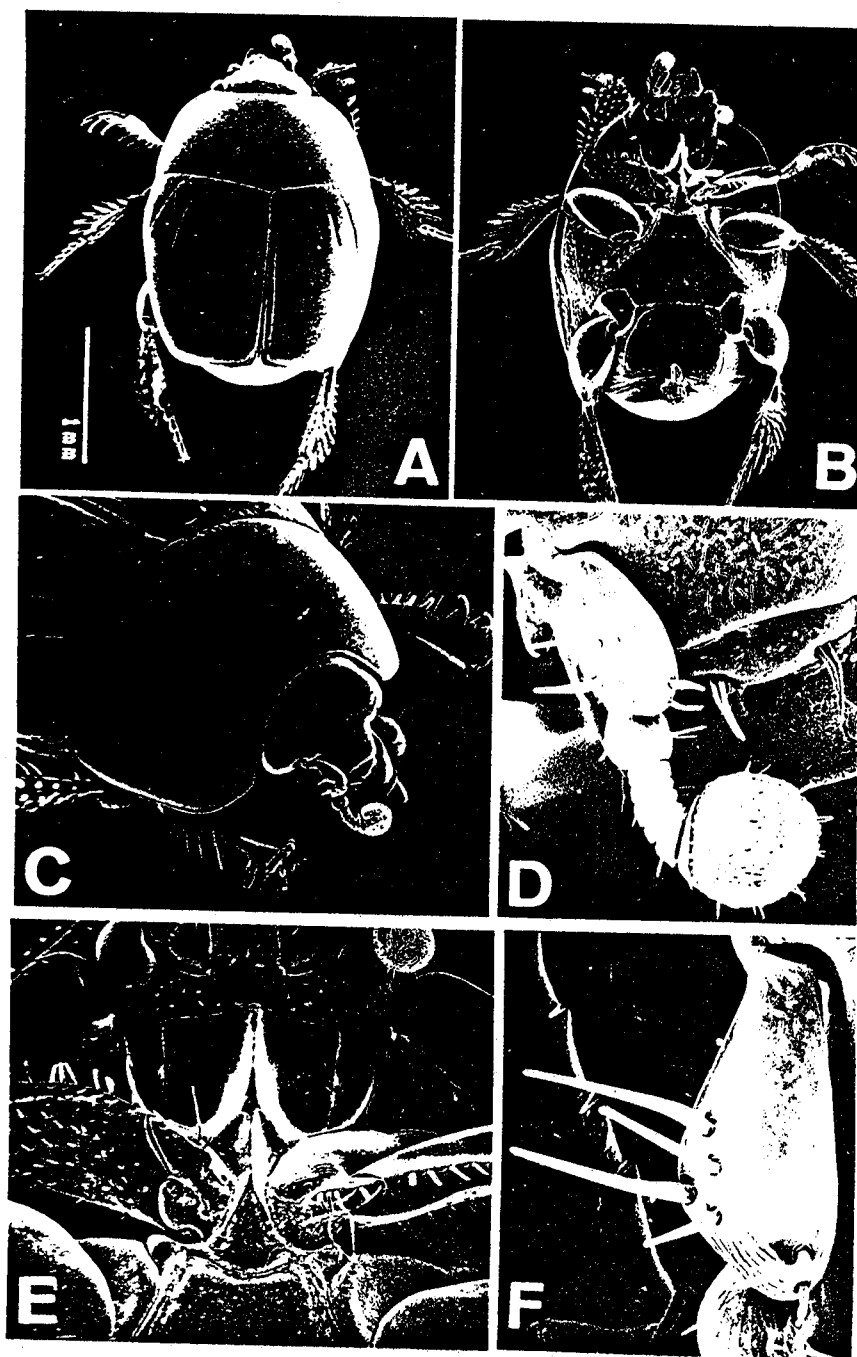


Fig. 154. *Eopachylopus ripae* (Lewis). A: Adult, dorsal view. B: Ditto, ventral view. C: Head and pronotum, oblique frontal view. D: Antenna. E: Prosternum, ventral view. F: Scape of antenna.

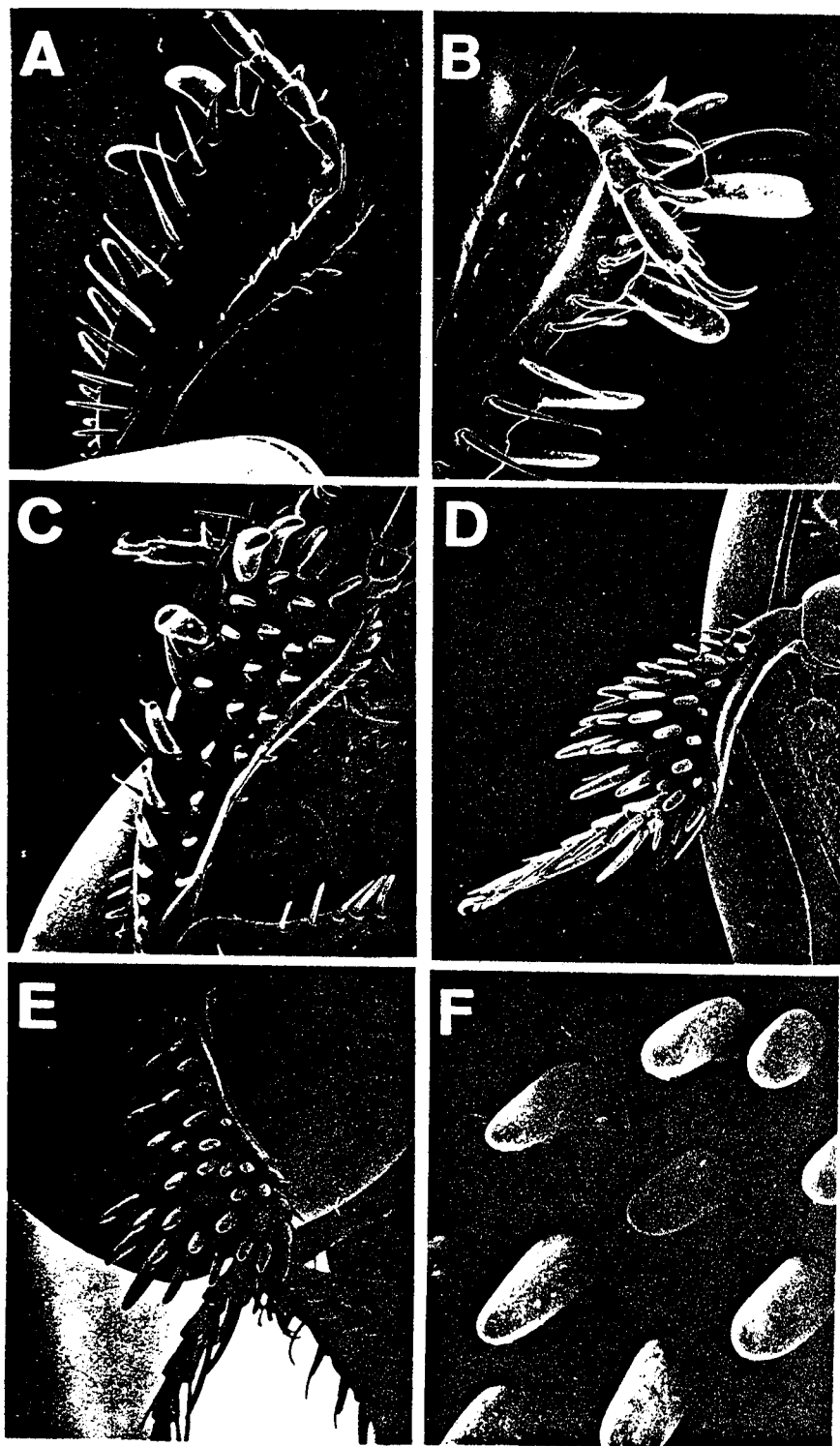


Fig. 155. *Eopachylopus ripae* (Lewis). A: Protibia, dorsal view. B: Tarsus of fore leg. C: Protibia, ventral view. D: Mesotibia, ventral view. E: Metatibia, ventral view. F: Setae of metatibia.

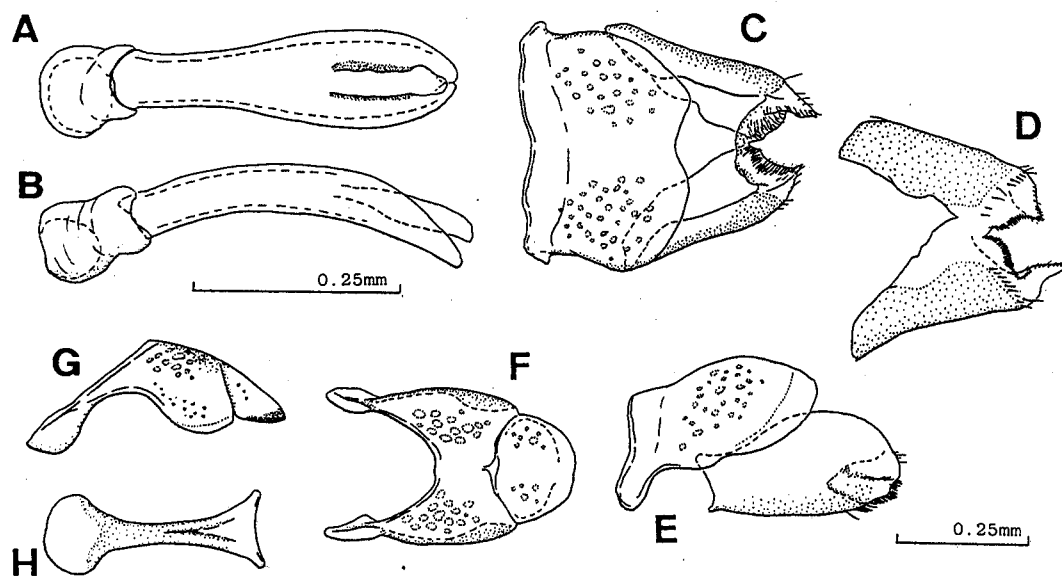


Fig. 156. *Eopachylopus ripae* (Lewis) A: Aedeagus, dorsal view. B: Ditto, lateral view. C: Male genitalia, 8th tergite and sternum, dorsal view. D: Apex of 8th sternum, ventral view. E: Eighth tergite and sternum, lateral view. F: Male genitalia, 9th and 10th tergites and 9th sternum (spicules), dorsal view. G: Ditto, lateral view. H: Ninth sternum (spicules), dorsal view.

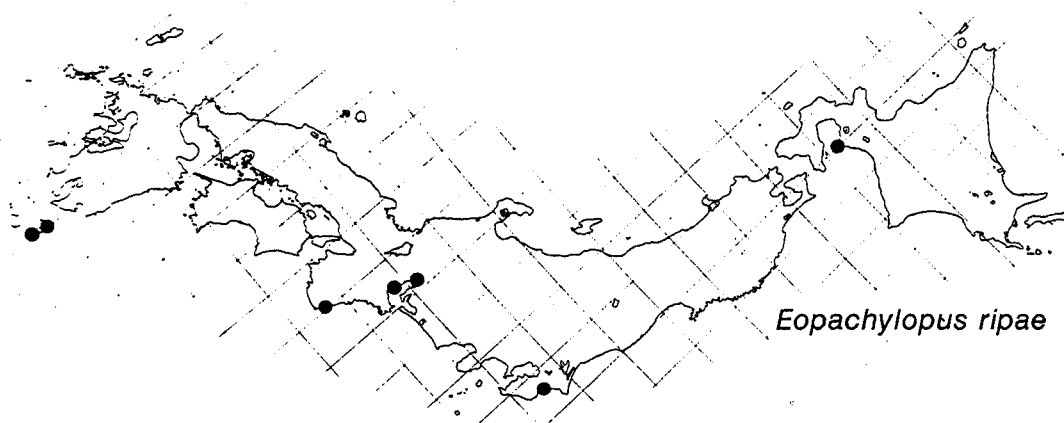


Fig. 157. Collection sites of *Eopachylopus ripae* in Japan.

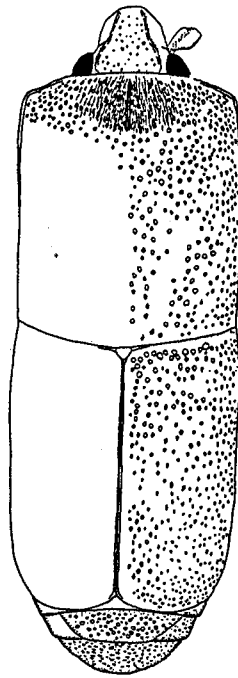


Fig. 158. *Trypeticus fagi* (Lewis). A: Adult, dorsal view.

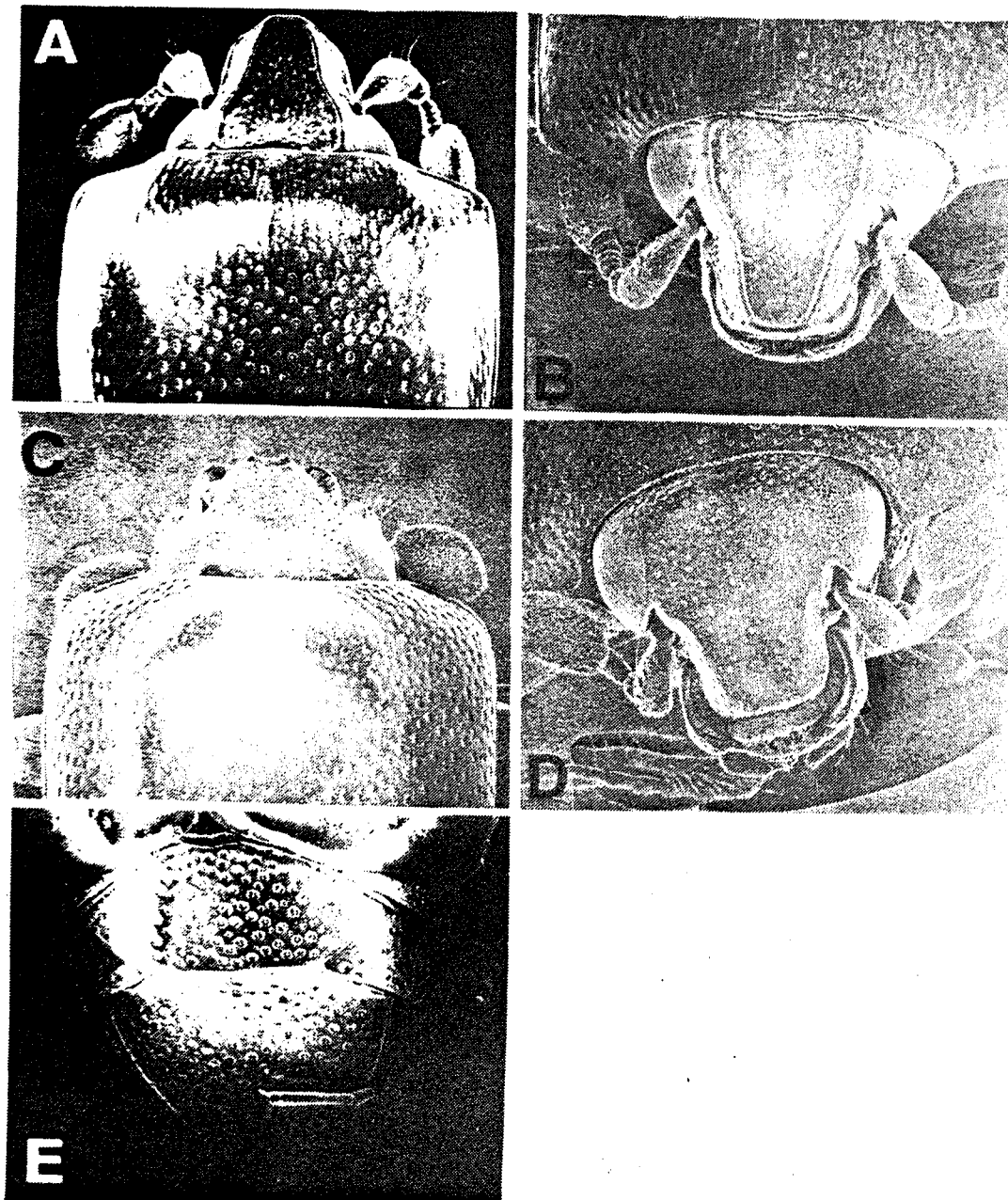


Fig. 159. *Trypeticus fagi* (Lewis). A, B, E: Female. C, D: Male. A, C: Head and pronotum, dorsal view. B, D: Head, frontal view. E: Propygidium and pygidium, dorsal view.

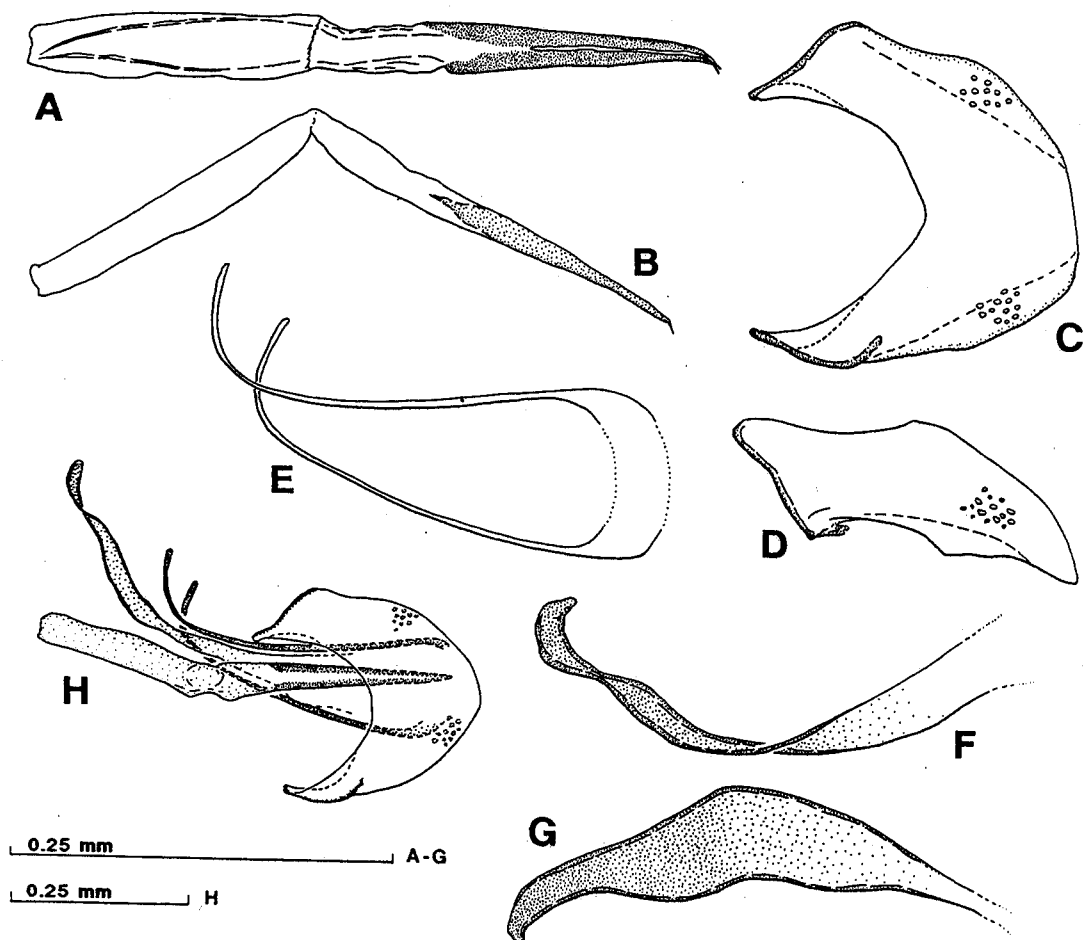


Fig. 160. *Trypeticus fagi* (Lewis) A: Aedeagus, dorsal view. B: Ditto, lateral view. C: Male genitalia, 8th tergite and sternum (?), dorsal view. D: Ditto, lateral view. E: Male genitalia, 9th and 10th (?) tergites. F: Ninth sternum (spicules), dorsal view. G: Ditto, lateral view. H: Male genitalia, dorsal view.

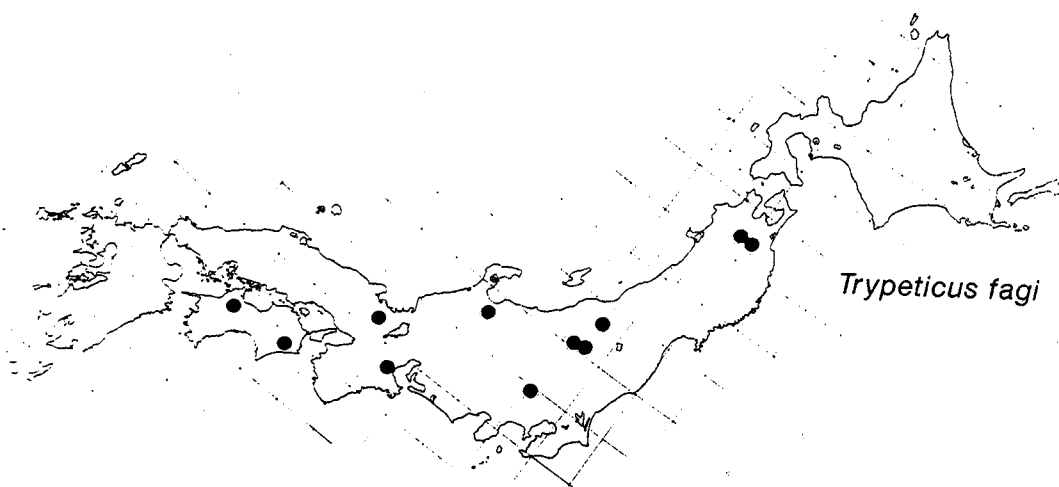


Fig. 161. Collection sites of *Trypeticus fagi* (Lewis) in Japan.