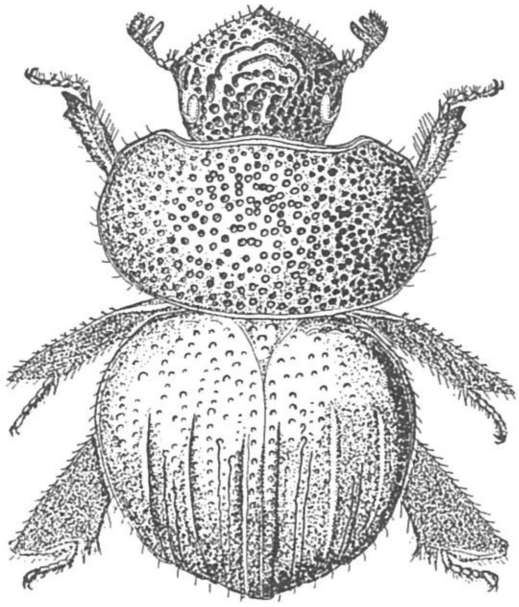
ISSN 0387—5733

ELYTRA

Vol. 26 No. 1



May 15 1998

日本鞘翅学会

THE JAPANESE SOCIETY OF COLEOPTEROLOGY
TOKYO

ELYTRA

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表 紙: サキシママンマルコガネ
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Elytra, *Tokyo*, **26** (1): 1–7, May 15, 1998

Phylogenetic Relationships of Some Chinese Ground Beetles Belonging to the Subgenera *Neoplesius*, *Pagocarabus* and *Aristocarabus* (Coleoptera, Carabidae) Based on Mitochondrial ND5 Gene Sequences

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Abstract Phylogenetic trees are constructed using the mitochondrial ND5 gene sequences for *Carabus* (*Neoplesius*) *sichuanicola*, *C.* (*N.*) *tatsienlui*, *C.* (*Pagocarabus*) *crassesculptus* and *C.* (*Aristocarabus*) *viridifossulatus* together with some other representative carabine species. These four species form a single cluster together with other *Neoplesius*/*Eocechenus* species. *Damaster* (s. lat.) is the outgroup of this cluster. The tree suggests that radiation of *Neoplesius*/*Eocechenus* species took place a little after separation from *Pagocarabus* from their common ancestor. The male of *C.* (*N.*) *sichuanicola* is figured and described for the first time.

Introduction

The subdivision Procrustimorphi (sensu Imura, 1996) (division Multistriati, subtribe Carabina) contains 54 subgenera and yet their phylogenetic relationships have not been satisfactorily established. Based on the mitochondrial ND5 gene sequence comparisons, Imura *et al.* (1997) reported that the subgenera *Neoplesius* and *Eocechenus* form a monophyletic cluster that shares a common ancestry with *Damaster* (s. lat.),

with the *Procrustes–Megodontus* lineage as their sister group.

We have had an opportunity to analyse the ND5 gene sequences of several Chinese species belonging to the Procrustimorphi. These are *Carabus* (*Neoplesius*) *sichuanicola*, *C.* (*N.*) *tatsienlui*, *C.* (*Pagocarabus*) *crassesculptus* and *C.* (*Aristocarabus*) *viridifossulatus*. The results are described in this paper.

Materials and Methods

The species analysed for the ND5 gene sequences are listed in the following lines. Of these, the specimens Nos. 1, 2 and 3 were collected during the Sino-Japanese Cooperative Expedition to Sichuan, China, in June 1997.

For the analytical methods and construction of the phylogenetic trees, see SU *et al.* (1996) and IMURA *et al.* (1997).

1) *Carabus* (*Neoplesius*) *sichuanicola* DEUVE, 1989

(Figs. 1, 6–8)

Carabus (*Acoptolabrus*) *sichuanicola* DEUVE, 1989, Nouv. Revue Ent., (N. S.), **6**, p. 170; type locality: "Chine, Sichuan, Dong He."

Description of male. Length (including mandibles): 22.3–24.5 mm (23.0–27.7 mm in female). Antennae longer than in female, extending slightly beyond the middle of elytra; terminal segments of palpi almost the same in width as in female; all the four basal segments of foretarsi densely scattered with hairpads on the ventral surface; genitalia as shown in Figs. 6–8, ostium lobe slightly bilobed at the tip, median lobe absent, prepraeputial lobes with the left lobe larger than the right, parapraeputial lobes rather sharply pointed at the tips and the right lobe a little larger than the left.

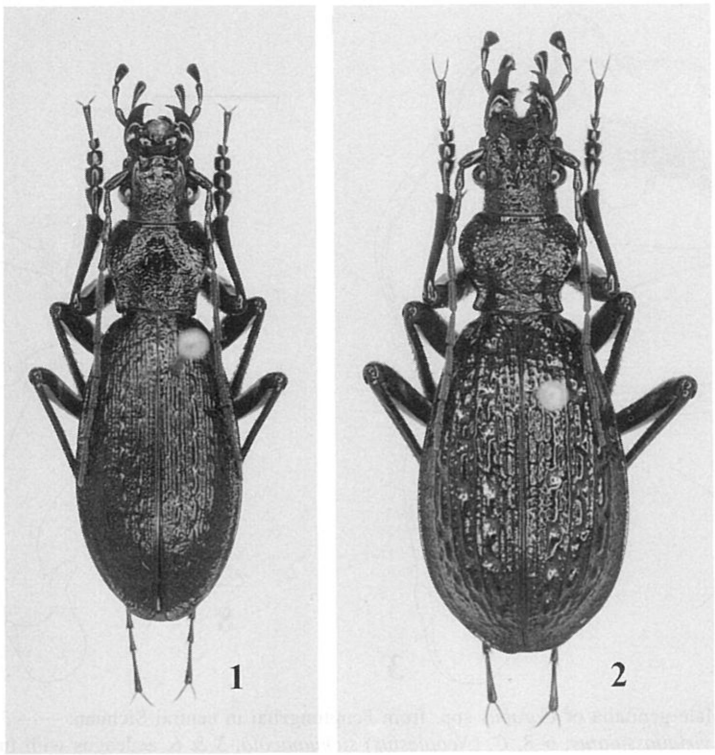
Specimens examined. 25 ♂♂, 16 ♀♀ (1 ♂ for DNA analysis), above Guobaye (so-called "Mt. Baiyu Shan"), 2,700–3,200 m in altitude, on the Qionglai Shan Mts. stretching along the left side of the Riv. Dong He, in the Fengtongzhai Nature Protective Area of Baoxing Xian, Central Sichuan, China, 4–VI–1997, Y. IMURA, Z.-H. SU & M. OKAMOTO leg.

Notes. This species was described by DEUVE on the basis of a single female specimen preserved in the collection of the Institute of Zoology, Chinese Academy of Sciences, Beijing, and only "*Dong He*" of Sichuan was originally given as its type area. However, the holotype specimen bears a label with more exact collecting data as given below.

四川[Sichuan], 东河[Donghe], 硗碛 [Qiaoqi (="Yaoqi" according to the pronunciation of native people)], 30083.

Thus, the exact type locality of *Carabus* (*Neoplesius*) *sichuanicola* should be restricted to Qiaoqi, a small village of Tibetans. Our locality is situated a few kilometers distant to the east-southeast from there.

In all the specimens examined, dorsal surface is blackish brown with faint bronze



Figs. 1–2. *Carabus* spp. from Fengtongzhai in central Sichuan. —— 1, *C.* (*Neoplesius*) *sichuanicola*, ♂; 2, *C.* (*Aristocarabus*) *viridifossulatus*, ♂.

or red-purplish tinge which is much darker than in the holotype. The coloration of the latter seems to have been faded due to aging or rather inferior preservative condition of the specimen.

2) ***Carabus* (*Neoplesius*) *tatsienlui*** BREUNING, 1934

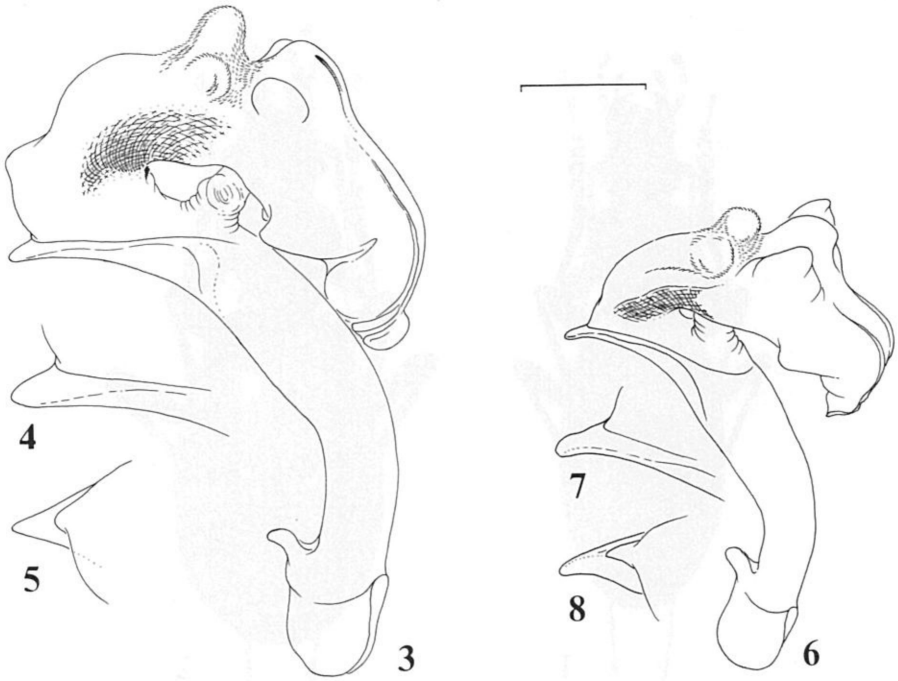
Carabus (*Pagocarabus*) *tatsienlui* BREUNING, 1934, Folia zool. hydrobiol., **7**, p. 48; type locality: China, Prov. Szetschuan, Berge bei Tat-sien-lu.

Specimens examined. 2 ♀♀ (1 ♀ for DNA analysis), Mt. Zheduo Shan (ca. 4,000 m in alt.) in Kangding Xian, central Sichuan, China, 7–VI–1997, S. UÉNO leg.

3) ***Carabus* (*Pagocarabus*) *crassesculptus*** KRAATZ, 1881

Carabus crassesculptus KRAATZ, 1881, Dt. ent. Z., **25**, p. 268; type locality: Gebirgen westlich von Peking.

Specimens examined. 2 ♂♂ (1 ♂ for DNA analysis), Xiaolongmen of Men-



Figs. 3–8. Male genitalia of *Carabus* spp. from Fengtongzhai in central Sichuan. —— 3–5, *C.* (*Aristocarabus*) *viridifossulatus*; 6–8, *C.* (*Neoplesius*) *sichuanicola*; 3 & 6, aedeagus with fully everted endophallus in right lateral view; 4 & 7, aedeagal apex in the same view; 5 & 8, ditto in dorsal view. Scale: 2 mm for 3 & 6, 1 mm for 4, 5, 7 & 8.

tougou, in W Beijing, China, 19~22–VII–1997, Hai-Sheng ZHOU leg.

4) ***Carabus* (*Aristocarabus*) *viridifossulatus*,** FAIRMAIRE, 1887

(Figs. 2–5)

Carabus viridi-fossulatus FAIRMAIRE, 1887, Annls. Soc. ent. Belg., **31**, p. 91; type locality: Moupin (=Baoxing).

Specimens examined. 1 ♂, 2 ♀♀ (1 ♀ for DNA analysis), same data as for *C.* (*Neoplesius*) *sichuanicola*, though the collected site was a little higher in altitude (ca. 3,200 m).

Notes. It is well-known that this species is polytypic and is discriminated into several subspecies. Our specimens seem to be identical with the nominotypical subspecies judging from the morphology and locality, though much more colourful (head and pronotum light purple, elytra metallic green with the primary foveoles yellowish golden) than in FAIRMAIRE's holotype now preserved in the Muséum Nationale d'His-

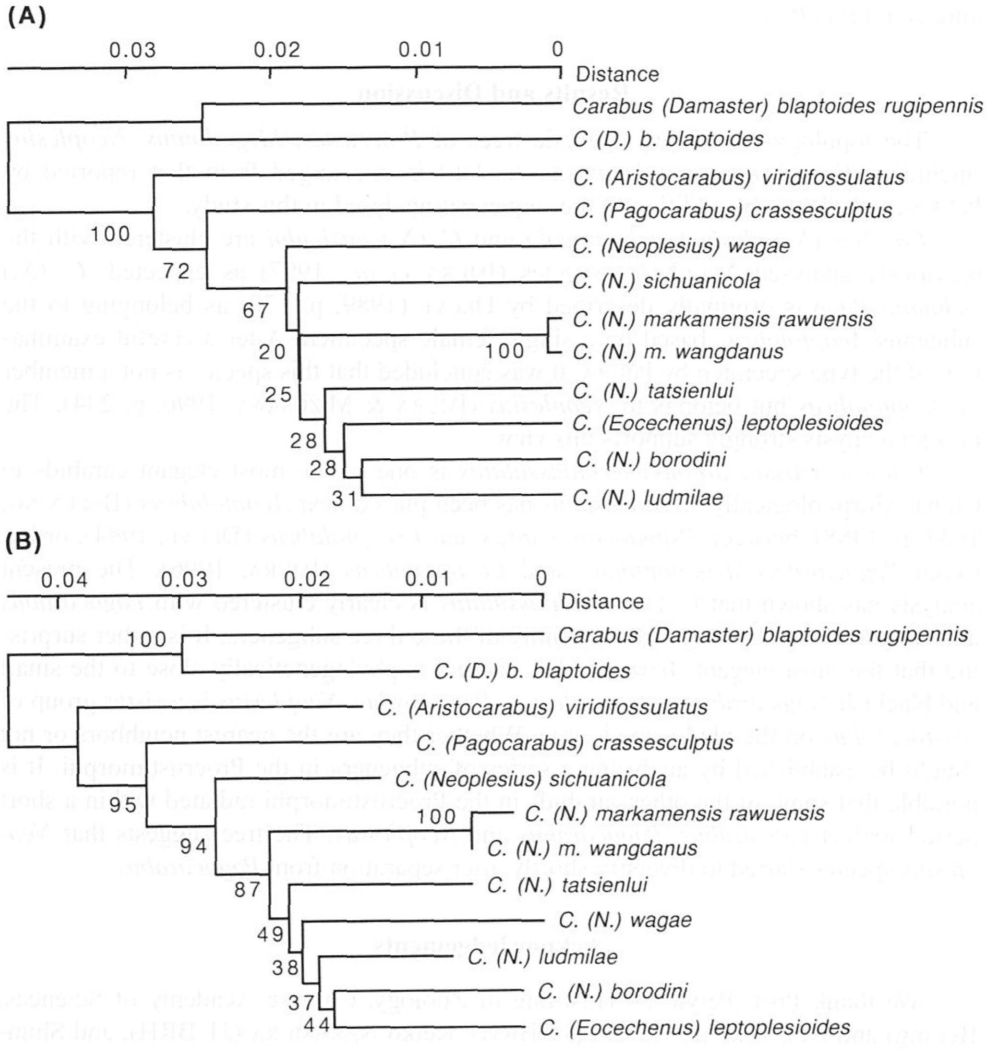


Fig. 9. Phylogenetic trees of some Chinese ground beetles based on 1,069-bp sequences of mitochondrial ND5 gene. The evolutionary distances were computed by KIMURA's two-parameter method (KIMURA, 1980). The trees were constructed by the UPGMA (A) and the neighbor-joining (NJ) method (B) (SAITOU & NEI, 1987) of BIORESEARCH/SINCA ver. 3.0 (Fujitsu System Engineering, Japan). The values at the nodes represent percent of bootstrap confidence level (based on 500 resamplings) (FELSENSTEIN, 1985). The ND5 gene sequences of *Damaster* were used as the outgroup for the tree construction. Accession numbers for DDBJ, EMBL, and GenBank databases are as follows: *Carabus* (*Damaster*) *blaptoides rugipennis* (D50351※), *C.* (*D.*) *b. blaptoides* (D50349※), *C.* (*Aristocarabus*) *viridifossulatus* (AB010718), *C.* (*Pagocarabus*) *crassesculptus* (AB010719), *C.* (*Neoplesius*) *sichuanicola* (AB010720), *C.* (*N.*) *markamensis rawuensis* (AB001513※), *C.* (*N.*) *m. wangdanus* (AB001514※), *C.* (*N.*) *tatsienlui* (AB010721), *C.* (*N.*) *wagae* (AB001515※), *C.* (*N.*) *ludmilae* (AB001512※), *C.* (*N.*) *borodini* (AB001511※), *C.* (*Eocechenus*) *leptoplesioides* (AB001510※). ※: analyzed in the previous studies (SU *et al.*, 1996; IMURA *et al.*, 1997).

toire Naturelle, Paris.

Results and Discussion

The topology on the phylogenetic trees of *Procrustes*, *Megodontus*, *Neoplesius* (including *Eocechenus*) and *Damaster* (s. lat.) is unchanged from that reported by IMURA *et al.* (1997) by addition of the sequences analysed in this study.

Carabus (*Neoplesius*) *sichuanicola* and *C.* (*N.*) *tatsienlui* are clustered with the previously analysed *Neoplesius* species (IMURA *et al.*, 1997) as expected. *C.* (*N.*) *sichuanicola* was originally described by DEUVE (1989, p. 170) as belonging to the subgenus *Acoptolabrus* based on a single female specimen. After a careful examination of the type specimen by IMURA, it was concluded that this species is not a member of *Acoptolabrus* but belongs to *Neoplesius* (IMURA & MIZUSAWA, 1996, p. 234). The present analysis strongly supports this view.

Carabus (*Aristocarabus*) *viridifossulatus* is one of the most elegant carabids in China. Morphologically, *Aristocarabus* has been placed near *Acoptolabrus* (BREUNING, 1937, p. 1488), between *Pseudocoptolabrus* and *Eccoptolabrus* (DEUVE, 1994), or between *Pagocarabus*/*Megodontoides* and *Eccoptolabrus* (IMURA, 1996). The present analysis has shown that *C.* (*A.*) *viridifossulatus* is clearly clustered with *Pagocarabus* and *Neoplesius*, indicating a close affinity of these three subgenera. It is rather surprising that the most elegant *Aristocarabus* carabid is phylogenetically close to the small and blackish *Pagocarabus* and *Neoplesius*. *Pagocarabus*/*Neoplesius* is a sister group of *Aristocarabus* on the phylogenetic tree. Whether they are the nearest neighbors or not should be established by analysing a series of subgenera in the Procrustimorphi. It is possible that some of the other carabids in the Procrustimorphi radiated within a short period with *Aristocarabus*, *Pagocarabus* and *Neoplesius*. The tree suggests that *Neoplesius* species started to diversify shortly after separation from *Pagocarabus*.

Acknowledgements

We thank Prof. Peiyu YU (Institute of Zoology, Chinese Academy of Sciences, Beijing) and Drs. Tokindo OKADA (JT BRH), Keiko NAKAMURA (JT BRH), and Shun-Ichi UÉNO (National Science Museum, Tokyo) for the arrangement and help in the Sino-Japanese Cooperative Expedition to Sichuan, China, in 1997.

要　約

井村有希・周　紅章・岡本宗裕・蘇　智慧・大澤省三：ミトコンドリアND5遺伝子解析に基づく中国産ヨロイオサムシ類（チベットオサムシ，マンダラオサムシおよびニシキオサムシ各亜属）の系統関係．—— ヨロイオサムシ亜群に属する中国産の4種（シセンチベットオサムシ，ターチェンルーチベットオサムシ，マンダラオサムシ，ニシキオサムシ）のミトコンドリアND5遺伝子を解析し，分子系統樹を作成して，その系統関係について検討を加えたところ，こ

れらの4種は，既報のチベットオサムシ–タカネオオズオサムシ群とともに単一のクラスターを構成し，広義のマイマイカブリ群はその外群に位置することがあきらかになった．また，同系統樹は，本クラスター内における分岐順として，共通の祖先種からまずニシキオサムシ，ついでマンダラオサムシが分かれ，しかるのちにチベットオサムシ–タカネオオズオサムシ群が形成されたことを示している．なお，本論文において，これまで未知であったシセンチベットオサムシの♂を図示，記載した．

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Elytra, *Tokyo*, **26** (1): 8, May 15, 1998

Proposal of a New Subgenus for the Unique Alpine Species, *Carabus latreilleanus* (Coleoptera, Carabidae)

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Through the courtesy of Professor Pierfranco CAVAZZUTI (Pagno, Italy), I recently received a series of alcohol-treated specimens belonging to the so-called *Orinocarabus* (=group of *Carabus amplipennis* [*partim*] in the subgenus *Oreocarabus*, sensu IMURA & MIZUSAWA, 1996, the *Carabus* of the World) from the western part of the Alps, and they were submitted to the JT Biohistory Research Hall (Takatsuki, Osaka) for molecular biological studies. Most of the analysed taxa formed a single cluster on the genealogical tree constructed from the mitochondrial ND5 gene sequences, while *Carabus latreilleanus*, which has been regarded as nothing but a member of *Orinocarabus*, constituted another branch remote from the *Orinocarabus* cluster (detailed analytical data will be given in another paper now under preparation). Careful morphological examination of its fully everted endophallus also reveals that this species has very strange genitalic characters which seem to be deviated from the criteria established for all the other members of *Orinocarabus*. It is probable that *C. latreilleanus* occupies an independent phylogenetic position in the genus *Carabus* (s. lat.), and here I propose a new subgenus for it.

Subgenus ***Cavazzutiocarabus*** IMURA, nov.

Type species: *Carabus latreilleanus* CSIKI, 1927.

Small-sized carabid beetle with the external features almost identical with those of *Orinocarabus*, but very peculiar in conformation of the male genitalia. Membraneous preostium very narrow, its basal part widely covered with semi-sclerotized flap smoothly connecting with the dorsal wall of aedeagus, and ostium lobe seems vestigial (in all the other *Orinocarabus* species, membraneous preostium much wider with a well developed ostium lobe as a distinct projection); ligulum not specialized, indicated by longitudinally arranged pigmented granules; basal lateral lobes and median lobe absent; prepraeputial lobes thickly haired, with the right one larger than the left; parapraeputial lobes rather weakly inflated and symmetrical; praeputial pad large and hemispherical, with a smaller accessory hump on its left side; both apical and podian lobes weakly but obviously inflated; apical portion of aedeagus narrowly elongate though short, and aggonoporius not remarkably sclerotized.

Elytra, *Tokyo*, **26** (1): 9–16, May 15, 1998

Some Cychrine Species (Coleoptera, Carabidae) from Central Sichuan, China: Descriptions of Two New Species and Evolutionary Considerations

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Abstract Two new species, *Cychrus zhoui* nov. and *Cychrus okamotoi* nov., are described from central Sichuan, China. A phylogenetic tree is constructed for the new species together with *Cychrus thibetanus* and *Cychropsis draconis*, both from Sichuan, and *Cychrus morawitzi* from Hokkaido, Japan, based on the mitochondrial ND5 gene sequences.

In the Sino-Japanese Cooperative Expedition to the Fengtongzhai Nature Protective Area of central Sichuan, China, made in June of 1997, we collected four cychrine species, of which two *Cychrus* species have been recognized as new to science and are described in this paper. Two other species have been identified with *Cychrus thibetanus* and *Cychropsis draconis*, respectively. A phylogenetic tree has been constructed from the mitochondrial ND5 gene sequences of these four species together with *Cychrus morawitzi* from Hokkaido, Japan, and several representative species belonging to the tribe Carabini.

Materials and Methods

For the analytical methods of the mitochondrial ND5 gene sequences, and construction of the NJ phylogenetic tree, see SU *et al.* (1996 a, b) and IMURA *et al.* (1997).

Results and Discussion

List of Cychrine Species Treated in this Study

1) ***Cychrus zhoui*** IMURA, SU et OSAWA, sp. nov.

(Figs. 1–2, 5–6)

Description. Length: 13.2 mm (including mandibles). Allied to *Cychrus wuyipeng* DEUVE known so far only from Wolong situated in the adjacent valley of Fengtongzhai, but morphologically distinguishable from it by the following points: 1) mandibles a little shorter and more strongly arcuate inwards; 2) labrum a little shorter and robuster; 3) lateral margins of pronotum hardly reflexed above in the posterior portions, with three (on left side) or two (on right side) marginal setae (only a single seta on both sides in *C. wuyipeng*); 4) elytra a little slenderer, their shoulders more effaced, with the discs more strongly convex above and more remarkably uneven in the sculptural condition; 5) male genitalia more strongly curved ventrad in lateral view, with the aedeagal apex more sharply pointed in dorsal view.

Holotype: ♂, above Guobaye (so-called "Mt. Baiyu Shan"), 2,700–2,800 m in altitude, on the Qionglai Shan Mts. stretching along the left side of the Riv. Dong He, in the Fengtongzhai Nature Protective Area of Baoxing Xian, central Sichuan, China, 4–VI–1997, Y. IMURA, Z.-H. SU & M. OKAMOTO leg., to be preserved in the collection of the Institute of Zoology, Chinese Academy of Sciences, Beijing.

Derivatio nominis. This new species is named after Dr. Hong-Zhang ZHOU, Associate Professor and Deputy Director of the Institute of Zoology, Chinese Academy of Sciences, Beijing.

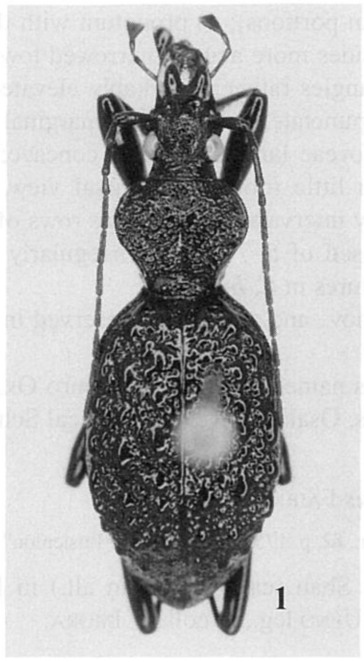
Notes. *Cychrus zhoui* nov. was collected by bait traps set among rather rich undergrowths covering the floor of the old *Abies* forest developed on the western slope of so-called "Mt. Baiyu Shan" above Guobaye. The following species are sympatric with the new species: *Carabus* (*Neoplesius*) *sichuanicola*, *Cychrus okamotoi* nov. and *Cychropsis draconis*.

2) ***Cychrus okamotoi*** IMURA, SU et OSAWA, sp. nov.

(Figs. 3–4)

Description. 15.4 mm (including mandibles). Most closely allied to *Cychrus brezinai* DEUVE described from the eastern slope of Mt. Gongga Shan, but readily discriminated from it by the following points: 1) dorsal surface of head more strongly rugoso-punctate, with a pair of deep gutters on each side at about the mid-eye level on the posterior part of vertex; 2) antennae with the relative length of the fourth segment for the third about 0.55 (0.61 in *C. brezinai*); 3) both the third and fourth segments of

Figs. 1–4. *Cychrus* spp. from Fengtongzhai in Central Sichuan. —— 1–2, *Cy. zhoui* sp. nov., holotype, ♂; 3–4, *Cy. okamotoi* sp. nov., holotype, ♀; 1 & 3, dorsal view; 2 & 4, left lateral view.



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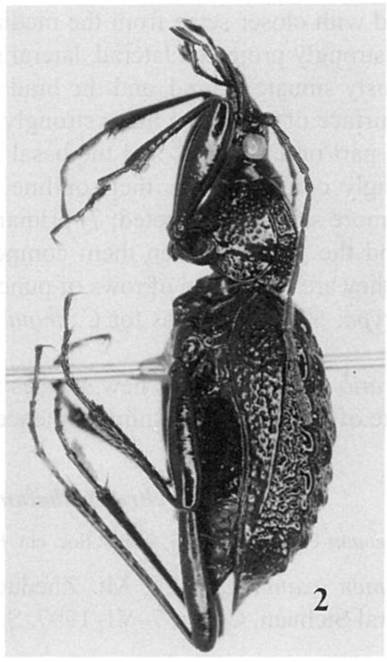

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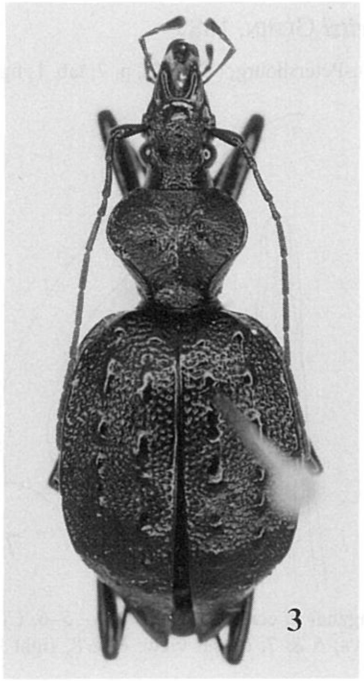

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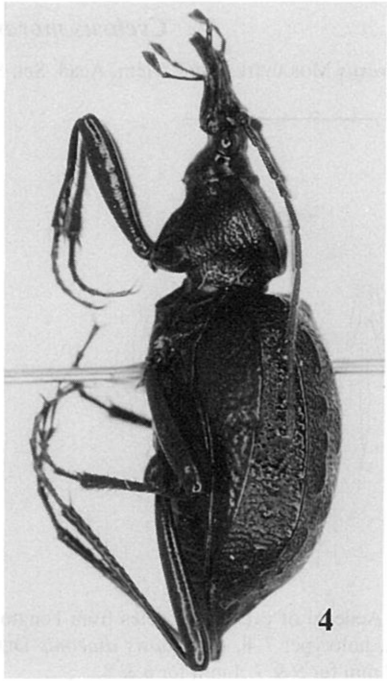

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antennae scattered with sporadical setae only at their distal ends (in *C. brezinai*, they are covered with closer setae from the median portions); 4) pronotum with the widest part more strongly projected laterad, lateral sides more acutely narrowed towards base and obviously sinuate behind, and the hind angles rather remarkably elevated dorsad; 5) discal surface of pronotum more strongly punctate, with a single marginal seta near the widest part on each side, and the basal foveae far more deeply concave; 6) elytra more strongly convex above, their outline a little robuster in dorsal view, with the shoulders more strongly projected; 7) primary intervals recognised as rows of large tubercles, and the areas between them composed of 5–7 rows of irregularly set small granules (they are composed of rows of punctures in *C. brezinai*).

Holotype: ♀, same data as for *C. zhoui* nov., and also to be preserved in the same Institute.

Derivatio nominis. This new species is named after Dr. Munehiro OKAMOTO of the Institute of Experimental Animal Sciences, Osaka University Medical School.

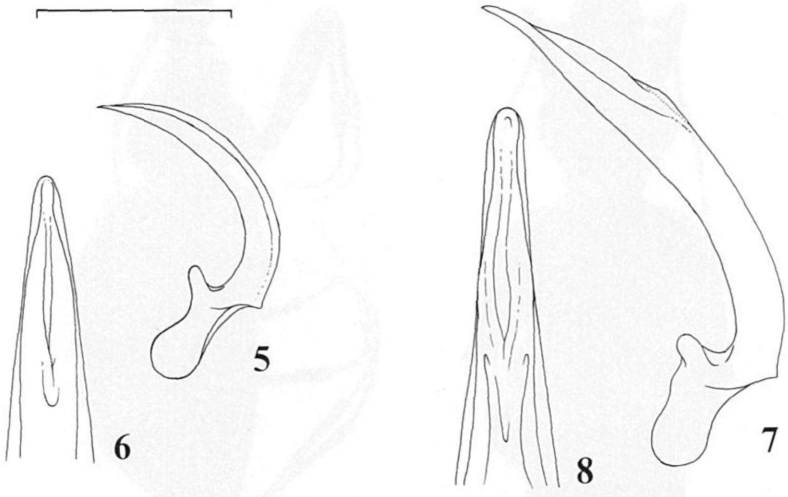
3) ***Cychrus thibetanus*** FAIRMAIRE, 1893

Cychrus thibetanus FAIRMAIRE, 1893, Annls. Soc. ent. Fr., **62**, p. 175; type locality: "Tatsienlou".

Specimen examined. 1 ♂, Mt. Zheduo Shan (ca. 4,000 m in alt.) in Kangding Xian, central Sichuan, China, 7–VI–1997, S. UÉNO leg., in coll. Y. IMURA.

4) ***Cychrus morawitzi*** GÉHIN, 1885

Cychrus convexus MORAWITZ, 1863, Mém. Acad. Sci. St.-Pétersbourg, (7), **6** (3), p. 7, tab. 1, fig. 2; type lo-



Figs. 5–8. Aedeagi of cychrine species from Fengtongzhai in central Sichuan. —— 5–6, *Cychrus zhoui* sp. nov., holotype; 7–8, *Cychropsis draconis* DEUVE; 5 & 7, dorsal view; 6 & 8, right lateral view. Scale: 2 mm for 5 & 7, 1 mm for 6 & 8.

cality: Hakodate, in coll. Zoological Institute, Academy of Sciences, St.Peterburg [nec HEER,1837].

Cychrus morawitzi GÉHIN, 1885, Catalogue synonymique et systématique des Coléoptères de la tribu des Carabides, Prague, p. 75.

Specimen examined. 1 ♂, near Lake Daisetsu-ko on the southeastern slope of the Daisetsu-zan Mts., in Kamikawa-gun, Hokkaido, Japan, N. YASUDA leg.

5) ***Cychropsis draconis*** DEUVE, 1990

Cychropsis draconis DEUVE, 1990, L'Entomologiste, **46**, p. 118; type locality: Chine, Sichuan, Songpan Xian, 3,400 m, in coll. Muséum National d'Histoire Naturelle, Paris.

Specimen examined. 1 ♂, same data as those of *Cychrus zhoui* nov. and *Cy. okamotoi* nov., though the collecting site was a little higher in altitude (ca. 2,900 m), in coll. Y. IMURA.

Notes. This species was described by DEUVE from Songpan Xian of N. Sichuan, and was subsequently recorded by the same author from Wolong of the central part of the same province. Our specimen from Fengtongzhai seems to be identical with DEUVE's species, though bearing a little more gently rounded aedeagal apex in dorsal view.

Evolutionary Considerations

The topology on the phylogenetic tree of the Cychrini, the Calosomina and the Carabina is unchanged from that reported by SU *et al.* (1996 a) by addition of the sequences analysed in this study.

Four cychrine species treated in this study and *Cychrus morawitzi* from Japan constitute a clear monophyletic cluster. *Cychropsis draconis* shares the common ancestry with all other *Cychrus* species. The following three facts should be noted:— 1) The origin of the Cychrini is old and the Cychrini forms an outgroup of the Carabini; 2) Diversification of the cychrine species examined started somewhat before an explosive radiation of the major carabine groups (3–40 Myr ago; see SU *et al.*, 1996 a, b); 3) The branching points of all the species are very deep. Despite such long histories of the cychrine evolution, the fundamental morphology has not changed, in contrast to a remarkable morphological diversification in the Carabina. *Cychrus zhoui* nov. and *Cy. okamotoi* nov. were collected at the same site, and yet the separation of these two species took place long time ago. This suggests that these sympatrically occurring two species have been reproductively isolated for a long time with only a small morphological diversification.

Acknowledgements

We thank Drs. Peiyu YU and Hong-Zhang ZHOU (Institute of Zoology, Chinese Academy of Sciences, Beijing) and Drs. Tokindo OKADA and Keiko NAKAMURA (JT

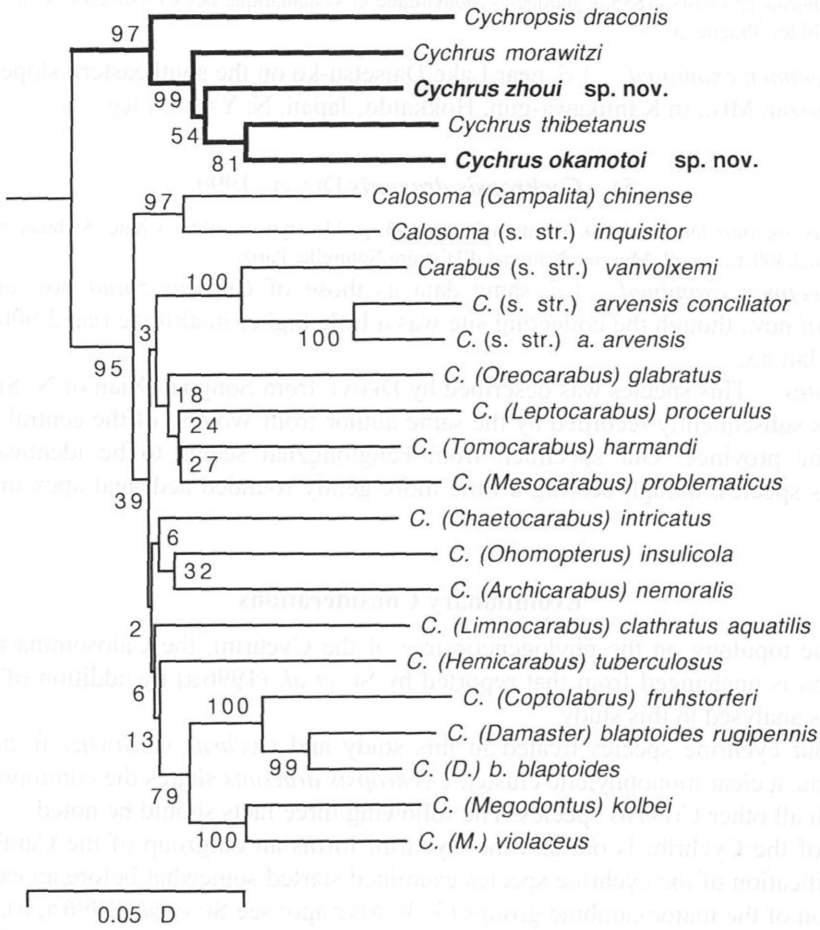


Fig. 9. Phylogenetic tree of the Carabinae based on 1,069-bp sequences of ND5 gene using the NJ method (SAITOU & NEI, 1987). D indicates KIMURA's two-parameter evolutionary distance (KIMURA, 1980). The values at the nodes represent percent of bootstrap confidence level (based on 1,000 resamplings) (FELSENSTEIN, 1985). The phylogenetic tree was outgroup-rooted using the ND5 mitochondrial gene of *Drosophila melanogaster* (GARESSE, 1988) and *D. yakuba* (CLARY & WOLSTENHOLME, 1985). Accession numbers for GenBank data base are as follows: *Cychropsis draconis* (AB010125), *Cychrus morawitzi* (D50347), *Cy. zhoui* nov. (AB010127), *Cy. thibetanus* (AB010126), *Cy. okamotoi* nov. (AB010128), *Calosoma* (*Campalita*) *chinense* (D50343). *C.* (s. str.) *inquisitor* (D50342), *Carabus* (s. str.) *vanvolxemi* (D50345), *C.* (s. str.) *arvensis conciliator* (D50344), *C.* (s. str.) *a. arvensis* (D86203), *C.* (*Oreocarabus*) *glabratus* (D86207), *C.* (*Leptocarabus*) *procerulus* (D50357), *C.* (*Tomocarabus*) *harmandi* (D50364), *C.* (*Mesocarabus*) *problematicus* (D86210), *C.* (*Chaetocarabus*) *intricatus* (D86208), *C.* (*Ohomopterus*) *insulicola* (D50361), *C.* (*Archicarabus*) *nemoralis* (D86209), *C.* (*Limnocarabus*) *clathratus aquatilis* (D50358), *C.* (*Hemicarabus*) *tuberculosus* (D50353), *C.* (*Coptolabrus*) *fruhstorferi* (D50346), *C.* (*Damaster*) *blaptoides rugipennis* (D50351), *C.* (*D.*) *b. blaptoides* (D50349), *C.* (*Megodontus*) *kolbei* (D50365), *C.* (*M.*) *violaceus* (D86211).

Biohistory Research Hall) for the arrangement of the Sino-Japanese Cooperative Expedition to Sichuan, China, in 1997. Thanks are also due to Drs. Shun-Ichi UÉNO (National Science Museum, Tokyo) and Munehiro OKAMOTO (Osaka University) for their invaluable help in the collecting trip and DNA analyses, and to Dr. Thierry DEUVE (Muséum National d'Histoire Naturelle, Paris) for advice in identification of some *Cychrus* species. The first author, Y. IMURA, is grateful to Mr. Boleslav BŘEZINA (Prague) for kindly submitting a specimen of *C. brezinai* for comparative study.

要　　約

井村有希・蘇　智慧・大澤省三：中国四川省のセダカオサムシ族；2新種の記載と同族の進化に関する考察．—— JT生命誌研究館と中国科学院動物研究所との合同調査により得られたオサムシ類のなかに，セダカオサムシ属の2新種をみいだしたので，それぞれにチュウセダカオサムシ *Cychrus zhoui* nov. およびオカモトセダカオサムシ *Cy. okamotoi* nov. という新名を与えて記載した．同時に得られたチベットセダカオサムシ *Cy. thibetanus* と別属のタツノコニセセダカオサムシ *Cychropsis draconis*，ならびに日本産のセダカオサムシ *Cychrus morawitzi* とともに，ミトコンドリアND5遺伝子のDNA塩基配列を決定し，分子系統樹を作成して，その進化の過程に関する検討を行ったところ，つぎのような結論が得られた：1）セダカオサムシ族の起源は古く，分子系統上，オサムシ族の外群を形成する；2）その分化はオサムシ族の一斉放散よりもやや古い時代に起きたものと推定される；3）各種間の分岐が非常に深いにもかかわらず，同族内における基本的形態の変化はオサムシ族のそれに比べてはるかに小さい．

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Elytra, Tokyo, **26** (1): 16, May 15, 1998

Discovery of the Steninae (Coleoptera, Staphylinidae) on the Ogasawara Islands

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The staphylinid fauna of the Ogasawara Islands (Bonin Islands) was reviewed by WATANABE (1978, Mem. natn. Sci. Mus, Tokyo, (11): 131–137), who did not record any species belonging to the subfamily Steninae. Examining the staphylinid collection made on Chichi-jima Island of the Ogasawaras, I found several specimens of *Stenus rugipennis* SHARP, 1874, a stenine species widespread in East Asia. Their collecting data are as given below. This is the first record of the Steninae from the oceanic islands.

Specimens examined. 2 exs., Mt. Tsutsuji-yama, Chichi-jima Is., Ogasawara Isls., 30–VII–1996, T. KISHIMOTO leg.; 2 exs., Mt. Shigure-yama, Chichi-jima Is., Ogasawara Isls., 9–VII–1997, T. KISHIMOTO leg.

In closing this brief report, I wish to thank Professor Yasuaki WATANABE and Dr. Shun-Ichiro NAOMI for their kind advice, and also to Messrs. Takaya YASUI, Toshinobu MATSUMOTO and Kazuhiko MURATA for their help in field works.

Elytra, *Tokyo*, **26** (1): 17–35, May 15, 1998

An Attempt at the Higher Classification of the Carabina (Coleoptera, Carabidae) Based on Morphology and Molecular Phylogeny, with Special Reference to *Apotomopterus*, *Limnocarabus* and *Euleptocarabus*

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Abstract Higher classification of the genus *Carabus* (s. lat.) is re-examined based on a phylogenetic tree constructed from the mitochondrial ND5 gene sequences of 45 species representing all the 8 subdivisions (IMURA, 1996 a) (see SU *et al.*, 1998). The subgenera belonging to these subdivisions emerged almost simultaneously and therefore further grouping of these subdivisions seems to have little phylogenetic significance. It seems more appropriate to regard them as equivalent divisions. Special attention is focused on the phylogenetic positions of *Apotomopterus*, *Limnocarabus* and *Euleptocarabus*. The species belonging to *Apotomopterus* form a single cluster on the ND5 tree, while those of *Limnocarabus* and *Euleptocarabus* constitute another monophyletic cluster. A new division is therefore proposed for the latter two subgenera under the name Lepidospinulati nov., together with a new term, lepidospinula, for their characteristic basal sclerite on the endophallus.

Introduction

Current higher classification of the genus *Carabus* (s. lat.) has been done mainly on the basis of endophallic characters of the male genital organ, the use of which was first proposed by ISHIKAWA (1973, '78, '79). A historical account after ISHIKAWA's proposal was already documented by IMURA (1996 a). IMURA (1996 a) proposed a new system, in which the genus *Carabus* (s. lat.) is first divided into two large divisions, namely, Carabogenici and Multistriati; the former is composed of three subdivisions containing 14 subgenera, and the latter comprises five subdivisions containing 80 subgenera.

In the first part of the present paper, the higher classification is evaluated by a

phylogenetic tree of the mitochondrial ND5 gene using 45 species of the genus *Carabus* (s. lat.) representing all the 8 subdivisions (sensu IMURA, 1996 a) (SU *et al.*, 1998).

Apotomopterus is the largest subgenus in the genus *Carabus* (s. lat.), which contains nearly 100 species distributed in the southeastern part of the Eurasian Continent, mainly in China and the adjacent regions including Taiwan. It is characterised by the absence of an ostium lobe on the membraneous preostium and the presence of a small sclerite at the basal part of the endophallus, a unique morphology of the male genital organ in *Carabus*.

These characters are also shared with the other two subgenera, *Limnocarabus* and *Euleptocarabus*. *Limnocarabus* is rather sporadically but widely distributed in the northern parts of the Eurasian Continent including several adjunctive islands, and is usually treated monotypical, though the type species, *Carabus* (*L.*) *clathratus*, shows marked geographical variation and is separated into several subspecies. For the reasons to be mentioned below, we regard *Limnocarabus* as containing at least two different species, *clathratus* and *maacki*. The population occurring in Japan is represented by subsp. *aquatilis*, belonging most likely to the latter species. *Euleptocarabus* is composed of a single type species, *C.* (*E.*) *porrecticollis*, which is endemic to Honshu, the mainland of Japan. It is separated into two local races, i.e., nominotypical subspecies and subsp. *kansaiensis*, but the geographical variation of the species is more complicated (KIM *et al.*, to be published).

ISHIKAWA (1978, p. 63) unified these three subgenera into a single group, Spinulati (=equivalent to the genus *Apotomopterus* in his sense), as one of his three divisions of the subtribe Carabina, mainly on the basis of unique characters of the male genitalia as mentioned above. This arrangement has been subsequently supported by such taxonomists as DEUVE (1991, '94, '97) and IMURA (1996 a), though they ranked the Spinulati as one of the subdivisions between the genus and its component subgenera. However, phylogenetic relationships among the subgenera and/or species belonging to this subdivision have not been satisfactorily established.

SU *et al.* (1996) reported that two Japanese species, *Limnocarabus maacki* (=*Carabus* (*L.*) *maacki aquatilis* in the present sense) and *Euleptocarabus porrecticollis* (=*C.* (*Euleptocarabus*) *porrecticollis*, *idem.*) are clustered together, and clearly separated from the other Japanese carabine species on the phylogenetic tree of the mitochondrial ND5 gene sequences. Evolutionary distance between these two species is rather small, though they are morphologically separated from each other at the subgeneric level as noted above.

In the second part of the present study, we will analyse both morphologically and molecular phylogenetically 12 taxa belonging to the above three subgenera from China, Vietnam, Taiwan, Germany and Japan to clarify their appropriate phylogenetic positions.

Materials and Methods

A NJ-phylogenetic tree was used of the mitochondrial ND5 sequences (Su *et. al.*, 1998) containing 45 species of the genus *Carabus* (s. lat.) representing all the 8 subdivisions (sensu Imura, 1996 a), and a higher system proposed in the present paper is shown in the right column. For morphological notes and collecting data of the specimens of *Apotomopterus*, *Limnocarabus* and *Euleptocarabus* used in this study, see Appendix.

Scanning electron microscopy. The male genital organ was dissected out from several specimens of *Apotomopterus*, *Limnocarabus* and *Euleptocarabus*. A small basal sclerite on the endophallus was cut out, air-dried, coated with gold and examined under a scanning electron microscope (SEM) (JEOL, JSM–5300LV).

Results and Discussion

Twenty-one clusters, which are supported by the branch length with the bootstrap value of more than 70%, were recognized on a ND5 phylogenetic tree of 45 species of the genus *Carabus* (s. lat.) representing all the 8 subdivisions (Fig. 1). The lineages so recognized are: 1) *Limnocarabus*+*Euleptocarabus*, 2) *Chaetocarabus*/*Platycarabus*, 3) *Hemicarabus*/*Homoeocarabus*, 4) *Apotomopterus*, 5) *Chrysocarabus*, 6) *Damaster* (s. lat.), 7) *Procrustes*/*Megodontus*, 8) *Ohomopterus*, 9) *Carabus* (s. str.)/*Eucarabus*, 10) *Isiocarabus*, 11) *Archaeocarabus**, 12) *Archicarabus*, 13) *Morphocarabus*, 14) *Mesocarabus*, 15) *Pentacarabus*, 16) *Tomocarabus*, 17) *Asthenocarabus*, 18) *Scambocarabus*, 19) *Leptocarabus* (s. lat.), 20) *Oreocarabus* and 21) *Rhigocarabus*. The lineages 5)–7), 8)–11) and 14)–21) could respectively form one cluster. If so, the number of the lineage could be reduced to 9. Imura (1996 a) recognized two major divisions, the Carabogenici and the Multistriati, between the genus and the subdivisions. Since the branching order of these 9 lineages cannot be determined presumably because of their almost simultaneous emergence, they should be treated as "equivalent" taxa without further grouping. Thus, the bi-divisional classification seems to have little phylogenetic significance from the ND5 tree, and it would be appropriate to raise Imura's subdivisions to divisions directly above the subgenera (Fig. 1). These 9 lineages well correspond to the subdivisions of the Carabina proposed by Imura (1996 a) with only one exception. *Apotomopterus* (s. str.) (4) and *Limnocarabus*+*Euleptocarabus* (1) were combined by Imura (1996 a) in a single subdivision Spinulati, while these two are separated on the ND5 tree (see below).

The species belonging to the subdivision Spinulati in Imura's sense appear on the tree as two separate clusters. All the species belonging to *Apotomopterus* form a clear single cluster (AP-cluster), while the species belonging to *Limnocarabus* and *Eulepto-*

* Imura and Mizusawa (1996) treated *nanosomus* and *paris* as members of *Carabus* (s. str.), but they form an independent cluster from other *Carabus* (s. str.) spp. on the ND5 tree. Therefore, we tentatively adopt the subgenus *Archaeocarabus* (type species: *relictus*, male is unknown) for these Chinese species.

carabus constitute another monophyletic cluster (LE-cluster). There is no indication of any phylogenetic relatedness between these two lineages.

The AP-cluster is composed of three subclusters: the first cluster containing *C.* (*A.*) *clermontianus* from North Vietnam and two species from South China, i.e., *C.* (*A.*) *arrowi* and *C.* (*A.*) *laoshanicus* (containing two subspecies), the second one containing all the three subspecies of *C.* (*A.*) *sauteri* from the Chinese Continent and Taiwan, and the third one consisting of *C.* (*A.*) *tonkinensis* from North Vietnam and *C.* (*A.*) *toulgoeti* from South China. The LE-cluster contains *C.* (*Limnocarabus*) *clathratus clathratus* from Germany, *C.* (*L.*) *maacki aquatilis* from Japan, and *C.* (*Euleptocarabus*) *porrecticollis* from Japan.

The *Apotomopterus* species are clearly monophyletic. In spite of morphological similarity of the male genital organ, *Limnocarabus* and *Euleptocarabus* are quite remote from *Apotomopterus*. This suggests that the unique morphology of the male genital organ must have developed in parallel in these two independent phylogenetic lines. We therefore consider that *Limnocarabus* and *Euleptocarabus* should not be included in the same lineage as *Apotomopterus*. By the same token, there would be no rationale to place the morphologically similar but phylogenetically independent groups in the Spinulati. Therefore, here we propose a new division for the LE-cluster under the name Lepidospinulati nov. As to the terminology for the basal sclerite of endophallus observed in the species belonging to the new division, we propose lepidospinula, named after scale-like microstructure on its surface.

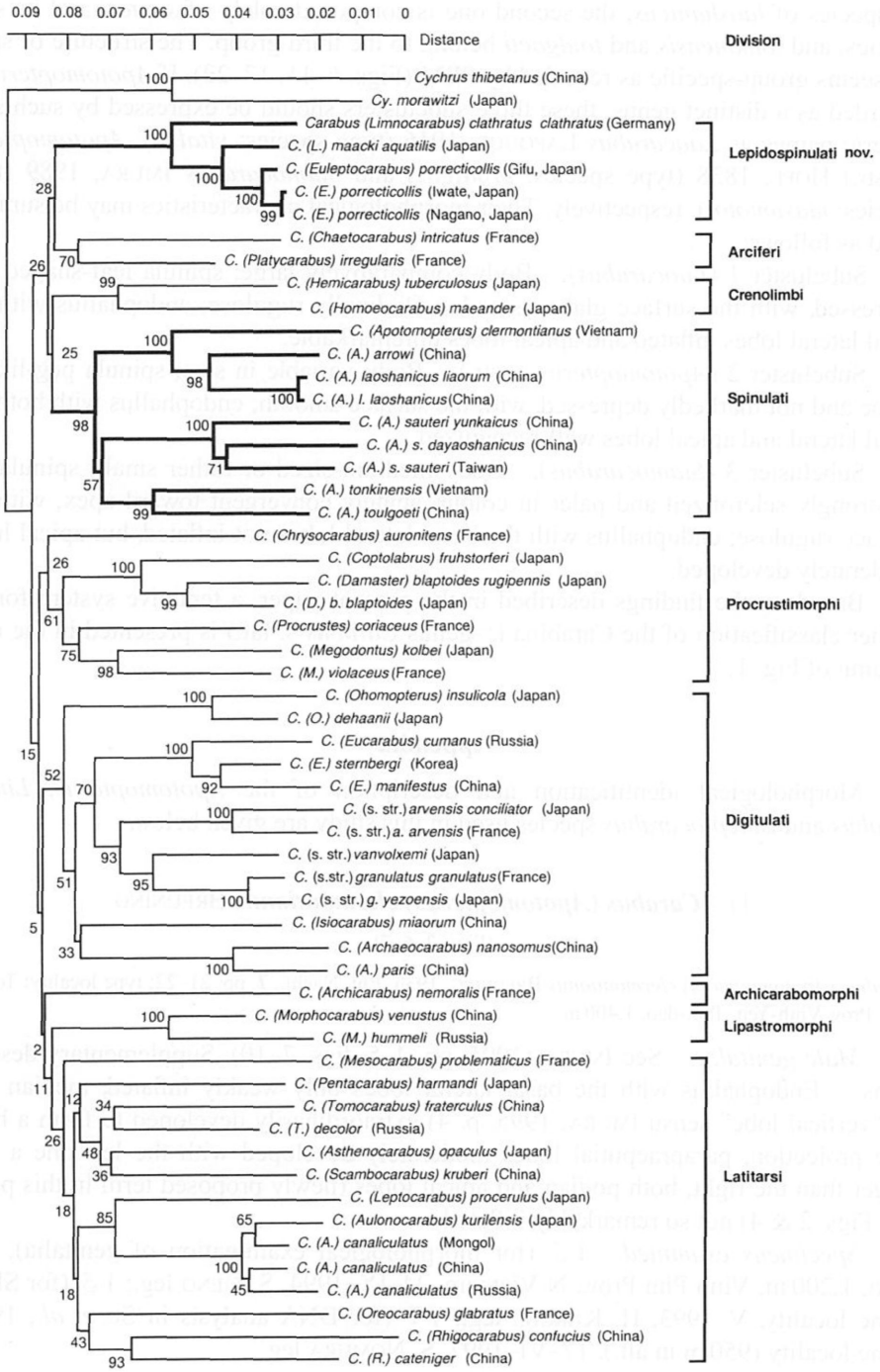
The Lepidospinulati nov. is discriminated from the Spinulati not only molecular biologically but also morphologically as shown in the following key:

1 (2) Membraneous preostium not so strongly inflated and not markedly rugulose on the surface; basal sclerite of endophallus (=spinula) more or less leaf-shaped, widely connected with the membraneous wall, developed horizontally along there, without scale-like microstructure on the surface; parapraeputial lobes more or less developed; apical portion of endophallus not so remarkably inflated or rather deflated, with the apical lobes at most moderately developed. Southeast Eurasia. . . . . Spinulati

2 (1) Membraneous preostium apparently inflated, with the surface remarkably rugulose; basal sclerite (=lepidospinula) spine- or thorn-shaped, more narrowly connected with the membraneous wall, developed therefrom nearly vertically, and densely covered with scale-like microstructure at least partly; parapraeputial lobes vestigial or at most weakly developed; apical portion of endophallus disproportionately large, with the apical lobes extraordinarily inflated. North Eurasia. . . . . Lepidospinulati nov.

In the cluster of the Spinulati (=*Carabus* (*Apotomopterus*)), three distinct subclusters are recognized (Fig. 1): the first one contains *clermontianus*, *arrowi* and two

Fig. 1. Neighbor-joining (NJ) phylogenetic tree of the Carabina constructed from mitochondrial ND5 gene sequences (taken from SU *et al.*, 1998).


0.09 0.08 0.07 0.06 0.05 0.04 0.03 0.02 0.01 0
Distance
Division
Cychrus thibetanus (China)
Cy. morawitzi (Japan)
Carabus (Limnocarabus) clathratus clathratus (Germany)
C. (L.) maacki aquatilis (Japan)
C. (Euleptocarabus) porrecticollis (Gifu, Japan)
C. (E.) porrecticollis (Iwate, Japan)
C. (E.) porrecticollis (Nagano, Japan)
Lepidospinulati nov.
C. (Chaetocarabus) intricatus (France)
C. (Platycarabus) irregularis (France)
Arciferi
C. (Hemicarabus) tuberculosus (Japan)
C. (Homoeocarabus) maeander (Japan)
Crenolimbi
C. (Apotomopterus) clermontianus (Vietnam)
C. (A.) arrowi (China)
C. (A.) laoshanicus liaorum (China)
C. (A.) l. laoshanicus (China)
C. (A.) sauteri yunkaicus (China)
C. (A.) s. dayaoshanicus (China)
C. (A.) s. sauteri (Taiwan)
C. (A.) tonkinensis (Vietnam)
C. (A.) toulgoeti (China)
Spinulati
C. (Chrysocarabus) auronitens (France)
C. (Coptolabrus) fruhstorferi (Japan)
C. (Damaster) blaptoides rugipennis (Japan)
C. (D.) b. blaptoides (Japan)
C. (Procrustes) coriaceus (France)
C. (Megodontus) kolbei (Japan)
C. (M.) violaceus (France)
Procrustimorphi
C. (Ohomopterus) insulicola (Japan)
C. (O.) dehaanii (Japan)
C. (Eucarabus) cumanus (Russia)
C. (E.) sternbergi (Korea)
C. (E.) manifestus (China)
C. (s. str.) arvensis conciliator (Japan)
C. (s. str.) a. arvensis (France)
C. (s. str.) vanvolxemi (Japan)
C. (s.str.) granulatus granulatus (France)
C. (s. str.) g. yezoensis (Japan)
C. (Isiocarabus) miaorum (China)
C. (Archaeocarabus) nanosomus (China)
C. (A.) paris (China)
Digitulati
C. (Archicarabus) nemoralis (France)
Archicarabomorphi
C. (Morphocarabus) venustus (China)
C. (M.) hummeli (Russia)
Lipastromorphi
C. (Mesocarabus) problematicus (France)
C. (Pentacarabus) harmandi (Japan)
C. (Tomocarabus) fraterculus (China)
C. (T.) decolor (Russia)
C. (Asthenocarabus) opaculus (Japan)
C. (Scambocarabus) kruberi (China)
C. (Leptocarabus) procerulus (Japan)
C. (Aulonocarabus) kurilensis (Japan)
C. (A.) canaliculatus (Mongol)
C. (A.) canaliculatus (China)
C. (A.) canaliculatus (Russia)
C. (Oreocarabus) glabratus (France)
C. (Rhigocarabus) confucius (China)
C. (R.) cateniger (China)
Latitarsi

subspecies of *laoshanicus*, the second one is composed solely of *sauteri* and its subspecies, and *tonkinensis* and *toulgoeti* belong to the third group. The structure of spinula seems group-specific as revealed by SEM (Figs. 6–11, 17–22). If *Apotomopterus* is regarded as a distinct genus, these three subclusters should be expressed by such subgeneric names as *Laocarabus* LAPOUGE, 1916 (type species: *vitalisi*), *Apotomopterus* (s. str.) HOPE, 1838 (type species: *prodigus*) and *Siamocarabus* IMURA, 1989 (type species: *masumotoi*), respectively. Their morphological characteristics may be summarized as follows:

Subcluster 1 (*Laocarabus*). Body comparatively large; spinula leaf-shaped and depressed, with the surface glabrous or longitudinally rugulose; endophallus with the basal lateral lobes inflated and apical lobes unremarkable.

Subcluster 2 (*Apotomopterus* s. str.). Body variable in size; spinula peg-like in shape and not markedly depressed, with the surface smooth; endophallus with both the basal lateral and apical lobes well-recognized.

Subcluster 3 (*Siamocarabus*). Body medium-sized or rather small; spinula not so strongly sclerotized and paler in colour, acutely convergent toward apex, with the surface rugulose; endophallus with the basal lateral lobes not inflated, but apical lobes moderately developed.

Based on the findings described in the present paper, a tentative system for the higher classification of the Carabina (=genus *Carabus* s. lat.) is presented in the right column of Fig. 1.

Appendix

Morphological identification and description of the *Apotomopterus*, *Limnocarabus* and *Euleptocarabus* species used in this study are given below.

1) ***Carabus* (*Apotomopterus*) *clermontianus*** BREUNING

(Figs. 2, 6–7)

Carabus (*Apotomopterus*) *clermontianus* BREUNING, 1933, Ent. Nachr., **7**, pp. 21–22; type locality: Tonkin, Prov. Vinh-Yen, Tam-dao, 1,400 m.

Male genitalia. See IMURA (1995, pp. 4–5, figs. 7–10). Supplementary descriptions:— Endophallus with the basal lateral lobes only weakly inflated, median lobe (="vertical lobe" sensu IMURA, 1995, p. 4) extraordinarily developed to form a horn-like projection, parapraeputial lobes moderately developed with the left one a little larger than the right, both podian and apical lobes (newly proposed term in this paper, see Figs. 2 & 4) not so remarkably inflated.

Specimens examined. 1 ♂ (for morphological examination of genitalia), Tam Dao, 1,200 m, Vinh Phu Prov., N Vietnam, 24–IX–1994, S. UÉNO leg.; 1 ♂ (for SEM), same locality, V–1993, H. KARUBE leg.; 1 ♀ (for DNA analysis in SU *et al.*, 1998), same locality (950 m in alt.), 17–VI–1997, S. NOMURA leg.

2) *Carabus* (*Apotomopterus*) *arrowi arrogantior* DEUVE

(Figs. 3, 8–9)

Carabus (*Apotomopterus*) *arrogantior* DEUVE, 1991, Nouv. Revue Ent., (N. S.), **8**, p. 102; type locality: Chine, Guangxi, Longsheng Gezu Zizhixian, Huaping.
Carabus (*Apotomopterus*) *arrowi arrogantior*: IMURA, 1996, Elytra, Tokyo, **24**, p. 187, fig. 7.

Male genitalia. See IMURA (1996 b, p.187, fig. 7). Supplementary descriptions:— Basal lateral lobes extraordinarily inflated on both sides, median lobe hardly developed, parapraeputial lobes rather strongly protrudent dorsad and almost symmetrical, apical portion of endophallus very short and undeveloped, both apical and podian lobes not swollen at all.

Specimens examined. 2 ♂♂ (for morphological examination of genitalia), 1 ♀ (for DNA analysis), above Antang Ping (1,820 m), on Mt. Miao'er Shan in Xing'an Xian of northeastern Guangxi, South China, 25~27–V–1996, Y. IMURA leg.

3) *Carabus* (*Apotomopterus*) *laoshanicus laoshanicus* IMURA

(Fig. 4)

Carabus (*Apotomopterus*) *inagakii laoshanicus* IMURA, 1995, Gekkan-Mushi, Tokyo, (287), p. 9, figs. 5–6, 13–15; type locality: Mt. Lao Shan on the Dayao Shan Mts., Jinxiu Xian, Guangxi, South China.
Carabus (*Apotomopterus*) *laoshanicus*: IMURA & MIZUSAWA, 1996, The *Carabus* of the World, p. 130, pl. 21, figs. 170–1, 2.

Male genitalia. See IMURA (1995, pp. 9–10, figs. 13–15). Supplementary descriptions on the endophallus:— Basal lateral lobes well-developed and strongly inflated laterad on both sides with the left lobe a little larger than the right, median lobe absent, parapraeputial lobes rather small and only weakly and roundly inflated dorsad, apical lobes rather remarkably protruded though small, podian lobes inconspicuous.

Specimens examined. 2 ♂♂ (1 ♂ for morphological examination of genitalia, 1 ♂ for DNA analysis), Dayao Shan Mts. in eastern Guangxi, South China, VIII–1996, collected by a native collector.

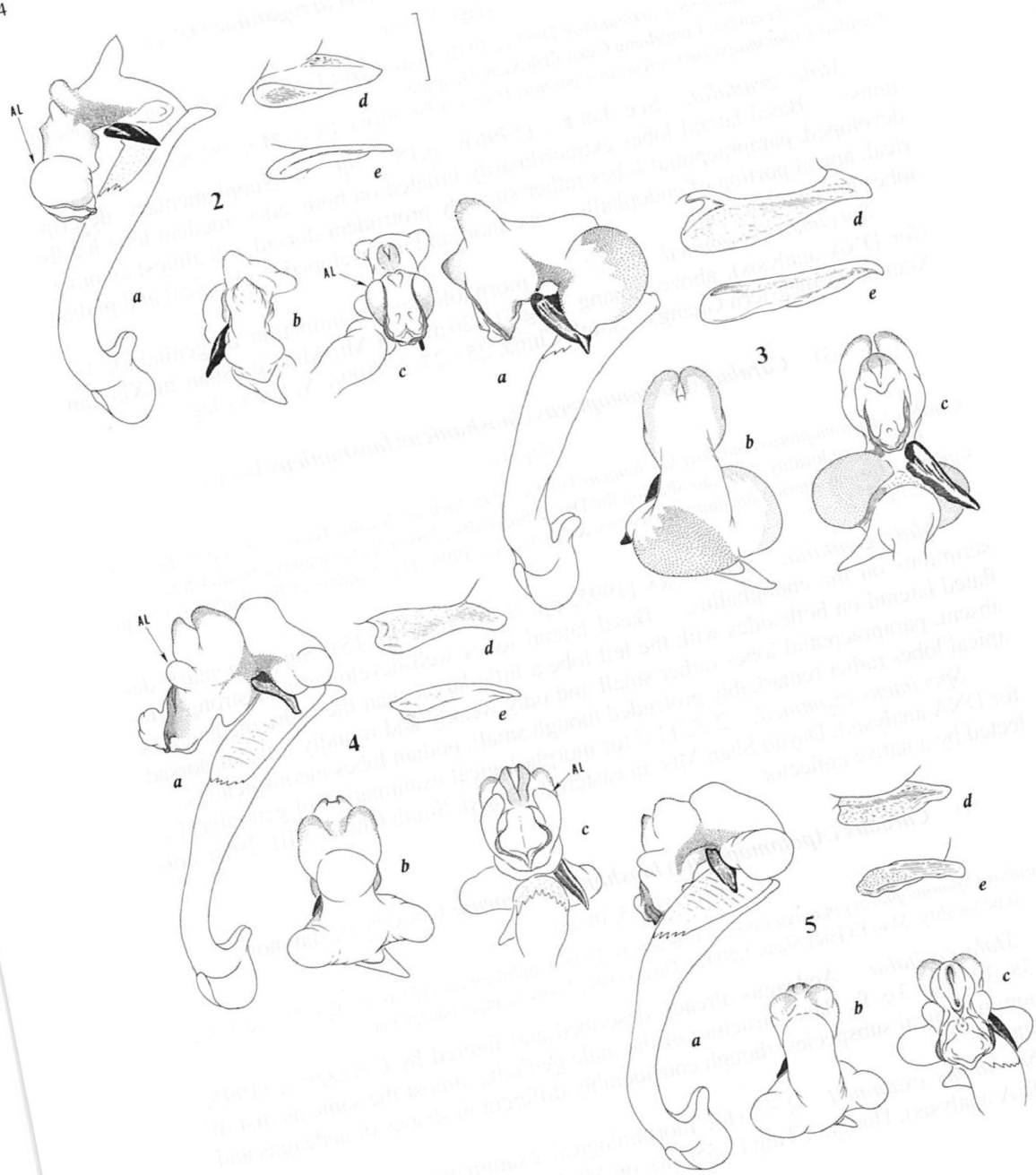
4) *Carabus* (*Apotomopterus*) *laoshanicus liaorum* CAVAZZUTI, stat. nov.

(Figs. 5, 10–11)

Carabus (*Apotomopterus*) *inagakii liaorum* CAVAZZUTI, 1995, Lambillionea, (95), p. 38, figs. 2 b, 3 e–f, 4 c; type locality: Mao Er [sic] Shan, 1,500 m, Guanxi [sic] N-occidentale [sic], Cina.

Male genitalia. Aedeagus already described and figured by CAVAZZUTI, (1995, pp. 38–39, figs. 3 e–f). Basic structure of the male genitalia almost the same as that of the nominotypical subspecies, though considerably different in shapes of aedeagus and spinula.

Specimens examined. 2 ♂♂ (for morphological examination of genitalia), 1 ♀ (for DNA analysis), Hongjun Ting (1,550 m), on Mt. Miao'er Shan in Xing'an Xian of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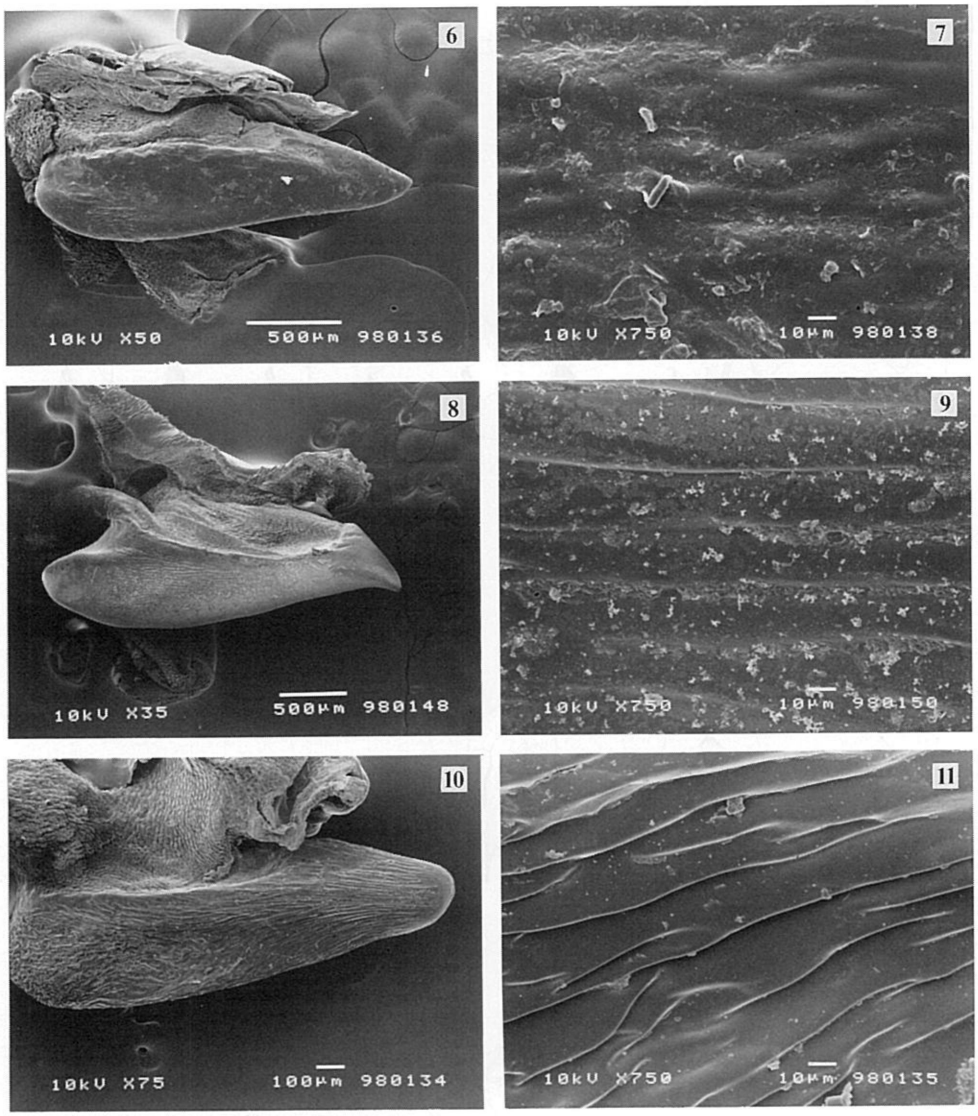
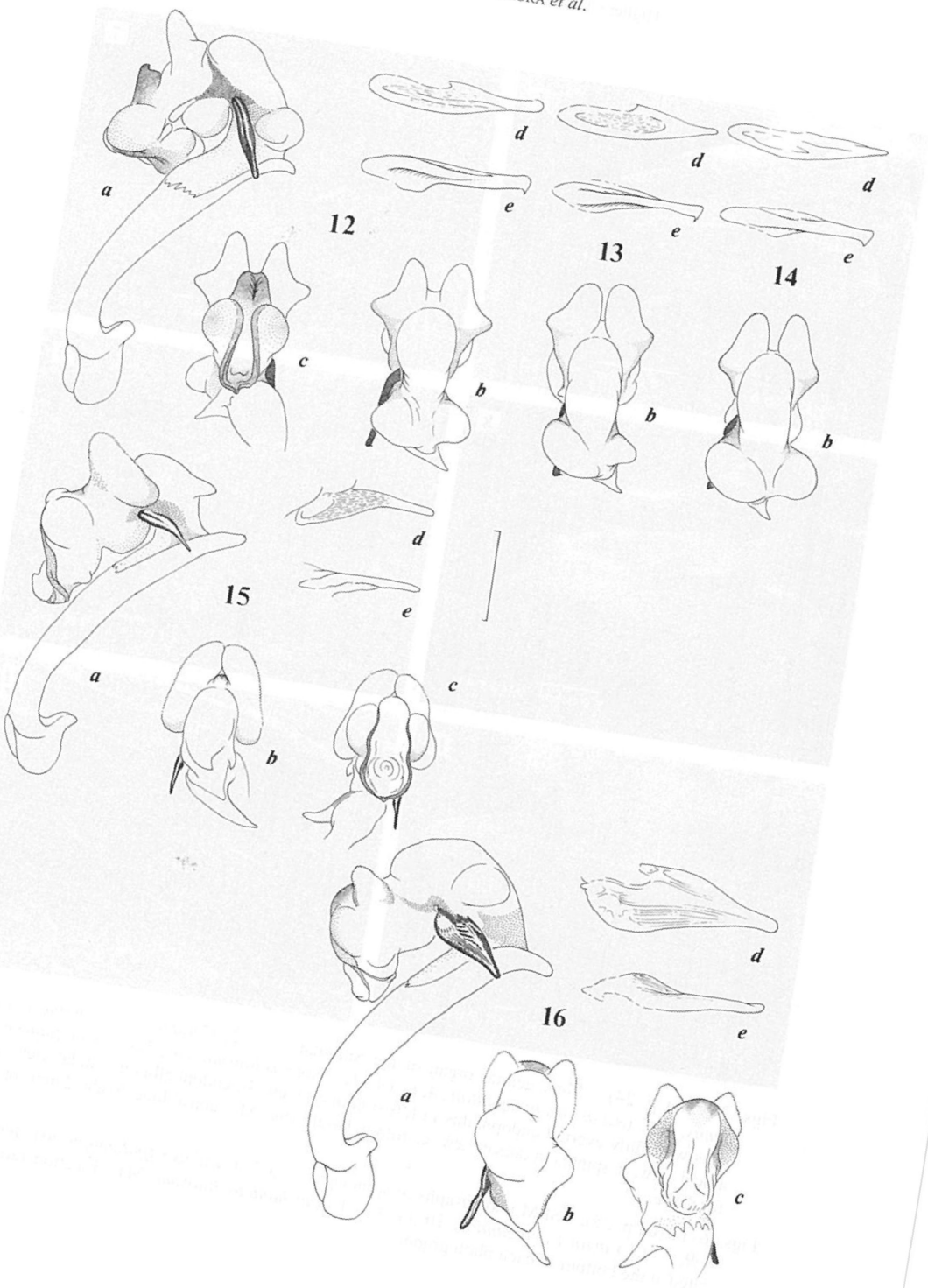


Figs. 2–5 (on p. 24). Male genital organ of the Spinulati. —— 2, *Carabus* (*Apotomopterus*) *clermontianus*; 3, *C.* (*A.*) *arrowi arrogantior*; 4, *C.* (*A.*) *laoshanicus laoshanicus*; 5, *C.* (*A.*) *l. liaorum*; a, aedeagus with fully everted endophallus in left subdorsal view; b, endophallus in caudal view; c, ditto in apical view; d, spinula in dorsal view; e, ditto in basal view; AL = apical lobe. Scale: 2 mm for a–c, 1 mm for d & e.

Figs. 6–11 (on p. 25). SEM photographs of spinula. —— 6–7, *Carabus* (*Apotomopterus*) *clermontianus*; 8–9, *C.* (*A.*) *arrowi arrogantior*; 10–11, *C.* (*A.*) *laoshanicus liaorum*. Magnification ratios are indicated at the bottom of each photograph.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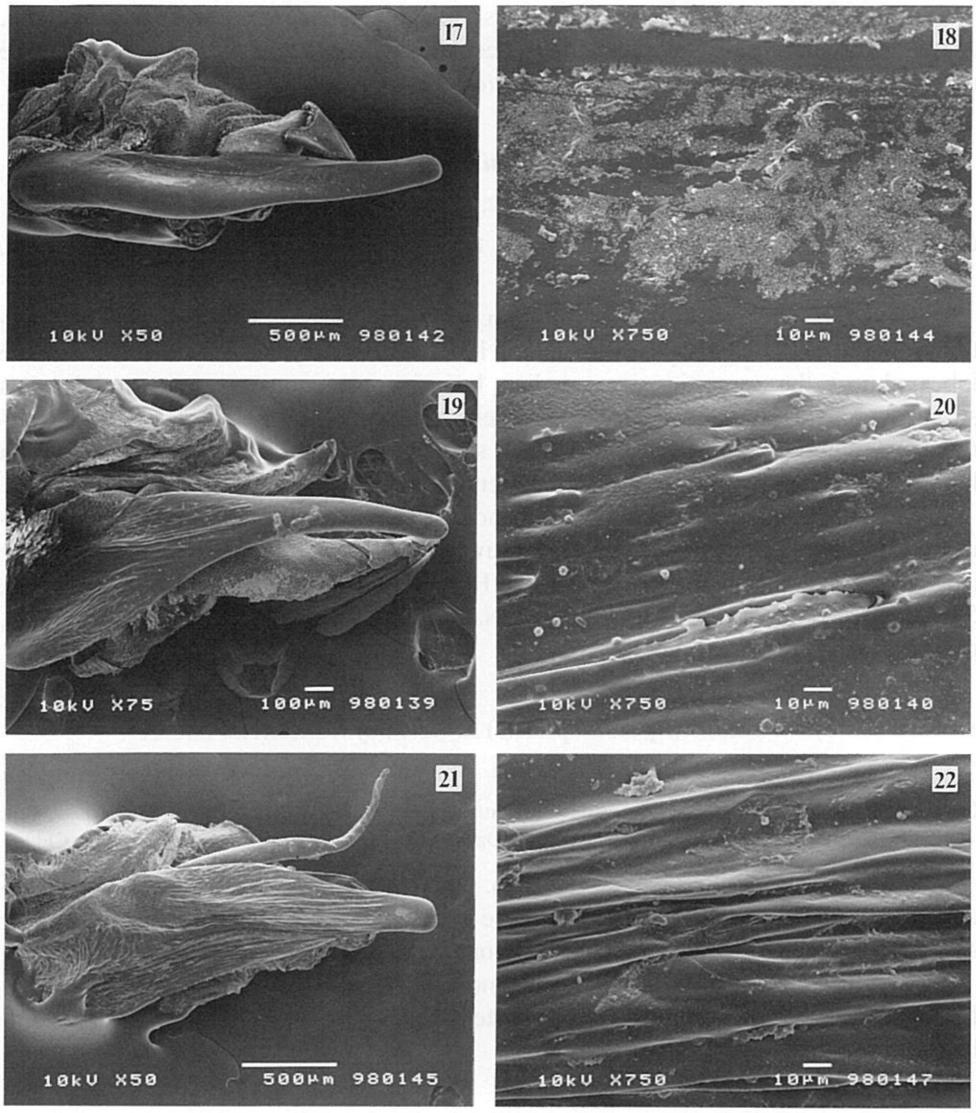


Figs. 12–16 (on p. 26). Male genital organ of Spinulati. —— 12, *Carabus* (*Apotomopterus*) *sauteri sauteri*; 13, *C.* (*A.*) *s. dayaoshanicus*; 14, *C.* (*A.*) *s. yunkaicus*; 15, *C.* (*A.*) *tonkinensis*; 16, *C.* (*A.*) *toulgoeti*; a, aedeagus with fully everted endophallus in left subdorsal view; b, endophallus in caudal view; c, ditto in apical view; d, spinula in dorsal view; e, ditto in basal view. Scale: 2 mm for a–c, 1 mm for d & e.

Figs. 17–22 (on p. 27). SEM photographs of spinula. —— 17–18, *Carabus* (*Apotomopterus*) *sauteri sauteri*; 19–20, *C.* (*A.*) *tonkinensis*; 21–22, *C.* (*A.*) *toulgoeti*. Magnification ratios are indicated at the bottom of each photograph.

northeastern Guangxi, South China, 27–V–1996, Y. IMURA leg.

Notes. This taxon was originally described as a subspecies of *C.* (*A.*) *inagakii*. Judging from both morphological and molecular phylogenetic viewpoints, it should be regarded as a subspecies of *C.* (*A.*) *laoshanicus*.

5) ***Carabus* (*Apotomopterus*) *sauteri sauteri*** ROESCHKE

(Figs. 12, 17–18)

Carabus Sauteri ROESCHKE, 1912, Suppl. ent., Berlin, **1**, pp. 4–6; type locality: Suisharyo (=Shui-she-liao), Taiwan.

Male genitalia. See IMURA (1994, pp. 4–6, figs. 32–33). Supplementary descriptions on the endophallus:— Basal lateral lobes moderately developed and both the lobes almost the same in size, median lobe inconspicuous, parapraeputial lobes strongly protruded dorsad with weaker lateral projections on both sides at basal portions, praeputial pad remarkably raised and strongly pigmented, both apical and podian lobes not so strongly inflated though apparently recognizable.

Specimens examined. 1 ♂ (for morphological examination of genitalia), Mt. Peichatien Shan in Taipei Hsien, northern Taiwan, 9–VII–1994, M. TANIKADO leg.; 1 ♂ (for SEM), Mt. Kuan-tao Shan in Jen-ai Hsiang of Nan-tou Hsien, central Taiwan, 5–V–1981, M. TANIKADO leg.; 1 ♂ (for DNA analysis), Nanshanchi in Nantou Hsien, central Taiwan, H. NARA leg.

6) ***Carabus* (*Apotomopterus*) *sauteri dayaoshanicus*** IMURA

(Fig. 13)

Carabus (*Apotomopterus*) *sauteri dayaoshanicus* IMURA, 1995, Gekkan-Mushi, Tokyo, (287), p. 9, figs. 3–4, 10–12; type locality: Mt. Lao Shan on the Dayao Shan Mts., Jinxiu Xian, Guangxi, South China.

Male genitalia. See IMURA (1995, p. 9, figs. 10–12). Basal lateral lobes of endophallus with the left one larger than the right, parapraeputial lobes more roundly shaped at tips with the basal lateral projections weaker.

Specimens examined. 2 ♂♂ (1 ♂ for morphological examination of genitalia, 1 ♂ for DNA analysis), Dayao Shan Mts. in eastern Guangxi, South China, VIII–1996, collected by a native collector.

7) ***Carabus* (*Apotomopterus*) *sauteri yunkaicus*** DEUVE

(Fig. 14)

Carabus (*Apotomopterus*) *yunkaicus* DEUVE, 1991, Bull. Soc. ent. Fr., **96**, pp. 224, 226, fig. 3; type locality: Chine, Guangxi, Longsheng Xian, 1,420 m.

Carabus (*Apotomopterus*) *sauteri yunkaicus*: IMURA, 1994, Elytra, Tokyo, **22**, pp. 12–13, figs. 14–15, 23–31, 40.

Male genitalia. See IMURA (1994, pp. 12–13, fig. 40). Supplementary descrip-

tions:— Membraneous preostium obviously swollen in fully everted condition, basal lateral lobes a little more strongly inflated than in the above two subspecies, parapraeputial lobes almost the same in shape as those of subsp. *dayaoshanicus*.

Specimens examined. 1 ♂ (for morphological examination of genitalia), 1 ♀ (for DNA analysis), above Antang Ping (1,820 m), on Mt. Miao'er Shan in Xing'an Xian of northeastern Guangxi, South China, 25~27–V–1996, Y. IMURA leg.

8) ***Carabus* (*Apotomopterus*) *tonkinensis*** DEUVE

(Figs. 15, 19–20)

Carabus (*Apotomopterus*) *tonkinensis* DEUVE, 1990, Bull. Soc. Sci. Nat, (65), p. 26, figs. 1, 4; originally designated type locality: "Vietnam Tonkin, Tam Dao".

Carabus (*Apotomopterus*) *tonkinensis*: IMURA, 1995, Bull. natn. Sci. Mus., Tokyo, (A), **21**, pp. 2–4, figs. 1–6; most probable distributional area: the high altitudinal area of the northwestern part of N Vietnam around Phang Si Pang.

Male genitalia. See IMURA (1995, pp. 2–4, figs. 3–6). Supplementary descriptions:— Endophallus with the basal lateral lobes not swollen at all, median lobe apparently recognized, with a small accessory projection at a little right side, parapraeputial lobes well-developed and symmetrical, with the basal portions strongly inflated ventrad, praeputial pad vestigial, apical lobes roundly inflated, podian lobes very small but clearly recognizable.

Specimens examined. 1 ♂ (for morphological examination of genitalia), Hoang Lien Son Mts., N of Phang Si Pang, 1,920 m, Lao Cai Prov., N Vietnam, 10–X–1994, S. UÉNO, M. SATÔ & Y. NISHIKAWA leg.; 1 ♂ (for SEM), Sa Pa, 2,300 m, SW of Lao Cai, 20~26–VI–1991, M. ITÔ leg.; 1 ♀ (for DNA analysis), Deo Tram Ton, 1,950 m, Lao Cai Prov., N Vietnam, 29–VI–1997, S. NOMURA leg.

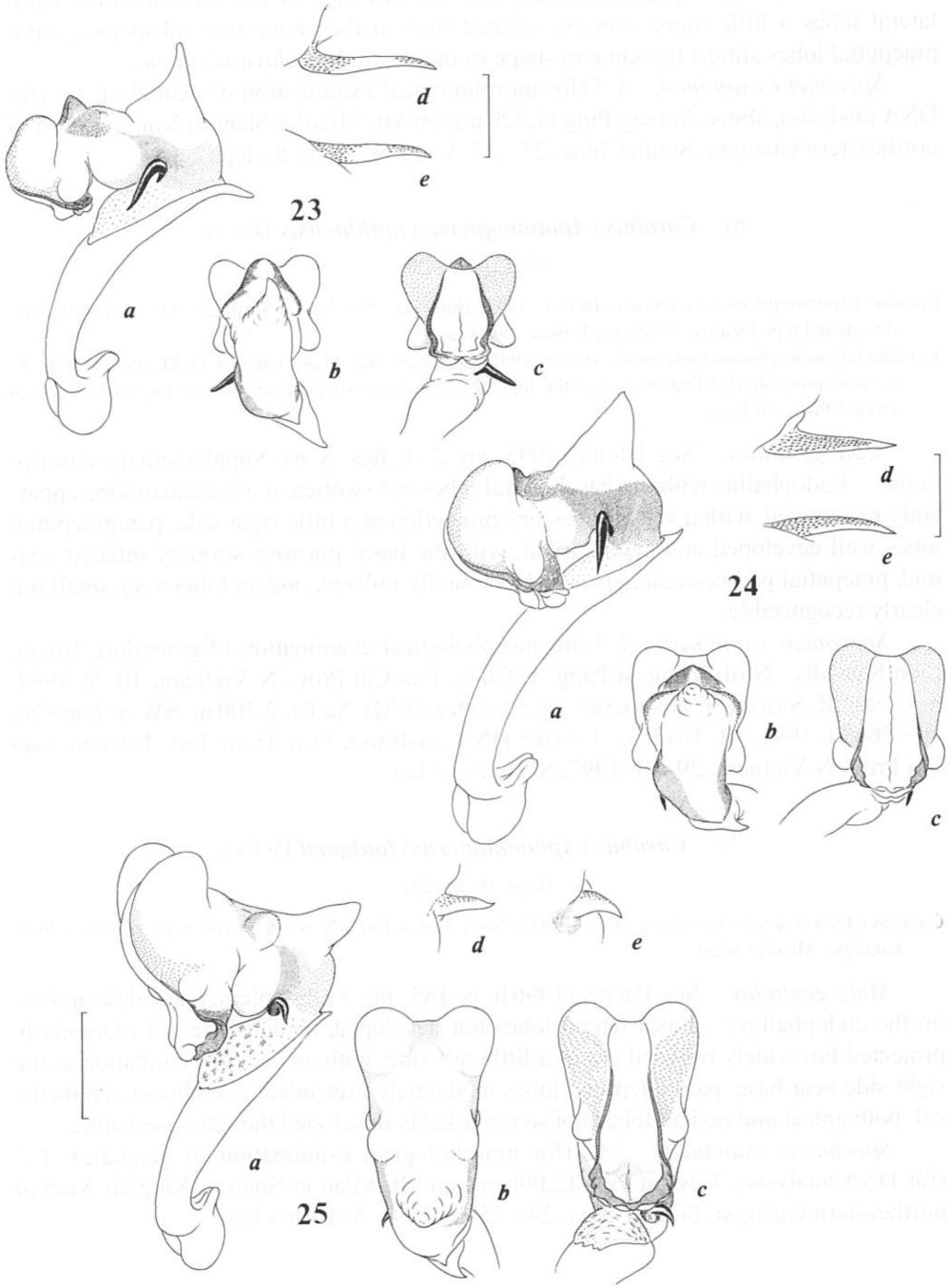
9) ***Carabus* (*Apotomopterus*) *toulgoeti*** DEUVE

(Figs. 16, 21–22)

Carabus (*Apotomopterus*) *toulgoeti* DEUVE, 1989, Nouv. Revue Ent., (N. S.), **6**, p. 161; type locality: Chine, Guangxi, Miao'er Shan.

Male genitalia. See IMURA (1996 b, p. 185, fig. 5). Supplementary descriptions on the endophallus:— Basal lateral lobes not developed, medial lobe not triangularly projected but widely rounded out at a little left side, with an accessory inflation at the right side near base, parapraeputial lobes moderately protrudent and almost symmetrical, both apical and podian lobes not so remarkably developed though observable.

Specimens examined. 2 ♂♂ (for morphological examination of genitalia), 1 ♀ (for DNA analysis), Tieshan Ping (2,000 m), on Mt. Miao'er Shan in Xing'an Xian of northeastern Guangxi, South China, 24~25–V–1996, Y. IMURA leg.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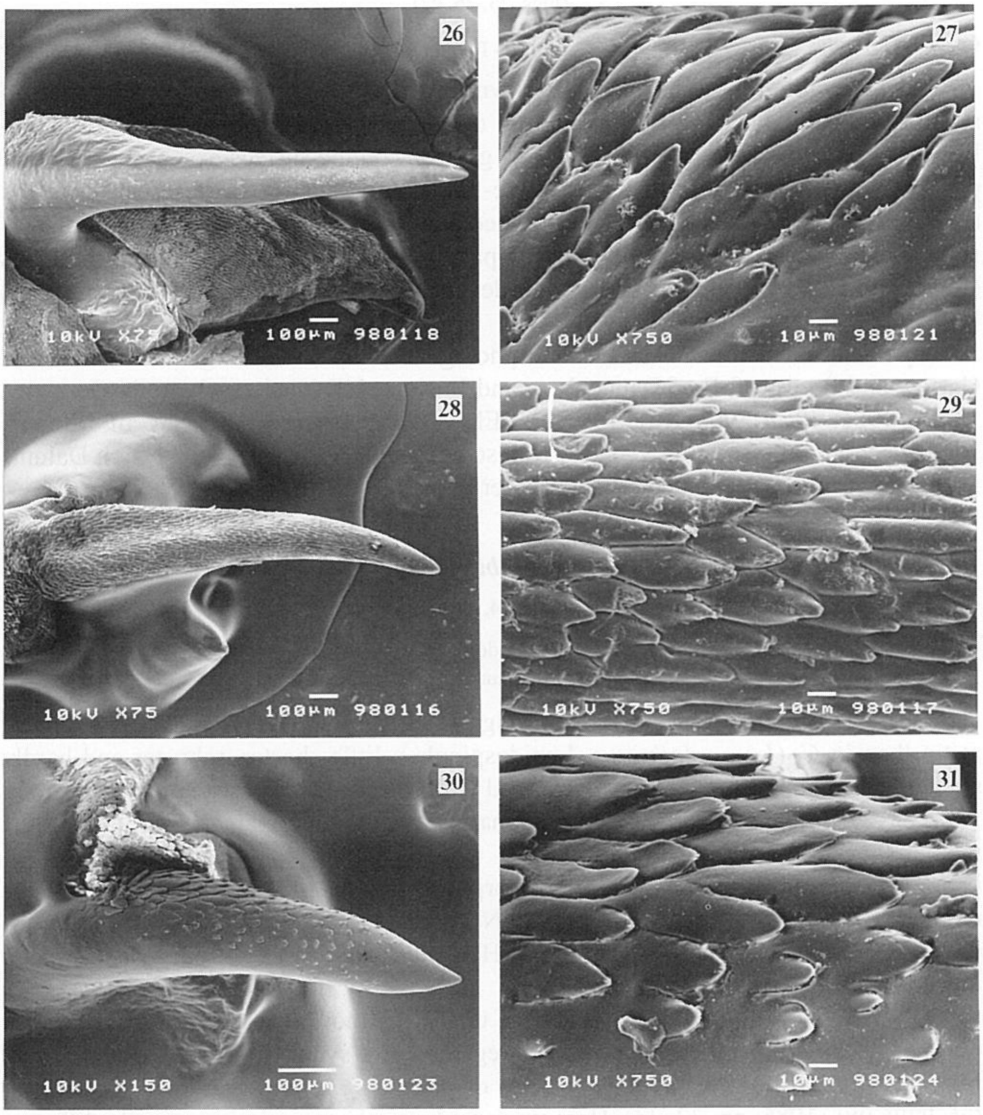

Figs. 23–25 (on p. 30). Male genital organ of Lepidospinulati nov. —— 23, *Carabus* (*Limnocarabus*) *clathratus clathratus*; 24, *C.* (*L.*) *maacki aquatilis*; 25, *C.* (*Euleptocarabus*) *porrecticollis*; a, aedeagus with fully everted endophallus in left subdorsal view; b, endophallus in caudal view; c, ditto in apical view; d, lepidospinula in dorsal view; e, ditto in basal view. Scale: 2 mm for a–c, 1 mm for d & e.

Figs. 26–31 (on p. 31). SEM photographs of lepidospinula. —— 26–27, *Carabus* (*Limnocarabus*) *clathratus clathratus*; 28–29, *C.* (*L.*) *maacki aquatilis*; 30–31, *C.* (*Euleptocarabus*) *porrecticollis*. Magnification ratios are indicated at the bottom of each photograph.

10) *Carabus* (*Limnocarabus*) *clathratus clathratus* LINNÉ

(Figs. 23, 26–27)

Carabus clathratus LINNÉ, 1761, Faun. suec., 2nd ed., p. 218; presumable type area: North Germany.

Male genitalia. Aedeagus as shown in Fig. 10 a. Membraneous preostium strongly inflated and remarkably rugulose on the surface. Endophallus with a spine-like basal sclerite (=lepidospinula) almost glabrous on the surface except for the basal part which is densely covered with scale-like microstructure as observed by SEM (Figs. 26–27), basal lateral lobes absent, median lobe markedly developed and triangularly shaped, with sharply pointed apex, parapraeputial lobes vestigial, apical lobes strongly inflated, podian lobes also well-developed though much smaller than apical lobes.

Specimens examined. 1 ♂ (for morphological examination of genitalia), between Gartow and Pevestorf, E of Dannenberg and Lüchow, NE Niedersachsen, N Germany, 18–VI–1986, K. STAVEN leg.; 1 ♂ (for SEM), Oppenweher Moor, NW of Minden, Niedersachsen, N Germany, V–1977, REBISCHKE leg.; 1 ♀ (for DNA analysis), Dalums Moor near Lingen, W Niedersachsen, N Germany, 17–VII–1997, K STAVEN leg.

11) *Carabus* (*Limnocarabus*) *maacki aquatilis* BATES

(Figs. 24, 28–29)

Carabus aquatilis BATES, 1883, Trans. ent. Soc. London, **1883**, p. 224; type locality: "Shimonosuwa Lake" (=presumably Lake Suwa-ko in Nagano Prefecture, central Honshu, Japan).

Male genitalia. Aedeagus much longer, slenderer and less acutely bent ventrad at tip than in *C.* (*L.*) *c. clathratus*. Lepidospinula a little shorter, robuster and hardly sinuate throughout, its surface fully covered with scale-like microstructure as shown in Figs. 28–29. Membraneous part of endophallus as in the German species, though the median lobe a little larger and robuster.

Specimens examined. 2 ♂♂ (for morphological examination of genitalia), the riverside marsh of the Riv. Iwaki-gawa, in Nakasato Town of Kita-tsugaru County, Aomori Prefecture, near the northern end of Honshu, Japan, 5–VII–1987, Y. IMURA leg.; 1 ♀ (for DNA analysis), same locality.

Notes. The taxon *aquatilis* has been treated by most authors as one of the local races of *C. clathratus*, though sometimes regarded as a synonym of subsp. *maacki* (cf. NAKANE, 1962, p. 44), or as a subspecies of *Apotomopterus* (*Limnocarabus*) *maacki* (cf. ISHIKAWA, 1985, pp. 32–33). Here we regard *maacki* as a race specifically differentiated from *C. clathratus*, and place *aquatilis* as a subspecies of *C.* (*L.*) *maacki*, based upon both morphological and molecular phylogenetic findings.

12) *Carabus* (*Euleptocarabus*) *porrecticollis* BATES

(Figs. 25, 30–31)

Carabus porrecticollis BATES, 1883, Trans. ent. Soc. London, **1883**, p. 228; type locality: "Urasa, and on the north-west coast at Akita and Sakata" (Urasa is situated in Yamato Town of Minami-Uwonuma County, Niigata Prefecture, central Honshu, Japan).

Male genitalia. Aedeagus as shown in Fig. 13 a, which is very small as compared with the body size. Membraneous preostium strongly inflated and remarkably rugulose as in the above two species. Endophallus with lepidospinula as figured in Figs. 13 d–e, very small, short and thorn-shaped, with the surface rather sporadically covered with scale-like microstructure as observed by SEM (Figs. 30–31), basal lateral lobes absent, median lobe large and triangularly shaped, parapraeputial lobes recognized though small, praeputial pad vestigial, apical portion disproportionately large, with extraordinarily inflated apical lobes and relatively small podian lobes.

Specimens examined. 1 ♂ (for morphological examination of genitalia), Kamado in Mizunami City, Gifu Prefecture, central Honshu, Japan, 9–IV–1975, Y. IMURA leg.; 1 ♂ (for SEM), southern slope of Mt. Ogura-yama near Nikkô City, Tochigi Prefecture, central Honshu, Japan, 11–III–1973, Y. IMURA leg.; 1 ♀ (for DNA analysis), be-

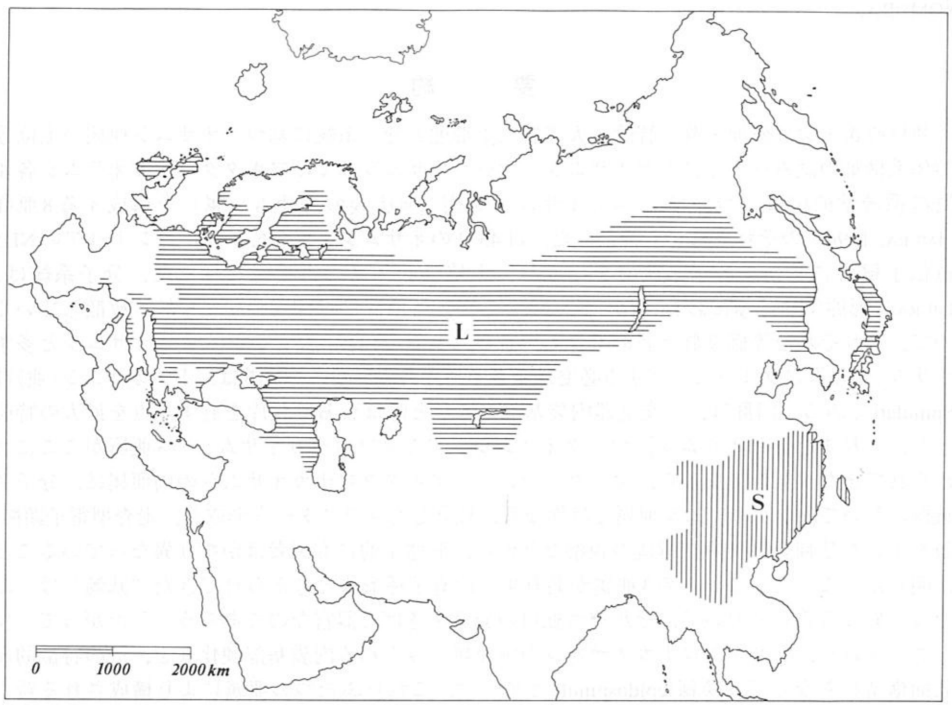

Fig. 32. Map showing the distributional range of Spinulati (S) and Lepidospinulati nov. (L).

tween Nenoue-kôgen and Agi in Nakatsugawa City, Gifu Prefecture, central Honshu, Japan, 10–X–1997, O. TOMINAGA leg.; 1♀ (*idem.*), Hiraizumi-chô, Iwate Prefecture, northern Honshu, Japan, 22–XI–1996, O. TOMINAGA leg.; 1♀ (*idem.*), Komagane City, Nagano Prefecture, central Honshu, Japan, 24–XII–1996, O. TOMINAGA leg.

Acknowledgements

We thank the following gentlemen for their cooperation in supplying invaluable specimens for the present study: the late Mr. Wako KITAWAKI (Osaka), Mr. Kiyoyuki MIZUSAWA (Yokosuka), Mr. Hajime NARA (Wakayama), Prof. Yoshiaki NISHIKAWA (Otemon Gakuin University), Dr. Shûhei NOMURA (National Science Museum, Tokyo), Prof. Masataka SATÔ (Nagoya Women's University), Dr. Klaus STAVEN (Lengede), Mr. Motohiko TANIKADO (Ibaraki), Mr. Osamu TOMINAGA (Nara), Dr. Shun-Ichi UÉNO (National Science Museum, Tokyo) and Mr. Yasuyuki WATANABE (Amagasaki). Thanks are also due to Dr. Akihiro YOSHIDA of JT Biohistory Research Hall for help in taking the SEM photographs.

This study is supported in part by the Grant-in-aid No. 06041116 for Scientific Research of the International Scientific Research Program from the Ministry of Education, Science, Sports and Culture, Japan, for the field work in Vietnam by Dr. Shûhei NOMURA.

要　　約

井村有希・金　衝坤・蘇　智慧・大澤省三：形態と分子系統に基づくオサムシ亜族の上位分類体系構築の試み—とくにトゲオサムシ，マークオサムシおよびアキタクロナガオサムシ各亜属の系統学的位置について．—— オサムシ亜族（＝広義のオサムシ属）を構成する8亜群（IMURA, 1996）のそれぞれから抽出した，計45種のオサムシを用いて，ミトコンドリアのND5遺伝子解析に基づく分子系統樹を作成し，上位分類体系の再検討を行った．分子系統は，IMURAの形態学的分類におおむね一致しているが，各亜群はほぼ同時期に分岐，放散しているので，それぞれを等価な群と認めてよく，さらに上位のレベルでこれらを真正オサムシと多条オサムシの2群にグルーピングする必要はなさそうである．唯一の例外は，トゲオサムシ(亜)群Spinulatiである．同群は，♂交尾器内袋基部に基棘と呼ばれる硬化片を有する点を最大の特徴とし，これまでトゲオサムシ，マークオサムシ，アキタクロナガオサムシの3亜属がここに含められてきた．しかしながら，マークオサムシとアキタクロナガオサムシの両亜属は，分子系統樹において，トゲオサムシ亜属とは異なる，独立したクラスターを形成し，走査型電子顕微，鏡を用いた基棘表面の微細構造の観察などから，形態学的にも両者はかなり異なっていることが明らかになった．これらの3亜属が共有する固有子孫形質と考えられてきた“基棘”は，ふたつの異なる系列において，それぞれ独自の発達を遂げた器官なのであろう．したがって，マークオサムシ，アキタクロナガオサムシの両亜属にみられる内袋基部硬化片を，その特徴的な表面構造にちなんで，鱗棘lepidospinulaと名づけ，これらふたつの亜属により構成される新しい上位分類単位，Lepidospinulati nov.（マークオサムシ群）を設立した．

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Elytra, *Tokyo*, **26** (1): 36, May 15, 1998

A New Record of *Stricticomus valgipes* (Coleoptera, Anthicidae) from Korea

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Stricticomus valgipes (MARSEUL) is widespread in Japan including the Tsu-shima Islands (SAKAI, 1985, 1989). In the last summer, some specimens of this species were obtained from Taejon in the central part of Korea. They were found from under vegetable debris washed ashore by a rising river. We are going to record them as being new to the fauna of Korea.

Specimens examined. 10 exs., Yusung, Taejon-shi, Ch'ungch'ongnam-do, Korea, 5–VIII–1997, M. NISHIKAWA leg.

The generic name of the present species follows that of SAKAI (1996, p. 83). We thank Dr. Masahiro SAKAI, Entomological Laboratory, College of Agriculture, Ehime University, Matsuyama, for his kind help.

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Two New Genera and Species of Anophthalmic Trechine Beetles (Coleoptera, Trechinae) from Limestone Caves of Southeastern Guizhou, South China

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Abstract Two new anophthalmic trechine beetles belonging to two new genera are described from limestone caves in Libo Xian of southeastern Guizhou, South China. One of them, named *Oodinotrechus kishimotoi*, is remarkable for its unique facies but bears various peculiarities that shroud its true affinity in obscurity. The other one, named *Libotrechus nishikawai*, is related to *Cathaiaphaenops* of Hunan and Hubei, but is less modified in the degree of adaptation to subterranean existence.

In a previous paper of mine (UÉNO, 1997, p. 14), I made a preliminary notice that three distinctive new genera were recognized among half a dozen new species of trechine beetles collected in the autumn of 1997 in limestone caves of South and Central China. I am going to take up two of them in the present paper, the types of both the genera having been discovered in Libo Xian of southeastern Guizhou. One of them is remarkable for its unique facies that reminds us of certain small pterostichines or oodines, and though anophthalmic and depigmented, does not look like a troglobiontic species in general appearance. It will be named *Oodinotrechus kishimotoi* (new genus and species), though its true affinity is not certain because of a combination of various peculiarities that are characteristic of phylogenetically different genus-groups. The other species, to be named *Libotrechus nishikawai* (new genus and species), is related to *Cathaiaphaenops* DEUVE of Hunan and Hubei, but is obviously less modified in the degree of adaptation to subterranean existence. However, it shows peculiar modification of chaetotaxy and integumental sculpture and is discriminated at a glance from the members of the northern genus.

The abbreviations used herein are the same as those explained in previous papers of mine.

Before going into further details, I wish to express my hearty thanks to Dr. Yoshiaki NISHIKAWA, Dr. WANG Fuxing, Messrs. Toshio KISHIMOTO and Jingcheng RAN for their kind help extended to me in exploring large limestone caves in the Libo area.

Genus ***Oodinotrechus*** S. UÉNO, nov.

Type species: *Oodinotrechus kishimotoi* S. UÉNO, sp. nov.

Diagnosis. A medium-sized trechine beetle of uncertain affinity, recognized at first sight on its unique facies: oval body with small head, ample pronotum and short broad elytra. Apterous, anophthalmic and depigmented. Head subquadrate, with deep entire frontal furrows and moderately convex genae, the latter of which are sparsely pubescent and also provided with several short temporal setae; supraorbital areas with two pair of setae; mandibles tridentate; mentum not fused with submentum, the former bearing a simple tooth and the latter sexsetose; penultimate segment of maxillary palpus with several minute hairs near apex; antennae not long. Pronotum campanulate, transverse and ample, with sparse pubescence and several short setae on the disc; sides weakly convergent behind, not sinuate, widely explanate and reflexed in posterior two-thirds, and with two pair of marginal setae; base deeply emarginate on each side, forming posteriorly protrudent postangular parts. Scutellum invisible from above. Elytra ovate, unusually short and broad, truncated at bases, widest at about basal third, very wide at basal parts, and rather rapidly narrowed towards pointed apices; side margins distinctly serrulate in basal halves and ciliated throughout; striae superficial, only indicated by rows of punctures at the lateral parts, scutellar striole absent, apical striole distinct though short, joining stria 7; intervals rather sparsely covered with short suberect pubescence, which is denser at the sides than on the disc; stria 3 with a single dorsal pore near base, interval 5 also with a single dorsal pore just before the middle; preapical pore located at the apical anastomosis of striae 3 and 4 just antero-internal to the terminus of apical striole; maginal umbilicate pores aggregated; visible sternites pubescent at the median parts; legs not long, protibiae wholly pubescent and not externally grooved; protarsi simple even in ♂; aedeagus extremely small, rather strongly arcuate from base to apex, with rather small basal part devoid of sagittal aileron and short simple apical lobe; copulatory piece anisotopic, large but hyaline; styles fairly large, each bearing two or three setae at the apex.

Description. Body oval, widest behind middle and almost equally narrowed in front and behind; apterous and depigmented; appendages fairly short; surface more or less pubescent on both dorsum and venter, though nearly glabrous on head. Colour wholly yellowish brown, with reddish parts in head and cephalic appendages.

Head small, transverse subquadrate, with deep entire frontal furrows widely divergent in front and behind; eyes absent; frons and supraorbital areas provided with a few vestigial hairs, vertex and gula completely glabrous; anterior pair of supraorbital pores close to the posterior pair and not distinctly foveolate at the roots; genae moderately convex at the posterior parts, less so in front, each provided with two or three short temporal setae mingled with sparse pubescence; neck very wide, with the anterior constriction sharply marked; labrum transverse, with the anterior margin shallowly emarginate. Mandibles stout, moderately arcuate inwards and acute at the apices, tridentate, apical tooth of retinaculum prominent and apically removed in right mandible,

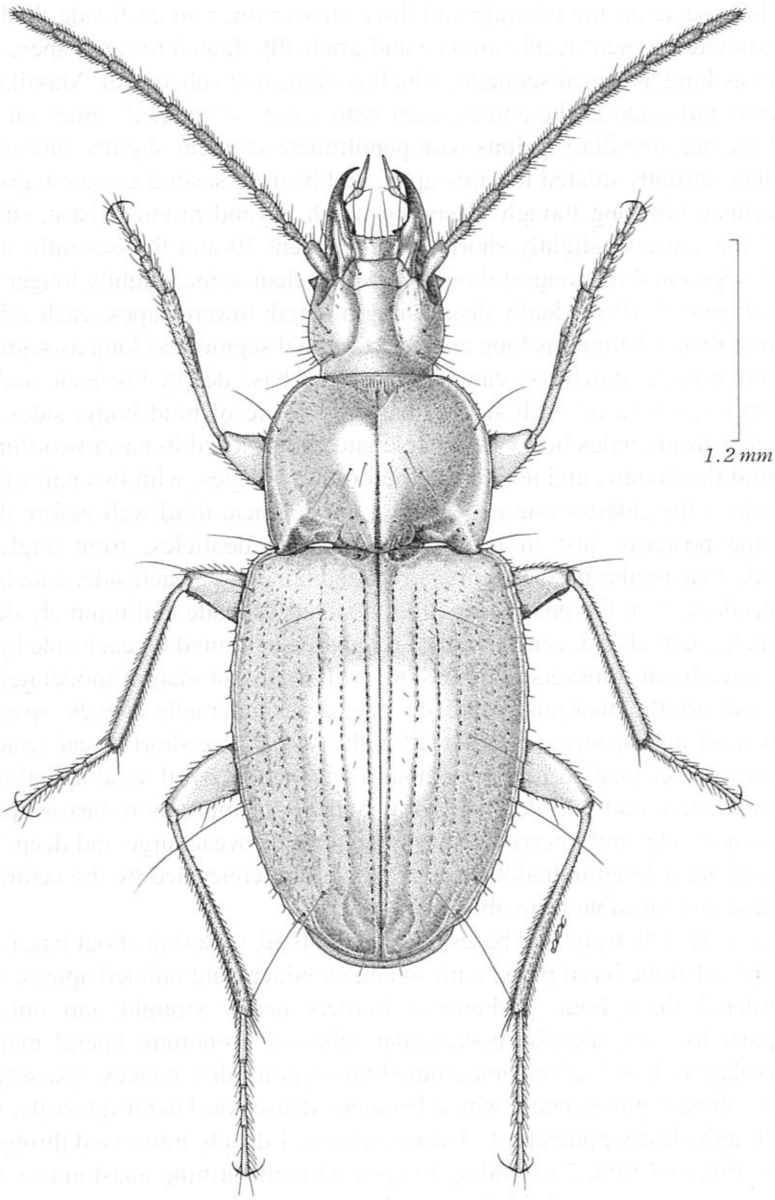


Fig. 1. *Oodinotrechus kishimotoi* S. UÉNO, gen. et sp. nov., ♂, from Shuiboshui Dong Cave in Libo Xian.

premolar tooth large and prominent. Labium not fused, with a distinct labial suture between mentum and submentum; mental tooth porrect, simply rounded at the tip; submentum sexsetose; ligula rather narrowly rounded and briefly produced at the middle,

with two long setae on the tubercle and three shorter ones on each side; labial palpus with penultimate segment feebly arcuate and gradually dilated towards apex, quadrisetose, about as long as apical segment, which is elongated subconical. Maxillae moderately arcuate and acute at the apices, each with a row of unequal spines on the inner margin of lacinia; maxillary palpus with penultimate segment slightly shorter than the apical, rather abruptly dilated towards apex, and bearing several minute hairs near the apex. Antennae not long though extending much beyond pronotal base, subfiliform; segment 2 the shortest, slightly shorter than segment 10 and five-sevenths as long as segment 3; segment 4 the longest though narrower than scape, slightly longer than segment 3; segments 5–10 gradually decreasing in length towards apex, each subcylindrical and more than 2.5 times as long as wide; terminal segment as long as segment 5.

Pronotum large, transverse campanulate, with base deeply bisinuate and forming a narrow through hole on each side of basal peduncle of hind body; sides narrowly bordered near front angles but widely explanate and reflexed in basal two-thirds, especially behind the middle, and not sinuate before hind angles, with two pair of marginal setae, of which the anterior one is located at about apical third well before the widest part and the posterior just in front of postangular denticles; front angles almost rounded off; postangular parts forming a reflexed lamella on each side, which is posteriorly protrudent, with the posterior margin distinctly sinuate and minutely denticulate outwards at the lateral end; central part of basal area delimited on each side by an arcuate edge above basal transverse impression, with the basal margin moderately arcuate at middle and briefly emarginate on each side; disc moderately convex, sparsely scattered with short pubescence and provided with two or three short discal setae on each side behind middle; median line fine, though widened in basal area; apical transverse impression shallow and mal-defined; basal transverse impression narrow, posteriorly arcuate on each side, and interrupted at middle; basal foveae large and deep; both apical and basal areas longitudinally strigose. Scutellum concealed by the central lobe of pronotal base and invisible from above.

Elytra ovate with truncated bases, short and broad, widest at about basal third, and unusually broad at the basal parts, with square shoulders and pointed apices; sides narrowly bordered throughout, prehumeral borders nearly straight and only slightly oblique, partially concealed by postangular lobes of pronotum; lateral margins distinctly serrulate in basal halves and ciliated throughout; disc convex, sparsely covered with short suberect pubescence, which becomes denser on lateral intervals; striae superficial though clearly punctate, 1–4 almost entire, 1 deeply impressed throughout, especially in proximal fifth, 2 extending to apex without forming anastomosis with stria 3, 5 fragmentary in proximal third, 6–7 only represented by rows of punctures, 8 also represented by a row of punctures but fragmentarily impressed near the middle and apical sets of marginal umbilicate pores; scutellar striole absent; apical striole short but clearly impressed, moderately curved, and continuing anteriorly to the row of punctures of stria 7; intervals completely flat, 1 narrow especially in apical third, 2 wider than the others, apical carina obtuse.

Elytral stria 3 with a single dorsal pore near base, interval 5 also with a single dorsal pore just before the middle; preapical pore located at the apical anastomosis of striae 3 and 4 just before the level of the terminus of apical striole, more distant from apex than from suture, and obviously closer to apical striole than to suture; apical pores normal. Marginal umbilicate pores aggregated and regular, four pores of the humeral set being ranged almost equidistantly.

Ventral surface more or less pubescent at the median parts; anal sternite with a pair of marginal setae in ♂. Legs of moderate length; protibiae straight, moderately dilated towards apices, wholly pubescent, and devoid of longitudinal groove on the external face; tarsi thin, segment 1 longer than segments 2–3 together but shorter than segments 2–4 together in both meso- and metatarsi, segment 4 with a long ventral apophysis in pro- and mesotarsi; protarsomeres in ♂ not modified and devoid of adhesive hairs on the ventral side.

Male genital organ extremely small and transparent due to thin sclerotization; aedeagus rather strongly arcuate, especially behind middle, compressed, and longitudinally membraneous on dorsum; basal part with large basal orifice but devoid of sagittal aileron; apical lobe straightly produced and rounded at the extremity; inner sac provided with a large spatulate copulatory piece acuminate at the apical part. Styles fairly large, each bearing two or three apical setae.

Range. Known so far only from a large limestone cave in Libo Xian of southeastern Guizhou, South China.

Notes. Under the present state of our knowledge, it is difficult to determine the true affinity of this new genus. It is the *Trechoblemus* group among others that shares the largest number of character states with *Oodinotrechus*, that is, more or less pubescent body surface, serrulate and ciliated margins of the elytra (*e.g.*, *Stygiotrechus*), reduction of the scutellum (*e.g.*, *Kurasawatrechus*), mandibular dentition, general conformation of the male genitalia, and so on. However, none of the genera belonging to the *Trechoblemus* group are known to bear setiferous dorsal pores on the 5th elytral interval. Besides, the known members of this genus-group usually bear a transverse row of more than six setae on the submentum.

Possession of the external series of setiferous dorsal pores on the elytra is characteristic of the *Epaphiopsis* and the *Trechiama* groups in the Asian Trechinae. In the genera of these groups, however, the elytral margins are neither serrulate nor ciliated, the scutellum is always visible, and the aedeagal inner sac usually bears patches of sclerotized teeth. *Oodinotrechus* is similar to *Vietotrechus* S. Uéno (1995, p. 20) of the *Trechus* group in the simple protarsomeres in the male, a character state seldom found in the subfamily Trechinae, but it is otherwise different from the members of this genus-group. It is also similar to certain genera of the *Agonotrechus* group in the widely reflexed lateral parts of the pronotum, but this should be regarded as a result of convergence since there are radical discrepancies between *Oodinotrechus* and the *Agonotrechus* group.

In short, none of the trechine genera of the phyletic groups hitherto recognized

exhibit a combination of peculiarities possessed by the present genus. This may mean that *Oodinotrechus* is a genus phylogenetically isolated from all the other Asian Trechinae. On the other hand, however, it may have a remote relationship to such Chinese genera as *Libotrechus* S. UÉNO (p. 44 of this paper) and *Cathaiaphaenops* DEUVE (1996, pp. 42, 47) seeing that they have many peculiarities in common apart from the incredible discrepancy in general appearance and trend of modification.

Oodinotrechus kishimotoi S. UÉNO, sp. nov.

(Figs. 1–2)

Length: 4.20 mm (from apical margin of clypeus to apices of elytra).

Since a detailed description is given under the genus, only morphometrical data and some supplementary accounts are presented below.

Colour yellowish brown, shiny; head somewhat darker, mandibles and five proximal segments of antennae reddish brown.

Head about four-fifths as long as wide, depressed above, with frons and supraorbital areas gently convex; microsculpture distinct, mostly composed of wide meshes; mandibles sharply hooked at apices; palpi short and stout; antennae reaching basal three-eighths of elytra. Pronotum much wider than head, transverse campanulate and ample, widest at the middle, strongly contracted towards apex but only gently narrowed towards base; PW/HW 1.70, PW/PL 1.29, PW/PA 1.88, PW/PB 1.13; sides moderately arcuate before the middle, almost straight behind, and briefly convergent just before postangular denticles; apex very slightly arcuate, with front angles almost rounded off; base as described under the genus, much wider than apex, PB/PA 1.65, with each lateral end narrowly rounded to postangular denticle; microsculpture clearly visible, consisting of fine transverse lines. Elytra wider than prothorax and longer than wide in the same proportion, widest at about basal third and much more strongly narrowed towards apices than towards bases; EW/PW 1.37, EL/PL 2.41, EL/EW 1.37; sides moderately arcuate near shoulders, feebly so behind the widest part, and then moderately rounded near apices, which are obtusely subangulate; disc well convex, though narrowly depressed along suture in basal third, apical declivity rather gentle; microsculpture formed by fine transverse lines, though partially degenerated; striation as described under the genus; stria 3 with a setiferous dorsal pore at about 2/15 from base, interval 5 with a setiferous dorsal pore at about 2/5 from base. Legs fairly slender though not so long.

Male genital organ extremely small, thinly sclerotized and transparent. Aedeagus less than one-fifth as long as elytra, compressed and rather strongly arcuate; basal part fairly small, moderately bent ventrad, with large basal orifice whose sides are hardly emarginate; sagittal aileron absent; viewed dorsally, apical lobe gradually narrowed towards rounded extremity; viewed laterally, apical lobe straightly produced ventroapicad and narrowly rounded at the tip. Inner sac armed with a large spatulate copulatory piece whose apical part is narrowly produced. Styles fairly large, left style larger

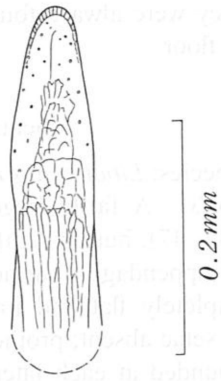


Fig. 2. *Oodinotrechus kishimotoi* S. UÉNO, gen. et sp. nov., from Shuiboshui Dong Cave in Libo Xian; apical part of aedeagus, dorso-apical view.

than the right and provided with three apical setae, while the right style bears only two apical setae.

Female unknown.

Type specimen. Holotype: ♂, 13–IX–1997, T. KISHIMOTO leg. Deposited in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo.

Type locality. Limestone cave called Shuiboshui Dong, at Shuibozhai of Shuipucun in Yuping Zhen, Libo Xian, southeastern Guizhou, South China.

Notes. It is unfortunate that a left lateral view of the male genitalia of this interesting trechine cannot be illustrated in the present paper. The transparent organ smaller than a pinpoint was accidentally lost in the process of preparation of slide after a sketch was taken of a dorso-apical view of the aedeagus. Their description given above was compiled from a memo taken at the time of preliminary observation. It was not checked by a careful examination of the slide, but even such an account seems better than nothing, at least for the time being. It is to be hoped that additional specimens will be collected some day in near future and will enable us to replace the present account with a more accurate one.

Shuiboshui Dong is a long winding cave with a wide entrance, in which a surface watercourse sinks. It is situated at the northern part of the Libo caverniferous area, the northernmost of the three limestone caves from which eyeless trechine beetles have been known, and is 11.7 km distant to the north-northwest from another trechine-bearing cave, Lasuo Dong (cf. p. 49). The cave is open at the foot of a hill 490 m above sea-level. Its gallery is mostly dry in September, but the level of the underground water seems to rise 3 m or more above the floor in rainy seasons and the torrent carries a large quantity of vegetables including large tree trunks to the innermost recesses. The single known specimen of *Oodinotrechus kishimotoi* was found on a muddy slope above a narrow canyon, from beneath a stone covered with vegetable debris washed in from the outside. Several specimens of a *Sinaphaenops* were also collected in this

cave, but they were always found running on smooth walls, never from under stones lying on the floor.

Genus ***Libotrechus*** S. UÉNO, nov.

Type species: *Libotrechus nishikawai* S. UÉNO, nov.

Diagnosis. A fairly large trechine beetle related to *Cathaiaphaenops* DEUVE (1996, pp. 42, 47), but evidently different in the following points: body more robust, with stouter appendages; surface dull, especially on elytra; trace of eyes discernible though completely flat and imperfect; genae practically glabrous; anterior pair of supraorbital setae absent; prothorax subcordate, strongly convex on dorsum, with base obliquely rounded at each lateral end; pronotal sides finely bordered in apical two-thirds; elytra very strongly convex, very coarsely punctato-striate, and covered with very short, erect or suberect bristles, especially on lateral intervals, with side margins distinctly serrate in proximal third and ciliated throughout; scutellar striole very short; apical striole short but deep, directed to stria 7; stria 3 (or 4) with two short dorsal setae; preapical pore close to the terminus of apical striole; marginal umbilicate pores not aggregated, pore 1 of the humeral set being removed onto stria 7 and close to pore 2; visible sternites hairy on each medio-posterior part; anal sternite provided with two pair of marginal setae in both sexes; each protibia with two longitudinal grooves on the external face and densely pubescent on the anterior face; aedeagus very small, slender and arcuate, with relatively large basal bulb bearing well developed sagittal aileron and shovel-shaped apical part; copulatory piece anisotopic, largely covered with scales; styles large and broad, each bearing five or six apical setae of unequal length.

Description. A fairly large trechine beetle of anophthalmoid facies, though the frontal furrows become mal-defined behind the level of the posterior supraorbital pore; apterous and depigmented; appendages fairly stout; surface glabrous on head and pronotum, but more or less pubescent on the other parts, at least partially. Colour brown, dull shiny on head and pronotum, less shiny on elytra; mandibles and tibiae dark brown.

Head subquadrate, about as wide as long, with genae moderately and rather evenly convex and with vestiges of a few minute pubescence; eyes degenerated, completely flat and imperfect, though vestiges of ocelli are discernible through derm; frontal furrows subparallel to each other, gently convergent behind the level of antennal insertion, then slightly arcuate outwards, and ending in an inwardly curved apical portion at the level of posterior supraorbital pore, postero-lateral part of each furrow mal-defined, discontinuous to deeply impressed dorsal part, almost straight and only slightly oblique; supraorbital areas with a few minute pubescence at the anterior parts, anterior pair of supraorbital pores absent, posterior pair distant from the remnants of the postero-lateral parts of frontal furrows; neck constriction not sharply marked; labrum transverse obtrapezoidal, with the apical margin nearly straight except for anteriorly produced outer corners. Mandibles fairly slender, only feebly arcuate even at the

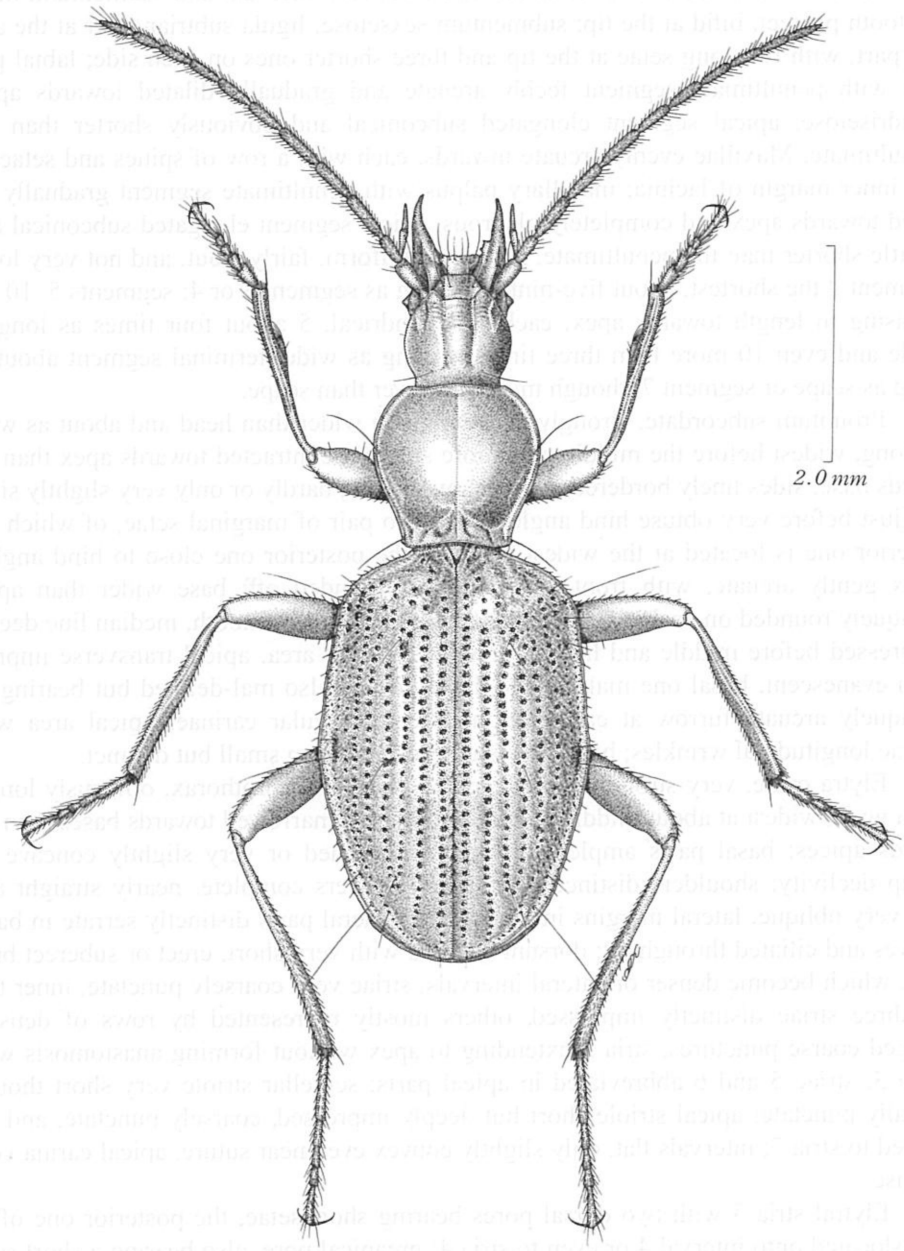


Fig. 3. *Libotrechus nishikawai* S. UÉNO, gen. et sp. nov., ♂, from Lasuo Dong Cave in Libo Xian.

apical parts, right mandible tridentate though the premolar tooth adjoins retinaculum. Labium not fused, with a distinct labial suture between mentum and submentum; mental tooth porrect, bifid at the tip; submentum sexsetose; ligula subtriangular at the apical part, with two long setae at the tip and three shorter ones on each side; labial palpus with penultimate segment feebly arcuate and gradually dilated towards apex, quadrisetose, apical segment elongated subconical and obviously shorter than the penultimate. Maxillae evenly arcuate inwards, each with a row of spines and setae on the inner margin of lacinia; maxillary palpus with penultimate segment gradually dilated towards apex and completely glabrous, apical segment elongated subconical and a little shorter than the penultimate. Antennae filiform, fairly stout, and not very long; segment 2 the shortest, about five-ninths as long as segment 3 or 4; segments 5–10 decreasing in length towards apex, each subcylindrical, 5 about four times as long as wide and even 10 more than three times as long as wide; terminal segment about as long as scape or segment 7, though much narrower than scape.

Pronotum subcordate, strongly convex, much wider than head and about as wide as long, widest before the middle, and more strongly contracted towards apex than towards base; sides finely bordered in apical two-thirds, hardly or only very slightly sinuate just before very obtuse hind angles, with two pair of marginal setae, of which the anterior one is located at the widest part and the posterior one close to hind angles; apex gently arcuate, with front angles almost rounded off; base wider than apex, obliquely rounded on each side just inside hind angle; disc smooth, median line deeply impressed before middle and hardly widened in basal area; apical transverse impression evanescent, basal one mal-defined, basal foveae also mal-defined but bearing an obliquely arcuate furrow at each bottom; no postangular carinae; apical area with vague longitudinal wrinkles; basal area smooth. Scutellum small but distinct.

Elytra ovate, very strongly convex, much wider than prothorax, obviously longer than wide, widest at about middle and more gradually narrowed towards bases than towards apices; basal parts ample, transversely flattened or very slightly concave on steep declivity; shoulders distinct, prehumeral borders complete, nearly straight and not very oblique; lateral margins including prehumeral parts distinctly serrate in basal halves and ciliated throughout; dorsum covered with very short, erect or suberect bristles, which become denser on lateral intervals; striae very coarsely punctate, inner two or three striae distinctly impressed, others mostly represented by rows of densely ranged coarse punctures, stria 2 extending to apex without forming anastomosis with stria 3, striae 5 and 6 abbreviated in apical parts; scutellar striole very short though usually punctate; apical striole short but deeply impressed, coarsely punctate, and directed to stria 7; intervals flat, only slightly convex even near suture, apical carina very obtuse.

Elytral stria 3 with two dorsal pores bearing short setae, the posterior one often translocated onto interval 4 or even to stria 4; preapical pore, also bearing a short seta, located at the apical end of stria 3 antero-internal to the terminus of apical striole; both apical pores adjoining apical striole. Marginal umbilicate pores not aggregated, pore 1

of the humeral set removed onto stria 7 and approaching to pore 2, pore 4 distant from marginal gutter though not isolated.

Ventral surface more or less pubescent at the median parts, especially hairy on visible sternites; anal sternite provided with two pair of marginal setae in both sexes. Legs fairly long; protibiae with two longitudinal grooves separated by a fine carina on each external face and densely pubescent all over; tarsi fairly stout, segment 1 about as long as segments 2–4 together in both meso- and metatarsi, segment 4 with a hyaline ventral apophysis in pro- and mesotarsi; in ♂, two proximal protarsomeres gently dilated, minutely denticulate inwards at the apices, and furnished beneath with adhesive appendages.

Male genital organ very small though rather heavily sclerotized; aedeagus slender, arcuate especially before middle, and membraneous on dorsum in apical half; basal part fairly large, with small basal orifice and fairly large sagittal aileron; apical lobe flattened, shovel-shaped, and slightly reflexed near the extremity; copulatory piece spatulate, acuminate, and covered with scales except for a small basal area; styles broad, left style with a very small ventral apophysis, each bearing five or six apical setae, two or three of which are obviously thinner and shorter than the other three.

Range. Known so far only from a limestone cave in Libo Xian of southeastern Guizhou, South China.

Notes. Though considerably different both in facies and some important features, this new genus is doubtless related to *Cathaiaphaenops* of Hunan and Hubei. They have many basic characters in common, that is, mandibular dentition, conformation of labium, number of marginal setae on pronotum, general configuration of elytra covered with minute hairs or bristles, serrate and ciliated lateral margins of elytra, the number and position of setiferous dorsal pores, dilatation of protarsomeres in ♂, and basic conformation of male genitalia.[1)] On the other hand, *Libotrechus* differs from *Cathaiaphaenops*, in addition to lesser adaptive modification, in the absence of the anterior pair of supraorbital setae, almost glabrous genae, highly convex elytra with very coarsely punctate striae, clearly impressed and punctate apical striole, externally removed preapical pore, another disposition of marginal umbilicate pores, presence of two pair of marginal setae on anal sternite in both sexes, and externally grooved protibiae. These differences seem to suggest that *Libotrechus* is not a prototype of *Cathaiaphaenops* in the process of specialization adaptive to the subterranean environment but has undergone its own evolutionary history, though it may represent a stage of morphological modification of the *Cathaiaphaenops* lineage.

The new generic name *Libotrechus* means a trechine beetle of Libo Xian (=Libo County), in which lies the type cave of the type species of this new genus.

1) Deuve (1996, p. 43) described that "l'endophallus" is "inerm" in *Cathaiaphaenops delprati*. Really, however, there is an anisotopic copulatory piece in the aedeagal inner sac of the species, though it is thin and hyaline and capped at the apical part with a patch of scales.

Libotrechus nishikawai S. UÉNO, sp. nov.

(Figs. 3–5)

Length: 6.35–6.70 mm (from apical margin of clypeus to apices of elytra).

Colour brown, dull shiny on head and pronotum, less shiny on elytra, not iridescent; apical halves of antennae lighter; mandibles and tibiae dark brown.

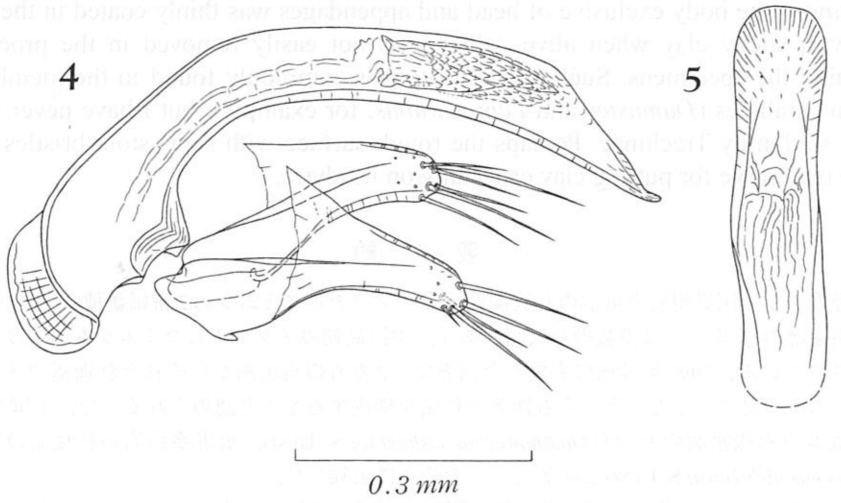
Head small, not transverse, with frontal furrows deeply impressed on dorsum; frons moderately convex, separated from vertex by an arcuate transverse depression; supraorbital areas gently convex; microsculpture distinct, mostly consisting of fine transverse meshes; genae moderately convex in front, less so behind, and not tumid at the posterior parts; mandibles fairly slender and relatively straight; palpi slender though not very long; antennae fairly stout and not very long, reaching basal three-eighths of elytra in ♂, basal third of elytra in ♀.

Pronotum subcordate, widest at about three-fifths from base, and strongly contracted towards apex; PW/HW 1.49–1.56 (M 1.53), PW/PL 0.93–1.02 (M 0.99), PW/PA 1.75–1.85 (M 1.81), PW/PB 1.47–1.56 (M 1.52); sides strongly arcuate before middle, less so behind, and hardly or only very slightly sinuate just before hind angles, which are obtuse and sometimes worn; marginal setae not long; apex gently arcuate, obviously narrower than base, PB/PA 1.18–1.19 (M 1.18), with front angles very obtuse and rounded; base slightly emarginate at middle and obliquely rounded just inside hind angles; disc strongly convex, wholly covered with fine transverse lines of microsculpture.

Elytra ovate, widest at about middle, with distinct shoulders and ample basal parts; EW/PW 1.58–1.63 (M 1.61), EL/PL 2.42–2.55 (M 2.49), EL/EW 1.56–1.60 (M 1.57); prehumeral borders nearly straight, serrate and ciliated throughout; sides either straight or very slightly emarginate behind shoulders, gently arcuate at middle, nearly straight again to the level of the seventh pore of the marginal series, and then lightly arcuate to apices, which are conjointly and narrowly rounded; disc very strongly convex, with steep basal and apical declivities; microsculpture evanescent altogether; all the striae and strioles including marginal gutter very coarsely punctate, striae 3–6 free at the apical ends, 5 and 6 abbreviated, 7 extending to the terminus of apical striole, 8 also complete; apical striole lightly arcuate; stria 3 (or 4) with two dorsal pores bearing short setae at about 2/9 and 1/2 from base, respectively; preapical pore much more distant from apex than from suture, and much nearer to stria 7 than to suture.

Legs fairly long; protibiae straight and gently dilated towards apices; metatibiae about four-sevenths as long as elytra and slightly arcuate outwards in apical halves.

Aedeagus only one-fifth as long as elytra, lightly depressed, strongly arcuate before middle, gently so in apical half, and rather abruptly slanting at apical orifice; basal part fairly large, only briefly curved ventrad, with small basal orifice whose sides are obviously but not deeply emarginate; sagittal aileron fairly large and moderately sclerotized except for marginal part; viewed dorsally, apical part broad, slightly dilated, and subtruncated at the extremity; viewed laterally, apical part narrowed towards thin



Figs. 4–5. Male genitalia of *Libotrechus nishikawai* S. UÉNO, gen. et sp. nov., from Lasuo Dong Cave in Libo Xian; left lateral view (4), and apical part of aedeagus, dorso-apical view (5).

terminal portion, which is slightly reflexed; in profile, ventral margin deeply emarginate before middle but only shallowly so before apical orifice. Inner sac armed with a spatulate copulatory piece more than one-fourth as long as aedeagus, acuminate in apical half, and covered with sclerotized scales except for a small baso-median part. Styles large and broad, left style longer than the right, each bearing five or six setae at the apex, three of which are thicker and longer than the others.

Type series. Holotype: ♂, 12–IX–1997, S. UÉNO leg. Allotype: ♀, paratype: 1 ♂, 12–IX–1997, Y. NISHIKAWA leg. All deposited in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo.

Type locality. Limestone cave called Lasuo Dong, at Baiai in Yongkang Xiang of Libo Xian, southeastern Guizhou, South China.

Notes. This remarkable new trechine was found in Lasuo Dong Cave lying on a hill in Yongkang Xiang at an altitude of 670 m. The cave has two openings at the two ends and is usually entered from the one at the back of the small village Baiai (=Baiyan). *Libotrechus nishikawai* was found only in a small, relatively dry bay about 200 m removed from the entrance, from beneath small muddy stones lying on gentle clayey slopes. It did not actively run about when exposed, but tried to crawl into narrow spaces of sticky clay. This habit makes a sharp contrast to agility of *Cathaiaphaenops delprati*, which is usually found from under stones or rotten logs and quickly moves about when exposed. Another trechine beetle, a new *Sinaphaenops*, also occurs in Lasuo Dong Cave, but the aphaenopsoid species prefers wetter places to the clayey slopes and is usually found walking on limestone walls or stalagmites.

It seems worth noting that in all the three known specimens of *Libotrechus nishikawai*, the body exclusive of head and appendages was thinly coated in the larger part with sticky clay when alive, which was not easily removed in the process of mounting the specimens. Such a clay coating is commonly found in the members of certain carabines (*Damaster* and *Leptocarabus*, for example), but I have never seen it in the subfamily Trechinae. Perhaps the rough surface with short stout bristles of the beetle may serve for putting clay especially on its elytra.

要　約

上野俊一：中国貴州省南東部の石灰洞にすむメクラチビゴミムシの2新属新種．—— 中国貴州省南東部の荔波县には多数の石灰洞があり，中国最初のメクラチビゴミムシもそのひとつで発見されている．1997年の秋に実施した調査で，2カ所の石灰洞からそれぞれ別属のメクラチビゴミムシが見つかった．どちらも顕著な新属を構成するものと認められるので，玉屏鎮水浦村水拔寨の水拔水洞のものを *Oodinotrechus kishimotoi* S. UÉNO，永康乡白岩の拉桉洞のものを *Libotrechus nishikawai* S. UÉNO と命名し，この論文に記載した．

Libotrechus は，湖南省北西部と湖北省南西部の石灰洞に分布する *Cathaiaphaenops* DEUVE に似ている点が多く，同系列のものであることに疑いの余地はない．しかし，洞窟生活に対する適応の度合いがそれほど大きくないので，外観はかなり異なり，体のつくりが頑丈で色が濃く，触角や肢も繊細さに欠ける．また，上翅条線の点刻がきわめて粗大で，明瞭な亜端溝にも点刻があり，剛毛式も明かに異なっている．*Oodinotrechus* のほうは，一見ナガゴミムシかトックリゴミムシの小型種に似た体形が特異であるばかりでなく，さまざまな属群から重要な標徴を寄せ集めたような観があり，雄の前付節に第二次性徴が現れないという，チビゴミムシ類としては例外的な特性もみられる．したがって，現状では真の類縁関係がよくわからないが，いくつかの重要な形質を共有することからみて，体形の極端な差異にかかわらず，*Libotrechus* などと共通の祖先から分かれてきたものかも知れない．

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Notes on *Sinaphaenops* (Coleoptera, Trechinae), with Descriptions of Two New Species

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Abstract Aphaenopsoid trechine beetles belonging to the genus *Sinaphaenops* are dealt with. Three cave populations hitherto found in Libo Xian of southeastern Guizhou are represented by three different species, two of which are new to science and described in the present paper. The new names given are *Sinaphaenops wangorum* and *S. gracilior*. The latter new species is closely allied to the type of the genus, while the former is rather specialized. A key is provided to all the known species, and some accounts of their bionomics are also given.

The aphaenopsoid genus *Sinaphaenops* was erected for *S. mirabilissimus* discovered in 1991 in a limestone cave of southeastern Guizhou. It shows a striking morphological modification adaptive to subterranean existence, and is regarded as the species that has undergone the highest degree of specialization within the subfamily Trechinae. Its true affinity is not certain because of the utmost modification and isolation. VIGNA TAGLIANTI (1997, p. 40) offered an opinion that "*Sinaphaenops mirabilissimus* would be possibly the highest specialized taxon of the same line [as *Sinotroglodytes bedosae*]", though his opinion needs verification by discovery of certain semi-aphaenopsoid species that might bridge the wide gap between *Sinotroglodytes* and *Sinaphaenops*.

Unfortunately, no additional specimens of this extraordinary species have been met with due to the reason explained on the later pages (pp. 58–59), but a second habitat of *Sinaphaenops* was recently discovered by the junior author in a limestone cave about 34 km distant to the northeast from Tianzhong Dong, the type cave of *S. mirabilissimus*. This cave, called Lasuo Dong, was reexamined by five biospeologists in September 1997, and yielded a short series of *Sinaphaenops*, which is basically sim-

ilar to the type species but is evidently different from it in the narrower facies and in the loss of the posterior pair of the supraorbital setae. The latter character state is of particular interest, since the number and position of these setae are usually fixed in single genera of the Trechinae. It is true that they are exceptionally variable in anophthalmic trechines from Chinese caves; the posterior pair is absent in *Guizhaphaenops* (VIGNA TAGLIANTI, 1997, pp. 34–35), the anterior pair is absent in *Libotrechus* (UÉNO, 1998, pp. 44–45), and both are not discernible in *Dongodytes* (DEUVE, 1993, pp. 292–293). However, such peculiarities are always generic, not infra-generic, so that the Lasuo Dong species can be regarded as a rare exception.

On the next day of the visit to Lasuo Dong Cave, a third locality of *Sinaphaenops* was found out by the senior author in Shuiboshui Dong Cave, which is 11.7 km distant to the north-northwest from Lasuo Dong. In spite of such a location, this cave harbours a *Sinaphaenops* which is closer to the Tianzhong Dong species than to the Lasuo Dong one in view of the similarity of aedeagal configuration. In facies, however, it is similar to the Lasuo Dong species, and therefore considered specifically different from either of the two species.

In the present paper, the authors are going to describe the two new species and to give a key to all the known species of *Sinaphaenops*. Some accounts of the type locality of *S. mirabilissimus* will also be given. The abbreviations used herein are the same as those explained in UÉNO and WANG (1991, pp. 127–128), with the addition of HL, which means the length of head measured from the apical margin of clypeus to the apical margin of pronotum.

Before going into further details, the authors wish to thank Dr. Yoshiaki NISHIKAWA, Dr. and Mrs. WANG Fuxing, and Mr. Toshio KISHIMOTO for their kind help extended to the present authors in field works.

Key to the Species

1 (2) Posterior supraorbital seta absent, at least on one side; body narrow, PL/PW 1.54 on an average, EL/EW 1.92 on an average; aedeagus slenderer in profile and regularly arcuate, with apical lobe widely rounded at the apex in dorsal view; aedeagal basal part smaller, moderately emarginate at the sides of small basal orifice and with larger sagittal aileron protrudent ventro-proximally; length 7.30–8.90 mm; (Lasuo Dong Cave) . . . . . *S. wangorum* sp. nov.

2 (1) Posterior supraorbital seta always present; aedeagus more robust in profile and less regularly arcuate, with apical lobe subtriangular and narrowly rounded at the apex in dorsal view; aedeagal basal part larger, either shallowly or hardly emarginate at the sides of large basal orifice and with smaller sagittal aileron not protrudent ventrad.

3 (4) Body narrower, PL/PW 1.45–1.57, EL/EW 1.88–1.95; lateral margins of elytra more or less visible at middle from above; aedeagus with the left wall higher to the side of apical orifice and then abruptly narrowed to apical lobe, which

is longer and narrowly produced ventro-apicad; length 6.80–8.20 mm; (Shuiboshui Dong Cave) . . . . . *S. gracilior* sp. nov.

4 (3) Body broader, PL/PW 1.40–1.43, EL/EW 1.69–1.81; lateral margins of elytra concealed by lateral expansion of dorsum and invisible at middle from above; aedeagus with the left wall gradually narrowed to apical lobe from behind middle, which is shorter and only slightly curved ventrad; length 7.60–8.30 mm; (Tianzhong Dong Cave) . . . . . *S. mirabilissimus* S. UÉNO et F. WANG, 1991.

Sinaphaenops wangorum S. UÉNO et RAN, sp. nov.

(Figs. 1, 4–5)

Length: 7.30–8.90 mm (from apical margin of clypeus to apices of elytra).

Related to *S. mirabilissimus* S. UÉNO et F. WANG (1991, p. 132, figs.1–3), with which it agrees in most basic characters, but the body is evidently narrower, the elytral dorsum is less convex and not laterally expanded over the side borders at middle, the posterior pair of supraorbital pores is almost always lacking, and the aedeagus is much slenderer and differently shaped.

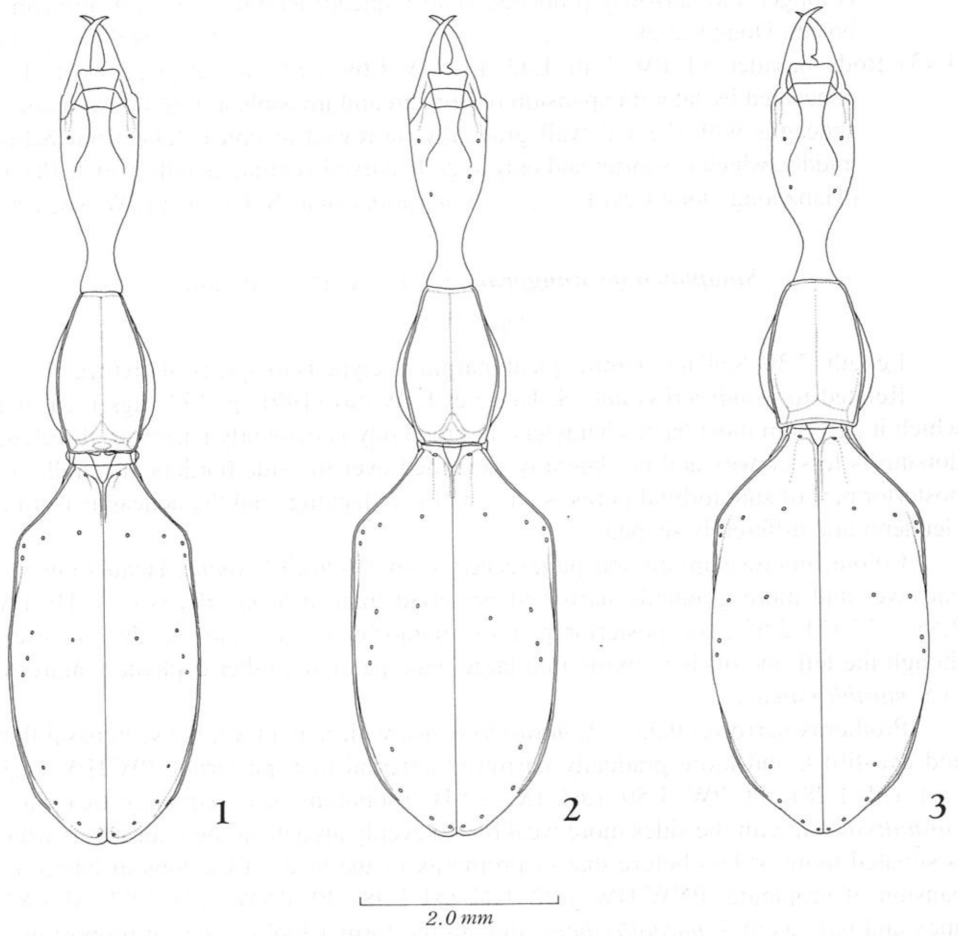
Colour, microsculpture and pubescence as in *S. mirabilissimus*. Head somewhat narrower and more gradually narrowed posteriad than in *S. mirabilissimus*, HL/HW 2.55–2.77 (M 2.65); the posterior pair of supraorbital pores almost always absent, though the left one of them exists in a large male paratype; other cephalic features as in *S. mirabilissimus*.

Prothorax narrower than in *S. mirabilissimus*, widest at a level between basal third and two-fifths, and more gradually narrowed anteriad than posteriad, PW/HW 1.23–1.31 (M 1.28), PL/PW 1.50–1.61 (M 1.54); pronotum also narrower than in *S. mirabilissimus*, with the sides more weakly and evenly arcuate at the widest part which is situated more or less before that of prothorax or the level of the tops of lateral expansion of propleura, PNW/HW 1.02–1.12 (M 1.08), PL/PNW 1.74–1.92 (M 1.82); apex and base as in *S. mirabilissimus*, though the former looks wider in proportion to the greatest width of pronotum, PNW/PA 1.69–2.29 (M 2.02), PNW/PB 1.33–1.48 (M 1.39), PB/PA 1.34–1.62 (M 1.48); other prothoracic features as in *S. mirabilissimus*.

Elytra obviously narrower and more parallel-sided at middle than in *S. mirabilissimus*, widest at about or a little behind the middle, and less strongly convex on dorsum; EW/PW 1.90–2.01 (M 1.96), EL/EW 1.83–2.03 (M 1.92); shoulders more prominent than in *S. mirabilissimus*, prehumeral borders more oblique and somewhat emarginate near basal peduncle; sides narrowly bordered throughout, visible throughout in dorsal view, either straight or very slightly emarginate behind shoulders, very feebly arcuate at middle, and conjointly rounded at apices; basal foveole on each elytron transverse, not externally delimited as in *S. mirabilissimus*; other elytral features inclusive of chaetotaxy as in *S. mirabilissimus*.

Ventral surface and legs as in *S. mirabilissimus*.

Male genital organ very small and rather lightly sclerotized, markedly different in



Figs. 1–3. *Sinaphaenops* spp., ♂; outline of body. —— 1, *S. wangorum* S. UÉNO et RAN, sp. nov., from Lasuo Dong Cave; 2, *S. gracilior* S. UÉNO et RAN, sp. nov., from Shuiboshui Dong Cave; 3, *S. mirabilissimus* S. UÉNO et F. WANG, from Tianzhong Dong Cave.

configuration from those of the other species. Aedeagus a little less than one-fifth as long as elytra, depressed throughout, gently arcuate, and widely membraneous on dorsum, with small basal part only slightly curved ventrad, slender and gradually narrowed towards apex in lateral view, nearly parallel-sided and fairly broad to near apex in dorsal view; basal part with small basal orifice whose sides are moderately emarginate; sagittal aileron elongate and protrudent ventro-proximally; viewed laterally, apical lobe narrow, abruptly curved ventrad at the apex, and truncate at the ventral extremity; viewed dorsally, apical lobe widely rounded at the extremity; ventral margin widely emarginate in profile, particularly behind middle. Copulatory piece very large

but hyaline, a little less than one-third as long as aedeagus, spatulate, narrowed towards blunt apex, and narrowly covered with scales along the sides of proximal part. Styles relatively large and fairly broad, left style longer than the right, each bearing two or three apical setae, the dorsal one of which is usually thicker than the other(s).

Type series. Holotype: ♂, 12–IX–1997, F. WANG leg. Allotype: ♀, 14–IX–1997, S. UÉNO leg. Paratypes: 2 ♂♂, 5 ♀♀, 12 & 14–IX–1997, S. UÉNO, Y. NISHIKAWA, F. WANG, T. KISHIMOTO & J. RAN leg. All deposited at present in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo.

Type locality. Limestone cave called Lasuo Dong, at Baiai (=Baiyan) of Yongkang Xiang in Libo Xian, southeastern Guizhou, South China.

Notes. Though similar at first sight to *S. mirabilissimus*, this new species is decisively different from the latter in the loss of the posterior pair of the supraorbital setae and the differently shaped male genitalia. Its slender body form with less strongly convex dorsum of the elytra is also different from the relatively broad prothorax and the hemi-ovoidally convex elytra of the type species.

As was noticed in the description given above, one of the nine specimens examined of *S. wangorum* has the posterior supraorbital seta at the left side just as in the other species of the genus. This aberrancy can be regarded as a reversion of the cephalic chaetotaxy seldom found in the Trechinae, though reversion of the dorsal and preapical setae on the elytra has been recorded in certain genera of the *Trechiama* and *Agonotrechus* series.

A brief account of Lasuo Dong, the type cave of this interesting species, was already given in the *Notes* following the description of *Libotrechus nishikawai* (UÉNO, 1998, p. 49). *Sinaphaenops wangorum* was found leisurely walking on wet walls or large stalagmites, but when disturbed, it flew with a lightning speed into crevices or maze of cave corals. Four specimens collected on September 14 were found in baited traps set two days before on flowstones or at the bottom of calcareous walls.

It is a real pleasure for the present authors to dedicate this beautiful trechine beetle to Dr. and Mrs. WANG Fuxing, who rendered invaluable help in making cave investigations in Libo Xian. Besides, Dr. WANG is the discoverer of *Sinaphaenops mirabilissimus*, which is the first aphaenopsoid trechine beetle recorded from a Chinese cave.

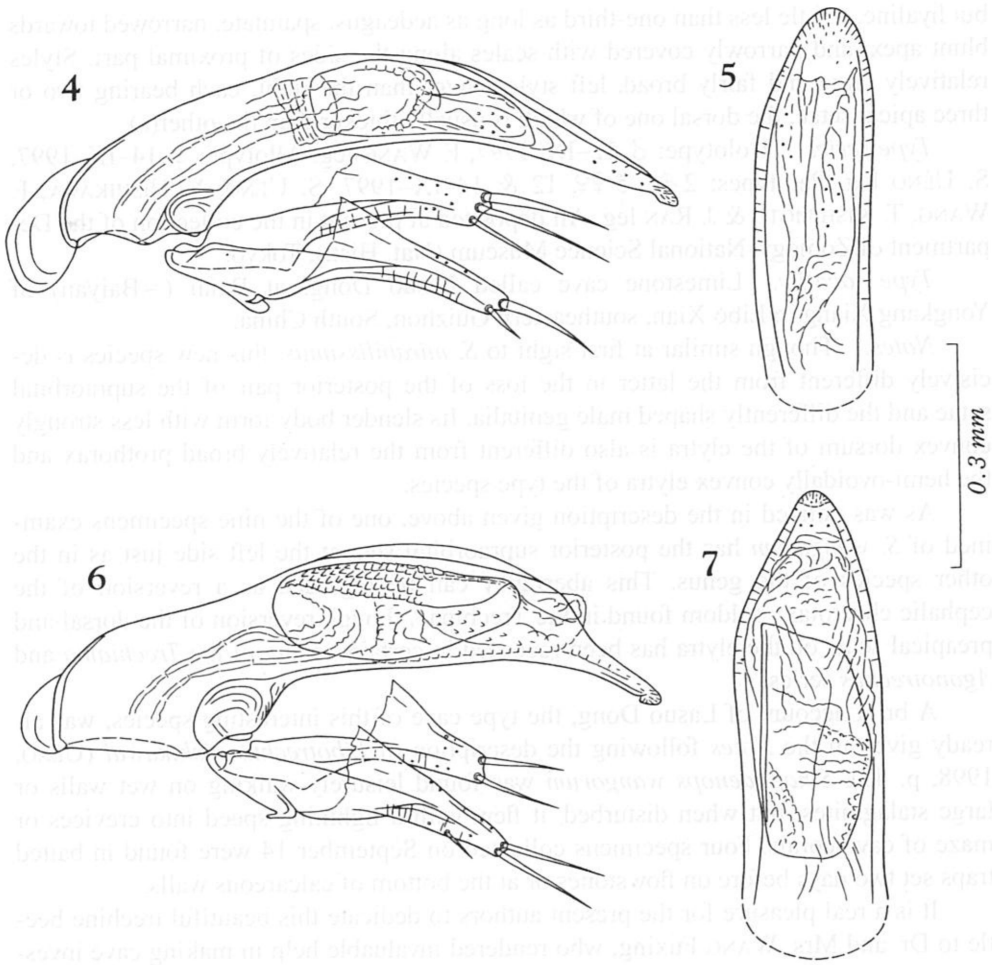
Sinaphaenops gracilior S. UÉNO et RAN, sp. nov.

(Figs. 2, 6–7)

Length: 6.80–8.20 mm (from apical margin of clypeus to apices of elytra).

Closely allied to *S. mirabilissimus*, but the body is evidently narrower as in *S. wangorum*, and the male genitalia are differently shaped, especially in the apical part of aedeagus and copulatory piece.

Colour, microsculpture and pubescence as in *S. mirabilissimus*. Head similar to that of *S. mirabilissimus*, but more gradually narrowed posteriad and with longer neck constriction, HL/HW 2.41–2.67 (M 2.51); other cephalic features as in *S. mirabilis-*



Figs. 4–7. Male genitalia of *Sinaphaenops* spp.; left lateral view (4, 6), and apical part of aedeagus, dorso-apical view (5, 7). —— 4–5. *S. wangorum* S. UÉNO et RAN, sp. nov., from Lasuo Dong Cave. —— 6–7. *S. gracilior* S. UÉNO et RAN, sp. nov., from Shuiboshui Dong Cave.

simus.

Prothorax similar to that of *S. wangorum*, obviously narrower than in *S. mirabilissimus*, widest at a level between basal third and two-fifths, PW/HW 1.26–1.35 (M 1.32), PL/PW 1.45–1.57 (M 1.51); pronotum as in *S. wangorum*, PNW/HW 1.06–1.17 (M 1.11), PL/PNW 1.66–1.94 (M 1.79), PNW/PA 1.99–2.26 (M 2.12), PNW/PB 1.27–1.40 (M 1.33), PB/PA 1.53–1.65 (M 1.59); other prothoracic features as in *S. wangorum*.

Elytra also obviously narrower than in *S. mirabilissimus*, but like those of the lat-

ter species, the basal areas are relatively ample, the prehumeral borders are somewhat less oblique and the dorsum is strongly convex, widest at about five-ninths from bases; EW/PW 1.94–2.02 (M 1.99), EL/EW 1.88–1.95 (M 1.91); shoulders distinct, though a little less prominent than those of *S. wangorum*, prehumeral borders slightly emarginate near basal peduncle; sides narrowly bordered throughout and barely visible at middle in dorsal view being partially concealed by lateral expansion of dorsum, straight for a short way behind shoulders, very feebly arcuate at middle, and conjointly rounded at apices; basal foveole on each elytron not sharply delimited laterad but forming a longitudinal flattened area along suture; other elytral features inclusive of chaetotaxy as in *S. mirabilissimus*.

Ventral surface and legs as in *S. mirabilissimus*.

Male genital organ small though moderately sclerotized, generally similar to that of *S. mirabilissimus* but different in the configuration of aedeagus, above all of apical lobe. Aedeagus a little less than two-ninths as long as elytra, lightly depressed, hardly arcuate at middle, widely membraneous on dorsum, highest well behind middle, and rather abruptly narrowed towards apical lobe from behind apical orifice in lateral view; basal part very large, only gently curved ventrad, with very large basal orifice whose sides are hardly emarginate; sagittal aileron small and not protrudent ventrad; viewed laterally, apical lobe narrowly produced ventro-apicad and obtusely tuberculate ventrad at the extremity; viewed dorsally, apical lobe subtriangular, slightly inclined to the left, and narrowly rounded at the extremity; in profile, ventral margin not emarginate at middle but gently so at the base of apical lobe. Copulatory piece large, about two-fifths as long as aedeagus, with the dorsal margin rolled to the left and covered with scales except for apical portion; apex narrowly rounded in lateral view but subangulate at the right side in dorsal view. Styles short; left style longer than the right, with a small additional seta on the ventral margin in a paratype; each style provided with two setae at the apex.

Type series. Holotype: ♂, 13–IX–1997, S. UÉNO leg. Allotype: ♀, same date, T. KISHIMOTO leg. Paratypes: 2 ♂♂, 1 teneral ♀, same date, S. UÉNO & T. KISHIMOTO leg. All deposited at present in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo.

Type locality. Limestone cave called Shuiboshui Dong, at Shuibozhai of Shuipucun in Yuping Zhen, Libo Xian, southeastern Guizhou, South China.

Notes. This taxon could be regarded as a subspecies of *S. mirabilissimus* because of a close similarity of aedeagal conformation. It is, however, evidently closer to *S. wangorum* in external morphology, even though its elytra show the same trend of ample basal areas as in *S. mirabilissimus*. Since its type cave is about 34 km distant from that of the latter species and located on the other side of the Zhong Jiang Valley, and since this situation is the same as Lasuo Dong Cave which harbours *S. wangorum*, the authors prefer to regard the Shuiboshui Dong population as specifically differing from *S. mirabilissimus*, at least for the time being. Still other populations of *Sinaphaenops* will doubtless be found in future when careful investigations are carried

out in the Libo area which abounds in limestone caves of moderate size. Only when this can be done, we shall be able to classify the members of this trechine genus on a sounder basis.

As was already described in the *Notes* following the description of *Oodinotrechus kishimotoi* (UÉNO, 1998, pp. 43–44), Shuiboshui Dong Cave is a ponor, into which tumbling torrents of surface water carrying a large quantity of vegetable debris sink in rainy seasons. The walls of the main gallery are covered with innumerable pieces of rotten wood, dead leaves and twigs up to a height of 3 m or more, above all in small bays in which the flood waters must have swirled. *Sinaphaenops gracilior* was found in two of those bays, leisurely walking among vegetable debris sticking on smooth walls and sometimes on ceilings. Like *S. wangorum*, it is very agile when disturbed, but has never been seen to take refuge under organic matters.

Sinaphaenops mirabilissimus S. UÉNO et F. WANG, 1991

(Fig. 3)

Sinaphaenops mirabilissimus S. UÉNO et F. WANG, 1991, Elytra, Tokyo, **19**, p. 132, figs. 1–3; type locality: Tianzhong Dong Cave.

No additional record. So far known only from the three specimens of the type series collected on January 29, 1991.

Known locality. Limestone cave called Tianzhong Dong, above Laguan of Yaoshan Xiang in Libo Xian, southeastern Guizhou, South China.

Notes. It is most unfortunate that the type habitat of this remarkable species has been destroyed since 1991 when it was discovered as the first troglobiontic trechine beetle from China. We visited the cave on September 11 and 14, 1997, and were indignantly surprised at finding that the shallow lake at the bottom of the main gallery was completely dried up in the lapse of six years and a half, no doubt due to the air current resulting from the excavation of an artificial tunnel for commercialization. That lake was surrounded by walls crusted with flowstone and had many wet columns and large stalagmites, on one of which were found the type specimens of *Sinaphaenops mirabilissimus*.

The cave had two openings on the opposite sides of a small rocky peak, and the larger one above the small village Laguan was used as the main entrance. From there, the floor steeply slanted down to the bottom room with high ceiling and then very steeply sloped upwards to the smaller opening through a narrow winding passage. The gap in floor levels between the main entrance and the bottom lake was about 30 m. When the cave was open for tourists, a horizontal straight tunnel with an artificial entrance of the size a little larger than human height was excavated from near the smaller entrance, inadvertently making the ceiling leveller than before. This seems to have caused continuous air current through the cave, which took away the vapour from the bottom lake. Most probably for this drought, we were unable to find any additional specimens of the trechine beetle, and baited traps set around the former bottom lake

did not attract any specimen, either. It may still survive somewhere in inaccessible recesses below the lake level, but may not appear in the main gallery except in very wet seasons.

Incidentally, the location of the cave "at Maolan" given in the original description (p. 134) is not correct. It is true that the cave lies near the edge of the Maolan National Reserve but is widely distant from the village Maolan. Its correct location is as given above.

要　　約

上野俊一・冉　景丞：*Sinaphaenops*属のアシナガメクラチビゴミムシ類．—— 中国貴州省荔波县の石灰洞からアシナガメクラチビゴミムシの2新種を記載し，永康乡白岩の拉梭洞のものに*Sinaphaenops wangorum* S. Uéno et Ran，玉屏镇水浦村水拨寨の水拨水洞のものに*S. gracilior* S. Uéno et Ranという新名を与えた．どちらも同じように，基準種の*S. mirabilissimus* S. Uéno et F. Wangよりも体形が細いが，雄交尾器の形状は両者のあいだでいちじるしく異なり，*S. gracilior*のほうが基準種のものに似た雄交尾器をもつのに対して，*S. wangorum*の雄交尾器は図示したように特異である．また，この種では，チビゴミムシとしては例外的に，眼上毛の後方の1対がなくなっている．なお，基準種の基準産地である天钟洞の所在地を，瑶山乡拉关の上と訂正し，洞内の生息場所が観光開発によって破壊された結果，この種が幻の虫となってしまったことを報告した．

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Elytra, *Tokyo*, **26** (1): 60, May 15, 1998

中国三峡ダム地域の環境調査で報告された甲虫類の新種

中国の長江（揚子江）をせきとめて，三峡に巨大なダムを建設する計画は，すでにかなりの程度まで工事が進んでいるが，着工に先だつ1993年から1995年までの3年間にわたって，大規模な環境調査が実施された．調査結果のうち，昆虫類とクモ類に関する部分がこのほど出版されたが，2巻で総計1847ページに及ぶ大部のものなので，全貌をここに紹介するのはむずかしい．それで，日本の甲虫類研究に関係の深い新記載種だけを，とりあえず一覧にまとめておきたい．報告書の書名その他は，下記のとおりである．

「長江三峡库区昆虫」杨　星科（主編）．ii+ii+i+ii+xx+i+x+1847ページ，8原色図版（上下2巻）；1997年1月発行．重庆出版社，重庆．[Insects of the Three Gorge Reservoir Area of Yangtze River. Ed. YANG Xingke. ii+ii+i+ii+xx+i+x+1847 pp., 8 col. pls. (in 2 vols.); Jan. 1997. Chongqing Publishing House, Chongqing.]

甲虫類は621–973ページ（上巻）に収められ，30科802種が掲載されている．そのうち新種として記載されたのは，下記の34種である（掲載順）．

ガムシ科：*Laccobius* (*Macrolaccobius*) *ziguiensis* JIA

ジョウカイボン科：*Prothemus biforatus* WANG

タマキスイ科：*Cybocephalus intermedius* YU

テントウムシ科：*Clitostethus nigrifrons* YU, *Nephus* (*Geminosipho*) *ziguiensis* YU, *N.* (*G.*) *wushanus* YU, *N.* (*G.*) *bilinearis* YU, *Pseudoscymnus bivalvis* YU, *P. gibbosus* YU, *Scymnus* (*Pullus*) *hirsutus* YU

ハムシダマシ科：*Cerogria nodocollis* CHEN, *C. ommalata* CHEN, *Chlorophila melagena* CHEN

コガネムシ科：*Copris inaequabilis* ZHANG, *Onthophagus* (*Serrophorus*) *oblongus* ZHANG, *O.* (*Strandius*) *changshouensis* ZHANG, *O.* (*Indachorius*) *platypus* ZHANG, *Melichrus flavescens* ZHANG, *Tanyproctus sanxiaensis* ZHANG, *Holotrichia* (*Pledina*) *wangi* ZHANG, *H. wangerbaoensis* ZHANG

カミキリムシ科：*Neotrachystola superciliata* PU

ハムシ科：*Pedrillea flavipes* YU, *Japonitata concaviuscula* YANG, *J. confragosa* YANG et LI, *J. striata* YANG et LI, *Fleutiauxia glossophylla* YANG, *Cneoranidea melanocephala* YANG, *Gallerucida asticha* YANG, *Griva curvata* YU, *Hespera abdominalis* WANG, *Stenoluperus puncticollis* WANG, *Trachyaphthona rugicollis* WANG, *Batophila costipennis* WANG

ただし，調査によって採集された甲虫類の大多数が，この報告書に収録されたわけではないらしい．その証拠に，テントウムシ科が66種，コガネムシ科が97種，カミキリムシ科が70種，広義のハムシ科にいたっては256種も記録されているのに，ハネカクシ科はわずかに5種，ゴミムシダマシ科も7種しか報告されていない．さらに残念なのは，森林保護区として有名な神农架が調査地域に含まれているにもかかわらず，後翅の退化した地上性の種類がほとんど記録されていないことで，大規模な開発によって真っ先に滅びるこういう飛べない虫こそ最重要視されるべきであった．

（上野俊一）

Elytra, *Tokyo*, **26** (1): 61–68, May 15, 1998

The Trechine Beetles (Coleoptera, Trechinae) from the Zhongdian Area in Northwestern Yunnan Mainly Collected by Aleš SMETANA

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Abstract The trechine beetles mainly collected by Aleš SMETANA in the Zhongdian area in northwestern Yunnan, Southwest China, are enumerated. Of the three species involved, one new species of the genus *Queinnectrechus* is described under the name of *Q. globipennis*, *Bhutanotrechus farkaci* DEUVE is transferred to the genus *Agonotrechus* and redescribed, and the remaining one is identified with *Trechus macrops* JEANNEL. In addition to these, *Trechus sichuanicola* DEUVE and *Bhutanotrechus sichuanicola ventrosior* DEUVE are also transferred to *Agonotrechus*, and the latter is regarded as a full species.

Through the courtesy of Dr. Aleš SMETANA of the Agriculture and Agrifood Canada, I had an opportunity to examine a rich collection of the carabid subfamily Trechinae made by him in northwestern Yunnan and western Sichuan, Southwest China. A closer inspection of this collection has revealed that it contains many described and some undescribed species. Since our knowledge of Chinese trechines is not yet satisfactory, and since taxonomic revision seems needed for certain species previously described, I would like to take this golden opportunity for making some revisions on the basis of ample material. In the first place, I am going to take up the trechines collected in the Zhongdian area in northwestern Yunnan.

The abbreviations used in this paper are the same as those explained in previous papers of mine. The standard ratios of *Agonotrechus farkaci* are calculated on the basis of 24 specimens (12 ♂♂, 12 ♀♀) randomly picked up, including a pair of the paratypes. The specimens examined are preserved in the collections of Dr. SMETANA (Ottawa), the Musée d'Histoire Naturelle, Genève, and the National Science Museum (Nat. Hist.), Tokyo.

Before going further, I wish to express my heartfelt thanks to Dr. Aleš SMETANA for his kindness in submitting to me for taxonomic study all his collection of the Trechinae made in China. Hearty thanks are also due to Dr. Jan FARKAČ and Mr. Artur GITZEN for their kind help in examining invaluable specimens including the paratypes of *Bhutanotrechus farkaci* for comparative study.

Agonotrechus farkaci (DEUVE, 1995), comb. nov.

Bhutanotrechus farkaci DEUVE, 1995, Revue fr. Ent., (N. S.), **17**, p. 10, figs. 6, 12; type locality: montagnes à 15 km à l'ouest de Zhongdian [=Mt. Xue Shan].

Length: 4.35–5.30 mm (from apical margin of clypeus to apices of elytra).

The diagnostic characters of this species was given by DEUVE accompanied with fine illustrations of its habitus (fig. 12) and male genitalia (fig. 6), though his description is not correct in saying "la présence de 4 soies seulement à l'extrémité des paramères." In the following lines, I will give a redescription of the species.

Closely allied to *A. ventrosior* (DEUVE, 1995, p. 11) (new combination and status; see *Notes*), but the prothorax is more transverse on an average and more contracted both at apex and at base, the elytra are shorter with somewhat narrower basal part, and the aedeagus is differently shaped.

Colour brown to blackish brown, head black except for clypeal and vertexal parts, elytra more or less infuscate except along margins, faintly iridescent and sometimes with faint greenish tinge; propleura and epipleura usually brownish; buccal appendages, antennae and legs light brown. Apterous; fore body relatively large in proportion to hind body; microsculpture fine, mostly consisting of transverse meshes on head and of transverse lines on pronotum and elytra, though largely obliterated on elytra.

Head fairly large, transverse, depressed above, with frontal furrows deeply impressed and only feebly arcuate on dorsum but becoming much shallower behind supraorbital areas, not angulate but often obliquely rugose inwards at about the post-eye level; eyes small and flat, usually as long as genae but sometimes five-sixths as long as the latter; genae more or less convex though individually variable in convexity; neck constriction distinct at the sides; labrum only slightly emarginate at apex; antennae stout, reaching basal third of elytra, with middle segments each slightly less than twice as long as wide, segment 2 the shortest, terminal segment the longest.

Pronotum transverse subcordate, distinctly wider than head, widest at a level between four-sevenths and three-fifths from base; PW/HW 1.44–1.58 (M 1.51), PW/PL 1.44–1.59 (M 1.52), PW/PA 1.59–1.71 (M. 1.66), PW/PB 1.21–1.31 (M 1.27); sides widely reflexed except near front angles, strongly and widely arcuate in front, less so behind middle, and briefly sinuate just before hind angles, which are denticulate and more or less produced laterad; base wider than apex, PB/PA 1.25–1.39 (M 1.30), very slightly bisinuate; dorsum gently convex, basal transverse impression mal-defined, basal foveae fairly large, outwardly arcuate at the bottom.

Elytra short ovate, widest at about or a little before the middle, and a little more gradually narrowed towards bases than towards apices; basal areas relatively narrow; EW/PW 1.53–1.67 (M 1.61), EL/PL 2.98–3.26 (M 3.11), EL/EW 1.23–1.32 (M 1.27); shoulders indistinct; sides rather widely reflexed throughout, feebly but regularly arcuate in proximal halves except for moderately arcuate prehumeral parts, moderately so behind, and widely and almost conjointly rounded at apices, each with a shallow

preapical emargination; dorsum moderately convex, with rather steep apical declivity; striae superficial, finely punctate, becoming shallower at the side though almost entire; scutellar striole distinct; apical striole short but deeply impressed, gently curved and free at the anterior end, usually directed to stria 5 but sometimes directed to stria 7; stria 3 with two setiferous dorsal pores at 1/8–1/7 and 2/5–4/9 from base, respectively; preapical pore lying near the level of the terminus of apical striole, usually adjoining stria 2 but sometimes lying on the apical anastomosis of striae 2 and 3; marginal umbilicate pores regular.

Legs short and fairly stout, of ordinary conformation for a member of *Agonotrechus*.

Male genital organ small though rather heavily sclerotized, similar in general configuration to that of *A. ventrosior* but the aedeagus is less arcuate at middle and has broader apical lobe. Aedeagus about three-tenths as long as elytra, slender, and only feebly arcuate at middle, with basal part moderately curved ventrad and bearing a fairly large sagittal aileron; viewed dorsally, apical part gradually narrowed towards apical lobe whose apex is rather widely rounded; viewed laterally, apical lobe fairly wide, slightly curved ventrad, and rather widely rounded at the extremity. Copulatory piece about one-fourth as long as aedeagus, spatulate, and gradually acuminate. Styles with fairly broad apical parts, each bearing four to six (usually five) setae of unequal length at the apex.

Specimens examined. 2 ♂♂, 1 ♀ (paratypes), "N YUNNAN 23. VI. 1994 / 27.49N 99.34E 4200–4700 m / mts. 15 km W of ZHONGDIAN / lgt. J. Farkač & D. Král; 66 ♂♂, 62 ♀♀, "CHINA N Yunnan, Xue / Shan nr. Zhongdian / 3900 m 25. VI. 1996 / 27°49N 99°34E C41 // collected by / A. Smetana"; 23 ♂♂, 14 ♀♀, same locality and collector, but "4050 m 24. VI. 1996 / 27°49N 99°34E C40"; 1 ♂, 2 ♀♀, same data but "C39"; 6 ♂♂, 4 ♀♀, same data but "C38"; 25 ♂♂, 13 ♀♀, same locality and collector, but "4000–4100 m 23. VI. 96 / 27°49N 99°34E C36".

Notes. This species was originally placed under the genus *Bhutanotrechus* together with *sichuanicola ventrosior*. The same arrangement was already suggested by the French author (DEUVE, 1992 b, p. 174), who stated that "*T. sichuanicola* peut plus précisément être rapproché du genre *Bhutanotrechus* UÉNO." However, this opinion can be disputed for several reasons.

I have seen all the described species of *Agonotrechus* (s. lat.), which include four topotypical specimens of *Trechus sichuanicola* DEUVE (1989, p. 317, figs. 3, 6) collected by myself and six topotypical specimens of *Bhutanotrechus sichuanicola ventrosior* identified by DEUVE himself, and I am confident that these taxa and *Bhutanotrechus farkaci* are decisively different in evolutionary trend from *Bhutanotrechus reflexicollis* S. UÉNO (1977, p. 192, figs. 9–11). The latter is a large long-legged species of elongate body form, in which the prothorax is barrel-shaped, the prehumeral border of elytra is obliterated at the internal end, and the elytral striae are obliterated altogether. On the contrary, the members of *Agonotrechus* are always short-legged and more or less short-bodied, with the prothorax widest distinctly before the middle and

with the elytra either entirely or almost entirely striated and completely bordered at the prehumeral parts. The three taxa described by DEUVE perfectly fall in this category and share none of the diagnostic features of *Bhutanotrechus*. It is true that these apterous species are somewhat different from fully winged, ordinary species of *Agonotrechus* and may be discriminated in a species-group of their own, but the members of this primitive genus is usually rather variable in morphological features, above all in the number of elytral dorsal pores, condition of hind wings, and the number of parameral setae. The variation often appears individually, not only inter-specifically.

DEUVE (1995, p. 11) considered that his *farkaci* is different from *sichuanicola* in the number of parameral setae, four in the former and seven in the latter. However, this character is often unstable in such primitive genera as *Trechiama* and *Agonotrechus*, and in the three taxa concerned, the number varies from five to seven in *sichuanicola*, from four to five (probably more) in *ventrosior*, and from four to six in *farkaci*. On the other hand, *ventrosior* seems specifically different from *sichuanicola*. It is intermediate in both external and genitalic features between *sichuanicola* and *farkaci*, and may be even closer to the latter. From *sichuanicola*, it is distinguished by the following details:

Colour darker, wholly blackish, sometimes a little brownish at the posterior part of head and antero-lateral parts of pronotum but never on elytra, which are faintly iridescent; ventral surface black; femora usually infuscate. Fore body smaller in proportion to large hind body. Head with eyes somewhat larger on an average and usually more convex, usually as long as genae but sometimes 1.2 times as long as the latter. Prothorax less transverse, PW/HW 1.40–1.46 (M 1.44) [1.50–1.53 (M 1.51) in *A. sichuanicola*], PW/PL 1.37–1.45 (M 1.42) [1.47–1.53 (M 1.49) in *A. sichuanicola*], widest at a level a little nearer to the middle, less contracted at apex and usually narrower at base, PW/PA 1.56–1.62 (M 1.59) [1.62–1.69 (M 1.65) in *A. sichuanicola*], PW/PB 1.31–1.41 (M 1.35) [1.25–1.32 (M 1.29) in *A. sichuanicola*], PB/PA 1.15–1.21 (M 1.18) [1.23–1.33 (M 1.28) in *A. sichuanicola*], with the sides less widely reflexed, less strongly but more evenly arcuate, and more deeply sinuate just before hind angles, which are more protrudent postero-laterad. Elytra larger, short and broad, widest at about middle; EW/PW 1.62–1.73 (M 1.67) [1.48–1.54 (M 1.51) in *A. sichuanicola*], EL/PL 3.06–3.19 (M 3.13) [2.97–3.15 (M 3.06) in *A. sichuanicola*], EL/EW 1.30–1.36 (M 1.32) [1.34–1.37 (M 1.36) in *A. sichuanicola*]; sides more regularly arcuate from shoulders to apices, which are a little more prominent; striae shallower especially at the side and more finely punctate, though almost entire with the exception of the anterior half of stria 8, which is almost always evanescent. Aedeagus about two-sevenths as long as elytra, less strongly curved ventrad than in *A. sichuanicola*; viewed laterally, apical lobe broader and narrowly rounded at the extremity [distinctly more acuminate towards blunt extremity in *A. sichuanicola*]; viewed dorsally, apical lobe gradually narrowed towards narrowly rounded apex [abruptly narrowed at the level of apical orifice and subparallel-sided to near the bluntly ending extremity in *A. sichuanicola*]; each style bearing four or five apical setae often supplemented by a minute subapical accessory seta.

These differences seem to suffice for recognition of an independent species. DEUVE described "le pronotum plus transverse (lt/Lt 1,57)" in *ventrosior* than in *sichuanicola*, but in the specimens before me, the prothorax is constantly narrower in the former than in the latter.

The new taxonomic changes proposed in this paper are as follows:

Agonotrechus sichuanicola (DEUVE, 1989), comb. nov.
Agonotrechus ventrosior (DEUVE, 1995), comb. et stat. nov.
Agonotrechus farkaci (DEUVE, 1995), comb. nov.

According to SMETANA, *Agonotrechus farkaci* is abundant in the subalpine forests on Mt. Xue Shan. His collecting sites C36, 38, 39 and 40 lie in a "high montane coniferous forest with intermixed birches and rhododendrons", and the trechine beetle was collected by "sifting various forest floor debris, moss and pieces of rotting wood." The site C41 is a "mixed broadleaved and coniferous forest (*Abies*, *Betula*, *Rhododendron*, etc.)," and the collection was made by "sifting leaf litter and other forest floor debris, particularly piles of rotting wood and debris below them."

Queinnectrechus globipennis S. UÉNO, sp. nov.

(Fig. 1)

Length: 3.40 mm (from apical margin of clypeus to apices of elytra).

A relatively small species with small fore body and large hemiglobular elytra, recognized at a glance on the characteristic shape of hind body; surface glabrous and polished as in the other congeners; microsculpture completely vanished. Colour dark brown, head black except for clypeus; buccal appendages exclusive of mandibles yellowish brown; antennae and tarsi brown.

Head transverse with wide neck, depressed above; frontal furrows deep especially on dorsum, not angulate, and widely divergent posteriad; frons and supraorbital areas moderately convex, the latter with two pair of supraorbital setae on lines divergent posteriorly, the anterior setae clearly foveolate at the bases; eyes small and flat, only slightly longer than genae, which are convex and about seven-ninths as long as eyes; neck constriction distinct at the sides though not very deep; labrum transverse, shallowly emarginate at apex; mandibles stout, sharply hooked at apices; palpi short and stout, with penultimate segments widely dilated towards apices; antennae also short and stout, subfiliform, reaching basal three-tenths of elytra, segment 2 about five-sixths as long as 3 and subequal in length to each of 4–10, segments 6–10 each oval and a little more than 1.5 times as long as wide, terminal segment the longest.

Pronotum small, subcordate, wider than head, wider than long, widest at two-thirds from base, and more strongly narrowed towards base than towards apex; PW/HW 1.24, PW/PL 1.15, PW/PA ca. 1.36, PW/PB 1.46; sides finely bordered in apical three-fifths but immarginate behind, strongly arcuate in front, less so behind, and deeply sinuate at basal sixth, probably with two pair of marginal setae though the posterior pair is lacking in the holotype; apex wider than base, PB/PA ca. 0.93, with front

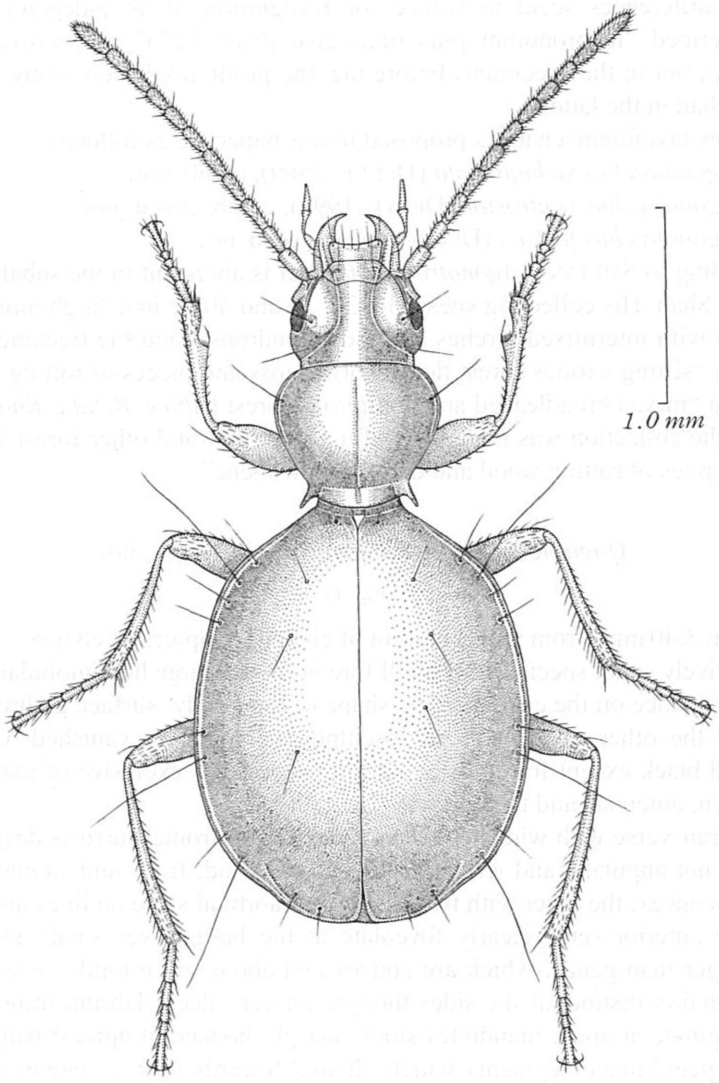

Fig. 1. *Queinnectrechus globipennis* S. UÉNO, sp. nov., ♀, from Mt. Xue Shan near Zhongdian.

angles rounded off; base gently arcuate, briefly oblique on each side just inside hind angle, which forms a digitiform process protrudent postero-laterad; disc strongly convex, with clearly impressed median line which is dilated in basal area; basal transverse impression sulciform and continuous; basal foveae small but deep, each externally delimited by carinate anterior continuation of postangular digitiform process; basal area smooth.

Elytra short and broad, hemiglobularly convex, widest slightly behind the middle, with basal parts briefly produced anteriad and forming a short basal peduncle; EW/PW 1.99, EL/PL 2.84, EL/EW 1.24; shoulders very obtuse though not so completely effaced as in the other congeners, with prehumeral borders much less oblique though becoming finer anteriorly and obsolete under the lateral convexity of basal areas; sides rather widely reflexed, feebly arcuate behind shoulders but strongly so in posterior halves and widely rounded at apices, which form a small re-entrant angle at suture, each with a slight preapical emargination; disc narrowly depressed along suture and devoid of appreciable striation, with the exception of apical striole which is deeply impressed though short and free at the anterior end; apical carina very short and very obtuse; three setiferous dorsal pores present on the site of stria 3 at about 1/6, 1/3 and 4/9–3/5 from base, respectively; preapical, apical and marginal umbilicate pores as in the other congeners.

Legs relatively short and stout; protibiae as in the other congeners in conformation; tarsomere 1 shorter than tarsomeres 2 and 3 together in mesotarsus, about as long as that in metatarsus.

Male unknown.

Type specimen. Holotype: ♀, "CHINA N Yunnan Xue / Shan nr. Zhongdian / 3900 m 25. VI. 1996 / 27°49N 99°34E C41 // collected by / A. Smetana." To be deposited in the collection of the Musée d'Histoire Naturelle, Genève.

Notes. At first sight, this new species looks like a member of *Deuveotrechus* due to the hemiglobular hind body. It is, however, obvious that the present trechine is a third species of *Queinnectrechus* in view of the posteriorly evanescent lateral borders of pronotum, the anteriorly diminished prehumeral borders of elytra, the absence of preapical pore, and above all, the digitiform processes formed by the pronotal hind angles. After describing *Q. smetanai* (UÉNO, 1995, p. 94, figs. 1–3), I had an opportunity to visit the Naturhistorisches Museum Basel and to compare both *Q. smetanai* and the present species with the holotype of *Q. excentricus* DEUVE (1992 a, p. 354; 1992 b, p. 183, figs. 22–23). It was found as the result that *Q. smetanai* is more closely related to the type species than *Q. globipennis* is, though all the three belong to the same lineage. To our present knowledge, the three species of *Queinnectrechus* occur on three different mountains that are considerably distant from one another, but other species of the same genus must be found on the intervening mountains if we can locate good natural forests that are indispensable for the existence of these specialized humicolous trechines.

As was already mentioned in the *Notes* following the account of *Agonotrechus farkaci*, SMETANA's collecting site C41 is a mixed broadleaved and coniferous forest on Mt. Xue Shan. Judging from its habitus, *Queinnectrechus globipennis* may be a saproxylophilous species, and probably lives under "piles of rotting wood" or in the "debris below them."

Trechus (s. str.) *macrops* JEANNEL, 1927

Trechus (s. str.) *macrops* JEANNEL, 1927, Abeille, Paris, **33**, pp. 157, 160, figs. 533–536; type area: Yun-Nan. —— UÉNO & YIN, 1993, Elytra, Tokyo, **21**, p. 354.
Other references are omitted.

Specimens examined. 8 ♂♂, 5 ♀♀, "CHINA N Yunnan / Zhongdian env. 3200–/ 3300 m 21–22. VI. 1996 / 27°50N 99°36E C35 // collected by / A. Smetana, J. Farkač / and P. Kabátek."

Notes. As in the previous record from the Dali area (UÉNO & YIN, 1993, *loc. cit.*), I tentatively regard *macrops* as a full species. Since then, however, this trechine beetle has been collected from several localities in Yunnan and Sichuan, and seems widely distributed in Southwest China. A careful comparative study based upon the material from many more localities is needed for clarifying its true systematic status in the group of *Trechus indicus*.

要　　約

上野俊一：SMETANA博士などによって中国云南省中甸地域で採集されたチビゴミムシ類．—— 中国云南省北西部の中甸地域，とくに雪山で，Aleš SMETANA博士などによって採集されたチビゴミムシ類は，3種に分類された．大多数は，DEUVEによって記載された*Bhutanotrechus farkaci*だったが，豊富な資料に基づいて検討した結果，明かにハバビロチビゴミムシ属*Agonotrechus*のものと判定されたので所属を移した．またこの機会に，*Bhutanotrechus*属のものと考えられていた*sichuanicola*もハバビロチビゴミムシ属に移し，その亜種として記載された*ventrosior*を独立種と認めて，その理由を説明した．奇妙な形態をした1種は，雌1点しか採集されなかったが，*Queinnectrechus*属の第3の種と考えられ，しかも既知種とは顕著に異なるので，*Q. globipennis* S. UÉNOという新名を与えて記載した．他の1種は，云南省西部の山麓地帯に広く分布する*Trechus macrops* JEANNELに同定された．

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Elytra, Tokyo, **26** (1): 69–73, May 15, 1998

A New Macrocephalic Species of the Genus *Pterostichus* (Coleoptera, Carabidae)

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Abstract A new macrocephalic pterostichine carabid is described from the Abe-tôge, Central Japan, under the name of *Pterostichus toyodai*. It is mainly characterized by the longitudinal ridge on the anal sternite in the male and tumored aedeagus.

In recent years, the *Pterostichus* fauna, especially the so-called macrocephalic forms, of Japan, has become gradually clarified by ardent friends of ours. These results were already reported in several separate papers (*e.g.*, KASAHARA, 1985; KASAHARA & ITÔ, 1987; MORITA & HIRASAWA, 1996; MORITA & KANIE, 1997), which included the discovery of a new subgenus. The purpose of the present paper is to add one more species which was discovered in Shizuoka Prefecture, Central Japan.

The abbreviations used herein are as follows: HW – greatest width of head; PW – greatest width of pronotum; PL – length of pronotum, measured along the midline; PA – width of pronotal apex; PB – width of pronotal base; EW – greatest width of elytra; EL – greatest length of elytra; FL – length of metafemur; ML – length of metatrochanter; TL – length of hind tarsus; M – arithmetic mean; H – holotype of *P. toyodai*; NSMT – National Science Museum (Nat. Hist.), Tokyo.

Before going further, we wish to express our deep gratitude to Dr. Shun-Ichi UÉNO of the National Science Museum (Nat. Hist.), Tokyo, for critically reading the original manuscript of this paper. Our thanks are also due to Messrs. Katsuo HIRAI, Koji TOYODA and Keiichi MATSUMOTO for supplying us with important material.

Pterostichus toyodai MORITA et Y. KUROSA, sp. nov.

[Japanese name : Hime-ôzu-naga-gomimushi]

(Figs. 1–7)

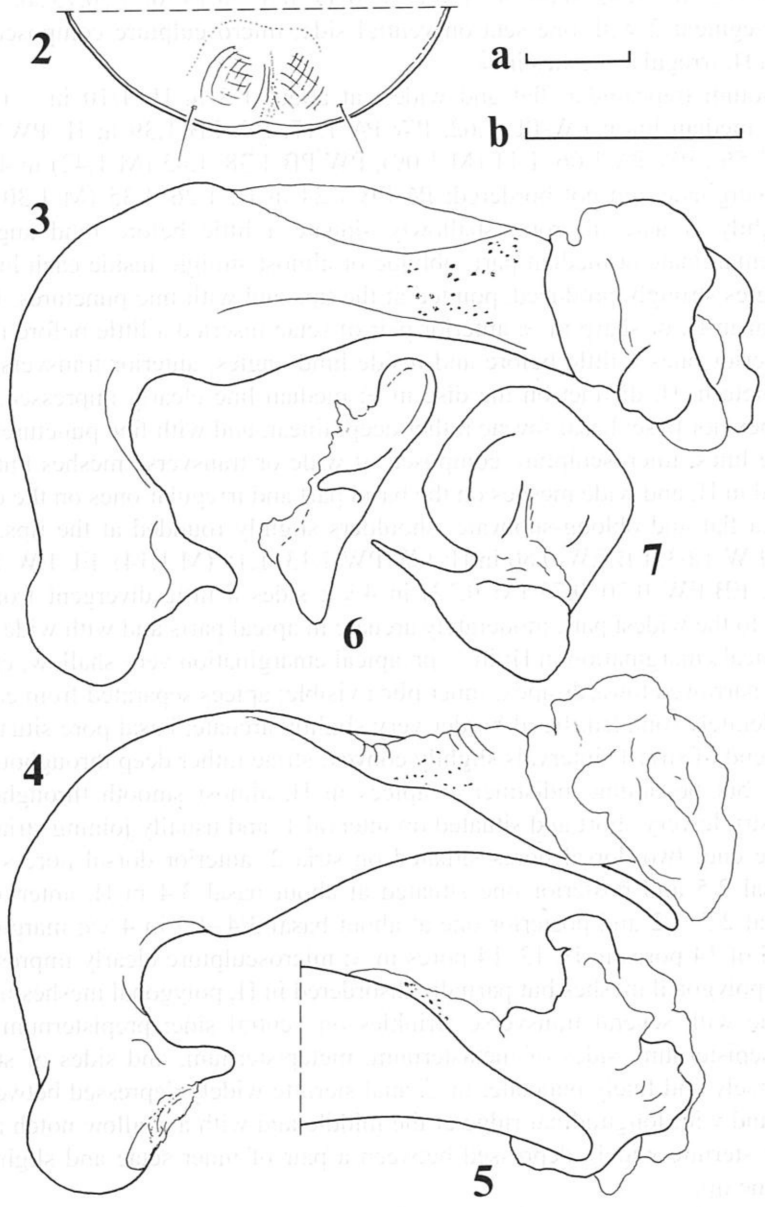
Length: 12.9 mm in H, 12.1–12.9 mm in 4 ♀♀ (from apical margin of clypeus to



Fig. 1. *Pterostichus toyodai* MORITA et Y. KUROSA, sp. nov., ♂, from the Abe-tôge.

apices of elytra).

Colour dark brown; head more or less darker than hind body; appendages dark brown. Body flat and elongate. Head very large, a little narrower than pronotum; PW/HW 1.10 in H, 1.05–1.08 (M 1.07) in 4 ♀♀; frontal furrows short, shallow and almost parallel; genae strongly convex; eyes vestigial in H, very slightly convex in 2 ♀♀; lateral grooves deep, straight, and slightly arcuate inwards at the posterior part, and with no additional groove; mentum tooth bifid and with a pair of setae; mentum with a deep concavity which has a small pit at the bottom on each side; small rounded pit situated on each side at the meeting point of gular suture and basal margin of submentum; submentum with two pair of setae; mandibles very long and strongly hooked at apices; relative lengths of antennal segments as follows:— I : II : III : IV : V : VI : XI≒



Figs. 2–7. *Pterostichus toyodai* MORITA et Y. KUROSA, sp. nov., from the Abe-tôge. —— 2, Anal sternite in ♂; 3, aedeagus, left lateral view; 4, aedeagus, oblique left ventro-lateral view; 5, apical part of aedeagus, ventral view; 6, right paramere, left lateral view; 7, left paramere, left lateral view. (Scale: 1 mm, a for 2; b for 3–7.)

1 : 0.54 : 0.97 : 0.83 : 0.82 : 0.80 : 0.78 in H, 1 : 0.49 : 0.87 : 0.79 : 0.77 : 0.73 : 0.74 in 3 ♀♀; antennal segment 2 with one seta on ventral side; microsculpture composed of wide meshes in H, irregular meshes in ♀.

Pronotum trapezoidal, flat and widest at about 1/5 in H, 1/10 in ♀ (measured along the median line); PW/PL 1.62, PW/PA 1.17, PW/PB 1.39 in H; PW/PL 1.52–1.63 (M 1.56), PW/PA 1.06–1.11 (M 1.09), PW/PB 1.38–1.45 (M 1.42) in 4 ♀♀; apex widely emarginate and not bordered; PA/PB 1.24 in H, 1.26–1.35 (M 1.30) in 4 ♀♀; sides slightly arcuate in front, shallowly sinuate a little before hind angles; base strongly emarginate at median part, oblique or almost straight inside each hind angle; apical angles strongly produced, pointed at the tips and with fine punctures; hind ones rectangular in H, or sharp in ♀; anterior pair of setae inserted a little before the widest part, posterior ones a little before and inside hind angles; anterior transverse impression obsolete in H, distinct on the disc in ♀; median line clearly impressed, reaching neither apex nor base; basal foveae rather deep, linear, and with fine punctures and fine transverse lines; microsculpture composed of wide or transverse meshes but partially disordered in H, and wide meshes on the basal part and irregular ones on the disc in ♀.

Elytra flat and oblong-subovate; shoulders slightly rounded at the tips; EW/PW 1.13, EL/EW 1.63, EB/EW 0.80 in H; EW/PW 1.13–1.15 (M 1.14), EL/EW 1.55–1.67 (M 1.60), EB/EW 0.70–0.75 (M 0.72) in 4 ♀♀; sides a little divergent from behind shoulders to the widest part, moderately arcuate in apical parts and with wide and shallow preapical emargination in H; in ♀, preapical emargination very shallow; epipleuron gradually narrowed towards apex; inner plica visible; apices separated from each other; apex moderately rounded; basal border very slightly arcuate; basal pore situated at the proximal end of stria 1; intervals slightly convex; striae rather deep throughout, weakly crenulate, but becoming indistinct at apices in H, almost smooth throughout in ♀; scutellar striole very short and situated on interval 1, and usually joining stria 1, rarely free at the end; two dorsal pores situated on stria 2, anterior dorsal pore situated at about basal 2/5 and posterior one situated at about basal 3/4 in H, anterior pore at about basal 2/5–1/2 and posterior one at about basal 3/4–4/5 in 4 ♀♀; marginal series composed of 14 pores in H, 13–14 pores in ♀; microsculpture clearly impressed, consisting of polygonal meshes but partially disordered in H, polygonal meshes in ♀.

Genae with several transverse wrinkles on ventral side; prepisternum, prosternum, mesepisternum, sides of metasternum, metepisternum, and sides of sternites 1 and 2 sparsely and finely punctate; in ♂, anal sternite widely depressed between a pair of setae, and with longitudinal ridge at the middle and with a shallow notch at the tip; in ♀, anal sternite widely depressed between a pair of inner setae and slightly emarginate at the tip.

Legs slender; tarsi smooth on dorsal side in ♂ and ♀; TL/HW 0.95 in H, 0.83–0.97 (M 0.89) in 4 ♀♀; in ♀, ventral sides of protarsi without adhesive hairs (cf. HABU, 1961, pp. 10–11); protibiae slightly bowed in ♂ and ♀, almost smooth in H, sulcate on basal halves of external faces in ♀; mesotibiae longitudinally strigose on dorsal surface between a level near basal 3/10 and apices in ♂ and ♀; metatibiae longitudinally

strigose on dorsal surface between a level near basal 2/5 and apices in ♂ and ♀; metatrochanter short and with rounded apex; ML/FL 0.39 in H, 0.40 in ♀.

Aedeagus elongate and strongly bent at basal third; ventral edge with a tumor at about basal third; apical part inclined to the right; apex rounded in ventral view. Right paramere robust, straight and with rounded apex; left one wide.

Type series. Holotype: ♂, 2–VI–1996, K. TOYODA leg. (NSMT). Paratypes: 1 ♀, 24–VII–1994, Y. KUROSA leg.; 1 ♀, 2–VI–1996, K. MATSUMOTO leg.; 1 ♀, 1–VI–1997, K. TOYODA leg.; 1 ♀, 6–VIII–1997, K. HIRAI leg.

Locality. Abe-tôge, about 1,380 m alt., Shizuoka-shi, Shizuoka Prefecture, Central Japan.

Notes. This new species is separable from the other members of the so-called macrocephalic forms of pterostichine carabids by having a combination of the following characters: 1) anal sternite in male with a longitudinal ridge at the middle, 2) aedeagus with a tumor at about basal third, and 3) tarsi smooth on dorsal side.

Only the single male known, which was designated as the holotype, was already dissected when we received it; its inner sac was, probably irregularly, everted from the aedeagus, and the apical lobe of the aedeagus was covered with the membraneous part of the inner sac. It is, therefore, not easy to examine the shape of apical lobe in both lateral and dorsal views.

要　約

森田誠司・黒佐義郎：静岡県産オオズナガゴミムシの1新種．—— 静岡市の北に位置する安倍峠から発見された1新種，ヒメオオズナガゴミムシ *Pterostichus toyodai* を記載した．この新種は，雄腹端節に縦隆を備えること，陰茎下面が膨れること，付節背面が平滑であることで，ほかのいわゆるオオズナガゴミムシと容易に識別される．

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Elytra, Tokyo, **26** (1): 74, May 15, 1998

Acrocyrtidus argenteus (Coleoptera, Cerambycidae) Newly Recorded from Northern Vietnam

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An elegant cerambycine beetle, *Acrocyrtidus argenteus*, was originally described on the basis of a single female specimen collected at Phou Khao Khoay of Laos, and has so far been known only from the type locality. As the result of recent field researches to northern Vietnam, I was able to examine a pair of specimens of the species. I am going to report it as being new to the fauna of the country, with a diagnostic account of the male external structure. The abbreviations used herein are explained in the other paper of mine published in the present issue of the Elytra (p. 208).

I thank Mr. Haruki KARUBE for his continuous help in material and in field works.

Acrocyrtidus argenteus GRESSITT et RONDON

Acrocyrtidus argenteus GRESSITT et RONDON, 1970, Pacif. Ins. Mon., **24**, p.189, fig. 32 a; type locality: Phou Khao Khoay, Laos.

Description of male. Body slender with very long antennae and legs. Colour black, with appendages dark brown to dark reddish brown. Head as wide as pronotum, HW/PW 0.99, HW/PA 1.14, with surface densely granulose. Antennae 1.7 times as long as body, surpassing elytral apices at bases of segments 7, briefly toothed at apices of segments 3–5. Pronotum subcylindrical, weakly arcuate near middle, densely granulose, densely silvery gray pubescent, though the pubescence is long at base and at sides near apex, PL/PW 0.96, PL/PA 1.11, PA/PB 0.87, PL/EL 0.31. Scutellum silvery gray pubescent. Elytra slender, moderate in length, minutely granulose, EL/EW 2.28; sides arcuately emarginate in apical third, then weakly divergent to apices which are subtruncate; basal pubescent band silvery gray, though the rests are silvery white in colour. Ventral surface densely clothed with silvery white pubescence, with anal abdominal sternite arcuately rounded at apex. Legs long and slender. Body length 9.2 mm.

Specimens examined. 1 ♂, Mt. Tam Dao, Vinh Phu Province, N. Vietnam, 30–V–1993, H. KARUBE leg.; 1 ♀, same locality, 6–V–1994, T. NIISATO leg. (in coll. T. NIISATO).

Notes. This species is distinguished from the other congeners in the slender black body provided with long antennae, and the unique silvery white pubescent maculations on the elytra, which are formed by a pair of large sub-oculate spots at middle, and transverse apical and basal bands. Unlike *A. elegantulus* and *A. diversinotatus,* it shows no sexual colour dimorphism.

Elytra, *Tokyo*, **26** (1): 75–79, May 15, 1998

A New Genus and Species of Platynine Carabid Beetle from Southwest Japan

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Abstract A peculiar new platynine carabid beetle is described from the Island of Amami-Oshima, Southwest Japan. It is characterized by the loss of anterior supraorbital seta, and of the lateral and hind angular setae on the pronotum. A new genus is erected for this new species. The new name given is *Nipponosynuchus abnormalis*.

In spite of the late season, my wife and I made a collecting trip to the Island of Amami-Oshima, Southwest Japan, in 1982, and found a single female of a peculiar platynine species, which was apparently new on the spot. I was, however, unable to go further to introduce it into science, since there still remained possibility of aberrancy because of its unusual chaetotaxy on the fore body: loss of a pair of anterior supraorbital setae and both pairs of lateral and hind angular setae on pronotum.

In order to verify the stability of these peculiarities, additional specimens of the same species were needed. After that, none of my friends were able to come across this interesting species in spite of repeated collecting trips.

Finally, in the autumn of 1996, Mr. KIMURA collected a second female of the same species from the island and submitted it to me for study. After a careful examination, it became evident that I had to alter my first impression to some extent. Though only two females are available, these characteristics seem sufficient for recognizing a new genus for this species, which will be named *Nipponosynuchus abnormalis* in this paper.

The abbreviations used herein are as follows: L – body length, measured from apical margin of clypeus to apices of elytra; HW – greatest width of head; PW – greatest width of pronotum; PL – length of pronotum, measured along the mid-line; PA – width of pronotal apex; PB – width of pronotal base; EB – width of elytral base, measured between lateral ends of basal border; EW – greatest width of elytra; EL – greatest length of elytra; FL – length of metafemur; ML – length of metatrochanter; TL – length of hind tarsus; M – arithmetic mean; H – holotype of *Nipponosynuchus abnormalis*; NSMT – National Science Museum (Nat. Hist.), Tokyo.

Before going further, I wish to express my deep gratitude to Dr. Shun-Ichi UÉNO of the National Science Museum (Nat. Hist.), Tokyo, for critically reading the original manuscript of this paper. My thanks are also due to Mr. Masaaki KIMURA for supplying me with important material.

Nipponosynuchus gen. nov.

Type species: *Nipponosynuchus abnormalis* MORITA, sp. nov.

Description. Body rather large (L: 14.3–14.4 mm) and smooth. Colour black and not metallic.

Head moderately convex; frontal furrows shallow, short and parallel; genae oblique in dorsal view and shorter than eyes; anterior supraorbital seta(e) absent; posterior supraorbital one(s) situated at a little behind the post-eye level; antennae long and slender, reaching middle of elytra, pubescent from apical half of segment IV; apical segment of labial palpi subcylindrical.

Pronotum narrow, moderately convex and smooth; lateral and hind angular setae absent; basal border vague; prosternal process without border.

Apterous. Elytra elongate with narrow basal parts; basal border strongly arcuate and joining scutellar striole which is long and lies on interval 1; shoulders indistinct; basal pore situated at the base of stria 1; two dorsal pores weak; anterior dorsal pore situated on interval 3, and variable in position, adjoining stria 2, close to stria 2, or on

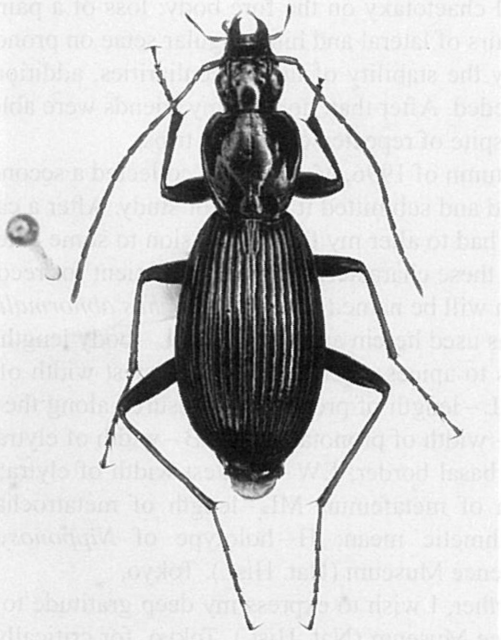


Fig. 1. *Nipponosynuchus abnormalis* MORITA, gen. et sp. nov., ♀, from Mt.Yuwan-dake.

interval 3, and in the paratype the left pore is absent; posterior dorsal pore on interval 3 and adjoining stria 2 or close to stria 2.

Ventral side smooth; in ♀, apical margin of anal sternite arcuate and slightly produced at the middle, and with a pair of setae. Legs very slender; metatrochanter short and rounded at apex; claws denticulate. Apical styli in female with two long spines.

Notes. In view of the loss of the anterior supraorbital seta and lateral and hind angular setae on the pronotum, and of the presence of a pair of setae on the anal sternite in female, this new genus is isolated among several genera belonging to the subtribe Dolichina (cf. LINDROTH, 1956, pp. 490, 552; HABU, 1978, p. 302; NEMOTO, 1990, p.101) known from Japan and its adjacent territories.

Nipponosynuchus abnormalis MORITA, sp. nov.

[Japanese name : Kenashi-tsuya-hirata-gomimushi]

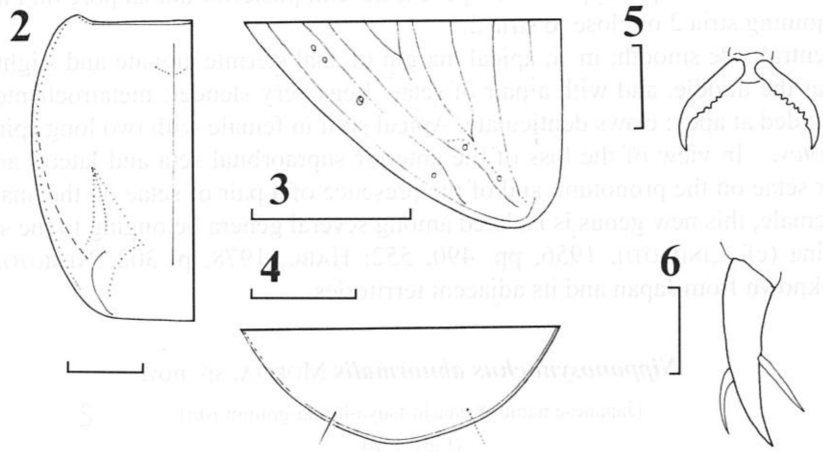
(Figs. 1–6)

Description. L: 14.3 mm. Body black and shiny; clypeus and borders of pronotum blackish brown; ventral side blackish brown to brown; mouth parts and appendages brown.

Head moderately convex; apex of labrum very slightly emarginate; a small rounded fovea present at the mid-eye level on each side in H; posterior supraorbital pore(s) situated at a little behind the post-eye level; lateral grooves deep, straight, becoming shallower posteriad and extending to the level of posterior supraorbital pores; mentum tooth porrect, bifid at the tips; microsculpture composed of polygonal meshes; antennal segment II with a long seta; relative lengths of antennal segments as follows:— I : II : III : IV : V : VI : XI≒1 : 0.57 : 1.57 : 1.36 : 1.37 : 1.28 : 1.09.

Pronotum narrow, moderately convex and smooth; PW/HW 1.43, PW/PL 0.95; apex almost straight and bordered throughout; sides moderately arcuate and slightly convergent posteriad; hind angles rounded; base almost straight and obliquely arcuate inside each hind angle; apical angle produced and narrowed at the tips; anterior transverse impression obsolete; median line fine, reaching neither apex nor base; basal foveae rather deep, linear at the bottom, and in H, the bottom is arcuate inwards; reflexed lateral borders becoming wider towards hind angles; microsculpture composed of fine transverse lines; PW/PA 1.52, PW/PB 1.58, PA/PB 1.04, EW/PW 1.48.

Elytra elongate; sides weakly arcuate from bases to the middle which is the widest, and ample in apical halves; apex of each elytron rounded; EL/EW 1.66, EB/EW 0.53; intervals moderately convex; striae not punctate; anterior and posterior dorsal pores situated on interval 3 and adjoining stria 2 on the right elytron, anterior dorsal pore on interval 3 and posterior one on interval 3 and close to stria 2 on the left elytron in H; anterior pores situated at about 2/5, posterior ones at 13/ 20 from base in H, respectively; apical pore weak and situated at the apical part of interval 3 and close to the apical end of stria 7; subapical pore weak and situated a little before and outside the apical pore; microsculpture composed of wide or transverse meshes; marginal se-



Figs. 2–6. Body parts of *Nipponosynuchus abnormalis* MORITA, gen. et sp. nov., ♀, from Mt. Yuwan-dake. —— 2, Outline of the left side of pronotum; 3, apical part of the left elytron, showing apical and subapical pores; 4, anal sternite; 5, claw of the left metatarsus; 6, left stylus. Scale: 1 mm for 2–4; 0.4 mm for 5; 0.2 mm for 6.

ries composed of 19 pores. Anal sternite bordered throughout and almost flat at apex.

Legs very slender; MTL/FL 0.31; protibiae straight; meso- and metatibiae longitudinally grooved on inner sides but the groove disappears at apex; tarsi very long and smooth on dorsal side; TL/HW 1.76; segment 1 of meso- and metatarsi with sulcus on outer side; segment 4 evenly bilobed in meso- and metatarsi; claw segment of metatarsus with several long setae on ventro-lateral sides, a pair of long setae on apical part of dorsal side, and a pair of short setae on apico-lateral sides.

Apical styli in female narrow, and with pointed apex.

Male unknown.

Type series. Holotype: ♀, Mt. Yuwan-dake, 28–XII–1982, S. & E. MORITA leg. (NSMT). Paratype: 1 ♀, Mt. Yui-dake, 30–X–1996, M. KIMURA leg.

Localities. Mt. Yuwan-dake, 420 m alt., in Uken-son; Mt. Yui-dake, in Setouchi-chô, the Island of Amami-Oshima, Kagoshima Prefecture, Southwest Japan.

Notes. This is a remarkable new species doubtless endemic to the Island of Amami-Oshima. The first specimen was found in a gutter at the side of the road, into which it had probably fallen at night.

The paratype specimen from Mt. Yui-dake is distinguished from the holotype by the following points: 1) shallower frontal furrows; 2) small rounded foveae absent at the mid-eye level; 3) pronotum wider; 4) pronotum with deeper basal foveae; 5) anterior dorsal pore absent on the left elytron; and 6) metatibiae shallowly grooved. The standard ratios of its body parts are as follows: PW/HW 1.47, PW/PL 1.01, PW/PA 1.53, PW/PB 1.62, PA/PB 1.06, EW/PW 1.46, EL/EW 1.71, EB/EW 0.49, TL/HW 1.85, MTL/FL 0.31.

要　約

森田誠司：奄美大島産，新属新種のヒラタゴミムシ．—— 奄美大島で採集されたヒラタゴミムシに対して，おもに，頭部，前胸背板および腹部末端節の剛毛様式が特異であるために新属を創設し，*Nipponosynuchus abnormalis* と命名した．

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Elytra, Tokyo, **26** (1): 79–80, May 15, 1998

Occurrence of *Chaetotrechiama procerus* (Coleoptera, Trechinae) in the Upper Hypogean Zone

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Chaetotrechiama is a remarkable monotypical genus belonging to the *Rakantrechus* lineage of the *Trechiama* group in the Trechinae. Its type species, *Chaetotrechiama procerus* S. UÉNO (1982 a, p. 55, figs. 1–4; 1985, p. 76, pl. 14, fig. 25), was collected only once in an abandoned mine adit in the southwestern part of the Island of Shikoku, south of Nakasuji Depression, where no other anophthalmic trechines had been known (cf. fig. 55 in UÉNO, 1982 b, p. 63). Later visits to the adit did not yield any additional specimens, and since the small hill into which the adit was excavated was levelled from the other side due to the development of an industrial area, this trechine beetle was recognized as an endangered species and was officially

recorded on the Red Data Book of the Japanese Government (cf. UÉNO, 1991, p. 45; also 1992 and 1993). Its occurrence in the upper hypogean zone of the nearby hills was expected in view of the fact that its habitat in the abandoned adit was typically upper hypogean (cf. UÉNO, 1982 a, p. 58), but the expectation was not fulfilled for a long time.

Late in the autumn of 1997, a second habitat of this interesting species was at last located by Yoshiyuki ITÔ on the northeastern slope of Kaigamori Hill (455 m in height) 2.7 km east by south of the type locality. It was the bottom of a scree of shale 70–80 cm below the surface at an altitude of 150 m. Thus, *Chaetotrechiama procerus* is upper hypogean in nature as was expected, and since its occurrence on Kaigamori Hill was confirmed, our anxiety of its extinction was relieved at least for the time being. The collecting data of ITÔ's specimens are as follows:

1 ♀, Kumagoé, 150 m alt., Kujû, Nakamura-shi, Kôchi Pref., 23–XI–1997, Y. ITÔ leg.; 1 ♂, same locality, 29–XI–1997, Y. ITÔ leg. Both preserved in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo.

The specimens recorded above agree well with the type series, though the female is smaller (5.10 mm in the length of body) than any specimen of the latter. On the contrary, the male (5.70 mm in the length of body) falls in the known range of variation of the species. These two specimens have four pores in both the internal and external series of setiferous dorsal pores on the left elytron. On the right elytron, however, the male has four pores of the internal and five pores of the external series, while the female bears six pores of the internal and four pores of the external series.

In closing this brief report, I wish to thank Mr. Yoshiyuki ITÔ for his effort to clarify the carabid fauna of Shikoku and for his kindness in submitting this important discovery to me for publication.

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Elytra, *Tokyo*, **26** (1): 81–84, May 15, 1998

An Additional New Species of the Genus *Hydrocassis* (Coleoptera, Hydrophilidae) from Amami-Ôshima, the Ryukyu Islands

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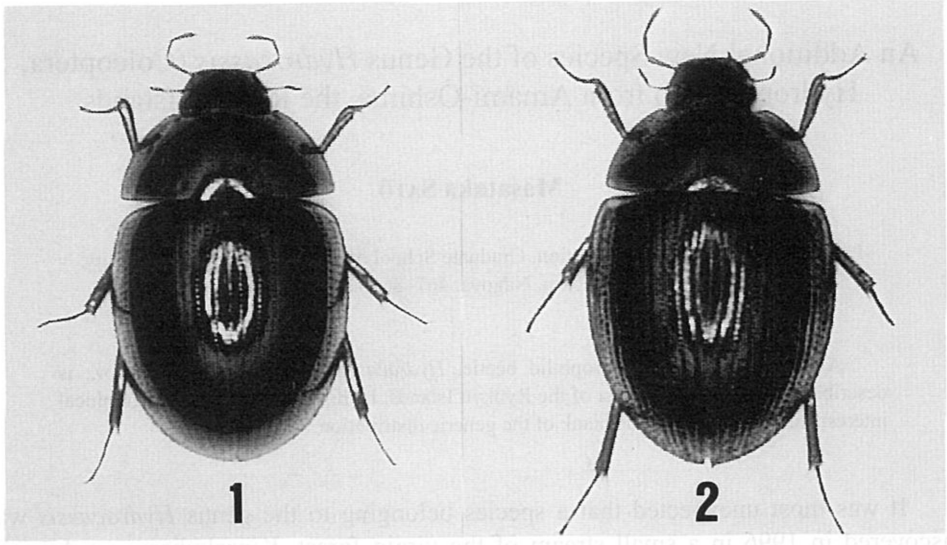
Abstract A new hydrophilid beetle, *Hydrocassis jengi* M. SATÔ, sp. nov., is described from Amami-Ôshima of the Ryukyu Islands. Its discovery is of zoogeographical interest, since it fills in a wide blank of the generic distribution.

It was most unexpected that a species belonging to the genus *Hydrocassis* was discovered in 1996 in a small stream of the virgin forest, Kinsakubaru, on Amami-Ôshima of the Ryukyu Islands. It has never been recorded before from the Ryukyu Islands though they occupy an intermediate area in the generic distribution. I visited the islands many times, including the locality in Amami-Ôshima, and yet I never came across any hydrophilid of this genus.

In the summer of 1996, we made a collecting trip to the Ryukyu Islands for research of aquatic Coleoptera. One of the members, Mr. M.-L. JENG, collected a specimen of *Hydrocassis* on the last day of the trip to Amami-Ôshima. On that occasion, we had not sufficient time to continue the collecting, and therefore, I visited Amami-Ôshima again in the spring of 1997 with my colleagues. This renewed trip was successful in obtaining some additional materials at the same locality. Besides, Mr. S. HORI gave me an opportunity to examine his specimens of the same species taken on the same island. The discovery of this *Hydrocassis* is important from the zoogeographical viewpoint, since it is a Himalo-Japanese element.

According to SCHÖDL and JI (1995) who gave a synopsis of *Hydrocassis*, the genus consists of 9 species distributed along the evergreen broadleaved forest zone extending from the Himalayas to Japan. After a careful study, it was proved that the Amami species is a tenth member of the genus *Hydrocassis*. It will be described in the present paper under the name of *H. jengi*.

I would like to express my sincere gratitude to Dr. Shun-Ichi UÉNO of the National Science Museum (Nat. Hist.), Tokyo, Mr. Ming-Luen JENG of the National Taiwan University, Mr. Hiroyuki YOSHITOMI of the Bioindicator Co. Ltd., Ms. Futaba NISHIMOTO of Nagoya Women's University, and Mr. Shigehisa HORI of the Hokkaido Institute of Environmental Science for their kind support in many ways.



Figs. 1–2. Habitus of *Hydrocassis* spp. ——1, *H. jengi* M. SATÔ, sp. nov.; 2, *H. lacustris* (SHARP).

Hydrocassis jengi M. SATÔ, sp. nov.

(Figs. 1, 3)

Body subcircular in outline, distinctly convex, polished above and subopaque below, dark reddish brown. Dorsal surface provided with primary minute and close punctures.

Head strongly and closely punctate, the punctures separated from one another by a half to the same as their diameter on most parts and rugose in lateral areas; labrum transverse, distinctly concave at anterior margin, closely and finely punctate; eyes moderately prominent, the distance between them about 5.1 times the breadth of an eye.

Pronotum about 2.6 times as broad as long, broadest at the base which is about 2.2 times as broad as the anterior breadth, margins narrowly bordered; lateral sides gently rounded anteriad and slightly crenulate; anterior angles rounded and posterior ones obtuse; surface distinctly and somewhat sparsely punctate, the punctures becoming rather close towards lateral sides.

Elytra about 1.1 times as broad as pronotum, about 1.2 times as long as broad; lateral sides slightly crenulate; surface of each elytron provided with 10 striae of punctures and with an accessory stria at the base between the 1st and 2nd; interstriae 3rd, 5th, 7th and 9th furnished with a longitudinal series of sparse and vague punctures.

Ventral surface shagreened and closely covered with aureocinereous hydrofugous pubescence; mentum closely and distinctly punctate; prosternum triangularly prominent at the anterior centre; mesosternum evidently protrudent like an arrow-head at the

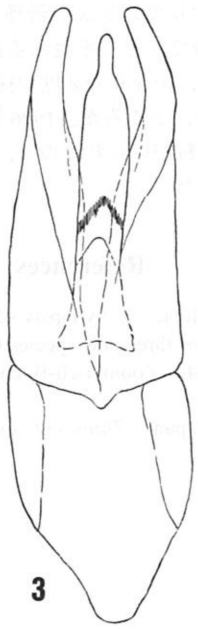


Fig. 3. Male genitalia of *Hydrocassis jengi* M. SATÔ, sp. nov.

anterior centre; terminal sternite of abdomen distinctly concave and bearing stiff hairs at the apex.

Male genitalia rather slender; median lobe somewhat slender, distinctly and narrowly constricted at terminal portion with rounded apex; lateral lobe gently curved, inwardly bent, and with rounded apex.

Length: 6.5–7.3 mm; breadth: 4.0–4.3 mm.

Holotype: 1 ♂, Kinsakubaru, Amami-Ôshima, Ryukyus, 26–III–1997, H. YOSHITOMI leg. (in coll. Natn. Sci. Mus. (Nat. Hist.), Tokyo). Paratypes: 14 exs., same data as for the holotype; 1 ex., same locality as for the holotype, 24–VII–1996, M.-L. JENG leg.; 4 exs., ditto, 23–III–1997, F. NISHIMOTO, H. YOSHITOMI & M. SATÔ leg.; 1 ex., Arangachi, Amami-Ôshima, 24–III–1997, H. YOSHITOMI leg.; 19 exs., Fukumoto Materiya, Amami-Ôshima, 22~28–IV–1996, S. HORI leg. (in coll. Natn. Taiwan Univ., Naturhist. Mus. Wien, Ent. Lab. Ehime Univ., Natn. Sci. Mus. (Nat. Hist.), Tokyo, and Nagoya Women's Univ.).

The present new species is related to *H. lacustris* (SHARP), but can be distinguished from it by the more rounded body, polished dorsal surface, sparsely punctured body surface and differently shaped male genitalia.

The specific name is given after Mr. M.-L. JENG who is the first discoverer of this interesting species.

要　約

佐藤　正孝：奄美大島におけるマルガムシ属の新種発見．—— マルガムシ属の分布域はヒマラヤから日本にいたる照葉樹林帯で，そこを流れる渓流が生息地である．どうしたことか，分布の中間に位置する琉球列島では，かなりの頻度の採集調査が行われているにもかかわらず，これまで記録されることがなかった．ところが，1996年の夏に奄美大島で1雄が得られたのを契機として，その後，少数ながら資料が得られたので，ここに*Hydrocassis jengi* M. SATÔリュウキュウマルガムシと命名して記載した．

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Elytra, *Tokyo*, **26** (1): 84, May 15, 1998

New Records of *Elmomorphus brevicornis amamiensis* (Dryopidae)

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The dryopid beetle, *Elmomorphus brevicornis amamiensis* NOMURA, 1959, was originally described from Amami-Ôshima. After that, it was recorded by SATÔ (1965) from Tokuno-shima and Okinawa-hontô. Recently, KIMURA collected the species from Kume-jima, Iheya-jima and Tokashiki-jima. I thank Mr. M. KIMURA for his kindness.

Elmomorphus brevicornis amamiensis NOMURA

NOMURA, 1959, Toho-Gakuho, (9): 33. —— SATÔ, 1960, Kontyû, Tokyo, **28**: 252; 1965, J. Nagoya Wom. Coll., (11): 90.

Specimens examined. 3 exs., Shirase-gawa, Kume-jima, 2–V–1995, M. KIMURA leg.; 1 ex., Dana, Iheya-jima, 29–III–1996, M. KIMURA leg.; 1 ex., Onna-gawa, Tokashiki-jima, 16–V–1995, M. KIMURA leg.

Distribution. Ryukyu Islands (Amami-Ôshima, Tokuno-shima, Okinawa-hontô, Kume-jima, Iheya-jima, Tokashiki-jima).

This species in found in running waters of small streams.

Elytra, Tokyo, **26** (1): 85–98, May 15, 1998

Five New Species of the *Lathrobium* (s. str.) *nomurai* Group (Coleoptera, Staphylinidae) from Japan

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Abstract Five new species of the *Lathrobium* (s. str.) *nomurai* group are described under the names *L.* (s. str.) *tanakai*, *L.* (s. str.) *ohdaiense*, *L.* (s. str.) *hikosanense*, *L.* (s. str.) *daisensanum* and *L.* (s. str.) *moritai*. They were mainly obtained from the upper hypogean zone of mountain areas in Southwest Japan.

Nine species of the *Lathrobium* (s. str.) *nomurai* group have hitherto been reported from Japan by NAKANE (1955, p. 29) and WATANABE (1980, p. 21; 1986, p. 688; 1987, pp. 8, 11; 1991, pp. 145, 149, 151, 153; 1996, pp. 10–11); five species from Honshu, three from Shikoku and one from Kyushu. The members of this group are mainly found in the upper hypogean zone of mountain areas in Japan and characterized by large body, vestigial eyes and degenerated hind wings. These morphological features of the group are similar to those of the group of *L.* (s. str.) *pollens*, though it can be distinguished from the latter by the reddish colour of body, and head and elytra not transverse.

Examining the members of the genus *Lathrobium* from Japan, I have found five interesting species belonging to this group. After a careful examination, it has become clear that they are new to science because of different configuration of male genital organ. They will be described in the present paper under the names *L.* (s. str.) *tanakai*, *L.* (s. str.) *ohdaiense*, *L.* (s. str.) *hikosanense*, *L.* (s. str.) *daisensanum* and *L.* (s. str.) *moritai*. The type specimens of the new species to be described are deposited in the collection of the Laboratory of Entomology, Tokyo University of Agriculture, except for the holo- and allotypes of *L.* (s. str.) *ohdaiense* which are preserved in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo.

Before going further, I wish to express my hearty thanks to Dr. Shun-Ichi UÉNO, Visiting Professor at Tokyo University of Agriculture, for his kindness in giving me the opportunity to study the interesting specimens and valuable advice on the present study. Thanks are also due to Dr. Y. NISHIKAWA, Messrs. K. MATSUMOTO, S. MORITA, T. SHIMADA and S. TANAKA for their kindness in providing me with specimens used in the present study.

Lathrobium (s. str.) ***tanakai*** Y. WATANABE, sp. nov.

(Figs. 1, 2, 7–9)

[Japanese name: Tanaka-kobane-nagahanekakushi]

Body length: 10.0–13.0 mm (from front margin of head to anal end); 5.3–5.8 mm (from front margin of head to elytral apices).

Body elongate, subdepressed above and parallel-sided. Reddish brown and moderately shining, with head and pronotum sometimes paler, palpi, legs and anal end yellowish brown.

Male. Head suborbicular and gently elevated medially, as long as broad, widest at basal third and more strongly narrowed anteriad than posteriad; lateral sides arcuate; frontal area between antennal tubercles transversely flattened and impunctate, provided with a conspicuous setiferous puncture inside each antennal tubercle; disc sparingly covered with distinct setiferous punctures, except for small smooth vertexal area; latero-posterior parts also with setiferous punctures which are closer and finer than those on the disc; eyes very small and almost flat, their longitudinal diameter about one-sixth as long as the postocular part. Antennae extending to posterior fifth of pronotum and not thickened towards the apicalmost, basal two segments polished, the remainings opaque; 1st segment robust and distinctly widened apicad, more than twice as long as broad, 2nd well constricted at the base, 1.5 times as long as broad, but a half as long as and somewhat narrower than 1st (2nd/1st=0.80), 3rd remarkably longer than broad (length/width=1.75) and a little longer though as broad as 2nd, 4th to 7th equal in both length and width to one another, each somewhat longer than broad (length/width=1.25), 8th and 9th subequal in both length and width to each other, each slightly shorter (8th/7th=0.90) though as broad as 7th, 10th somewhat longer than broad (length/width=1.25) and equal in length to but slightly shorter than 9th (10th/9th=0.91), apicalmost fusiform, twice as long as broad and 1.5 times as long as but slightly narrower than 10th (apicalmost/10th=0.94), subacuminate at the apex.

Pronotum oblong and nearly parallel-sided or very feebly narrowed posteriad, apparently longer than broad (length/width=1.31) and distinctly longer (pronotum/head=1.24) but slightly narrower (pronotum/head=0.94) than head, lateral sides almost straight except near anterior and posteriar angles, anterior margin gently and broadly rounded, posterior margin nearly truncated, anterior angles obtuse and not visible from dorsal side, posterior ones rounded; surface much more closely covered with stronger setiferous punctures than on head except for a narrow median smooth line through the length of pronotum. Scutellum subtriangular, sparsely scattered with somewhat coarse setiferous punctures and covered with microscopic ground sculpture. Elytra trapezoidal, distinctly narrowed anteriad, slightly longer than broad (length/width=1.06) and slightly broader (pronotum/head=1.06) but a little shorter (pronotum/head=0.86) than pronotum; lateral sides feebly arcuate, posterior margin broadly emarginate at the middle; posterior angles broadly rounded; surface more closely and more roughly punctured than on pronotum, bearing a vague depression be-

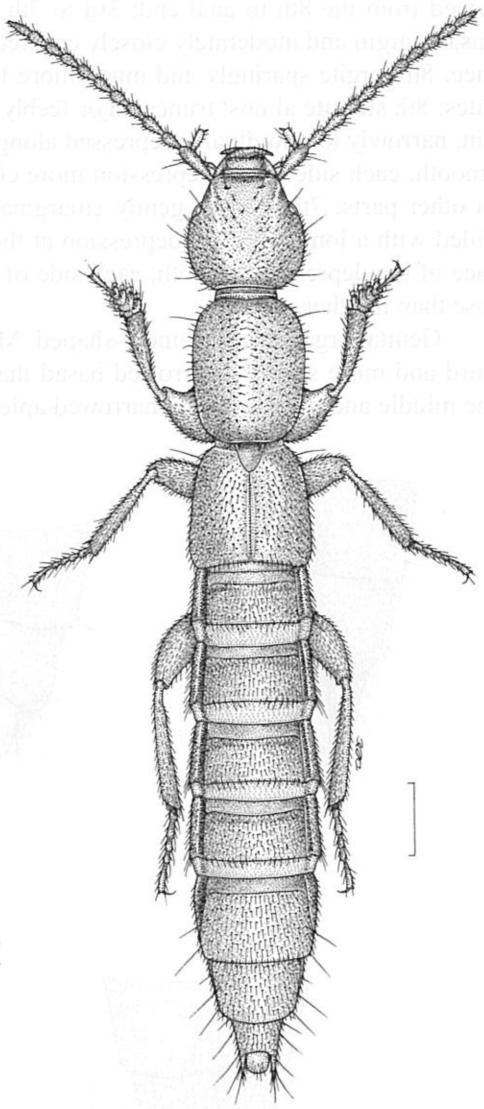


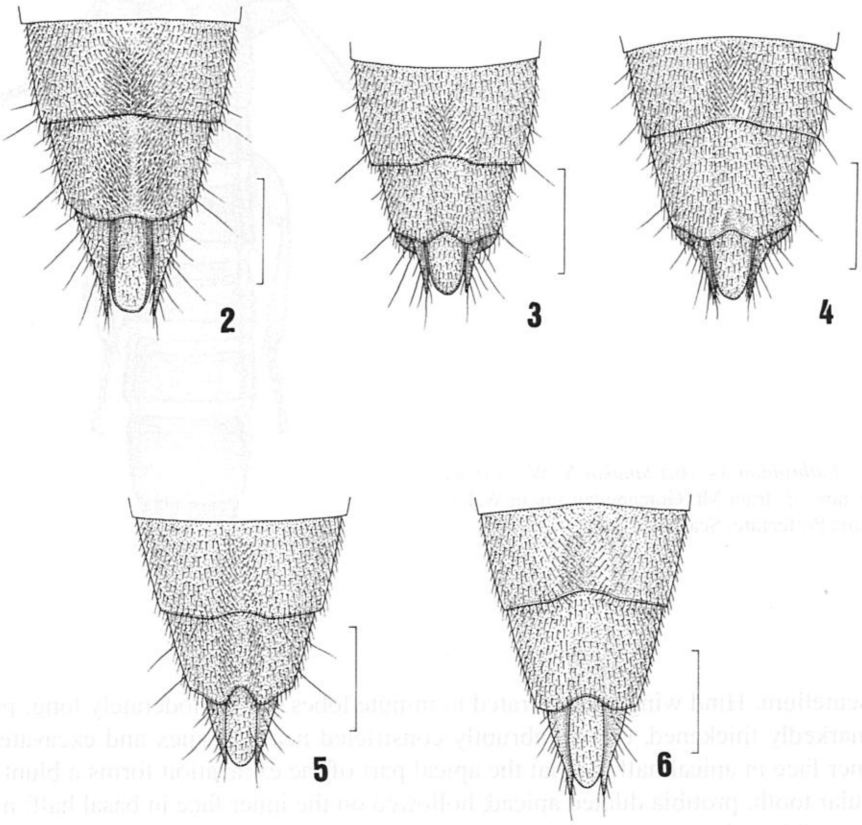
Fig. 1. *Lathrobium* (s. str.) *tanakai* Y. WATANABE, sp. nov., ♂, from Mt. Gomanodan-san in Wakayama Prefecture. Scale: 1.0 mm.

hind scutellum. Hind wings degenerated to minute lobes. Legs moderately long; profemur markedly thickened, though abruptly constricted near the apex and excavated on the inner face in apical half, so that the apical part of the excavation forms a blunt subtriangular tooth; protibia dilated apicad, hollowed on the inner face in basal half; meso- and metatibiae simple; 1st to 4th protarsal segments strongly widened; meso- and metatarsi thin.

Abdomen elongate, slightly widened towards the 7th segment and abruptly nar-

rowed from the 8th to anal end; 3rd to 7th tergites each transversely depressed along basal margin and moderately closely covered with fine superficial punctures on the surface, 8th tergite sparingly and much more finely punctured than on the preceding tergites; 8th sternite almost truncated or feebly emarginate at the middle of posterior margin, narrowly longitudinally depressed along the median line, surface of the depression smooth, each side of the depression more closely clothed with fine blackish setae than in other parts; 7th sternite gently emarginate at the middle of posterior margin, provided with a long elliptical depression at the middle in front of the emargination, surface of the depression smooth, each side of the depression somewhat more closely setose than in other parts.

Genital organ nearly spindle-shaped. Median lobe relatively broad, widest at basal third and more strongly narrowed basad than apicad, with ventral sclerite widest near the middle and more strongly narrowed apicad than basad, apical part very slender and



Figs. 2–6. Last three abdominal sternites in male of *Lathrobium* (s. str.) spp.; *L.* (s. str.) *tanakai* sp. nov. (2), *L.* (s. str.) *ohdaiense* sp. nov. (3), *L.* (s. str.) *hikosanense* sp. nov. (4), *L.* (s. str.) *daisensanum* sp. nov. (5), and *L.* (s. str.) *moritai* sp. nov. (6). Scale: 1.0 mm.

acutely pointed at the apex. Fused paramere asymmetrical and distinctly longer than median lobe, abruptly constricted near the middle, and then apparently tapered apicad, strongly curved to the right in apical half as seen from dorsal side and curved dorsad in apical part in profile.

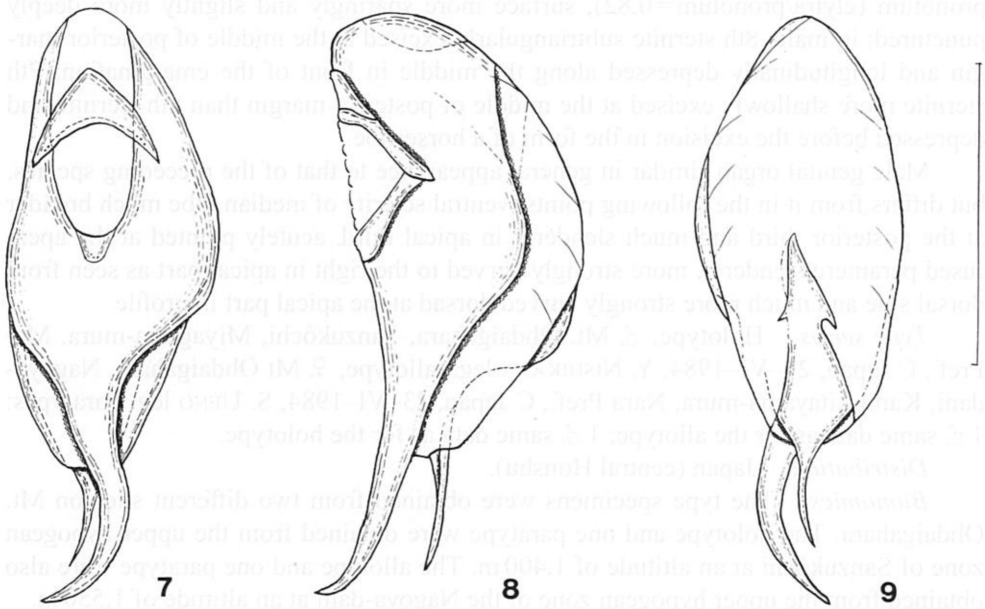
Female. Similar in facies to male, but the apical two abdominal sternites are simple.

Type series. Holotype, ♂, Mt. Gomanodan-san, Ryûjin, Wakayama Pref., Honshu, Japan, 3–VIII–1991, S. TANAKA leg.; allotype, ♀, same locality and collector as above, 27–VIII–1991. Paratypes: 1 ♂, 2 ♀♀, same data as for the holotype; 2 ♂♂, same data as for the allotype; 1 ♂, Okusenjô (Ônodani), Totsukawa-mura, Nara Pref., Honshu, Japan, 17–VIII–1991, S. TANAKA leg.

Distribution. Japan (central Honshu: Kii Peninsula).

Remarks. In general appearance, the present new species is similar to *L.* (s. str.) *kishuense*, but differs from it in the following points: body more or less smaller, head as long as broad, pronotum slightly narrower than head; 8th abdominal sternite in male more shallowly emarginate at the middle of posterior margin and distinctly glabrous along the median line before the emargination; male genital organ with fused paramere strongly curved to the right in apical half.

Bionomics. According to Mr. S. TANAKA's information, the type specimens obtained on Mt. Gomanodan-san were found in the upper hypogean zone in a mixed for-



Figs. 7–9. Male genital organ of *L.* (s. str.) *tanakai* Y. WATANABE, sp. nov.; dorsal view (7), lateral view (8), and ventral view (9). Scale: 1.0 mm.

est of deciduous broadleaved trees, *Fagus crenata* and *Quercus crispula*, and coniferous trees, *Abies firma* and *Tsuga sieboldii*, at an altitude of about 1,280 m. One paratype obtained on Mt. Okusenjô, which is about 10 km distant to the south-southeast from Ryûjin Spa, was also found in the upper hypogean zone of the Ônodani at an altitude of about 1,060 m.

Etymology. The present new species is named after Mr. Shotaro TANAKA, Shirahama-chô, who kindly supplied me with the specimens of the type series.

Lathrobium (s. str.) ***ohdaiense*** Y. WATANABE, sp. nov.

(Figs. 3, 10–12)

[Japanese name: Ohdai-kobane-nagahanekakushi]

Body length: 9.4–10.4 mm (from front margin of head to anal end); 4.8–5.6 mm (from front margin of head to elytral apices).

Male and Female. In facies resembles the preceding species, but can be distinguished from it by the darker colour, somewhat smaller and narrower body, and the following points.

Head with lateral sides less arcuate and more numerously punctured on latero-posterior parts; pronotum distinctly narrowed posteriad, not so long (length/width= 1.27) as in the preceding species and as broad as head, surface similarly punctured to that of head; elytra relatively short, nearly as long as broad and much shorter than pronotum (elytra/pronotum=0.82), surface more sparingly and slightly more deeply punctured; in male, 8th sternite subtriangularly excised at the middle of posterior margin and longitudinally depressed along the middle in front of the emargination; 7th sternite more shallowly excised at the middle of posterior margin than 8th sternite and depressed before the excision in the form of a horseshoe.

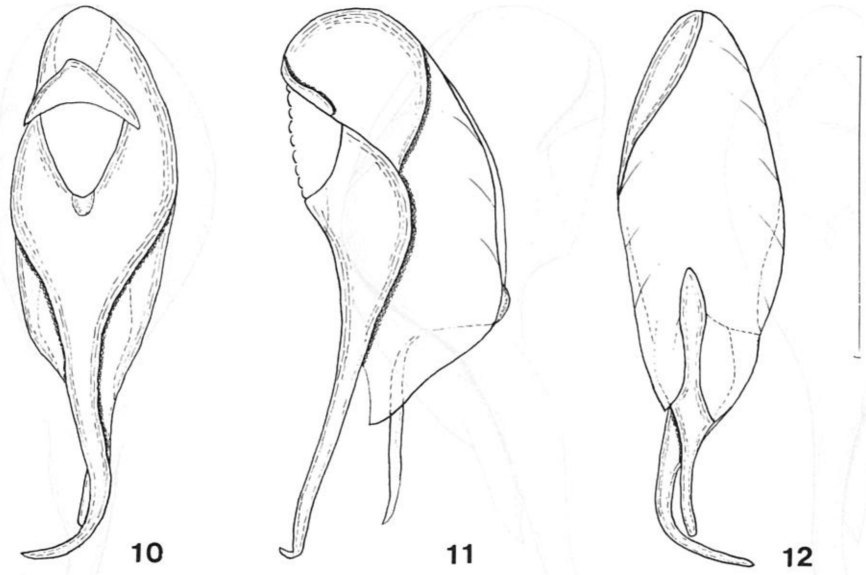
Male genital organ similar in general appearance to that of the preceding species, but differs from it in the following points: ventral sclerite of median lobe much broader at the posterior third and much slenderer in apical third, acutely pointed at the apex; fused paramere slenderer, more strongly curved to the right in apical part as seen from dorsal side and much more strongly curved dorsad at the apical part in profile.

Type series. Holotype, ♂, Mt. Ohdaigahara, Sanzukôchi, Miyagawa-mura, Mie Pref., C Japan, 24–VI–1984, Y. NISHIKAWA leg.; allotype, ♀, Mt Ohdaigahara, Nagoya-dani, Kami-kitayama-mura, Nara Pref., C Japan, 23–VI–1984, S. UÉNO leg. Paratypes: 1 ♂, same data as for the allotype; 1 ♂, same data as for the holotype.

Distribution. Japan (central Honshu).

Bionomics. The type specimens were obtained from two different sites on Mt. Ohdaigahara. The holotype and one paratype were obtained from the upper hypogean zone of Sanzukôchi at an altitude of 1,400 m. The allotype and one paratype were also obtained from the upper hypogean zone of the Nagoya-dani at an altitude of 1,550 m.

Etymology. The name of this new species is derived from "Mt. Ohdaigahara", the type locality.



Figs. 10–12. Male genital organ of *L.* (s. str.) *ohdaiense* Y. WATANABE, sp. nov.; dorsal view (10), lateral view (11), and ventral view (12). Scale: 1.0 mm.

Lathrobium (s. str.) ***hikosanense*** Y. WATANABE, sp. nov.

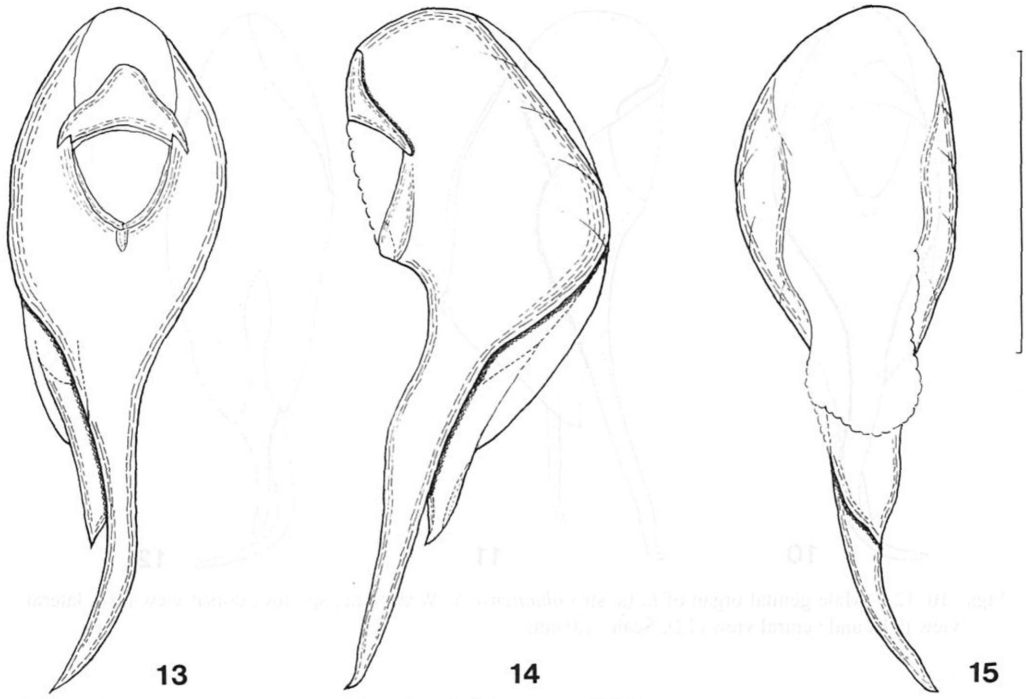
(Figs. 4, 13–15)

[Japanese name: Hikosan-kobane-nagahanekakushi]

Body length: 9.5–10.5 mm (from front margin of head to anal end); 5.2–5.5 mm (from front margin of head to elytral apices).

Male and Female. In general appearance similar to *L.* (s. str.) *ohdaiense*, but differs from it in the following points.

Head more strongly narrowed anteriad, slightly longer than broad (length/width= 1.03), surface more sparingly and less coarsely punctured in latero-posterior parts; pronotum more strongly narrowed posteriad and relatively long, considerably longer than broad (length/width=1.43) and a little narrower than head (pronotum/head= 0.90), surface more coarsely punctured except for a smooth longitudinal median place; elytra as long as broad, lateral margins less arcuate, posterior margin more deeply emarginate, surface more closely though less coarsely punctured; abdomen more sparingly and more coarsely punctured on the surface; in male, 8th sternite semicircularly excised at the middle of posterior margin and longitudinally depressed along the median line in front of the excision, apical part of the depression provided with a small subtriangular glabrous area, 7th sternite also shallowly, broadly emarginate at the middle of posterior margin and elliptically depressed at the middle before the emargination.



Figs. 13–15. Male genital organ of *L.* (s. str.) *hikosanense* Y. WATANABE, sp. nov.; dorsal view (13), lateral view (14), and ventral view (15). Scale: 1.0 mm.

Male genital organ similar in facies to those of the two preceding species, but differs from them in the following points: Median lobe much shorter than fused paramere, ventral sclerite broad and gradually narrowed to near the apex which is subtriangularly pointed; fused paramere much more elongate and more gently curved to the right in apical fourth as seen from dorsal side.

Type series. Holotype, ♂, Mt. Hiko-san, Fukuoka Pref., Kyushu, Japan, 8~11–IX–1997, T. SHIMADA leg.; allotype, ♀, same locality as for the holotype, 24–IX–1981, S. MORITA leg. Paratypes: 4 ♂♂, same data as for the allotype.

Distribution. Japan (northern Kyushu).

Bionomics. Unknown.

Etymology. The specific epithet of the present new species is derived from "Mt. Hiko-san", the type locality.

Lathrobium (s. str.) ***daisensanum*** Y. WATANABE, sp. nov.

(Figs. 5, 16–18)

[Japanese name: Daisensan-kobane-nagahanekakushi]

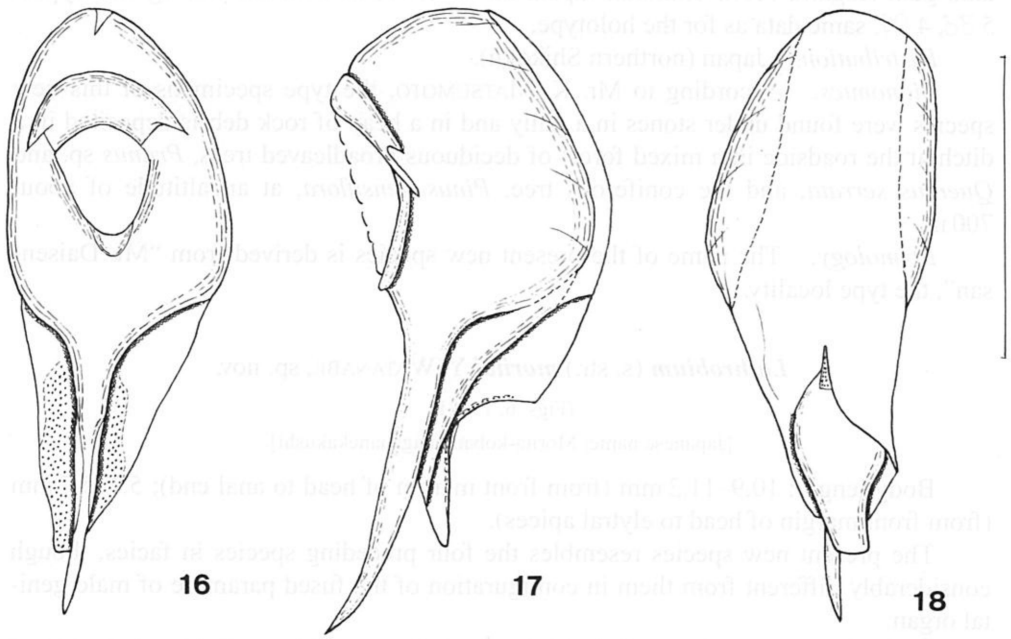
Body length: 9.2–10.4 mm (from front margin of head to anal end); 5.1–5.4 mm

(from front margin of head to elytral apices).

Similar in general appearance to the three preceding species, but can easily be distinguished from them by configuration of male genital organ.

Male. Head suborbicular, gently elevated medially, widest before posterior angles and feebly narrowed anteriad; lateral sides gently arcuate; surface sparsely scattered with distinct setiferous punctures except for small median area which is glabrous, the punctures becoming more numerous and smaller in the latero-posterior areas than on disc. Antennae elongate, similar in articulation to those of the three preceding species.

Pronotum oblong, almost parallel-sided in median part, though more strongly narrowed in posterior fifth than in anterior fifth, evidently longer than broad (length/width=1.40), distinctly longer (pronotum/head=1.26) though slightly narrower (pronotum/head=0.93) than head; lateral sides nearly straight except near anterior and posterior angles which are rounded, anterior and posterior margins as in the three preceding species, surface densely covered with coarse setiferous punctures except for a narrow median smooth line through the length of pronotum, but sometimes obscure in anterior half. Scutellum similar to those of the three preceding species. Elytra nearly square, slightly dilated posteriad, as long as broad, apparently shorter (elytra/pronotum=0.79) but a little broader (elytra/pronotum=1.11) than pronotum, lateral sides gently arcuate, posterior margin emarginate at the middle and forming a re-en-



Figs. 16–18. Male genital organ of *L.* (s. str.) *daisensanum* Y. WATANABE, sp. nov.; dorsal view (16), lateral view (17), and ventral view (18). Scale: 1.0 mm.

trant angle; surface rather densely covered with superficial setiferous punctures. Legs similar in structure to those of the three preceding species.

Abdomen elongate, gradually dilated towards the 7th segment and abruptly narrowed from the 8th to anal end; 3rd to 6th and anterior half of 7th tergites each closely covered with superficial punctures, posterior half of the 7th and 8th tergites much more sparingly and much more finely punctured than on the preceding tergites; 8th sternite subtriangularly excised at the middle of posterior margin and narrowly, longitudinally depressed along the median line, each side of the depression closely provided with short blackish setae; 7th sternite also shallowly emarginate at the middle of posterior margin and elliptically depressed at the middle in front of the emargination.

Genital organ more closely similar in configuration to that of *L.* (s. str.) *konpira* Y. WATANABE (1991, p. 149) than those of the three preceding species. Median lobe widest at the basal fourth and more strongly narrowed apicad than basad, evidently shorter than fused paramere, ventral sclerite broader and truncated at the apex. Fused paramere slightly curved to the right and gradually narrowed towards the pointed apex in dorsal view, surface provided with a fine longitudinal carina on each side of median part.

Female. Similar in general appearance to male, though differing from it in the 7th and 8th abdominal sternites which are not modified.

Type series. Holotype, ♂, allotype, ♀, Mt. Daisen-san, Kotonami-chô, Nakatado-gun, Kagawa Pref., Shikoku, Japan, 25–X–1997, K. MATSUMOTO leg. Paratypes: 5 ♂♂, 4 ♀♀, same data as for the holotype.

Distribution. Japan (northern Shikoku).

Bionomics. According to Mr. K. MATSUMOTO, the type specimens of this new species were found under stones in a gully and in a heap of rock debris deposited in a ditch at the roadside in a mixed forest of deciduous broadleaved trees, *Prunus* sp. and *Quercus serrata*, and the coniferous tree, *Pinus densiflora*, at an altitude of about 700 m.

Etymology. The name of the present new species is derived from "Mt. Daisen-san", the type locality.

Lathrobium (s. str.) ***moritai*** Y. WATANABE, sp. nov.

(Figs. 6, 19–21)

[Japanese name: Morita-kobane-nagahanekakushi]

Body length: 10.9–11.2 mm (from front margin of head to anal end); 5.1–5.7 mm (from front margin of head to elytral apices).

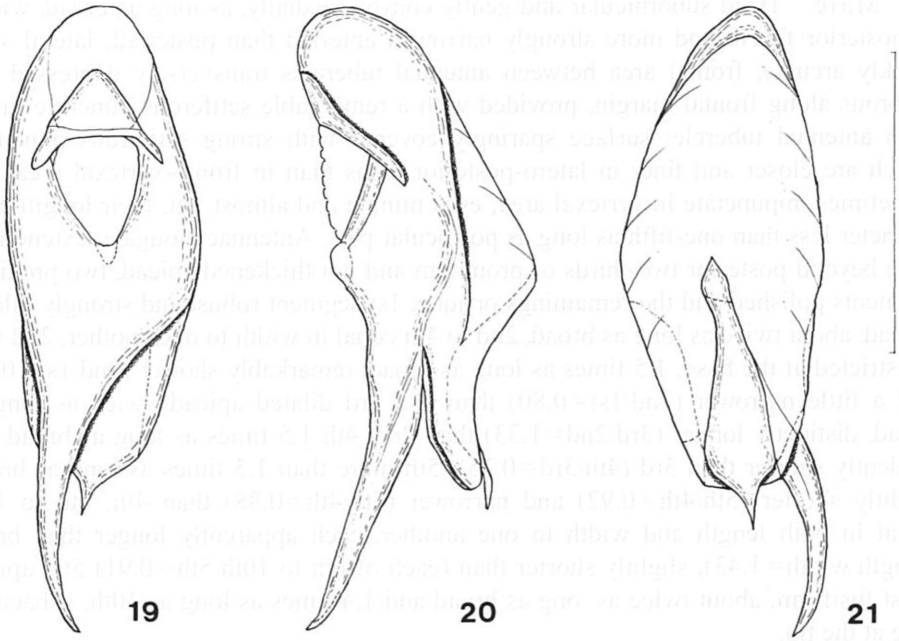
The present new species resembles the four preceding species in facies, though considerably different from them in configuration of the fused paramere of male genital organ.

Body elongate, nearly parallel-sided and subdepressed above. Colour dark red and moderately shining, with palpi and legs somewhat paler.

Male. Head suborbicular and gently convex medially, as long as broad, widest at posterior fourth and more strongly narrowed anteriad than posteriad; lateral sides weakly arcuate, frontal area between antennal tubercles transversely depressed and glabrous along frontal margin, provided with a remarkable setiferous puncture inside each antennal tubercle; surface sparingly covered with strong setiferous punctures which are closer and finer in latero-posterior areas than in fronto-vertexal area, and sometimes impunctate in vertexal area; eyes minute and almost flat, their longitudinal diameter less than one-fifth as long as postocular part. Antennae elongate, extending a little beyond posterior two-thirds of pronotum and not thickened apicad, two proximal segments polished and the remainings opaque, 1st segment robust and strongly dilated apicad, about twice as long as broad, 2nd to 4th equal in width to one another, 2nd well constricted at the base, 1.5 times as long as broad, remarkably shorter (2nd/1st=0.55) and a little narrower (2nd/1st=0.80) than 1st, 3rd dilated apicad, twice as long as broad, distinctly longer (3rd/2nd=1.33) than 2nd, 4th 1.5 times as long as broad and evidently shorter than 3rd (4th/3rd=0.75), 5th more than 1.5 times as long as broad, slightly shorter (5th/4th=0.92) and narrower (5th/4th=0.88) than 4th, 6th to 10th equal in both length and width to one another, each apparently longer than broad (length/width=1.43), slightly shorter than (each of 6th to 10th/5th=0.91) 5th, apicalmost fusiform, about twice as long as broad and 1.4 times as long as 10th, subacuminate at the tip.

Pronotum oblong, nearly parallel-sided in anterior half and slightly narrowed posteriad in posterior half, clearly longer than broad (length/width=1.40), evidently longer (pronotum/head=1.31) but slightly narrower (pronotum/head=0.94) than head; lateral sides very feebly arcuate in dorsal view, anterior margin broadly rounded though slightly emarginate at the middle, posterior margin subtruncate, anterior angles obtuse and not visible from above, posterior ones rounded; surface more closely and more strongly punctured than on head, bearing a narrow smooth longitudinal space at the middle through the length of pronotum. Scutellum subtriangular, sparsely covered with obscure setiferous punctures on the surface. Elytra subtrapezoidal, dilated posteriad, slightly longer than broad (length/width=1.06), apparently shorter (elytra/pronotum=0.86) but a little broader (elytra/pronotum=1.13) than pronotum; lateral sides very feebly arcuate; posterior margin emarginate at the middle; posterior angles broadly rounded; surface rather densely and roughly punctured all over, provided with a small depression behind scutellum. Legs moderately long, profemur remarkably thickened, though abruptly constricted near the apex and excavated in apical half on the inner face, so that the anterior part of the excavation forms a subtriangular blunt tooth; protibia dilated apicad, hollowed in basal half on the inner face and armed with five comb-like transverse rows of yellowish setae within the hollow; meso- and metatibiae normal; 1st to 4th protarsal segments strongly widened.

Abdomen elongate, slightly dilated to the 7th segment, and then abruptly narrowed from the 8th to anal end, 3rd to 7th tergites each transversely depressed along the base and moderately closely covered with fine superficial punctures, 8th tergite



Figs. 19–21. Male genital organ of *L.* (s. str.) *moritai* Y. WATANABE, sp. nov.; dorsal view (19), lateral view (20), and ventral view (21). Scale: 1.0 mm.

much more sparingly and more minutely punctured than on the preceding tergites; 8th sternite semicircularly excised at the middle of posterior margin and shallowly longitudinally depressed before the excision, 7th sternite also shallowly, broadly emarginate at the middle of posterior margin and depressed in the shape of a horseshoe in front of the emargination.

Genital organ nearly spindle-shaped. Median lobe apparently shorter than fused paramere, with ventral sclerite widest near the posterior fourth and abruptly narrowed apicad, the apex acutely pointed. Fused paramere asymmetrical, abruptly constricted near the middle and clearly tapered towards the pointed apex, apical half gently curved to the left in dorsal view.

Female. In facies resembles male, but the apical two abdominal sternites are simple.

Type series. Holotype, ♂, allotype, ♀, Mt. Jakuchi-san, Nishiki-chô, Kuga-gun, Yamaguchi Pref., Honshu, Japan, 22–IX–1981, S. MORITA leg. Paratype: 1 ♀, same data as for the holotype.

Distribution. Japan (western Honshu).

Bionomics. The type specimens were obtained from the upper hypogean zone in a broadleaved forest on Mt. Jakuchi-san at an altitude of about 1,000 m.

Etymology. The specific epithet of the present new species is given after Mr.

Seiji MORITA, who kindly supplied me with the type series.

要　約

渡辺泰明：日本から採集されたオオコバネナガハネカクシ種群に含まれる5新種（甲虫目，ハネカクシ科）．—— アリガタハネカクシ亜科に属するオオコバネナガハネカクシ種群は，現在まで日本から9種が知られ，西日本の主として地下浅層から，また一部の種は洞窟や廃鉱になった坑道からも発見されてきた．この種群は，後翅が退化している点では落ち葉の下などから採集されるコバネナガハネカクシ種群と共通しているが，体がより大型で，色彩は赤みが強く，翅鞘が幅広にならない点で後者から区別することができる．

私は手許に保有している本種群について検討を進めているが，その結果，未記載の5種を見出だすことができた．これらの5種は外部形態がたがいに酷似しているが，雄の腹板に表われる第二次性徴および雄交尾器の形状に明らかな差異が認められ新種と判断されたので，下記のとおり命名，記載した．

1. *Lathrobium* (s. str.) *tanakai* Y. WATANABE タナカコバネナガハネカクシ

本種は護摩壇山および奥千丈（大野谷）の地下浅層から得られたもので，*L.* (s. str.) *kishuense* に類似している．しかし頭部の幅は長さと同じで，前胸背板よりも狭いこと，雄の腹部第8腹板後縁中央の湾入は弱く，その前方に縦の平滑帯が存在すること，さらに雄交尾器の側葉が強く湾曲することで容易に区別できる．

2. *Lathrobium* (s. str.) *ohdaiense* Y. WATANABE オオダイコバネナガハネカクシ

大台原山の三津河落とナゴヤ谷の地下浅層から採集された本種は前種に類似しているが，雄の腹部第8腹板後縁中央はほぼ三角形に切りとられ，その前方の凹陥は弱く，平滑帯は認められず，雄交尾器の側葉はより細く，末端が強く上反することで区別できる．

3. *Lathrobium* (s. str.) *hikosanense* Y. WATANABE ヒコサンコバネナガハネカクシ

本種は九州の彦山の地下浅層から採集されたもので，前記2種に類似している．しかし雄の腹部第8腹板後縁中央の湾入部前方に認められる凹陥の末端中央には三角形の小さい平滑域が存在し，また雄交尾器中葉の腹板片は前記2種に比し後半部分が細まらないこと，さらに側葉はそれほど強く湾曲しないことで区別できる．

4. *Lathrobium* (s. str.) *daisensanum* Y. WATANABE ダイセンサンコバネナガハネカクシ

本種は四国の香川県大川山から採集されたもので，外観は前記3種に類似しているが，雄の腹部第8腹板後縁中央は深く湾入し，その前方の縦凹陥の両側には粗毛が存在していること，雄交尾器中葉の腹板片末端が裁断されること，さらに側葉後半が湾曲しないことで区別できる．

5. *Lathrobium* (s. str.) *moritai* Y. WATANABE モリタコバネナガハネカクシ

山口県の寂地山から採集された本種は，雄の腹部第8腹板後縁中央が半円形に湾入し，その前方は弱く平圧されている．また雄交尾器の形状は前記の4種とはいちじるしく異なり，側葉後半部は逆の方向に湾曲していることでただちに区別できる．

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——— 1986. Three new brachypterous *Lathrobium* (Coleoptera, Staphylinidae) from Japan. *Kontyû, Tokyo*, **54**: 688–696.

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Elytra, Tokyo, **26** (1): 98, May 15, 1998

New Records of Staphylinid Beetles (Coleoptera) from Kume-jima Island, the Ryukyus

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Only two species of staphylinid beetles, *Paederus fuscipes* (CURTIS) and *Phucobius densipennis* BERNHAUER, have hitherto been recorded from Kume-jima Island, the Ryukyus.

Through the courtesy of Dr. Hitoo ÔHIRA, Okazaki, some staphylinid beetles obtained on Kume-jima Island were offered to me. They contain four species, all of which are new to the fauna of this island, as recorded below. All the specimens were collected by Dr. H. ÔHIRA himself on May 1–3, 1996. I thank Dr. H. ÔHIRA for his kindness in giving me the specimens.

1. *Philonthus amicus* SHARP, 2 ♀♀.
2. *Philonthus lewisius* SHARP, 1 ♀.
3. *Philonthus rectangulus* SHARP, 6 ♂♂.
4. *Zyras optatus* SHARP, 1 ♀.

Reference

AZUMA, S., & M. KINJO, 1987. Staphylinidae. Check-list of the Insects of Okinawa (Flora and Fauna in Okinawa, No. 1), pp. 206–207. Biol. Soc. Okinawa, Nishihara.

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Elytra, *Tokyo*, **26** (1): 99–113, May 15, 1998

Contributions to the Knowledge of the Quediina (Coleoptera, Staphylinidae, Staphylinini) of China

Part 10. Genus *Quedius* STEPHENS, 1829. Subgenus *Raphirus* STEPHENS, 1829. Section 3

Aleš SMETANA

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Abstract Taxonomic data on the species of the genus *Quedius*, subgenus *Raphirus*, from the People's Republic of China are provided. Several species are described as new: *Q. pluvialis* (Sichuan), *Q. wassu* (Sichuan), *Q. puetzi* (Shaanxi), *Q. freyi* (Sichuan) and *Q. jindrai* (Sichuan). A key to all known species of the *multipunctatus* group of *Raphirus* is given.

This is the tenth of the series of papers dealing with the Quediina of the People's Republic of China. It includes the descriptions of five new species of the subgenus *Raphirus*. One of them (*Q. pluvialis*) is a rather isolated, conspicuous species, resembling by its habitus the species of the genus *Quetarsius* SMETANA, 1966 from Taiwan. The following three species belong to the *multipunctatus* group of species, and the last species, *Q. jindrai*, is a member of the *intricatus* group. A key to all known species of the *multipunctatus* group is given.

Quedius* (*Raphirus*) *pluvialis sp. nov.

(Figs. 1, 2)

Description. Piceous-black, dull; maxillary and labial palpi testaceo-brunneous, antennae brunneo-piceous with three basal segments paler, legs brunneo-piceous with somewhat paler tarsi, medial faces of middle and particularly hind tibiae blackened. Head of rounded quadrangular shape, wider than long (ratio 1.19), posterior angles entirely rounded, obsolete. Eyes large and convex, tempora considerably shorter than eyes seen from above (ratio 0.34); no additional setiferous punctures between anterior frontal punctures; posterior frontal puncture situated close to posterio-medial margin of eye, separated from it by distance about as large as diameter of puncture, one puncture between it and posterior margin of head (one additional puncture on left side); temporal puncture touching posterior margin of eye; tempora without punctures; sur-

face of head with dense, rather coarse microsculpture of small isodiametric meshes. Antenna long, segment 3 inconspicuously longer than segment 2 (ratio 1.11), following segments longer than wide, gradually becoming shorter, last segment almost as long as two preceding segments combined. Pronotum vaguely wider than long (ratio 1.09), widest at about middle with lateral margins somewhat flattened and subparallel-sided posteriorly, anteriorly distinctly narrowed toward anterior margin, broadly rounded basally, transversely convex, lateral portions not explanate; dorsal rows with two (left) or three (right) punctures; sublateral rows each with three punctures, posterior puncture situated at about level of large lateral puncture; microsculpture similar to that on head. Scutellum short, with several punctures on apical portion, surface with fine microsculpture of transverse waves. Elytra very short with apical margins markedly oblique toward suture, at base markedly narrower than pronotum at widest point, moderately widened posteriad, at suture considerably (ratio 0.52), at sides distinctly (ratio 0.75) shorter than pronotum at midline; punctation and pubescence fine and dense, punctures slightly asperate, transverse interspaces between punctures mostly about as large as diameters of punctures; pubescence piceous; surface between punctures with appreciable microscopical irregularities. Wings reduced to minute, non-functional stumps. Abdomen with tergite 7 (fifth visible) without whitish apical seam of palisade fringe; punctation of abdominal tergites finer than that on elytra, becoming somewhat sparser toward apex of each tergite and in general toward apex of abdomen; pubescence piceous; surface between punctures with exceedingly dense and fine microsculpture of transverse striae.

Female. First four segments of front tarsus slightly dilated, slightly subbilobed, each with modified pale setae ventrally; segment two narrower than apex of tibia (ratio 0.75); segment four narrower than preceding segments. Sternite 8 with one (medial) long seta on each side. Genital segment with second gonocoxites long and narrow, slightly curved, each with minute stylus bearing long seta (Fig. 1); tergite 10 narrowly pigmented medio-apically, apically rather abruptly narrowed into long, narrow, rod-like apical portion (Fig. 2).

Male unknown.

Length 8.8 mm.

Type material. Holotype (female): China: "CHINA Sichuan Emei Shan, Leidongping 2500 m, 16. VII. 1996 29°32′N 103°21′E C65" / "collected by A. Smetana, J. Farkač and P. Kabátek". In the SMETANA collection, Ottawa, Canada.

Geographical distribution. *Quedius pluvialis* is at present known only from Emei Shan in western Sichuan.

Bionomics. The holotype was taken in a mixed broadleaved/coniferous forest by sifting the mouldy debris and needles under a few piled branches of a relatively freshly felled *Abies* tree.

Recognition. *Quedius pluvialis* is a rather conspicuous species, due to the general habitus, with rather dull head and pronotum, the punctate scutellum, and the very short elytra with markedly oblique apical margins. It cannot be confused with any

other Chinese species of the genus.

Quedius pluvialis resembles, in general habitus, the two species of the genus *Quetarsius* SMETANA, 1996 from Taiwan. However, both species of *Quetarsius* differ easily by the pubescent last segment of both maxillary and labial palpus, and by the unique development of the patellate front tarsus in both sexes (see SMETANA, 1996, 26) for details.

Etymology. The specific epithet is the Latin adjective *pluvialis*, *-e* (rainy). It refers to the fact that the holotype was collected during the extended, incessant rain.

Quedius* (*Raphirus*) *wassu sp. nov.

(Figs. 3–9)

Description. Piceous-black, apex of abdomen inconspicuously paler; head, pronotum and elytra with greenish-bronze metallic lustre; abdomen distinctly iridescent; appendages testaceous. Head rounded, somewhat wider than long (ratio 1.18, markedly narrowed behind eyes, posterior angles entirely obsolete, indistinct; eyes very large and convex, tempora considerably shorter than eyes seen from above (ratio 0.22); clypeus with two shallow, inconspicuous impressions, surface of frons slightly uneven; seven to eight additional punctures between anterior frontal punctures, three additional punctures anterio-mediad and two to three posterio-mediad from posterior frontal puncture, all additional punctures fine; surface of head with fine and dense microsculpture of transverse and oblique waves with frequent longitudinal junctions, gradually changing to almost submeshed microsculpture on clypeus. Antenna moderately long, segments 2 and 3 subequal in length, segments 4–6 longer than wide, gradually becoming shorter, segments 7–10 about as long as wide, last segment as long as two preceding segments combined. Pronotum about as long as wide, widest at about posterior third, markedly narrowed anteriad, with lateral margins continuously arcuate with broadly rounded base; transversely convex, lateral portions not explanate; dorsal rows irregular, each with six punctures; sublateral rows each expanded into irregular, elongate group of seven or eight punctures; entire surface of pronotum with microsculpture of transverse and oblique waves, waves somewhat finer than those on head, gradually becoming even finer toward posterior and posterio-lateral margins. Scutellum impunctate, with fine microsculpture of transverse and oblique waves. Elytra moderately long, each with very narrow, smooth, slightly elevated strip along suture, at base slightly narrower than pronotum (ratio 0.90), at suture about as long as, at sides appreciably longer than pronotum at midline (ratio 1.25); punctation moderately coarse and dense, transverse interspaces between punctures mostly about as large as diameters of punctures; pubescence piceous; surface between punctures without microsculpture. Wings fully developed. Abdomen with tergite 7 (fifth visible) bearing fine whitish apical seam of palisade fringe; punctation and pubescence of abdominal tergites denser and markedly finer than that on elytra, almost evenly covering surface of each tergite, in general becoming somewhat sparser toward apex of abdomen; pu-

bescence piceous; surface between punctures with exceedingly dense and fine microsculpture of transverse striae.

Male. First four segments of front tarsus markedly dilated, each densely covered with long, modified pale setae ventrally; segment two about as wide as apex of tibia; segment four narrower than preceding segments. Sternite 8 with two long setae on each side, with narrow and deep, triangular medio-apical emargination, small triangular area before emargination flattened and smooth (Fig. 3). Genital segment with tergite 10 markedly narrowed toward subarcuate apex, with four strong apical setae and with one finer seta at each lateral margin in front of them (Fig. 4); sternite 9 with markedly differentiated basal portion, broadly arcuate apically, without differentiated apical or subapical setae (Fig. 5). Aedoeagus (Figs. 6–8) fairly large, elongate; median lobe evenly narrowed anteriad, anteriorly slightly more abruptly attenuated into sharp apex. Paramere large, robust, fusiform, with subacute apex not quite reaching apex of median lobe; four minute setae at apex and two longer setae at each lateral margin below apex; underside of paramere with numerous sensory peg setae, forming two irregular, elongate lateral groups below apex. Internal sac with spine-like structures, as in Fig. 8.

Female. First four segments of front tarsus considerably less dilated than those of male, vaguely sub-bilobed, each with less numerous modified pale setae ventrally; segment four only slightly narrower than preceding segments. Genital segment with second gonocoxites long and narrow, each with extremely minute stylus bearing one long, strong seta; tergite 10 narrow, narrowly pigmented medio-apically, markedly narrowed toward narrowly arcuate apex with four apical setae (Fig. 9).

Length 5.9–6.2 mm.

Type material. Holotype (male) and allotype (female): China: "Lungai 7.1934 2000 m Wassuland" / "W. Szechuan, China Sankiangkou leg. Friedrich". Holotype in

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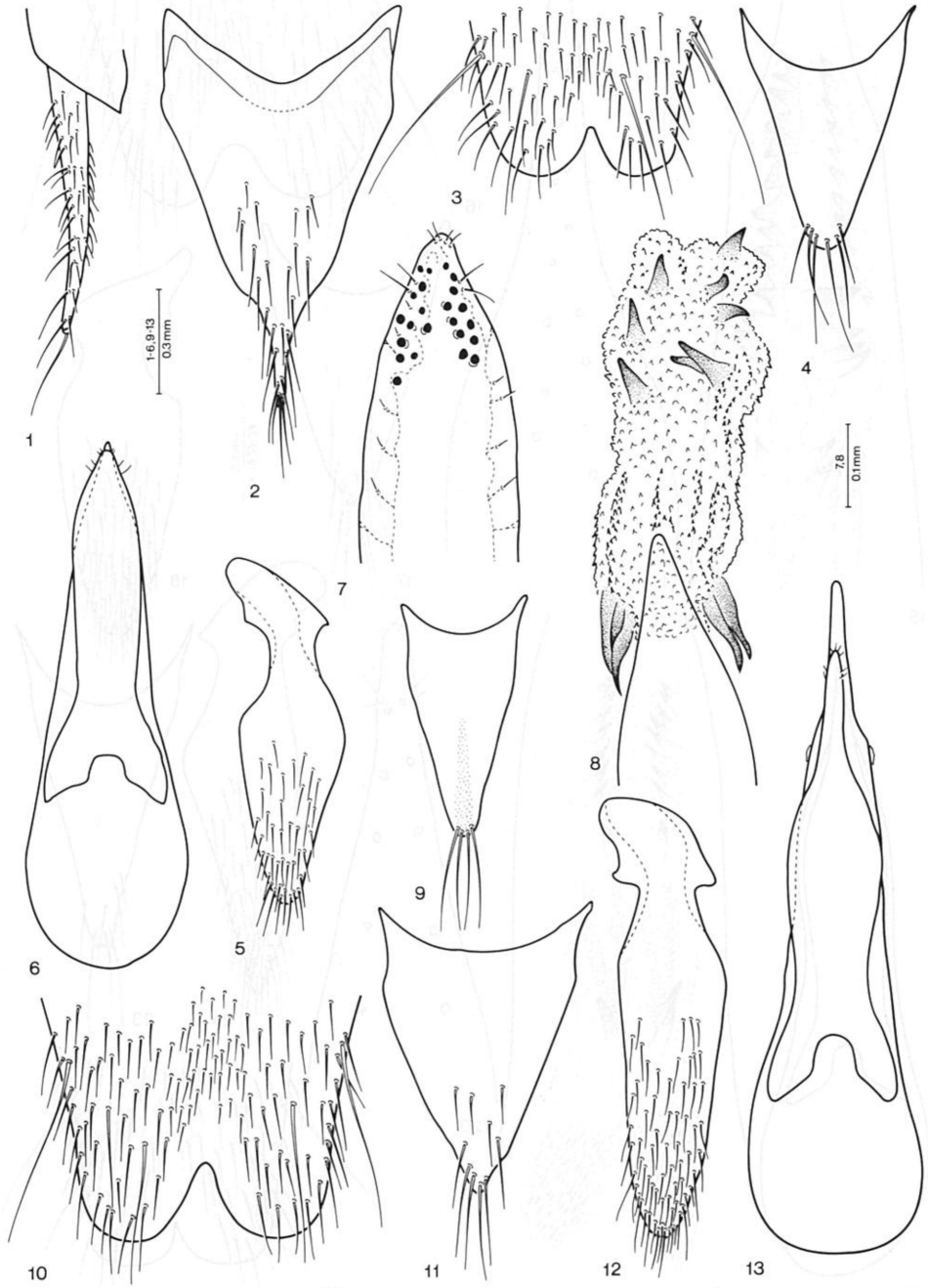
Figs. 1–13 (on p. 103). —— 1–2. *Quedius pluvialis*: 1, second gonocoxite of female genital segment; 2, tergite 10 of female genital segment. —— 3–9. *Quedius wassu*: 3, apical portion of male sternite 8; 4, tergite 10 of male genital segment; 5, sternite 9 of male genital segment; 6, aedoeagus, ventral view; 7, apical portion of underside of paramere; 8, evaginated internal sac of aedoeagus; 9, tergite 10 of female genital segment. —— 10–13. *Quedius puetzi*: 10, apical portion of male sternite 8; 11, tergite 10 of male genital segment; 12, sternite 9 of male genital segment; 13, aedoeagus, ventral view.

Figs. 14–24 (on p. 104). —— 14–15. *Quedius puetzi*: 14, apical portion of underside of paramere; 15: internal sac of aedoeagus. —— 16–21. *Quedius multipunctatus*: 16, apical portion of male sternite 8; 17, tergite 10 of male genital segment; 18, sternite 9 of male genital segment; 19, aedoeagus, ventral view; 20, apical portion of underside of paramere; 21, internal sac of aedoeagus. —— 22–25. *Quedius freyi*: 22, apical portion of male sternite 8; 23, tergite 10 of male genital segment; 24, sternite 9 of male genital segment.

Figs. 25–33 (on p. 105). —— 25–27. *Quedius freyi*: 25, aedoeagus, ventral view; 26, apical portion of underside of paramere; 27, evaginated internal sac of aedoeagus. —— 28–33. *Quedius jindrai*: 28, apical portion of male sternite 8; 29, tergite 10 of male genital segment; 30, sternite 9 of male genital segment; 31, aedoeagus, ventral view; 32, apical portion of underside of paramere; 33, internal sac of aedoeagus.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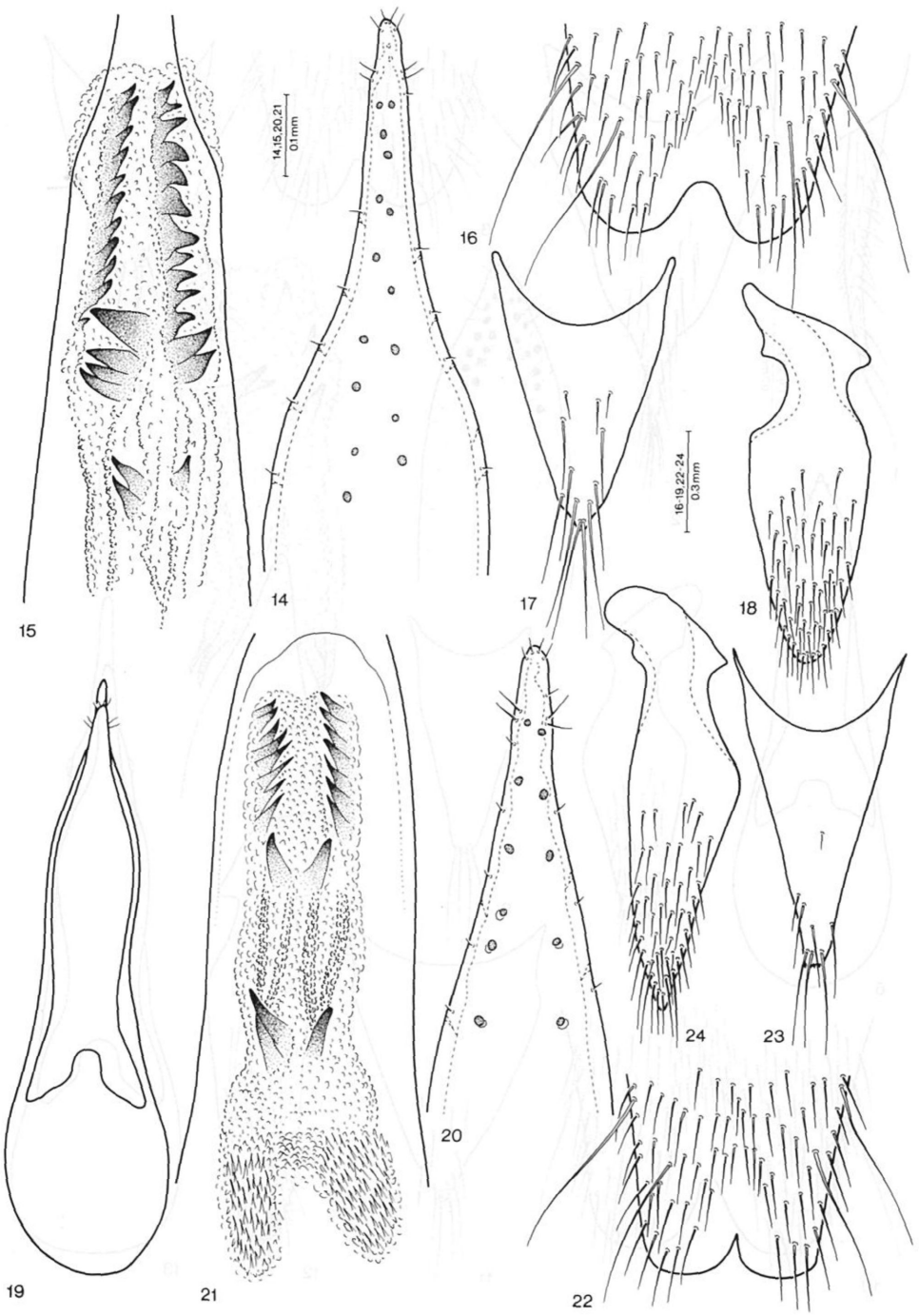
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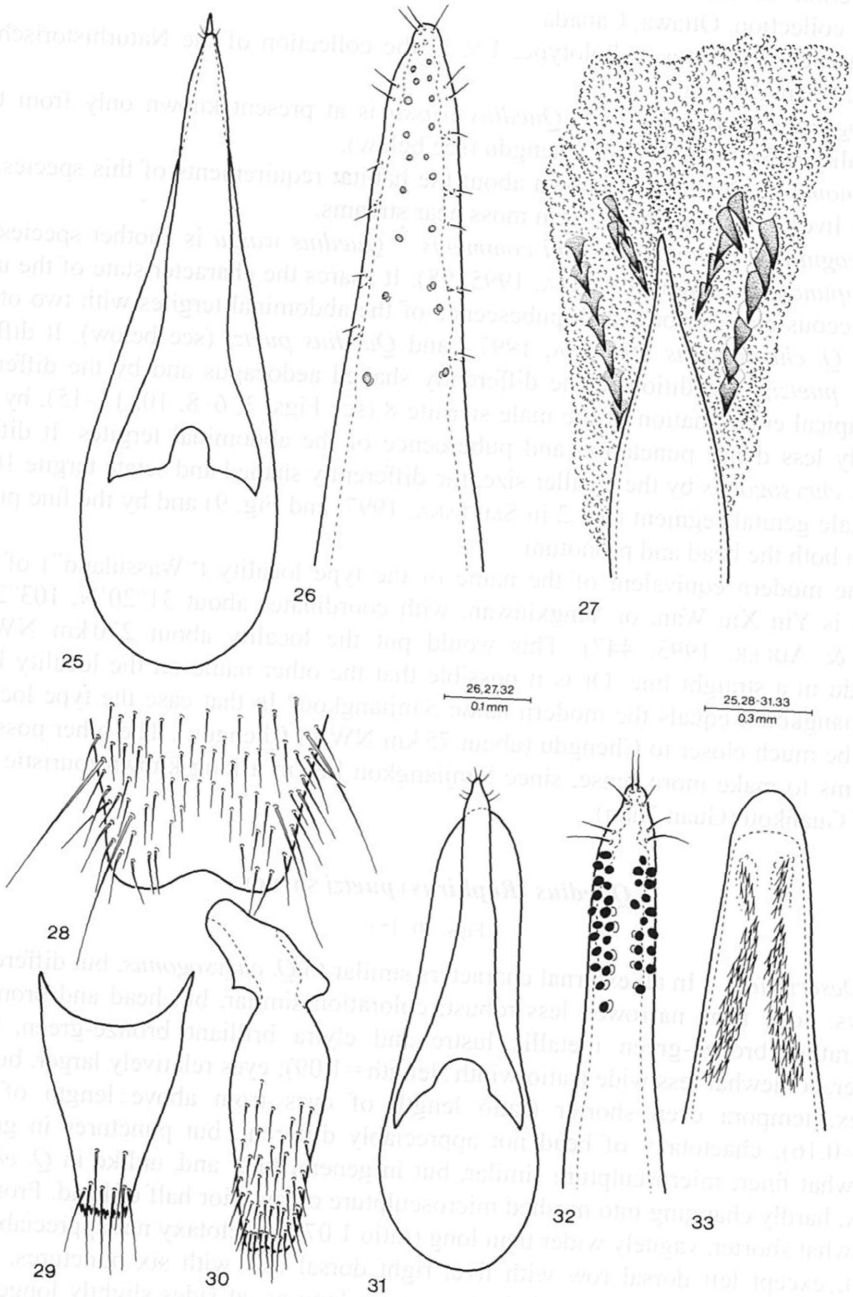
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the collection of the Naturhistorisches Museum, Wien, Austria. Allotype in the SMETANA collection, Ottawa, Canada.

Paratype: same data as holotype, 1 ♀, in the collection of the Naturhistorisches Museum, Wien, Austria.

Geographical distribution. *Quedius wassu* is at present known only from the type locality in Sichuan, NW of Chengdu (see below).

Bionomics. Nothing is known about the habitat requirements of this species. It probably lives in moss on trees, or in moss near streams.

Recognition, comparisons and comments. *Quedius wassu* is another species of the *multipunctatus* group (SMETANA, 1995, 98). It shares the character state of the uniform, piceous-black or brownish pubescence of the abdominal tergites with two other species: *Q. chrysogonus* SMETANA, 1997 a and *Quedius puetzi* (see below). It differs from *Q. puetzi*, in addition to the differently shaped aedoeagus and by the different medio-apical emargination of the male sternite 8 (see Figs. 3, 6–8, 10, 13–15), by the distinctly less dense punctation and pubescence of the abdominal tergites. It differs from *Q. chrysogonus* by the smaller size, the differently shaped and setate tergite 10 of the female genital segment (fig. 2 in SMETANA, 1997, and Fig. 9) and by the fine punctures on both the head and pronotum.

The modern equivalent of the name of the type locality ("Wassuland") of this species is Yin Xiu Wan, or Yingxiuwan, with coordinates about 31°20′N, 103°20′E (ZHAO & ADLER, 1993, 447). This would put the locality about 270 km NW of Chengdu in a straight line. Or is it possible that the other name on the locality label ("Sankiangkou") equals the modern name Sanjiangkou? In that case the type locality would be much closer to Chengdu (about 75 km NW of Chengdu). The other possibility seems to make more sense, since Sanjiangkou lies in a long known touristic area SW of Guankou (Guan Xian).

Quedius* (*Raphirus*) *puetzi sp. nov.

(Figs. 10–15)

Description. In all external characters similar to *Q. chrysogonus*, but different as follows: body form narrower, less robust; coloration similar, but head and pronotum with rather bronze-green metallic lustre and elytra brilliant bronze-green. Head smaller, somewhat less wide (ratio width : length = 1.09); eyes relatively larger, but less convex, tempora even shorter (ratio length of eyes from above : length of tempora = 0.16); chaetotaxy of head not appreciably different, but punctures in general somewhat finer; microsculpture similar, but in general finer and, unlike in *Q. chrysogonus*, hardly changing into meshed microsculpture on anterior half of head. Pronotum somewhat shorter, vaguely wider than long (ratio 1.07); chaetotaxy not appreciably different, except left dorsal row with five, right dorsal row with six punctures. Elytra shorter, scarcely widened posteriad, at suture as long as, at sides slightly longer than pronotum at midline (ratio 1.12); punctation of similar type, but in general somewhat

denser. Abdomen with punctation of tergites finer and distinctly denser; pubescence fine, uniform, dark brownish; microsculpture of transverse striae on surface between punctures exceedingly fine and dense as usual, though appreciably coarser than that of *Q. chrysogonus*.

Male. First four segments of front tarsus markedly dilated, sub-bilobed, each densely covered with modified pale setae ventrally; segment two slightly wider than apex of tibia (ratio 1.14); segment four narrower than preceding segments. Sternite 8 with three (right side) or two (left side) large setae; with wide, deep, narrowly triangular medio-apical emargination, small triangular area before emargination flattened and smooth (Fig. 10). Genital segment with tergite 10 rather narrowly triangular, markedly narrowed toward acute apex, with several setae at and near apex (Fig. 11); sternite 9 with basal portion of characteristic shape, apical portion gradually narrowed toward narrowly arcuate apex, with numerous setae on apical half, without differentiated apical or subapical setae (Fig. 12). Aedoeagus (Figs. 13–15) elongate and narrow; median lobe with lateral margins at about apical third slightly, but distinctly, expanded and from there attenuate into very long and slender, rod-like apical portion. Paramere elongate, arcuately widened in middle portion, anteriorly gradually narrowed into slender, rod-like apical portion, far short of reaching apex of median lobe; four minute setae at apex, two somewhat longer setae at each lateral margin below apex; sensory peg setae on underside of paramere not numerous (15), not entirely pigmented, located on apical portion of paramere more or less medially, as shown in Fig. 14. Internal sac with sclerites as in Fig. 15.

Female unknown.

Length 7.6 mm.

Type material. Holotype (male): China: "China: Shaanxi, Qin Ling Shan 110.06 E, 34.25 N Hua Shan Mt., S.-top, 1950–2000 m Forrest, sifted 19. 08. 1995, leg. A. Pütz". In the A. PÜTZ collection, Eisenhüttenstadt, Germany (to be eventually incorporated into the collection of the Deutches Entomologisches Institut, Eberswalde).

Geographical distribution. *Quedius puetzi* is at present known only from the type locality in the east-central portion of Shaanxi province.

Bionomics. The holotype was apparently sifted from forest floor debris, but no details are known.

Recognition, comparisons and comments. *Quedius puetzi* is another member of the *multipunctatus* group. In addition to the characters on the aedoeagus, it differs from all of them, except *Q. chrysogonus*, by the fine and uniformly dark brownish pubescence of the abdominal tergites (see SMETANA, 1997 a, 133 for details); the differences from *Q. chrysogonus* are given above.

The male sexual characters of *Q. puetzi* are similar to those of *Q. multipunctatus*, but in the latter species the medio-apical emargination of male sternite 8 is wider and more rounded, tergite 10 and sternite 9 of the male genital segment are differently shaped, the paramere of the aedoeagus reaches closer to the apex of median lobe, the sensory setae on underside of paramere are less numerous (9–11) and are located

closer to the lateral margins of the paramere, and the internal sac is different (Figs. 10–15, 16–21).

Quedius (*Raphirus*) *freyi* sp. nov.

(Figs. 22–27)

Description. In all characters very similar to *Q. bih* SMETANA, 1995, but different as follows: head and pronotum metallic bluish-green, elytra dark metallic green. Head slightly wider (ratio width : length = 1.18), punctures on head finer and more numerous, particularly on posterior half; dorsal surface with microsculpture finer and more superficial, almost meshed on anterior half. Pronotum with punctures in general finer, dorsal rows irregular, with seven (left) or six (right) punctures; sublateral rows each expanded into a group of 9–11 punctures; microsculpture appreciably finer and denser than that on head, distinctly finer than that of *Q. bih*. Punctation of elytra similar to that of *Q. bih*, but somewhat rougher. Punctation and pubescence of abdominal tergites finer, becoming more distinctly sparser toward apex of abdomen, pubescence rather reddish-brown, not appearing golden.

Male. First four segments of front tarsus markedly dilated, sub-bilobed, each densely covered with modified pale setae ventrally; segment two slightly wider than apex of tibia (ratio 1.13); segment four narrower than preceding segments. Sternite 8 with two long setae on each side, with very narrow and rather deep, acute medio-apical emargination, minute triangular area before emargination flattened and smooth (Fig. 22). Genital segment with tergite 10 rather narrow, tapered into narrow, fimbriate apex, with three setae at and near apex, and with a few finer setae in front of them (Fig. 23); sternite 9 fairly wide, markedly narrowed toward subacute apex (Fig. 24); styli of tergite 10 with numerous strong, long setae. Aedoeagus (Figs. 25–27) similar to that of *Q. bih*, but median lobe more conspicuously, almost conically narrowed anteriad, its very acute apex only slightly exceeding apex of paramere; paramere of slightly different shape, anteriorly not markedly narrowed, covering most of apical portion of median lobe; three minute setae at apex, two similar setae at each lateral margin below apex; sensory peg setae on underside of paramere arranged in way similar to those of *Q. bih*, but more numerous and somewhat finer; internal sac with two pairs of sclerites similar to those of *Q. bih*.

Female unknown.

Length 6.1 mm.

Type material. Holotype (male): China: "Lungai 7.1937 2000 m Wassuland" / "W. Szechuan, China Sankiangkou leg. Friedrich". In the collection of the Naturhistorisches Museum, Wien, Austria.

Geographical distribution. *Quedius freyi* is at present known only from the type locality in Sichuan NW of Chengdu (see comments under *Q. wassu*).

Bionomics. Nothing is known about the habitat requirements of this species, but it may live in moss on fallen trees, just like *Q. bih*.

Recognition and comments. *Quedius freyi* may be readily distinguished from *Q. bih* by the characters given above, particularly by the different medio-apical emargination of the male sternite 8, and by the differently shaped aedoeagus. In addition, both species are widely separated geographically, since *Q. bih* is known only from northern and central Taiwan (see SMETANA, 1995, 102).

For the modern equivalent and further discussion of the type locality of this species, see the corresponding paragraph under *Q. wassu*.

Etymology. Patronymic, the species was named in memory of the late consul Georg FREY, Tutzing bei München, Germany, in recognition of his outstanding support of the taxonomy of Coleoptera.

Since the *multipunctatus* group now contains ten species, all occurring in eastern and southeastern Asia, it seems to be practical to present a key for their identification:

1. Pubescence of abdominal tergites uniform, dark brownish or piceous-black. 2
— Pubescence of abdominal tergites not quite uniform, bearing some golden, golden-yellowish, brownish-golden or brownish-red hairs, intermixed or forming definite patches. 4
2. Punctation and pubescence of abdominal tergites moderately dense and fine. Elytra fairly long, at suture no more than as long as, at sides about 1.25 as long as pronotum at midline. 3
— Punctation and pubescence of abdominal tergites very dense and fine. Elytra short, at suture as long as, at sides slightly longer than pronotum at midline (ratio 1.12). Dorsal rows on pronotum each with five or six punctures. Aedoeagus as in Figs. 13–15. Length 7.6 mm. China: Shaanxi province. . . . . *Q. puetzi* sp. nov.
3. Punctures on head and pronotum coarse. Dorsal rows on pronotum each with seven punctures. Elytra brilliant metallic dark green. Tergite 10 of female genital segment with six rather long setae at and near apical margin, and with some additional setae on medio-apical portion (fig. 2 in SMETANA, 1997). Size larger: 8 mm. Male unknown. China: southern Yunnan province. . . . . *Q. chrysogonus* SMETANA, 1997 a
— Punctures on head and pronotum fine. Dorsal rows on pronotum each with six punctures. Elytra metallic greenish-bronze. Tergite 10 of female genital segment with four rather long apical setae, additional setae missing (Fig. 9). Length 5.9–6.2 mm. China: Sichuan province. . . . . *Q. wassu* sp. nov.
4. Clypeus of head distinctly, coarsely punctate. Dorsal surface of head posterio-mediad of each eye with very coarse and deep, almost rugose punctation. Length 6.6 mm. North Vietnam: Lai Chau province. . . . . *Q. xeno* SMETANA, 1997 b
— Clypeus of head impunctate, or with only very fine, inconspicuous, sparse punctures. Dorsal surface of head posterio-mediad of each eye with variably developed punctures, never appearing as almost rugose punctation. 5
5. Abdominal tergite 7 (fifth visible) with whitish apical seam of palisade fringe. . . . 6
— Abdominal tergite 7 (fifth visible) without whitish apical seam of palisade fringe.

Aedoeagus as in figs. 219–221 in SMETANA, 1995. Length 5.9–6.2 mm. Taiwan. ..... *Q. yann* SMETANA, 1955

6. Middle portion of pronotum and entire scutellum without microsculpture. Head, pronotum and elytra dark metallic bluish-purple metallic. Aedoeagus as in figs. 204–206 in SMETANA, 1995. Length 5.7–5.9 mm. .... *Q. huann* SMETANA, 1995

— Entire surface of head, pronotum and scutellum with microsculpture. Head, pronotum and elytra pale metallic bronze-green, or metallic dark green to green-blue. 7

7. Punctation of abdominal tergites sparse on first two visible tergites and becoming even sparser toward apex of abdomen. Pubescence of abdominal tergites dark in middle but becoming golden-yellowish toward lateral portion of each tergite. Aedoeagus as in figs. 225–227 in SMETANA, 1988. Length 6.8–7.5 mm. Himalaya (Nepal). ..... *Q. hariyo* SMETANA, 1988

— Punctation of abdominal tergites dense, entire pubescence variegate-golden or brownish-red. Aedoeagi different (figs. 211, 212 in SMETANA, 1995, and Figs. 19–21, 25–27). 8

8. Elytra longer, at suture vaguely (ratio 1.05), at sides distinctly longer than pronotum at midline (ratio 1.20). Head, pronotum and elytra dark metallic greenish. Aedoeagus as in Figs. 19–21. Length 6.2–7.0 mm. Japan. ..... *Q. multipunctatus* SHARP, 1889

— Elytra shorter, at suture as long as, at sides slightly longer than pronotum at midline (ratios 1.10–1.12). Head, pronotum and elytra either pale metallic bronze-green, or head and pronotum metallic bluish-green and elytra dark metallic green. Aedoeagi different (figs. 211, 212 in SMETANA, 1995, and Figs. 25–27). 9

9. Male sternite 8 with fairly narrow and deep, narrowly arcuate medio-apical emargination (fig. 208 in SMETANA, 1995). Apex of median lobe considerably exceeding apex of paramere (fig. 211 in SMETANA, 1995). Pubescence of abdominal tergites golden, with some tendency to form indefinite patch of denser hairs on each side of each tergite. Length 6.0–6.6 mm. Taiwan. ..... *Q. bih* SMETANA, 1995

— Male sternite 8 with very narrow, rather deep and acute medio-apical emargination (Fig. 22). Apex of median lobe only slightly exceeding apex of paramere (Fig. 25). Pubescence of abdominal tergites rather reddish-brown, not appearing golden. Length 6.1 mm. ..... *Q. freyi* sp. nov.

Quedius* (*Raphirus*) *jindrai sp. nov.

(Figs. 28–33)

Description. In all characters very similar to *Q. rugosus* CAMERON, 1921, but different as follows: head, pronotum and elytra dark metallic bluish, abdomen black, slightly iridescent; palpi, antennae and legs rufo-testaceous, medial faces of middle

and hind tibiae darkened. Head more rounded and more distinctly narrowed behind eyes, less distinctly wider than long (ratio 1.15); eyes slightly more convex, tempora somewhat longer than in *Q. rugosus*, although still considerably shorter than eyes seen from above (ratio 0.24); punctation of dorsal surface of head in general less dense, impunctate area on vertex larger than in most specimens of *Q. rugosus*, clypeus entirely impunctate. Pronotum vaguely wider than long (ratio 1.08), more distinctly narrowed anteriad, with basal margin more, almost semicircularly, rounded, and with lateral portions somewhat explanate posterio-medially; sculpture of pronotal surface similar, but punctures in general less numerous. Elytra somewhat longer, at suture slightly (ratio 1.13), at sides distinctly longer than pronotum at midline (ratio 1.32); sculpture of elytral surface similar to that of *Q. rugosus*, except rugae on middle portion of each elytron coarser than those of most specimens of *Q. rugosus*. Punctation of abdominal tergites similar to that of *Q. rugosus*, but distinctly sparser, particularly on basal portions of tergites.

Male. First four segments of front tarsus distinctly dilated, sub-bilobed, each densely covered with modified pale setae ventrally; segment two slightly narrower than apex of tibia (ratio 1.14); segment four narrower than preceding segments. Sternite 8 with two long setae on each side; with medio-apical emargination somewhat wider than that of *Q. rugosus*, small triangular area before emargination flattened and smooth (Fig. 28). Genital segment with tergite 10 strongly pigmented, narrowed toward broadly arcuate, fimbriate apex, with six strong setae before apex, and with two similar setae in front of them (Fig. 29); sternite 9 with markedly differentiated basal portion, apical portion with minutely notched apex, without any differentiated setae (Fig. 30). Aedoeagus (Figs. 31–33) similar to that of *Q. rugosus*, but median lobe shorter and stouter. Paramere somewhat longer, slenderer and more distinctly curved toward left side of median lobe, with apex distinctly exceeding apex of median lobe; with four minute setae at apex and two somewhat longer setae at each lateral margin below apex; underside of paramere with sensory peg setae forming two lateral, more elongate groups; internal sac with two conspicuous pairs of strongly sclerotized, spinose sclerites, distal pair considerably smaller and shorter than proximal pair (Fig. 33).

Female unknown.

Length 5.8–6.2 mm.

Type material. Holotype (male): China: "CHINA–SICHUAN 22. 6. 93 DAYI ENV. 110 km W CHENGDU Z. JINDRA LGT." In the SMETANA collection, Ottawa, Canada.

Paratype (male): "Lungai 7. 1934 2000 m Wassuland" / "W. Szechuan, China, Sankiangkou leg. Friedrich". In the collection of the Naturhistorisches Museum, Wien, Austria.

Geographical distribution. *Quedius jindrai* is at present known from two localities in western Sichuan, separated by only about 40 linear km in a north-south direction.

Bionomics. Nothing is known about the collection circumstances of the speci-

mens of the original series; however, they were very likely collected from wet moss on large rocks or fallen trees in or near creeks, a typical habitat of the species of the *intricatus* group of species.

Recognition and comparisons. *Quedius jindrai* belongs to the *intricatus* group (see SMETANA, 1995, 103). It differs from *Q. rugosus* (Himalaya, northern Burma) by the characters given above. *Q. intricatus* FAUVEL, 1895 (Burma) differs by the punctate middle portion of the neck and by the scutellum bearing punctures situated in coarse transverse depressions. The two Taiwanese species of the group, *Q. kurosawai* SHIBATA, 1986 and *Q. taiwanensis* SHIBATA, 1986, differ, in addition to the sexual characters, particularly the different shape of the median lobe and the paramere, and by the distinctly denser punctation on the head and particularly on the pronotum. *Quedius taiwanensis* differs also by the predominantly dark appendages.

Etymology. Patronymic, the species was named for the collector of the holotype, Mr. Z. JINDRA, Prague, Czech Republic.

Acknowledgments

My colleagues Y. BOUSQUET and A. DAVIES, Agriculture and Agri-Food Canada, Research Branch, Ottawa, commented on the original draft of this manuscript. Mr. Go SATO from the same establishment inked the line drawings. Their assistance was greatly appreciated.

The holotype of *Q. jindrai* was submitted for study by Mr. M. KOCIAN, Prague, Czech Republic, who kindly allowed me to keep it in my collection. His consideration is gratefully acknowledged.

要　約

A. SMETANA：中国産ツヤムネハネカクシ亜族に関する知見．10．ツヤムネハネカクシ属 *Raphirus* 亜属の3．—— 中国の四川省と陝西省から，*Raphirus* 亜属のツヤムネハネカクシ5新種を記載し，それぞれ *Q. pluvialis*, *Q. wassu*, *Q. puetzi*, *Q. freyi* および *Q. jindrai* と命名した．また，この亜属の *multipunctatus* 種群に属する種のすべてを，検索表に示した．

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A New *Titanocarabus* (Coleoptera, Carabidae) Discovered from Beijing, China

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and

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In the summer of 1997, a short series of *Carabus* specimens were collected by Mr. H.-S. ZHOU (Chinese Academy of Sciences) from the western part of Beijing City, and were submitted to us for study. The collection contained a large species with the facies very similar to that of *C. titanus*. However, the two species cannot be identical with each other because of strikingly different aedeagal features. The Beijing one must be new to science as described below.

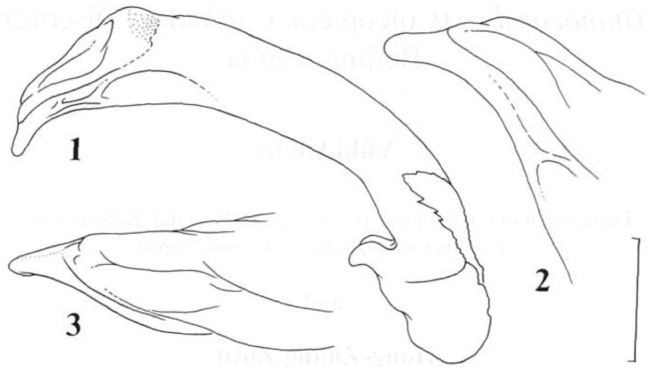
Carabus (*Titanocarabus*) *sui* IMURA et ZHOU, sp. nov.

(Figs. 1–3)

Length: 34.0–36.0 mm (including mandibles). Entirely black, though bearing weak purplish bronze tinge on elytra. Very similar to *C.* (*T.*) *titanus*, but differs from that species in the following respects: 1) antennae narrower, with the thiridium recognised from segment 5 to 9 far more shallowly concave; 2) pronotum with the lateral sides a little less remarkably margined; 3) elytra a little robuster, with each interval a little more strongly crenulate; 4) aedeagus markedly different in shape as shown in Figs. 1–3, which is the most noticeable diagnostic character of the new species , *e.g.*, apical portion not bearing any lateral process as in *C. titanus*.

Type series. Holotype: ♂, Xiaolongmen [小龙门] in Mentougou [门头沟], western part of Beijing City, China, 19~22–VII–1997, Hai-Sheng ZHOU leg., to be preserved in the collection of the Institute of Zoology, Chinese Academy of Sciences, Beijing. Paratypes: 1 ♂, 1 ♀ (allotype), same data as for the holotype.

Notes. Judging from the DNA sequences observed in the so-called *Oreocarabus* complex (particulars of which will be reserved until the next paper by IMURA *et al.*), we adopt here the subgenus *Titanocarabus* for the new species, which is named after Dr. Zhi-Hui SU of JT Biohistory Research Hall, Osaka.



Figs. 1–3. Aedeagus of *Carabus* (*Titanocarabus*) *sui* sp. nov.; 1, right lateral view; 2, apical part in the same view; 3, ditto in dorsal view. Scale: 2 mm for 1, 1 mm for 2 & 3.

Elytra, *Tokyo*, **26** (1): 115–128, May 15, 1998

Taxonomic and Faunistic Contributions to the Knowledge of Palaearctic Quediina (Coleoptera, Staphylinidae, Staphylinini). Part 2

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Abstract Taxonomic and faunistic data on Palaearctic species of the genus *Quedius* are provided. *Quedius koltzei* EPPELSHEIM, 1887, *Q. mutilatus* EPPELSHEIM, 1888, *Q. annectens* SHARP, 1889, *Q. japonicus* SHARP, 1874 and *Q. lewisius* SHARP, 1874 are redescribed. Lectotypes are designated for *Q. mutilatus*, *Q. annectens*, *Q. japonicus* and *Q. lewisius*.

This is the second of the series of papers dealing with the Palaearctic Quediina (for the first paper see SMETANA, 1995 a). It deals with two species of the subgenus *Microsaurus* DEJEAN, 1833, one from the Russian Far East (*Q. koltzei* EPPELSHEIM, 1887) and the other from the vicinity of Lake Issyk-Kul in Kyrgyzstan (*Q. mutilatus* EPPELSHEIM, 1888). Three Japanese species of the subgenus *Distichalius* CASEY, 1915, *Q. annectens* SHARP, 1889, *Q. japonicus* SHARP, 1874 and *Q. lewisius* SHARP, 1874 are also treated. Lectotypes are designated for *Q. mutilatus*, *Q. annectens*, *Q. japonicus*, and *Q. lewisius*.

Quedius (*Microsaurus*) *koltzei* EPPELSHEIM

(Fig. 1)

Quedius koltzei EPPELSHEIM, 1887, 420; GRIDELLI, 1924, 24; COIFFAIT, 1978, 164.

Taxonomic notes. EPPELSHEIM (1887, 420) compared *Q. koltzei* to *Q. brevicornis* and *Q. ochripennis*. GRIDELLI (1924, 24) briefly redescribed this species, pointed out some of the diagnostic characters and confirmed the association with *Q. brevicornis*.

Quedius koltzei was described in detail by EPPELSHEIM (*l. c.*) and GRIDELLI (*l. c.*), therefore only some comments and the description of the female genital segment characters are given here. The species is quite distinctive by the chaetotaxy of the head and pronotum, by the red, coarsely punctate elytra, and by the distinctive tergite 10 of the female genital segment.

Both posterior frontal and temporal punctures on head situated distinctly closer to posterior margin of head than to posterior margin of eye. Surface of head bearing fine and dense microsculpture of transverse and oblique waves, intermixed with distinct,

sparse micropunctulation. Dorsal rows on pronotum each with two punctures; sublateral rows each with only one puncture, situated close to anterior margin of pronotum. Microsculpture on pronotum similar to that on head, but appreciably denser, micropunctulation finer and less noticeable. Punctation of elytra coarse and rather dense, transverse interspaces between punctures mostly about as large as diameters of punctures; pubescence rusty; surface between punctures shiny, without any microsculpture. Abdomen with tergite 7 (fifth visible) with very fine, whitish apical seam of palisade fringe; punctation and pubescence of abdominal tergites much finer than that on elytra, dense on first two visible tergites, becoming appreciably sparser toward apex of each tergite, and in general toward apex of abdomen; pubescence piceous.

Male unknown.

Female. First four segments of front tarsus distinctly dilated, sub-bilobed, each densely covered with modified pale setae ventrally; segment two about as wide as apex of tibia; segment four narrower than preceding segments. Genital segment with tergite 10 of rounded triangular shape with slightly differentiated apical portion, with medio-apical part pigmented, apex narrowly arcuate, with numerous, unequally long setae at and near apical margin, and with numerous, considerably finer setae on middle portion in front of them (Fig. 1).

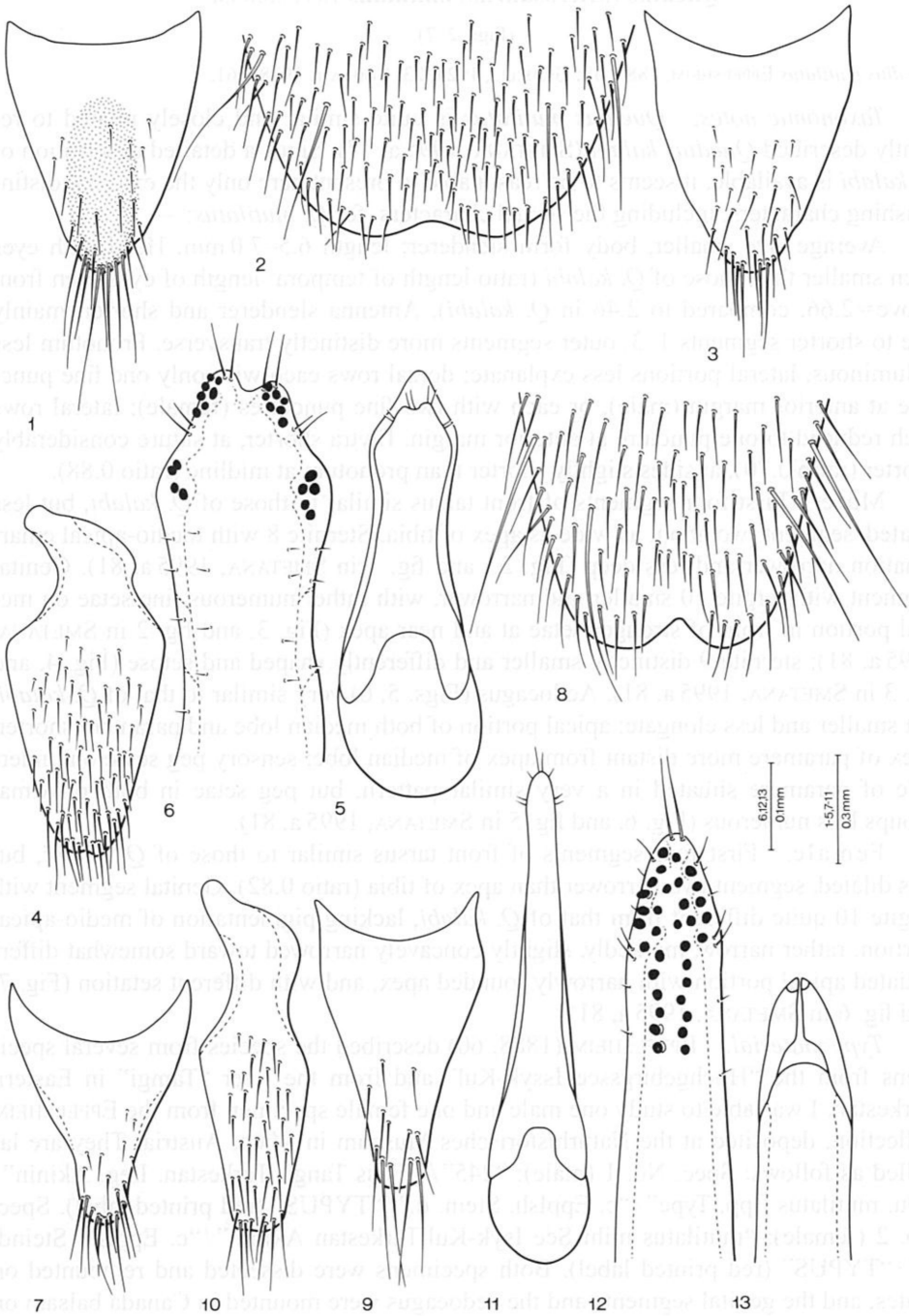
Length 7.7 mm.

Type material. EPPELSHEIM (1887, 420) described the species from a single female from "Chabarofka". The holotype is deposited in the EPPELSHEIM collection at the Naturhistorisches Museum in Wien, Austria. It is labelled as follows: "Ch." / "Koltzei mihi. Chabarofka Amur. Leg Graeser." / "c. Epplsh. Steind. d." / "TYPUS" (red printed label). The specimen was dissected and remounted on a plate, and the genital segment was mounted in Canada balsam on a transparent plate attached to the pin with the beetle. The specimen is in very good condition, but the left antenna is missing except for the first segment.

Geographical distribution. *Quedius koltzei* is, at present, known only from the Amur area of the Russian Republic, but it is likely much more widely distributed in the eastern portion of the Palaearctic region.

Comments. *Quedius koltzei* is not related to either of the west Palaearctic species mentioned above. The chaetotaxial characters on both the head and pronotum, seemingly relating it to the two species, are almost certainly just a convergence. The actual relationships of *Q. koltzei* must await the discovery of males of this species.

Figs. 1–13. —— 1. *Quedius koltzei*, tergite 10 of female genital segment. —— 2–7. *Quedius mutilatus*: 2, apical portion of male sternite 8; 3, tergite 10 of male genital segment; 4, sternite 9 of male genital segment; 5, aedoeagus, ventral view; 6, underside of apical portion of paramere; 7, tergite 10 of female genital segment. —— 8–13. *Quedius annectens*: 8, apical portion of male sternite 8; 9, tergite 10 of male genital segment; 10, sternite 9 of male genital segment; 11, aedoeagus, ventral view; 12, apical portion of underside of paramere; 13, apical portion of median lobe, paramere removed.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Quedius (*Microsaurus*) *mutilatus* EPPELSHEIM

(Figs. 2–7)

Quedius mutilatus EPPELSHEIM, 1888, 58; GRIDELLI, 1924, 23; COIFFAIT, 1978, 161.

Taxonomic notes. *Quedius mutilatus* is quite similar and closely related to recently described *Quedius kalabi* (SMETANA, 1995 a, 77). Since a detailed description of *Q. kalabi* is available, it seems to be reasonable to present here only the external distinguishing characters, including the sexual characters, for *Q. mutilatus*: —

Average size smaller, body form slenderer; length 6.5–7.0 mm. Head with eyes even smaller than those of *Q. kalabi* (ratio length of tempora: length of eyes seen from above=2.66, compared to 2.46 in *Q. kalabi*). Antenna slenderer and shorter, mainly due to shorter segments 1–3, outer segments more distinctly transverse. Pronotum less voluminous, lateral portions less explanate; dorsal rows each with only one fine puncture at anterior margin (male), or each with two fine punctures (female); lateral rows each reduced to one puncture at anterior margin. Elytra shorter, at suture considerably shorter (ratio 0.70), at sides slightly shorter than pronotum at midline (ratio 0.88).

Male. First four segments of front tarsus similar to those of *Q. kalabi*, but less dilated, segment two about as wide as apex of tibia. Sternite 8 with medio-apical emargination narrower and less deep (Fig. 2 , and fig. 1 in SMETANA, 1995 a, 81). Genital segment with tergite 10 smaller and narrower, with rather numerous fine setae on medial portion in front of stronger setae at and near apex (Fig. 3, and fig. 2 in SMETANA, 1995 a, 81); sternite 9 distinctly smaller and differently shaped and setose (Fig. 4, and fig. 3 in SMETANA, 1995 a, 81). Aedoeagus (Figs. 5, 6) very similar to that of *Q. kalabi*, but smaller and less elongate; apical portion of both median lobe and paramere shorter, apex of paramere more distant from apex of median lobe; sensory peg setae on underside of paramere situated in a very similar pattern, but peg setae in both proximal groups less numerous (Fig. 6, and fig. 5 in SMETANA, 1995 a, 81).

Female. First four segments of front tarsus similar to those of *Q. kalabi*, but less dilated, segment two narrower than apex of tibia (ratio 0.82). Genital segment with tergite 10 quite different from that of *Q. kalabi*, lacking pigmentation of medio-apical portion, rather narrow, markedly, slightly concavely narrowed toward somewhat differentiated apical portion with narrowly rounded apex, and with different setation (Fig. 7, and fig. 6 in SMETANA, 1995 a, 81).

Type material. EPPELSHEIM (1888, 60) described the species from several specimens from the "Hochgebirgssee Issyk-Kul" and from the river "Tamgi" in Eastern Turkestan. I was able to study one male and one female specimen from the EPPELSHEIM collection, deposited at the Naturhistorisches Museum in Wien, Austria. They are labelled as follows: Spec. No. 1 (male): "245" / "Fluss Tangi. Turkestan. Leg. Akinin" / "Qu. mutilatus Epp. Type" / "c. Epplsh. Stein. d." / "TYPUS" (red printed label). Spec. No. 2 (female): "mutilatus mihi See Isyk-Kul,Turkestan Akinin" / "c. Epplsh. Steind. d." / "TYPUS" (red printed label). Both specimens were dissected and remounted on plates, and the genital segments and the aedoeagus were mounted in Canada balsam on

transparent plates attached to the pins with the beetles. The specimens are in fair condition: the male specimen is missing the entire left antenna and the last two segments of the left hind tarsus. The female specimen is slightly teneral; it is missing the entire left antenna, and the head was originally separated from the rest of the body. The first (male) specimen is hereby designated as the lectotype of *Q. mutilatus*; the label "Lectotype Quedius mutilatus Eppelsheim A. Smetana des. 1997" has been attached to it.

Geographical distribution. *Quedius mutilatus* is at present known only from the vicinity of the lake Issyk-Kul in Kyrgyzstan.

Bionomics. Nothing is known about the habitat requirements of this species.

Comments. The two species *Q. kalabi* and *Q. mutilatus* are obviously two very similar and closely related species, as documented i.e. by the very similarly developed aedoeagus. In addition, they both come from the same general area around Lake Issyk-Kul. However, the differences given above, particularly the very different tergites 10 of the female genital segments (Fig. 7 and fig. 6 in SMETANA, 1995 a, 81) leave little doubt that two different taxa are involved.

The two species may perhaps be separated ecologically. *Quedius kalabi* is known from the northwestern slopes of the Terskey Alatau Khrebet of the Tian Shan massive from elevations up to 3,500 m, whereas *Q. mutilatus* may have been collected at the lake (elevation just above 1,500 m).

When describing *Q. kalabi*, I compared the species to the Himalayan *Q. dui* SMETANA, 1988 from Punjab. At that time I only knew *Q. mutilatus* from the original description and the additional comments by GRIDELLI (1924, 23), and neither provided enough information to suggest the possible relationship of *Q. kalabi* to *Q. mutilatus*.

Quedius (*Distichalius*) *annectens* SHARP, 1889

(Figs. 8–13)

Quedius annectens SHARP, 1889, 32; GRIDELLI, 1924, 78.

Description. Piceous-black with black head, elytra rufo-testaceous, with common, dark longitudinal stripe on suture, and, in addition, each with dark longitudinal lateral stripe on about apical third, not reaching apical margin of elytron, but extended on epipleuron to about basal third; sutural stripe extended along sides of scutellum to elytral base, but distinctly not reaching apex of elytra; abdominal tergites each with apical margin narrowly paler; head and pronotum vaguely, abdomen markedly iridescent; maxillary and labial palpi testaceo-rufous, antennae testaceo-rufous, vaguely darkened toward apex; legs rufo-testaceous, medial faces of all tibiae distinctly darkened. Head of rounded shape, slightly wider than long (ratio 1.13), markedly narrowed behind eyes, posterior angles entirely obsolete, indistinct; eyes large and convex, tempora considerably shorter than eyes seen from above (ratio 0.36); two additional setiferous punctures between anterior frontal punctures; both posterior frontal and temporal punctures situated quite close to posterior margin of eye, almost touching it, two punc-

tures behind posterior frontal puncture at posterior margin of head; surface of head with very fine and dense microsculpture of transverse waves. Antenna moderately long, segment 3 slightly longer than segment 2 (ratio 1.26), segments 4–6 longer than wide, gradually becoming shorter, outer segments about as long as wide, last segment as long as two preceding segments combined. Pronotum about as long as wide, widest at about posterior third, markedly narrowed anteriad, with broadly rounded base; transversely convex, lateral portions not explanate; dorsal rows each with three punctures (rarely with four punctures unilaterally); sublateral rows each with three punctures, posterior puncture situated behind level of large lateral puncture (posterior puncture sometimes missing unilaterally); microsculpture similar to that on head, but somewhat denser. Scutellum impunctate, with very fine microsculpture of transverse waves. Elytra moderately long, at base slightly narrower than pronotum at widest point (ratio 0.86), only vaguely widened posteriad; at suture about as long as, at sides somewhat longer than pronotum at midline (ratio 1.19); each elytron extremely finely, sparingly punctate and with three irregular, longitudinal rows of more or less coarse punctures, all bearing short stiff setae; epipleuron moderately finely and densely punctate, punctures extended on posterio-lateral portion of disc of each elytron; surface between elytral punctures without appreciable microsculpture, but with some microscopical irregularities, particularly near apical margin. Wings fully developed. Abdomen with tergite 7 (fifth visible) bearing fine, whitish apical seam of palisade fringe; punctation and pubescence of abdominal tergites fine and dense, becoming somewhat sparser toward apex of each tergite, and in general toward apex of abdomen; pubescence piceous-black; surface between punctures with exceedingly dense and fine microsculpture of transverse striae.

Male. First four segments of front tarsus markedly dilated, sub-bilobed, each densely covered with modified pale setae ventrally; segment two somewhat wider than apex of tibia (ratio 1.16); segment four narrower than preceding segments. Sternite 8 with two long setae on each side; with moderately wide and deep, subacutely triangular medio-apical emargination, small triangular area before emargination flattened and smooth (Fig. 8). Genital segment with tergite 10 moderately narrow, markedly narrowed toward subarcuate apex, with four differentiated subapical setae and with some shorter setae in front of them (Fig. 9); sternite 9 with short basal portion, subtruncate apically, without appreciably differentiated apical or subapical setae (Fig. 10). Aedoeagus (Figs. 11–13) elongate and narrow; median lobe gradually, vaguely narrowed toward moderately long, split apical portion. Paramere very long and narrow, subparallel-sided, almost entirely covering median lobe, slightly exceeding apex of median lobe; two fine setae at apex, one minute seta at each lateral margin below apex, two similar setae at each lateral margin well below apex; sensory peg setae on underside of paramere very numerous, forming solid apical field, extended posteriad as two more or less irregular, longitudinal medial rows; internal sac without larger sclerotized structures.

Female not available for study.

Length 6.2–7.0 mm.

Type material. SHARP (1889, 32) described the species from five specimens taken at Miyanoshita, Japan. I was able to study one male from the original series from the SHARP collection at the British Museum (Natural History), London. It is labelled as follows: "Quedius annectens. Type DS. Miyanoshita. Lewis." (on the plate with the beetle)/"Type" (round label with red margin)/"Japan. G. Lewis"/"Sharp Coll. 1905-313". The specimen was received dissected, with the aedoeagus (paramere separated) and the genital segment glued to the plate with the beetle. The dissected parts were mounted into Canada balsam on a transparent plate attached to the pin with the beetle; the specimen is intact. It is hereby designated as the lectotype of *Q. annectens*; the label: "Lectotype Quedius annectens Sharp A. Smetana des. 1997" has been attached to it.

Additional material studied. [JAPAN]: Honshu, Chiba, Ootaki-cho, Kaisho, 170 m, 20–VII–91, A. SMETANA, 1 ♂, in the SMETANA collection, Ottawa.

Geographical distribution. *Quedius annectens* is known to me at present only from the above two localities in Honshu. SHIBATA (1984, 130) recorded the species from Honshu and Shikoku.

Bionomics. The specimen from Chiba Prefecture was collected in an old mixed forest by sifting accumulated leaf litter and other debris along a trail.

Recognition and comments. *Quedius annectens* may be easily distinguished from similar *Q. japonicus*, in addition to the secondary sexual characters and the differences on the aedoeagus, by the coloration of the elytra alone (the dark lateral stripe is missing in *Q. japonicus*).

Quedius* (*Distichalius*) *japonicus SHARP, 1874

(Figs. 14–20)

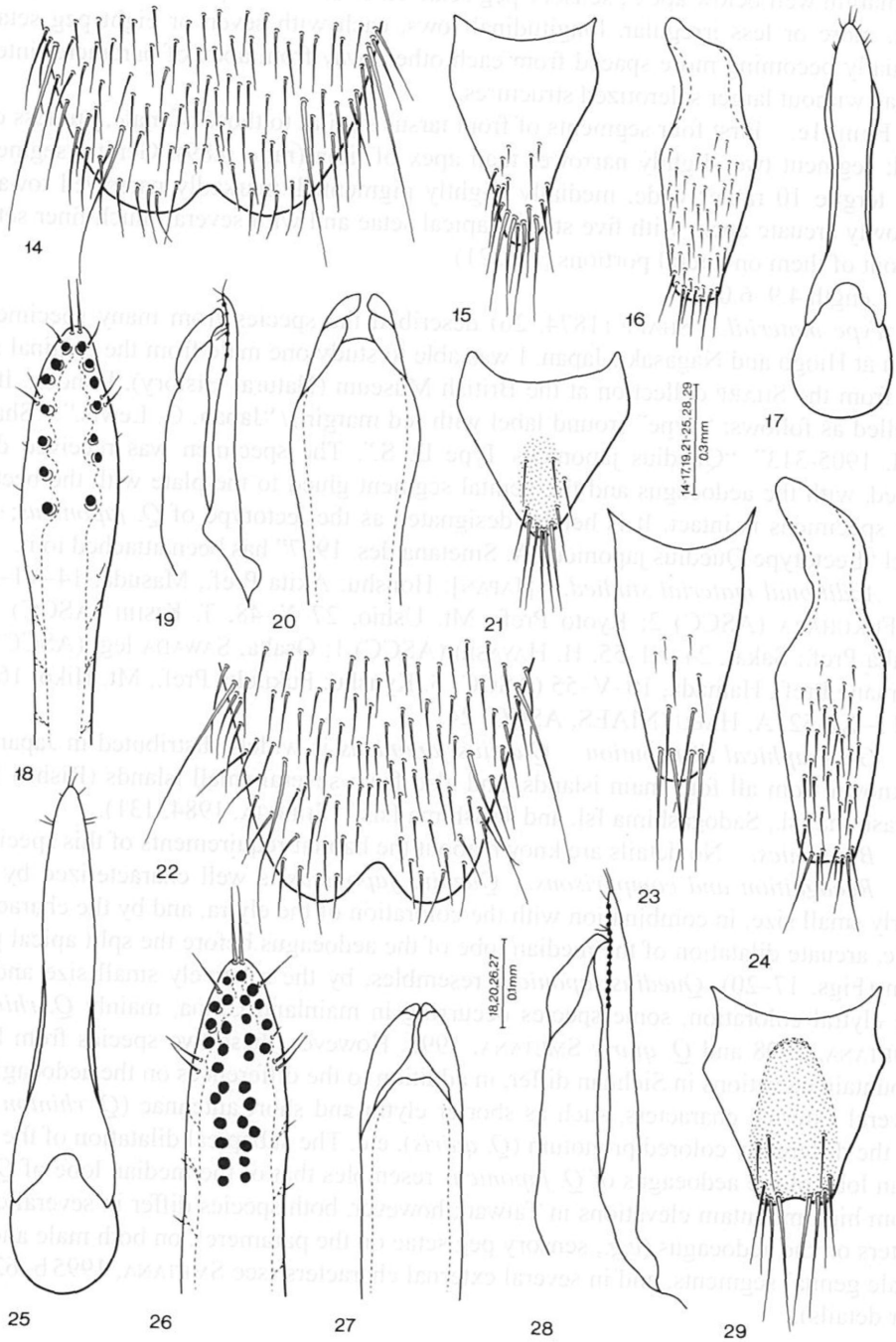
Quedius japonicus SHARP, 1874, 26.

Description. Piceous-black with black head or entirely black, elytra reddish-testaceous, sometimes vaguely, indefinitely darkened at suture, darkening gradually fading toward apical margin; abdominal tergites each with apical margin narrowly paler; head and pronotum vaguely, abdomen markedly iridescent; maxillary and labial palpi brown to dark brown, antennae brownish to piceous-brown; legs brown, medial faces of all tibiae distinctly darkened. Head of rounded shape, slightly wider than long (ratio 1.15), distinctly narrowed behind eyes, posterior angles entirely obsolete, indistinct; eyes large and convex, tempora considerably shorter than eyes seen from above (ratio 0.47); two additional setiferous punctures between anterior frontal punctures; both posterior frontal and temporal punctures situated close to posterior margin of eye, separated from it by distance about equal to diameter of puncture, two punctures behind posterior frontal puncture at posterior margin of head; surface of head with very fine and dense microsculpture of transverse waves. Antenna moderately long, segment 3

vaguely longer than segment 2 (ratio 1.20), segments 4 and 5 slightly longer than wide, segment 6 about as long as wide, outer segments vaguely wider than long, last segment as long as two preceding segments combined. Pronotum slightly wider than long (ratio 1.12), widest at about posterior third, markedly narrowed anteriad, with broadly rounded base; transversely convex, lateral portions not explanate; dorsal rows each with three punctures (rarely with four punctures unilaterally), sublateral rows each with two punctures (rarely with three punctures unilaterally), posterior puncture situated behind level of large lateral puncture; microsculpture similar to that on head, but slightly denser. Scutellum impunctate, with very fine microsculpture of transverse waves. Elytra relatively long, at base somewhat narrower than pronotum at widest point (ratio 0.90), only vaguely widened posteriad; at suture slightly (ratio 1.12), at sides distinctly longer than pronotum at midline (ratio 1.30); each elytron extremely finely, sparingly punctate and with three irregular, longitudinal rows of rather coarse punctures, all bearing short stiff setae; epipleuron finely, moderately densely punctate and pubescent; surface between punctures without appreciable microsculpture, but with some microscopical irregularities. Wings fully developed. Abdomen with tergite 7 (fifth visible) bearing fine, whitish apical seam of palisade fringe; punctation and pubescence of abdominal tergites fine and dense, becoming appreciably sparser toward apex of each tergite and in general toward apex of abdomen; pubescence piceous-black; surface between punctures with exceedingly dense and fine microsculpture of transverse striae.

Male. First four segments of front tarsus markedly dilated, sub-bilobed, each densely covered with modified pale setae ventrally; segment two about as wide as apex of tibia; segment four narrower than preceding segments. Sternite 8 with two long setae on each side; with moderately wide and deep, obtusely triangular medio-apical emargination, small triangular area before emargination flattened and smooth (Fig. 14). Genital segment with tergite 10 markedly, concavely narrowed toward narrowly arcuate apex, with four subapical setae and with several finer setae in front of them (Fig. 15); sternite 9 with narrow and rather short basal portion, apical portion subtruncate apically, with two vaguely differentiated apical setae (Fig. 16). Aedoeagus (Figs. 17–20) narrow and elongate; median lobe distinctly, arcuately dilated apically before rather short, split apical portion. Paramere elongate and narrow, fusiform, with long attenuate middle portion and with apex slightly exceeding apex of median lobe; two fine setae at apex, one minute seta at each lateral margin below apex, two similar setae at each lat-

Figs. 14–29. —— 14–21. *Quedius japonicus*: 14, apical portion of male sternite 8; 15, tergite 10 of male genital segment; 16, sternite 9 of male genital segment; 17, aedoeagus, ventral view; 18, underside of apical portion of paramere; 19, apical portion of aedoeagus, lateral view; 20, apical portion of median lobe, paramere removed; 21; tergite 10 of female genital segment. —— 22–29. *Quedius lewisius*: 22, apical portion of male sternite 8; 23, tergite 10 of male genital segment; 24, sternite 9 of male genital segment; 25, aedoeagus, ventral view; 26, apical portion of underside of paramere; 27, apical portion of median lobe, paramere removed; 28, apical portion of aedoeagus, lateral view; 29, tergite 10 of female genital segment.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eral margin well below apex ; sensory peg setae on underside of paramere forming two short, more or less irregular, longitudinal rows, each with seven or eight peg setae, gradually becoming more spaced from each other away from apex of paramere; internal sac without larger sclerotized structures.

Female. First four segments of front tarsus similar to those of male, but less dilated; segment two slightly narrower than apex of tibia (ratio 0.89). Genital segment with tergite 10 rather wide, medially slightly pigmented, markedly narrowed toward narrowly arcuate apex; with five strong, apical setae and with several much finer setae in front of them on lateral portions (Fig. 21).

Length 4.9–6.0 mm.

Type material. SHARP (1874, 26) described the species from many specimens taken at Hiogo and Nagasaki, Japan. I was able to study one male from the original series from the SHARP collection at the British Museum (Natural History), London. It is labelled as follows: "Type" (round label with red margin) / "Japan. G. Lewis." / "Sharp Coll. 1905-313" / "Quedius japonicus Type D. S.". The specimen was received dissected, with the aedoeagus and the genital segment glued to the plate with the beetle. The specimens is intact. It is hereby designated as the lectotype of *Q. japonicus*; the label "Lectotype Quedius japonicus A. Smetana des. 1997" has been attached to it.

Additional material studied. [JAPAN]: Honshu: Akita Pref., Masuda, 14–VI–57, H. FUKUHARA (ASCC) 2; Kyoto Pref., Mt. Ushio, 27–X–48, T. KISHII (ASCC) 10; Osaka Pref.: Sakai, 24–XI–55. H. HAYASHI (ASCC) 1; Osaka, SAWADA leg. (ASCC) 1; Shimane Pref., Hamada, 10–V–55 (ASCC) 5. Kyushu: Fukuoka Pref., Mt. Hiko, 16–X and 5–XI–52, A. HABU (NIAES, ASCC) 24.

Geographical distribution. *Quedius japonicus* is widely distributed in Japan; it is known from all four main islands, and also from several small islands (Rishiri Isl., Awashima Isl., Sadogashima Isl. and Tsushima Isls.) (SHIBATA, 1984, 131).

Bionomics. No details are known about the habitat requirements of this species.

Recognition and comparisons. *Quedius japonicus* is well characterized by the fairly small size, in combination with the coloration of the elytra, and by the characteristic, arcuate dilatation of the median lobe of the aedoeagus before the split apical portion (Figs. 17–20). *Quedius japonicus* resembles, by the relatively small size and by the elytral coloration, some species occurring in mainland China, mainly *Q. rhinton* SMETANA, 1998 and *Q. quiris* SMETANA, 1998. However, these two species from high mountain elevations in Sichuan differ, in addition to the differences on the aedoeagi, by several external characters, such as shorter elytra and short antennae (*Q. rhinton*), or by the differently colored pronotum (*Q. quiris*), etc. The subapical dilatation of the median lobe of the aedoeagus of *Q. japonicus* resembles that of the median lobe of *Q. lin* from high mountain elevations in Taiwan; however, both species differ in several characters on the aedoeagus (*e.g.*, sensory peg setae on the paramere), on both male and female genital segments, and in several external characters (see SMETANA, 1995 b, 62–64 for details).

Quedius (*Distichalius*) *lewisius* SHARP, 1874

(Figs. 22–29)

Quedius lewisius SHARP, 1874, 27; GRIDELLI, 1924, 78.

Description. Piceous to piceous-black with black head, elytra indefinitely, vaguely paler around each humerus, narrowly, markedly paler along suture and particularly at apical margin; abdominal tergites, except for tergite eight (sixth visible), distinctly paler at apical margin; head and pronotum vaguely, abdomen distinctly iridescent; maxillary and labial palpi rufo-testaceous, antennae brunneous, legs testaceo-brunneous, medial faces of all tibiae distinctly darkened. Head of rounded shape, appreciably wider than long (ratio 1.20); distinctly narrowed behind eyes, posterior angles entirely obsolete, indistinct; eyes large and convex, tempora considerably shorter than eyes seen from above (ratio 0.27); two additional setiferous punctures between anterior frontal punctures; both posterior frontal puncture and temporal punctures situated quite close to posterior margin of eye, almost touching it, two fine punctures behind posterior frontal punctures at posterior margin of head; surface of head with very fine and dense microsculpture of transverse waves. Antenna moderately long, segment 3 somewhat longer than segment 2 (ratio 1.25), segments 4 and 5 slightly longer than wide, segments 6 and 7 about as long as wide, outer segments as long as wide to slightly wider than long, last segment as long as two preceding segments combined. Pronotum vaguely longer than wide (ratio 1.09), widest at about posterior third, distinctly narrowed anteriad, with broadly rounded base; transversely convex, lateral portions not explanate; dorsal rows each with three punctures, sublateral rows each with three punctures, posterior puncture situated distinctly behind level of large lateral puncture; microsculpture similar to that on head, but somewhat denser. Scutellum impunctate, with very fine microsculpture of transverse waves. Elytra moderately long, at base narrower than pronotum at widest point (ratio 0.88), slightly widened posteriad; at suture about as long as, at sides slightly longer than pronotum at midline (ratio 1.16); each elytron extremely finely, sparingly punctate and with three irregular, longitudinal rows of coarse punctures, some coarser punctures present also at posterio-lateral angles, all bearing short stiff setae; epipleuron finely and rather densely punctate and pubescent; surface between punctures without appreciable microsculpture, but with some microscopical irregularities, particularly near apical margin. Wings fully developed. Abdomen with tergite 7 (fifth visible) bearing fine, whitish apical seam of palisade fringe; punctation and pubescence of abdominal tergites fine and dense, becoming appreciably sparser toward apex of each tergite and in general toward apex of abdomen; pubescence piceous-black; surface between punctures with exceedingly dense and fine microsculpture of transverse striae.

Male. First four segments of front tarsus markedly dilated, sub-bilobed, each densely covered with modified pale setae ventrally; segment two slightly wider than apex of tibia (ratio 1.15); segment four narrower than preceding segments. Sternite 8 with two long setae on each side; with rather wide, moderately deep, subacutely trian-

gular medio-apical emargination, small triangular area before emargination flattened and smooth (Fig. 22). Genital segment with tergite 10 rather narrow, markedly narrowed toward arcuate apex, with two pairs of long, subapical setae, with two shorter medial setae, and several fine short setae in front of them (Fig. 23); sternite 9 narrow, with narrow and rather long basal portion, subtruncate to subemarginate apically, with two differentiated apical setae (Fig. 24). Aedoeagus (Figs. 25–28) very narrow and elongate; median lobe slightly narrowed anteriad, vaguely, gradually constricted at about apical third, with moderately long split apical portion. Paramere narrow and elongate, fusiform, almost entirely covering median lobe, distinctly exceeding apex of median lobe; two fine setae at apex, one minute seta at each lateral margin below apex, two similar, usually unequally long, setae at each lateral margin well below apex; underside of paramere with numerous sensory peg setae, densely covering almost entire apical portion and extended posteriad as two more or less irregular, longitudinal medial rows; internal sac without larger sclerotized structures.

Female. First four segments of front tarsus similar to those of male, but distinctly less dilated; segment two slightly narrower than apex of tibia (ratio 0.90). Genital segment with tergite 10 short and wide, extensively, distinctly pigmented medially with markedly darker, narrow basal transverse band; slightly emarginate apically; with two long and strong apical setae at each side of emargination and with several variably finer and shorter setae around them (Fig. 29).

Length 6.8–7.8 mm.

Type material. SHARP (1874, 27) described the species from a pair of specimens taken at Hiogo, Japan. I was able to study the male specimen from the SHARP collection at the British Museum (Natural History), London. It is labelled as follows: "Type" (round label with red margin) / "Japan. G. Lewis." / "Sharp Coll. 1905-313." / "Quedius lewisius type D. S." / "Japan" (yellow round label). It was received dissected, with the genital segment and the aedoeagus glued to the plate with the beetle. The specimen is in good shape, but the last three segments of the left antenna and the tibia and tarsus of the left middle leg are missing. The genital segment and the aedoeagus were mounted in Canada balsam on a transparent plate attached to the pin with the beetle. The specimen is hereby designated as the lectotype of *Q. lewisius*; the label: "Lectotype Quedius lewisius Sharp A. Smetana des. 1997" has been attached to it.

Additional material studied. [JAPAN]: Honshu: Iwate Pref., Kawai, Yoshibezawa, 1,050 m, 15–VIII–91, A. SMETANA (ASCC) 4. Kyushu: Fukuoka Pref., Mt. Hiko, 4, 5, 14, 16–X–52 , A. HABU (NIAS, ASCC) 28.

Geographical distribution. *Quedius lewisius* seems to be widely distributed in Japan, from Kyushu and Shikoku to northern Honshu (Tôhoku). SHIBATA (1984, 132) recorded the species from Honshu, Shikoku and from Sadogashima Isl.

Bionomics. Little is known about the habitat requirements of this species. The specimens from Yoshibezawa were taken in an old beach forest by sifting old mushrooms growing on decaying wood.

Recognition and comparisons. *Quedius lewisius* may be easily distinguished

from the other Japanese species of *Distichalius*, in addition to the male and female sexual characters (tergite 10 of female genital segment), by the rather dark elytra with narrowly paler suture and particularly the apical margin (see above). The general coloration of *Q. lewisius*, especially that of the elytra, distinctly resembles of European *Q. punctatellus* HEER, 1839.

Acknowledgments

I thank Mr. M. J. D. BRENDELL, British Museum (Natural History), London, England, and Mr. H. SCHILLHAMMER, Naturhistorisches Museum, Wien, Austria, for making the types of the species described by SHARP and EPPELSHEIM available to me for study. Mr. Go SATO, Agriculture and Agri-Food Canada, Research Branch, Ottawa, carefully finished all line drawings. My colleagues D. E. BRIGHT and A. DAVIES read the original draft of the manuscript and provided valuable comments.

要　約

A. SMETANA：旧北区産ツヤムネハネカクシ亜族に関する分類学的ならびに生物地理学的知見．—— EPPELSHEIM (1887, 1888)によってアムールおよびキルギスタンから記載された2種，ならびにSHARP (1874, 1889)によって日本から記載された3種のツヤムネハネカクシ類を，基準標本に基づいて検討し，必要に応じて再記載または捕捉的な記載を行うとともに，そのうちの4種に対して後基準標本を指定した．

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——— 1998 (in press). Contributions to the knowledge of the Quediina (Coleoptera, Staphylinidae, Staphylinini) of China. Part 11. Genus *Quedius* STEPHENS, 1829. Subgenus *Distichalius* CASEY, 1915. Section 1. *Elytra, Tokyo*, **26** (2).

Elytra, *Tokyo*, **26** (1): 128, May 15, 1998

Catops angustipes apicalis (Coleoptera, Cholevidae) Found in an Ant Nest

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Through the courtesy of Mr. K. TOYODA, I have examined a specimen of *Catops angustipes apicalis* PORTEVIN which was found in a nest of *Lasius niger* (LINNAEUS) (Hymenoptera, Formicidae). Ecological information of the present beetle was only given by JEANNEL (1950), HIDAKA (1950) and NISHIKAWA (1990); in the former two, it was found at the entrance to a cellar, and in the latter, it was attracted to a fluorescent light. This is the first record of the beetle from an ant nest.

According to TOYODA's observation (pers. comm.), ants did not attack the beetle within the colony, though they are active; the beetle was dug out from a broad portion of the nest gallery under stones. The collecting data of the present specimen are as follows: 1 ♀, Ozawaguchi, Ryôgami-mura, Saitama Pref., central Honshu, 23–XI–1996, K. TOYODA leg.

I wish to express my hearty thanks to Dr. Shun-Ichi UÉNO, Dr. Toshitaka HIDAKA and Mr. Koji TOYODA for their kind help.

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Elytra, *Tokyo*, **26** (1): 129–130, May 15, 1998

Records of a Brachyglutine Species, *Barbiera palpalis* (LÖBL) (Coleoptera, Staphylinidae, Pselaphinae) from Japan, with Notes on its Habitat

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A brachyglutine species, *Barbiera palpalis* (LÖBL), was described from North Korea in 1974. It was collected from seaside wetland with a halophilous grass species *Suaeda maritima* (L.) DUN. according to LÖBL (1977). Some Japanese coleopterologists and I discovered this species from several localities of Japan, and found that this species is very common in a special kind of habitat.

Before going further, I wish to express my special thanks to Messrs. Shigemi SASAKI (Ôita Pref.), Iwao OKAMOTO (Hiroshima Pref.), Mitsuyasu NISHIDA (Saga Pref.), Takeshi KINODA (Miyazaki Pref.), Kenshi OTSUKA (Saga Pref.) and Kôji TOYODA (Saitama Pref.) for their kind offer of the invaluable specimens.

Barbiera palpalis (LÖBL)

[Japanese name: Ashibe-arizukamushi]

(Figs. 1–2)

Briara palpalis LÖBL, 1974, Acta zool. cracov., **19**: 97.
Barbiera palpalis: LÖBL, 1977, Bull. Acad. pol. Sci., (Sci. Biol. V), **25**: 236.

Specimens examined. 6 ♂, 19 ♀, Obitsugawa Kakô, Kuroto, Kisarazu C., Chiba Pref., 28–IX–1996, K. TOYODA leg.; 5 ♂, 19 ♀, same locality as above, 5–V–1997, S. NOMURA leg.; 1 ♂, 1 ♀, Nigata-chô, Kure C., Hiroshima Pref., 14–V–1988, I. OKAMOTO leg.; 6 ♂, 12 ♀, Dokigawa Kakô, Marugame C., Kagawa Pref., 12–X–1996, K. TOYODA leg.; 1 ♂, by light trap, Rokkakugawa Kakô, Kôhoku-chô, Saga Pref., 20–VII–1997, M. NISHIDA leg.; 4 ♂, by light trap, same locality, 13–VIII–1997, M. NISHIDA leg.; 7 ♂, by light trap, Shiotagawa Kakô, Kashima C., Saga Pref., 27–VII–1997, M. NISHIDA leg.; 1 ♀, Kitakashima, Kashima C., Saga Pref., 10–VI–1988, M. NISHIDA leg.; 1 ♀, Saiki C., Ôita Pref., 15–IX–1951, S. MASHIBA leg.; 5 ♂, by light trap, Ônuki-chô, Nobeoka C., Miyazaki Pref., 21–VIII–1997, T. KINODA leg.

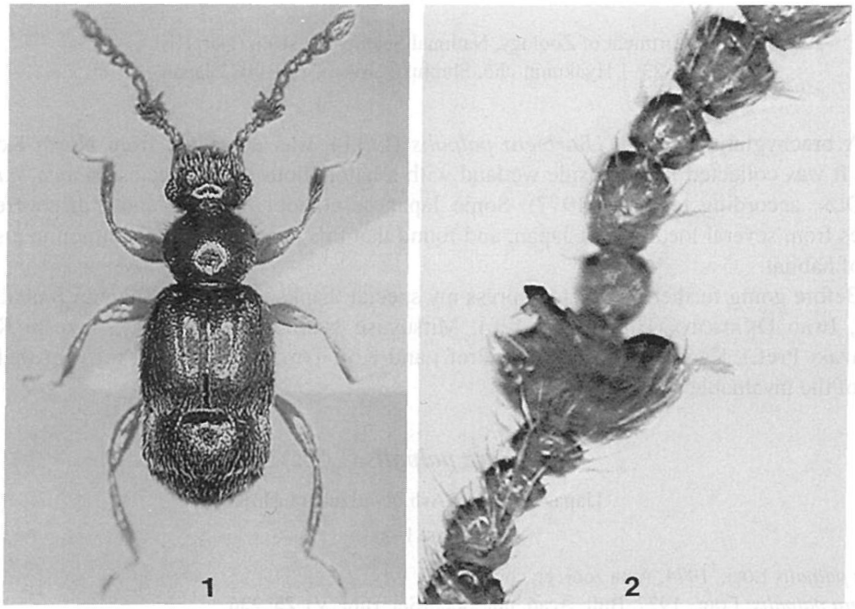
Distribution. North Korea, Japan (Honshu, Shikoku, Kyushu).

Remarks. This species is similar to some species of the subtribe Natypleurina of the tribe Inyocyphini in the parallel-sided and weakly flattened body and the slender aedeagus with reduced parameres. However, it doubtless belongs to the tribe Brachyglutini in view of the well sclerotized and nearly ovoid ninth abdominal sternite.

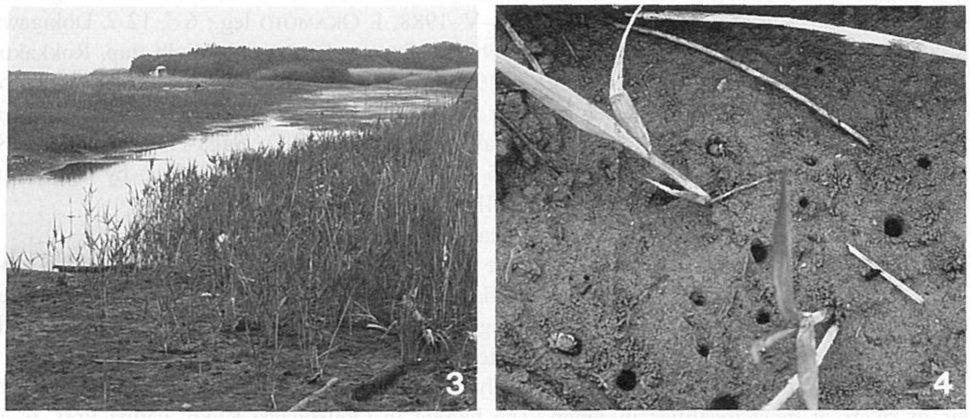
Biological notes. This species has usually been collected from wetland nearby the estuaries of rivers at most localities in Japan. The habitat in Obitsugawa Kakô, Chiba Pref. is as shown in Fig. 3. At this place, many beetles were observed on wet ground near the estuary in

later mornings of very fine and warm days. They actively walked about on the surface of mud, where common Japanese reed (*Phragmites australis* (CAV.) TRIN. ex. STEUD., Japanese name: Yoshi) sparsely grew, and many holes 5 mm in diameter were dug by small crabs (Fig. 4). A male beetle preyed upon a red mite (about 0.8 mm in size).

It is concluded that the habitats of this species are not restricted to patches of halophilous grasses as LÖBL (1977) noted, which is the vegetation closest to the sea in this area, but are also found in other vegetations near the sea.



Figs. 1–2. *Barbiera palpalis* (LÖBL); male, habitus (1); ditto, male antenna, enlarged (2).



Figs. 3–4. Habitat of *B. palpalis* at Kuroto, Chiba Pref. (3); close-up of the same (4).

Elytra, Tokyo, **26** (1): 131–139, May 15, 1998

Some New Passalid Beetles (Coleoptera, Passalidae) from Southeast Asia

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Abstract Four new passalid beetles are described from Southeast Asia. *Aceraius emas* sp. nov. from Borneo is closely allied to *Ophrygonius uedai* KON et JOHKI; *Aceraius jenisi* sp. nov. from Borneo is characterized in the curious tarsi as in *A. laniger* ZANG, and is different from the allied species by the straight anterior border of labrum; *Aceraius riekoae* sp. nov. is characterized in the combination of the curious shape of tarsi and the prominent anterior angles of head; *Aceraius sipolae* sp. nov. from Sipola Is., Mentawai Isls. near Sumatra resembles *A. laevicollis* ILLIGER, but the ninth rib of elytra is almost naked in the new species.

In this paper, I will describe four new passalid beetles belonging to the genus *Aceraius* (sensu lato) from Southeast Asia. Though *Aceraius emas* sp. nov. is described as a member of the genus *Aceraius*, the generic definition of *Aceraius* is different according to authors, and *Aceraius emas* sp. nov. may belong to the genus *Ophrygonius* in the sense of BOUCHER (1993 b) or KON, ARAYA and JOHKI (1993 a).

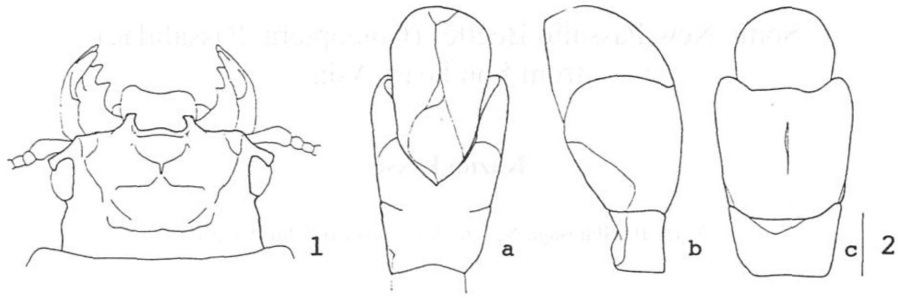
Aceraius emas sp. nov.

(Figs. 1–3)

Almost black, with ventral surface more or less reddish, shining; slightly convex.

Head nearly symmetrical, but the left outer tubercle is slightly larger than the right one; anterior angle not prominent, obtusely angulate; outer tubercle internally produced, slightly convex near base of external border, truncate at apex, with a minute denticle at the middle of anterior margin; inner tubercle rather large, trigonally pyramidal, produced upward; ridge between the two inner tubercles fine, sharp, slightly and arcuately protrudent in dorsal view; frontal ridge arcuate, accompanied with a groove anteriad, extending to base of inner tubercle; parietal ridge sharp, central tubercle modereately high; supraoccipital ridge extending to behind supraorbital one, not distinctly joining the latter; frontal area semicircular, indistinctly rugose; depressed area almost smooth behind outer tubercles, but with a few hairs, rather densely hairy before and behind parietal ridge.

Antenna with three short and three long lamellae, fourth lamella twice as long as third one; first lamella scanty of pubescence. Labrum with anterior border slightly



Figs. 1–2. *Aceraius emas* sp. nov.; 1, head; 2, male genitalia: a, dorsal view, b, lateral view, c, ventral view (scale: 0.5 mm).

emarginate. Right mandible: lowest terminal tooth large, anterior lower tooth triangular, sharp and smaller than lowest terminal one. Left mandible: anterior lower tooth as large as lowest terminal one, simple; upper tooth moderately raised, rectangular and sharp at anterior tip, horizontal behind it. Eye moderately large, laterally protrudent as great as eye canthus. Mentum without scar; middle part almost smooth, widely depressed in anterior margin, posterior wall of the depression sinuate; lateral pieces rather densely covered with hair-bearing punctures.

Pronotum sparsely hairy in and along lateral grooves, rather densely hairy around scars, median groove vestigial.

Elytra hairy in front of shoulders, grooves fine.

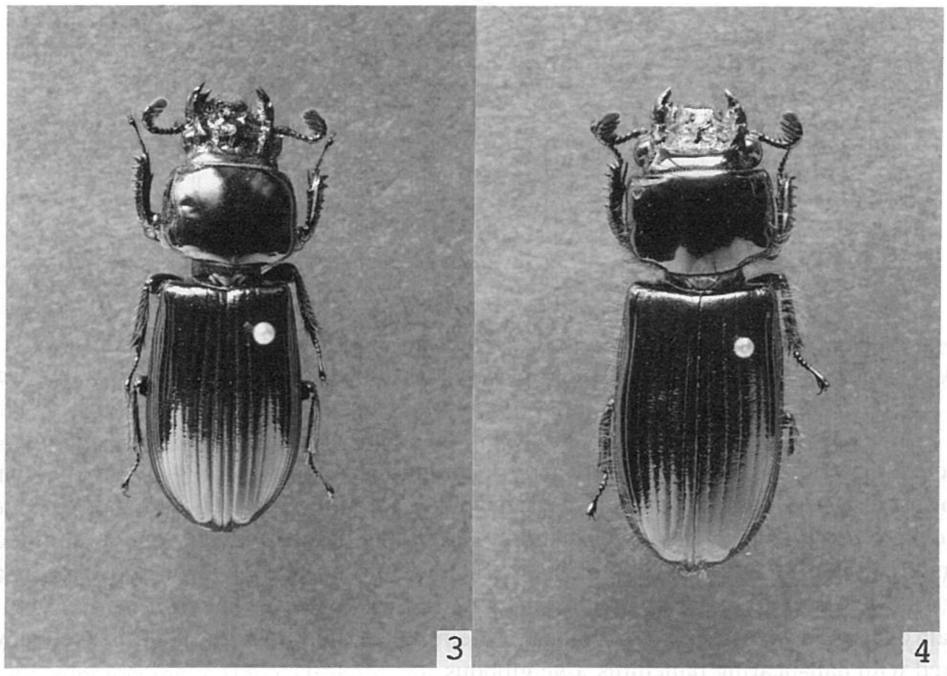
Posterior plate of prosternum transversely rugose, shining and sparsely hairy. Mesosternum coriaceous at middle and along lateral borders; scar not sharply defined, narrow and shallow, gradually widened posteriad. Central area of metasternum almost polished, with some hairs between mesocoxae; anterior intermediate and lateral areas densely hairy, posterior intermediate area hairy along posterior border; lateral area rather abruptly widened posteriad, not sharply defined from intermediate area. Second abdominal sternite hairy throughout, third to sixth ones hairy at sides. Tarsi simple, flat in apical faces, neither concave nor convex.

Male genitalia as shown in Fig. 2.

Body length: 32.0 mm.

Holotype: ♂, 16~27–IV–1993, Gunung Emas, Crocker Mountains, Sabah, Malaysia, leg. JENIS. The holotype is in the collection of the Naturhistorisches Museum Wien.

This new species is closely allied to *Ophrygonius uedai* KON et JOHKI, but is different from the latter in the following points: outer tubercles are smaller; the ridge between inner tubercles is less strongly protrudent anteriad.



Figs. 3–4. *Aceraius* spp., dorsal aspect. —— 3, *A. emas* sp. nov.; 4, *A. jenisi* sp. nov.

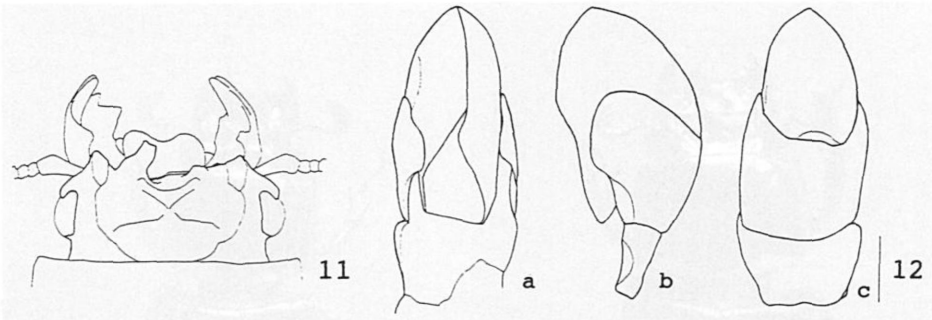
Aceraius jenisi sp. nov.

(Figs. 4–6)

Black and shining; moderately convex.

Head asymmetrical; anterior angle not prominent, obtusely angulate; left outer tubercle larger than right one, internally produced, distinctly emarginate at external border, with apical portion weakly bifid, external angle weakly produced anteriad; right outer tubercle obliquely truncate; inner tubercle rather large, produced upward; ridge between the two inner tubercles fine, straight in dorsal view, horizontal in frontal view; frontal ridge arcuate, but almost straight at the middle, accompanied with a groove anteriad, extending to base of inner tubercle; parietal ridge sharp and almost straight; supraoccipital ridge connecting with supraorbital one; frontal area triangular, finely rugose; depressed area almost smooth, with several hairs near outer tubercles, rather densely hairy before and behind parietal ridge; the oblique area between outer tubercles with several hairs.

Antenna with three short and three moderate long lamellae; fourth segment lamellate, but lacking pubescence; seventh one (third lamella) 1.5 times as long as sixth one in lamellate part. Labrum with anterior border slightly emarginate. Right mandible: lowest terminal tooth small and triangular, visible in dorsal view; lower den-



Figs. 11–12. *Aceraius sipolae* sp. nov.; 11, head; 12, male genitalia: a, dorsal view, b, lateral view, c, ventral view (scale: 0.5 mm).

Body length: 32.5 mm.

Holotype: ♂, Sipola Island, Mentawai Isls., Indonesia, V–1993. The holotype will be preserved in the National Science Museum (Nat. Hist.), Tokyo.

This new species is characterized by the prominent anterior angles of head, and is distinguished from *A. laevicollis* (ILLIGER) and *A. moeschleri* KUWERT by the virtually naked seventh to ninth ribs of elytra.

Acknowledgement

I wish to thank Dr. S.-I. UÉNO, the National Science Museum (Nat. Hist.), Tokyo, for reviewing the manuscript. My thanks also goes to Dr. H. SCHILLHAMMER, the Naturhistorisches Museum Wien for permission to examine and describe materials of Passalidae, to Mr. M. FUJIOKA and Ms. R. MURAMOTO, Tokyo for their various help in my study.

要　約

岩瀬一男：東南アジア産クロツヤムシの数新種．—— 東南アジア産の4種のクロツヤムシの新種を記載した．*Aceraius emas* sp. nov. はボルネオ産で，*Ophrygonius uedai* KON et JOHKI によく似ている．*Aceraius jenisi* sp. nov. はボルネオ産で，付節先端が凹む種類の最小の種になる．*Aceraius riekoae* sp. nov. はボルネオ産で，付節先端が凹むうえに，頭部の前角が突出する特徴をもつ．*Aceraius sipolae* sp. nov. はスマトラに近いメンタワイ諸島のシポラ島産で，*A. laevicollis* ILLIGER に似ているが，上翅の毛が少ない．

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Elytra, Tokyo, **26** (1): 140, May 15, 1998

The Staphylinid Beetles Newly Recorded from the Island of Okinoerabu-jima in the Ryukyus

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So far as known to me, five species of staphylinid beetles have been recorded by NAOMI (1987, 1996, 1997) and ITO (1995) from the Island of Okinoerabu-jima in the Ryukyus. Through the courtesy of Dr. M. NISHIKAWA and Dr. H. ÔHIRA, some staphylinid beetles obtained on the Island of Okinoerabu-jima are given to me. The collections contain five species, all of which are new to the fauna of the island, as recorded below. I thank Dr. M. NISHIKAWA and Dr. H. ÔHIRA for their kindness in providing me with the specimens.

1. *Lobrathium ryukyuense* ITO

2 ♂♂, 1 ♀, Okinoerabu-jima, 2～5–V–1997, H. ÔHIRA leg.

2. *Philonthus aeneipennis* BOHEMAN

1 ♂, China, Okinoerabu-jima, 27–VI–1964, M. NISHIKAWA leg.; 1 ♀, Okinoerabu-jima, 2～5–V–1997, H. ÔHIRA leg.

3. *Philonthus amicus* SHARP

1 ♀, Tamiya, Okinoerabu-jima, 2–VII–1964, M. NISHIKAWA leg.; 4 ♂♂, 1 ♀, Okinoerabu-jima, 2～5–V–1997, H. ÔHIRA leg.

4. *Philonthus discoideus* GRAVENHORST

1 ♀, Tamiya, Okinoerabu-jima, 2–VII–1964, M. NISHIKAWA leg.; 1 ♂, 1 ♀, Okinoerabu-jima, 2～5–V–1997, H. ÔHIRA leg.

5. *Phucobius densipennis* BERNHAUER

1 ♂, Okinoerabu-jima, 2～5–V–1997, H. ÔHIRA leg.

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Elytra, *Tokyo*, **26** (1): 141–143, May 15, 1998

Further Notes on the Microhabitat of *Taeniocerus pygmaeus* (Coleoptera, Passalidae)[1)]

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Abstract Three observations on the biology of the passalid beetle, *Taeniocerus pygmaeus*, were made in the Malay Peninsula and Borneo, and it was confirmed that *T. pygmaeus* was specialized to utilize the microhabitats produced by termite activities.

All the species of the genus *Taeniocerus* (Coleoptera, Passalidae), *T. bicanthatus* (PERCHERON), *T. bicuspis* KAUP, *T. platypus* KAUP and *T. pygmaeus* KAUP, have markedly wide front tibiae, which are supposed to be related to living in detritus-like microhabitats (JOHKI & KON, 1987). Of these, *T. bicanthatus* and *T. platypus* have been known to live in the detritus-like microhabitats, the interface between fallen trees and the ground (KON & JOHKI, 1987; KON & ARAYA, 1992).

In the previous report (KON *et al.*, 1996), we suggested that the microhabitat of *Taeniocerus pygmaeus* may be associated with termite colonies. Thereafter, we had opportunities to make additional observations on the biology of this species in relation to termites, and herewith report them briefly.

On 22 Mar. 1996, at Kota Tinggi, located in the southern part of the Malay Peninsula, one female of *T. pygmaeus* was collected from the surface of decayed log of the rubber tree, *Hevea brasiliensis*, which was colonized by the termite, *Coptotermes* sp.

1) This study is supported in part by the Grant-in-Aid from the Ministry of Education, Science and Culture, Japan (No. 09839030 for M. KON, No. 09740639 for K. ARAYA).

(Isoptera, Rhinotermitidae). When this log with the termite colony was once examined in the daytime several hours before the discovery of the female of *T. pygmaeus* in the evening, nothing was found. Therefore, this female appeared to be attracted to the log with the termite nest in that evening.

On 28 Aug. 1996, at Sepilok near Sandakan, Sabah in Borneo, one colony of *T. pygmaeus* was collected from a decayed log. This colony consisted of 2 carcasses of black adults, 4 teneral adults (1 ♂, 3 ♀♀) and 4 pupae in cocoons. The gallery was excavated into the clay-like rotten wood substance around an abandoned termite nest. Although the termite nest had already been abandoned and secondarily invaded by ants, it was supposed that the nest was made by *Coptotermes* sp. or some other termite species having similar habit since general features of the nest and its circumstances were very similar to those observed in the former case in Kota Tinggi.

On 30 Mar. 1997, at Templer's Park near Kuala Lumpur, in the Malay Peninsula, one male of this species was collected from the same kind of microhabitat as reported for the former case in Sepilok.

These observations, together with the previous ones (KON *et al.*, 1996), support the hypothesis that *T. pygmaeus* is "termitariophilous" in the sense of IWATA *et al.* (1992); i.e., specialized to utilize the microhabitats produced by termite activities.

Interestingly, in all the three cases, a number of adults and larvae of the Cerato-canthidae (Coleoptera, Scarabaeoidea) were found together with *T. pygmaeus*. Up to the present, various species belonging to the superfamily Scarabaeoidea have been reported to be likely termitophilous and/or termitariophilous (BOUCOMONT, 1936; RITCHER, 1958; HOWDEN, 1973; HOWDEN & GILL, 1988; BARTOLOZZI, 1989; IWATA *et al.*, 1992; ARAYA, 1994; OCHI, 1996, etc.). It is expected that much more species of the Scarabaeoidea will be revealed to be associated with termites by close examinations of termite nests and their surroundings, especially in the lowlands of the tropical and subtropical regions.

We express our hearty thanks to Dr. R. IWATA, Nihon University, for generic identification of termites, and to Mr. H. ASHIDA, Kyoto University, for warm companionship during the field studies.

要　約

常喜　豊・荒谷邦雄・近　雅博：*Taeniocerus pygmaeus*（クロツヤムシ科）の微小生息場所に関する知見（続報）．—— *Taeniocerus pygmaeus*の営巣が，倒木中のシロアリのコロニー周辺でなされるらしいことを，前報 (KON *et al.*, 1996) で述べた．その後，ボルネオ島サンダカン郊外のセピロクの森において，倒木中につくられたシロアリのコロニー周辺のデトリタス状物質中に，*T. pygmaeus*のコロニーを確認したほか，マレーシアのコタティンギおよびテンプラー公園においても，本種とシロアリの関係の強さを示唆する観察を行うことができた．これらのことより，本種は，シロアリの活動で生じたデトリタス状の木屑中で生活するように特化した種であると考えられる．

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Elytra, *Tokyo*, **26** (1): 144, May 15, 1998

Further Records of *Cis subrobustus* (Coleoptera, Ciidae)

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The ciid beetle, *Cis subrobustus* MIYATAKE, 1955 [Japanese name: Kimune-tsutsukinoko-mushi], was originally described from Shikoku, Japan (MIYATAKE, 1954). Though this is one of the easily distinguishable species in the genus *Cis*, little is known about its distribution. Up to the present, Shikoku and Kyushu are known as its distributional range (MIYATAKE, 1985), but the record with detailed collecting data is not found. In this report, I will sum up the collecting data of the species mainly on the basis of the collection of Ehime University and other private collections. These data contain the first records from Honshu. Second records from the same localities are omitted.

Specimens examined. [Honshu] <Kanagawa Pref.> 1 ex., Ôiso, 9–I–1972, Y. HIRANO leg.; 1 ex., Takeyama, 1–V–1988, Y. HIRANO leg. <Kyoto Pref.> 2 exs., Mt. Nanzenjisan, 1–VIII–1989, M. KAWANABE leg.; 2 exs., Mt. Hieizan, 5–VIII–1989, M. KAWANABE leg. <Nara Pref.> 1 ex., Mt. Kasugayama, 5–V–1955, T. SHIBATA leg. <Tottori Pref.> 1 ex., Mt. Daisen, 26～27–VII–1989, M. KAWANABE leg. <Okayama Pref.> 3 exs., Mt. Gagyûsan, 28–VII–1989, M. KAWANABE leg. <Hiroshima Pref.> 1 ex., Gokurakuji, 9–IV–1955, M. OKADA leg.; 9 exs., Ôasa, Ôasa-chô, 25～26–VI–1994, M. KAWANABE leg. [Shikoku] <Ehime Pref.> 9 exs., Naose near Kuma-chô, 16–V–1953, M. MIYATAKE leg. (including the holotype and 7 paratypes); 2 exs., Tobe-chô, 24–V–1955, K. SASAKI leg.; 1 ex., Ônogahara, 20–VIII–1953, T. MOHRI leg. (paratype); 9 exs., Kurotaki, Shigenobu-chô, 9–IV–1989, M. KAWANABE leg.; 2 exs., Ôtani-ike, Iyo-shi, 25–IV–1989, M. KAWANABE leg.; <Kôchi Pref.> 1 ex., Kuroson, 17–VII–1953, S. HISAMATSU leg. (paratype); 1 ex., Matsubagawa, 8–VII–1961, M. MIYATAKE leg. [Kyushu] <Fukuoka Pref.> 2 exs., Mt. Fukuchiyama, 3–V–1970, Y. TAKAKURA leg.; 2 exs., Mt. Ôsakayama, 1–V–1977, Y. TAKAKURA leg. <Ôita Pref.> 1 ex., Mt. Sobosan, 18～19–VII–1989, M. KAWANABE leg.

Distribution. Japan (Honshu, Shikoku, Kyushu).

Host fungi. *Coriolus versicolor* (L.: FR.) QUÉL. [Kawaratake], *Coriolus hirsutus* (WULF.: FR.) QUÉL. [Aragekawaratake], *Pycnoporus coccineus* (FR.) BOND. et SING. [Hiirotake] and *Microporus vernicipes* (BERK.) O. KUNTZE [Tsuyauchiwatake].

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Elytra, *Tokyo*, **26** (1): 145–153, May 15, 1998

Three New Species of the Genus *Callistethus* (Coleoptera, Scarabaeidae, Rutelinae) from Palawan and Borneo

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Abstract Three new species of the genus *Callistethus* from Palawan Island of the Philippines and Borneo are described. They are named *C. palawanensis*, *C. nakanei* and *C. dechambrei*.

Seventeen years ago, I obtained a remarkable species of the genus *Callistethus* from Palawan Island of the Philippines, and recently, I received two Bornean species of the same genus. On the other hand, I had opportunities of visiting several natural history museums in Europe from 1993 to 1995, where I was able to reexamine the type specimens of the genus *Callistethus*.

The Asian members of this genus have been classified into 11 species-groups by MACHATSCHKE (1972). After a detailed study, I have concluded that the species mentioned above are new to science, and that they belong to the *Callistethus excellens* group. This species-group is characterized by the elongated mesosternal process, which is strongly compressed in ventral view, and bent downward, broadly triangular or broadly horn-shaped in lateral view. Though MACHATSCHKE included *C. lubricus* OHAUS, 1915 and *C. riedeli* LANSBERGE, 1880 in the *excellens* group, I prefer to exclude them from the group for the reason of differently shaped mesosternal process.

In this article, I am going to describe three new species of the genus *Callistethus* under the names *C. palawanensis*, *C. dechambrei* and *C. nakanei*.

Before going further, I wish to express my sincere gratitude to Dr. Manfred UHLIG and Mr. Joachim SCHULZE of the Museum für Naturkunde der Humboldt Universität zu Berlin, Dr. Roger-Paul DECHAMBRE of the Muséum National d'Histoire Naturelle, Paris, Dr. J. KRIKKEN of the Nationaal Natuurhistorisch Museum, Leiden, Dr. Martin BAEHR of the Zoologische Staatssammlung, München, Dr. Lother ZERCHE of the Deutsches Entomologisches Institut, Eberswalde, and Dr. Ottó MERKL of the Magyar Természettudományi Múzeum, Budapest, for the loan of materials under their care. Deep indebtedness should be expressed to Mr. Malcolm D. KERLEY of the Natural History Museum, London, and also to Dr. C. O'TOOL of the Hope Entomological Collections of the University Museum, Oxford, for giving me the opportunities of examining the collections of the genus *Callistethus*. I express my deepest appreciation to Dr. Kimio MASUMOTO of Otsuma Women's University, Tokyo, for his constant guidance of

my entomological study. Finally, my hearty thanks are due to Mr. Takeshi ITO for his kind help in materials. The holotypes of the new species will be preserved in the collection of the Kanagawa Prefectural Museum of Natural History, Odawara, Japan.

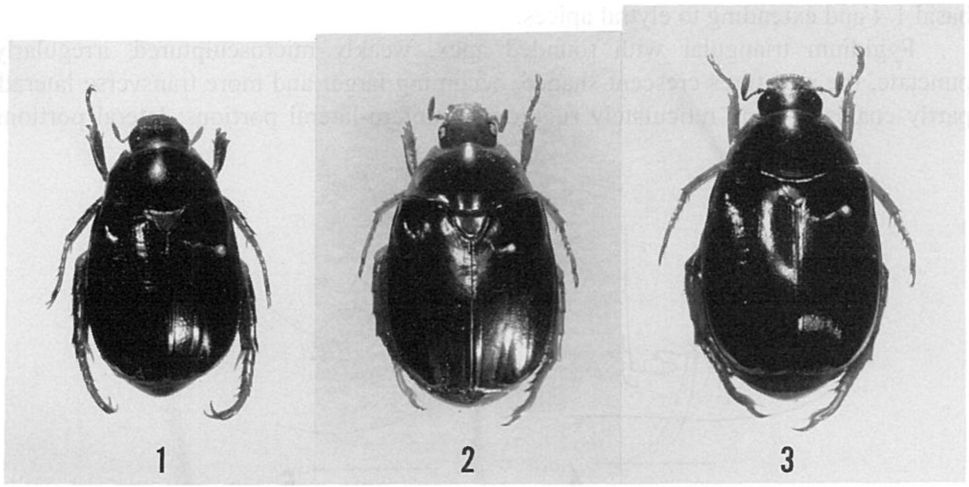
Key to the Species of the *Callistethus excellens* Group

1 (4) Middle and hind tibiae closely and distinctly punctate.
2 (3) Mesosternal process horizontally projected (Fig. 4); head, pronotum and scutellum dark purplish red, elytra deep green; Palawan Is. . . . . *C. palawanensis* sp. nov.
3 (2) Mesosternal process projected slightly downwards (Fig. 9); head, pronotum and scutellum deep orange, elytra dark grayish blue; Borneo, Sumatra, Nias Is., Malay Peninsula, Indochina . . . . . *C. excellens* NONFRIED.
4 (1) Middle and hind tibiae sparsely punctate or impunctate.
5 (8) Upper branch of inner claw of fore leg almost straight; dorsal surface almost of the same coloration, chestnut brown to dark brown.
6 (7) Inner claw of fore leg slender, upper branch of inner claw of fore leg of the same width as the lower one; mesosternal process roundly projected, with blunt apex (Fig. 7); Java . . . . . *C. drescheri* OHAUS.
7 (8) Inner claw of fore leg not slender, the upper branch of inner claw of fore leg slenderer than the lower one; mesosternal process projected and angulate, with acute apex (Fig. 8); Malay Peninsula . . . . . *C. malayus* OHAUS.
8 (5) Upper branch of inner claw of fore leg curved downwards; dorsal surface various in coloration.
9 (10) Mesosternal process horizontally projected and angulate, with sharply pointed apex (Fig. 5); head, pronotum and scutellum dark red to dark greenish red; elytra dark purplish red, tarsi and tergum dark red to dark greenish red; Borneo . . . . . *C. nakanei* sp. nov.
10 (9) Mesosternal process projected upwards.
11 (12) Mesosternal process with feebly rounded apex (Fig. 6); head, pronotum, scutellum and elytra dark reddish brown, with strong greenish metallic lustre, pronotum with reddish yellow band in marginal portions; Borneo . . . . . *C. dechambrei* sp. nov.
12 (11) Mesosternal process with moderately pointed apex (Fig. 10); head, pronotum and scutellum deep greenish yellow; elytra dark grayish brown; tarsi deep green to blue, tergum deep grayish brown; Borneo . . . . . *C. moultoni* OHAUS.

Callistethus palawanensis sp. nov.

(Figs. 1, 4)

Body length: 17.9–19.4 mm, width: 9.3–10.9 mm.



Figs. 1–3. Habitus of *Callistethus* spp. —— 1. *C. palawanensis* sp. nov., holotype, ♂. —— 2. *C. nakanei* sp. nov., holotype, ♂. —— 3. *C. dechambrei* sp. nov., holotype, ♂.

Head, pronotum and scutellum reddish brown; frons with a vague dark reddish brown patch at the middle, pronotum with a pair of large vague, dark reddish brown patches medially, which are sometimes widened; elytra deep green; propygidium, pygidium, and abdominal sternites dark reddish brown; metasternum and legs reddish brown to dark reddish brown; dorsal surface with metallic lustre, ventral surface with vitreous lustre.

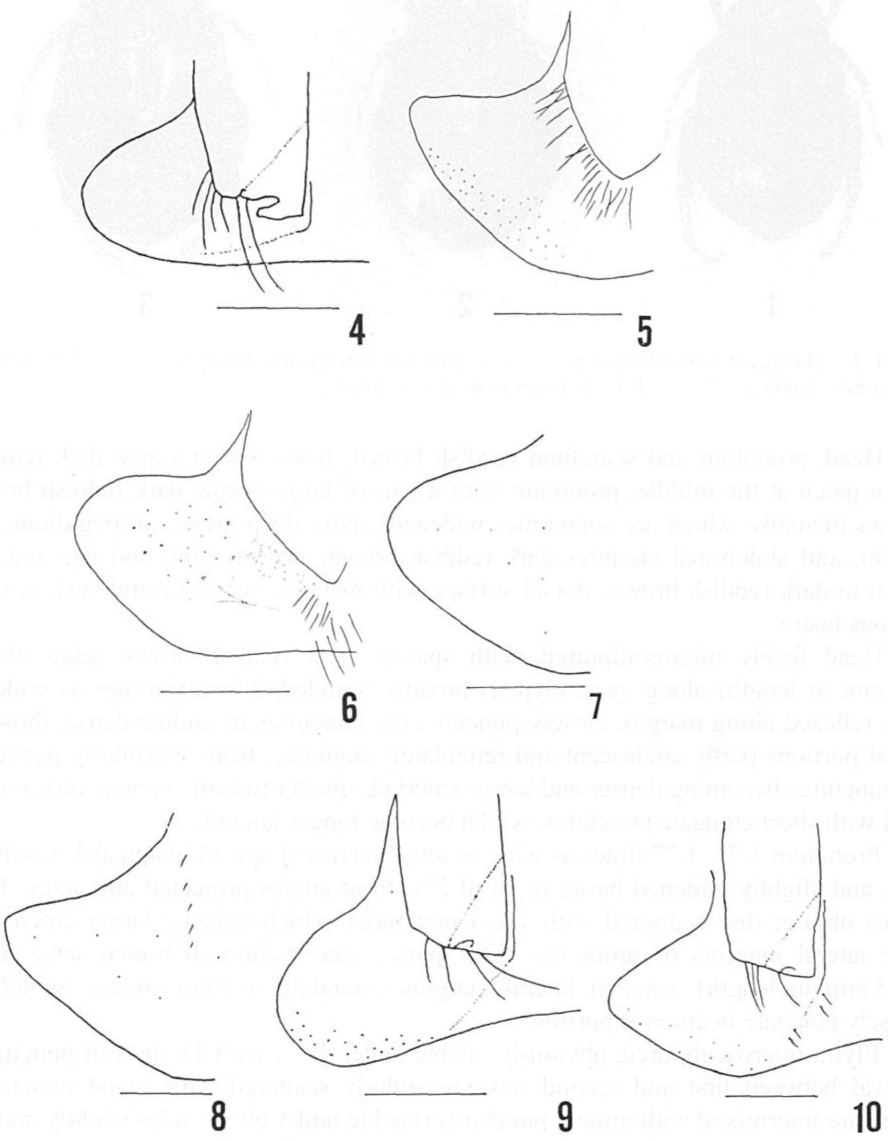
Head feebly microsculptured, with sparse, erect reddish brown setae (0.42–0.48 mm in length) along eyes; clypeus broadly rounded, 2.0–2.05 times as wide as long, reflexed along margin, closely punctate, the punctures in middle dense, those in lateral portions partly coalescent and reticulately rugulose; frons irregularly punctate, the punctures becoming denser and larger anteriad, smaller towards vertex; vertex scattered with short elongate punctures, which become longer laterad.

Pronotum 1.75–1.77 times as wide as long, narrowed apicad in apical 1/3, sublinearly and slightly widened basad in basal 2/3; front angles projected and acute, hind angles obtuse; disc scattered with small punctures, which become larger antero-laterad; lateral margins of pronotum with sparse, erect yellowish brown setae (0.5–0.625 mm in length); rims of lateral margins extending to hind angles. Scutellum sparsely punctate in anterior portion.

Elytra microsculptured, obviously visible under 40×, with 11 rows of punctures; interval between first and second rows irregularly scattered with round punctures, which are intermixed with minute punctures (visible under 60×); sides slightly arcuate laterad, slightly sinuous in anterior 1/3, widened in middle, then narrowed posteriad; distal margins rounded; rims of lateral margins thickened in basal 1/3, becoming thinner in apical 2/3, and disappearing at hind corners; marginal membrane thin, starting at

basal 1/4 and extending to elytral apices.

Pygidium triangular with rounded apex, weakly microsculptured, irregularly punctate, the punctures crescent-shaped, becoming larger and more transverse laterad, partly coalescent and reticulately rugulose in antero-lateral portions; lateral portions



Figs. 4–10. Mesosternal process in lateral view (scale: 1 mm). —— 4, *Callistethus palawanensis* sp. nov.; 5, *C. nakanei* sp. nov.; 6, *C. dechambrei* sp. nov.; 7, *C. drescheri* OHAUS, 1915; 8, *C. malayus* OHAUS, 1932; 9, *C. excellens* NONFRIED, 1894; 10, *C. moultoni* OHAUS, 1910.

and apical margin with several erect yellowish brown setae; rims of outer margins nearly straight.

Mesosternal process moderately projected, compressed from sides, extending before the level of procoxae, with broadly rounded apex (Fig. 4); metasternum with a median groove, punctate sparsely and minutely in middle, becoming larger and denser laterad, partly coalescent in lateral portions, each puncture with an erect yellowish brown seta (0.55–0.75 mm in length).

Abdominal sternites with a transverse row of appressed reddish brown setae (0.175–0.25 mm in length) at basal 1/4, distinctly punctate, the punctures in middle small and crescent-shaped, becoming larger and denser laterad.

Protibia bidentate; apico-external denticle acute in male, rectangular and feebly rounded at inner corner in female; inner claw of fore leg and outer claw of middle leg incised apically, forming two branches, the upper branch of fore leg about 3/5 times the width of the lower one at the base, the lower branch slightly longer than the upper one; outer claw of fore leg, inner claws of middle and hind legs simple and acuminate.

Holotype: ♂, Bindoyan, Palawan Is., Philippines, 19–IV–1979, leg. F. DACASIN. Allotype: ♀, same data as for the holotype. Paratypes: ♀, same data as for the holotype; 2 ♂♂, same locality as for the holotype, 2–IX–1984, native collector.

Callistethus nakanei sp. nov.

(Figs. 2, 5)

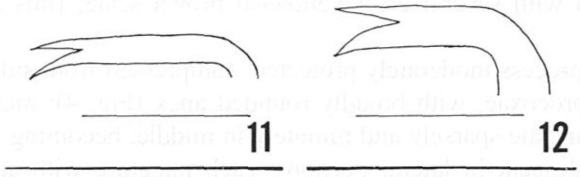
Body length: 16.6–19.3 mm, width: 9.5–10.6 mm.

Head, pronotum, scutellum, propygidium, pygidium, legs and ventral surface dark red to dark greenish red; elytra dark purplish red; dorsal surface with vitreous lustre, ventral surface rather weakly with vitreous lustre.

Head microsculptured, with sparse, erect reddish brown setae (0.37–0.4 mm in length) along eyes; clypeus broadly rounded, 2.11–2.29 times as wide as long, reflexed along margin, densely punctate, the punctures large and elliptical, partly coalescent; frons sparsely punctate in middle, the punctures round, becoming smaller laterad, finer and sparser towards vertex.

Pronotum 1.62–1.88 times as wide as long, narrowed apicad in apical 2/5, slightly widened basad in basal 3/5; front angles projected and acute, hind angles almost rectangular and weakly rounded at apices; disc scattered with small punctures, which become larger and denser laterad; marginal portions with sparse, erect reddish brown setae (0.55–0.625 mm in length); lateral margins with rims, the rims extending basolaterad. Scutellum sparsely punctate.

Elytra microsculptured, clearly visible under 40×, with 11 rows of small punctures; intervals irregularly scattered with minute punctures, which are visible under 60×; sides slightly arcuate laterad, slightly sinuous in anterior 2/5, weakly widened in middle, then narrowed posteriad; distal margins rounded; lateral margins with rims thickened in basal 2/5, becoming thinner in apical 3/5, and disappearing at hind cor-



Figs. 11–12. Inner claw of fore leg (scale: 1 mm). —— 11, *Callistethus drescheri* OHAUS, 1915, holotype, ♂; 12, *C. malayus* OHAUS, 1932, holotype, ♂.

ners; marginal membrane thin, starting at basal 1/4 and extending to elytral apices.

Propygidium weakly microsculptured, sparsely punctate in middle, the punctures crescent-shaped, becoming larger laterad.

Pygidium weakly microsculptured, shallowly grooved in anterior portion, with two pairs of shallow depressions near base and at the middle, irregularly punctate in middle in a crescent-shape, becoming larger laterad, those in lateral portions elliptical, and those in antero-lateral angles and apical portion sparse; lateral portions and apical margin with sparse, suberect reddish brown setae; rims of outer margins nearly straight laterad, rounded at apex.

Mesosternal process horizontally projected and angulate, strongly compressed, extending to the level of procoxae, with sharply pointed apex (Fig. 5); metasternum with a median groove, irregularly punctate, the punctures sparse and minute in middle, those in lateral portions large and setiferous, each with an erect reddish brown seta (0.23–0.55 mm in length).

Abdominal sternites concentratively punctate in anterior and posterior portions, the punctures crescent-shaped, becoming larger laterad, those in lateral portions irregularly punctate; lateral portions with sparse decumbent reddish brown setae (0.4–0.48 mm in length).

Protibia bidentate, apico-external denticle acute in male, rectangular, rounded at inner corner and acute at outer corner in female; inner claw of fore leg and outer claw of middle leg incised apically, forming two branches, the upper branch of fore leg about half the width of the lower one at the base in male, almost equal in female, the lower branch slightly longer than the upper one in male, the lower branch shorter than the upper one in female; outer claw of fore leg, inner claws of middle and hind legs simple and acuminate.

Holotype: ♂, Mt. Bawang, West Kalimantan, Borneo, IV–1990, native collector. Allotype: ♀, same data as for the holotype. Paratypes: 8 ♂♂, 3 ♀♀, same data as for the holotype; 2 ♂♂, same locality as for the holotype, X–1990, native collector; ♀, near Keningau, alt. 800 m, Sabah, Borneo, 16–III–1989, leg. Masao ITO; ♀, Crocker Range, Sabah, Borneo, 10–VI–1996, native collector; ♂, Trus Madi, Sabah, Borneo, VIII–1996, native collector.

Callistethus dechambrei sp. nov.

(Figs. 3, 6)

Body length: 18.8 mm, width: 10.9 mm.

Head, pronotum, scutellum and elytra dark reddish brown; pronotum with broad reddish yellow band in lateral portions; propygidium, pygidium, and abdominal sternites reddish brown; metasternum and legs reddish yellow; dorsal surface with strong greenish metallic lustre, ventral surface with coppery lustre.

Head feebly microsculptured, with sparse, erect reddish brown setae (0.42–0.55 mm in length) along eyes; clypeus broadly rounded, 1.95 times as wide as long, weakly reflexed along margin, distinctly punctate, the punctures elliptical in lateral portions, partly coalescent in anterior portion; frons irregularly punctate, the punctures being intermixed with minute punctures, the larger ones sparse and round in middle, becoming denser and larger antero-laterad.

Pronotum 1.85 times as wide as long, weakly arcuate-sided, rounded in apical half, then linearly and slightly narrowed basad in basal half; front angles strongly projected and acute, hind angles rectangular with slightly rounded corners; disc scattered with small punctures, which are intermixed with minute punctures (visible under 60×), the former becoming slightly larger antero-laterad; marginal portions of disc with sparse, erect yellow setae (0.475–0.825 mm in length); lateral margins with rims extending to baso-lateral portions. Scutellum triangular, sparsely scattered with minute punctures.

Elytra with 11 rows of punctures, which are intermixed with extremely minute punctures (visible under 60×); interval between first and second rows irregularly scattered with round punctures; sides slightly arcuate laterad; lateral margins slightly sinuous in anterior 1/4, weakly widened in middle, then narrowed posteriad; distal margins almost straight; rims of lateral margins thickened in basal 2/5, becoming thinner in apical 3/5 and disappearing at hind corners; marginal membrane thin, starting at apical 3/10 and extending to elytral apices.

Pygidium feebly microsculptured, sparsely punctate, the punctures small and intermixed with minute punctures, the former becoming larger anteriad, partly coalescent and reticulately rugulose in anterior portion; lateral and apical margins of pygidium with sparse erect reddish brown setae; outer margins with rims nearly straight; apex rounded.

Mesosternal process projected slightly upwards, strongly compressed, extending to the level of procoxae, with feebly rounded apex (Fig. 6); metasternum with a median groove, irregularly punctate, the punctures in middle sparse and small, becoming larger and denser laterad, each with an erect reddish yellow seta (0.52–0.8 mm in length).

Abdominal sternites sparsely punctate in middle, the punctures small, becoming larger and denser laterad, with a transverse row of suberect reddish brown setae (0.3–0.4 mm in length) in the middle except for median portions.

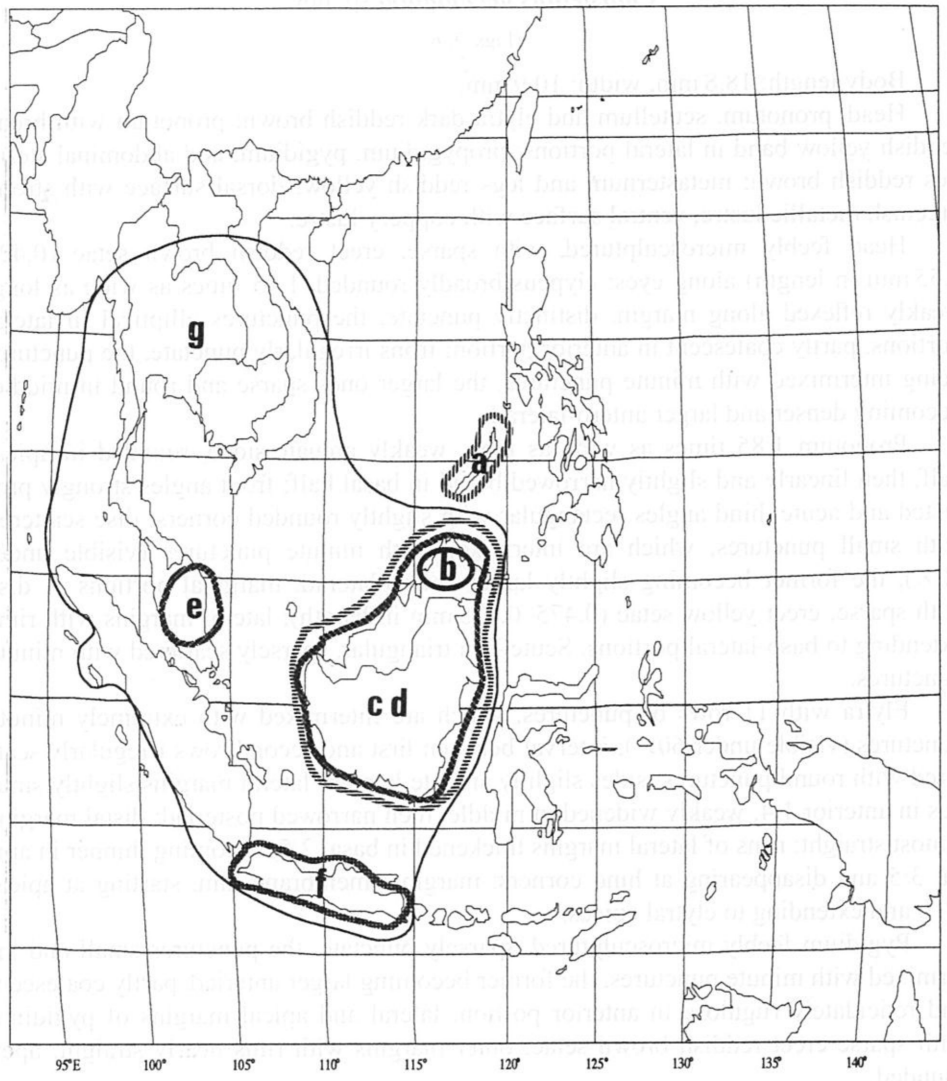


Fig. 13. Approximate distribution of the *Callistethus excellens* Group. —— a, *C. palawanensis* sp. nov.; b, *C. dechambrei* sp. nov.; c, *C. nakanei* sp. nov.; d, *C. moultoni* OHAUS, 1910; e, *C. malayus* OHAUS, 1932; f, *C. drescheri* OHAUS, 1915; g, *C. excellens* NONFRIED, 1894.

Protibia with two teeth; apico-external tooth acute with feebly rounded apex in both sexes; inner claw of fore leg and outer claw of middle leg apically incised, forming two branches, the upper branch of fore leg about 3/4 times the width of the lower one at the base, the lower branch slightly shorter than the upper one; outer claw of fore leg, inner claws of middle and hind legs simple and acuminate.

Holotype: ♂, Crocker Range, Sabah, Borneo, 8–VI–1996, native collector.

要　約

和田　薫：パラワン島およびボルネオから発見された*Callistethus*属コガネムシの3新種．—— *Callistethus*属に属するコガネムシ，*C. palawanensis*をパラワン島から，また*C. nakanei*および*C. dechambrei*をボルネオから記載した．これらの種はいずれも*excellens*群に属するが，その特徴的な色彩および中胸突起の形状から同グループの他種とは容易に区別できる．

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Elytra, *Tokyo*, **26** (1): 153–154, May 15, 1998

A Record of *Diartiger fossulatus dentipes* NOMURA et LEE (Staphylinidae, Pselaphinae) from Shikoku, Japan

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Diartiger fossulatus dentipes NOMURA et LEE is a subspecies of *D. fossulatus* SHARP belonging to the tribe Clavigerini, which has been known only from South Korea. In this report, this subspecies is recorded from Shikoku, which is new to the Japanese fauna.

I wish to express my special thanks to Dr. Masahiro SAKAI of Ehime University for his kind offer of the invaluable specimens.

Diartiger fossulatus dentipes NOMURA et LEE

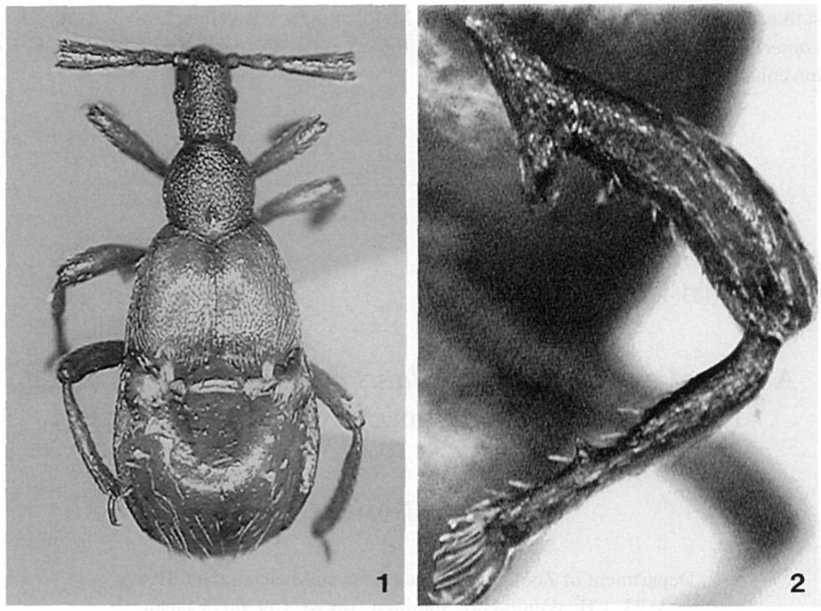
(Figs. 1–2)

Diartiger dentipes NOMURA et LEE, 1992, Esakia, Fukuoka, (32): 77; NOMURA & LEE, 1993, ibid., (33): 44.
Diartiger fossulatus dentipes: NOMURA, 1997, Esakia, Fukuoka, (37): 87.

Specimens examined. 2 ♂, 3 ♀, Ohira, 550 m alt., Tsushima-chô, Ehime Pref., 5–XI–1995, M. SAKAI leg.

Distribution. South Korea including Cheju Is., Japan (Shikoku).

Remarks. This subspecies is clearly distinguished from the other subspecies by the mid femur with a very small denticle near the base, and the mid trochanter with a large and truncate apical spine. It has been restricted to the Korean Peninsula and Cheju Is., South Korea. The new locality of this subspecies from Shikoku is widely distant from the other localities, and seems to be unusual in the distributional ranges of all the subspecies of *D. fossulatus*.



Figs. 1–2. *Diartiger fossulatus dentipes* NOMURA et LEE, from Ohira, Shikoku; male habitus (1); male mid leg in ventral view, enlarged (2).

Elytra, *Tokyo*, **26** (1): 155–160, May 15, 1998

A New Species of the Genus *Cyphon* (Coleoptera, Scirtidae) from the Ryukyu Islands, Japan

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Abstract A new scirtid beetle distributed in the Ryukyu Islands, *Cyphon hashimotorum* sp. nov., is described and illustrated. This species is allied to the three species, *C. rotundatus*, *C. peterseni* and *C. primitus*, known from the islands of the western Pacific.

Though many species of the genus *Cyphon* have been recorded from subtropical and tropical areas of Asia (*e.g.*, KLAUSNITZER, 1976), only three species have been known from the Ryukyu Islands in Japan (SASAGAWA, 1985).

In the present paper, I am going to describe a very remarkable new species of *Cyphon* from Ishigaki-jima and Iriomote-jima, the Ryukyu Islands.

The abbreviations of measurements used in the present paper are the same as in the previous paper of mine.

The holotype and some paratypes described in the present paper are deposited in the National Science Museum, Tokyo, and other paratypes are in the Biological Laboratory, Nagoya Women's University (Dr. M. SATÔ) and in my private collection.

Cyphon hashimotorum sp. nov.

[Japanese name: Hashimoto-chibi-maruhananomi]

(Figs. 1–3)

Body oval, strongly convex above, shining, closely covered with yellowish white hairs which are easily removed. Head black; labrum, mandibles and 1st antennal segment brown; maxillary palpi, labial palpi and 2nd to 11th antennal segments yellowish brown, but somewhat darker in distal segments of antennae; pronotum, scutellum and elytra black, but lateral margins of pronotum paler; apices of elytra and apical 1/3 of elytral sutural areas brown, the brown part variable in size, but not disappearing; ventral surface of body brownish black; legs yellowish brown.

Head large, strongly transverse, about 0.7 times as wide as the length of pronotum, closely covered with fine punctures; posterior part covered with pronotum; frontal margin of clypeus shallowly concaved. Labrum a little wider than long, closely covered with long hairs. Eyes rather small, rather prominent; the distance between eyes

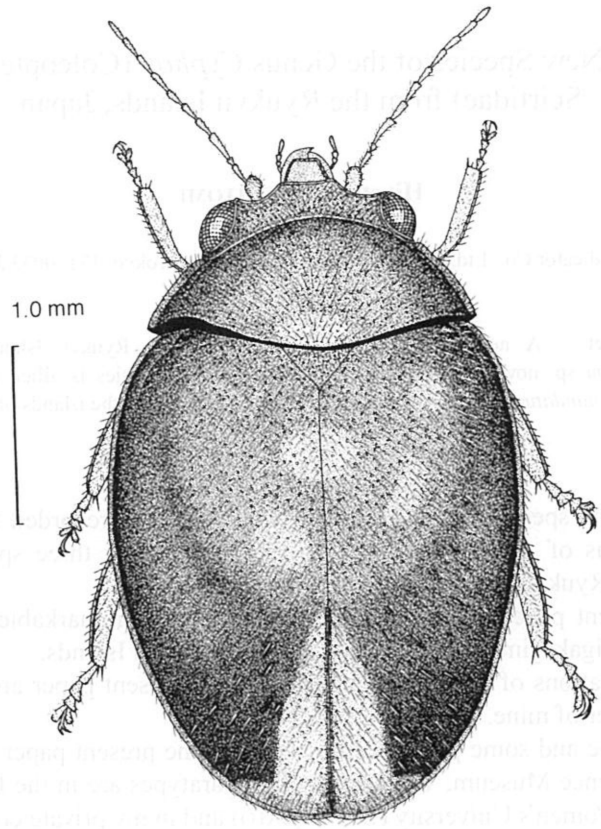

Fig. 1. Dorsal aspect of *Cyphon hashimotorum* sp. nov., male.

about 4.0 times as long as the diameter of an eye. Antennae short, barely reaching proximal margins of elytra; 1st segment large, oval, convex above; 3rd the smallest; approximate ratio of each segment (paratype, male) as 3.1 : 1.5 : 1.0 : 2.1 : 1.8 : 1.9 : 1.9 : 1.9 : 2.0 : 1.9 : 2.5. Pronotum strongly curved ventrally in lateral areas, covered closely with small punctures; antero-lateral angles projecting anteriorly; postero-lateral angles obtuse; posterior margin lightly covered with elytra; PW/PL 2.29–2.43 (2.35). Scutellum large, triangular, punctate closely and finely. Elytra oval, broadest at the middle, covered closely with large and shallow punctures; hairy setae on caudal area of surface longer in female than in male; EL/EW 1.06–1.24 (1.16); EL/PL 3.32–3.43 (3.36); EW/PW 1.18–1.37 (1.24); TL/EW 1.38–1.61 (1.51). Ventral surface of body covered closely with short setae.

Male. Apical margin of 7th abdominal sternite gently rounded. Eighth tergite well sclerotized, with a pair of projections on caudal margin, which are triangular and covered with minute serrae, with a pair of serrate areas on outer surface; 9th tergite

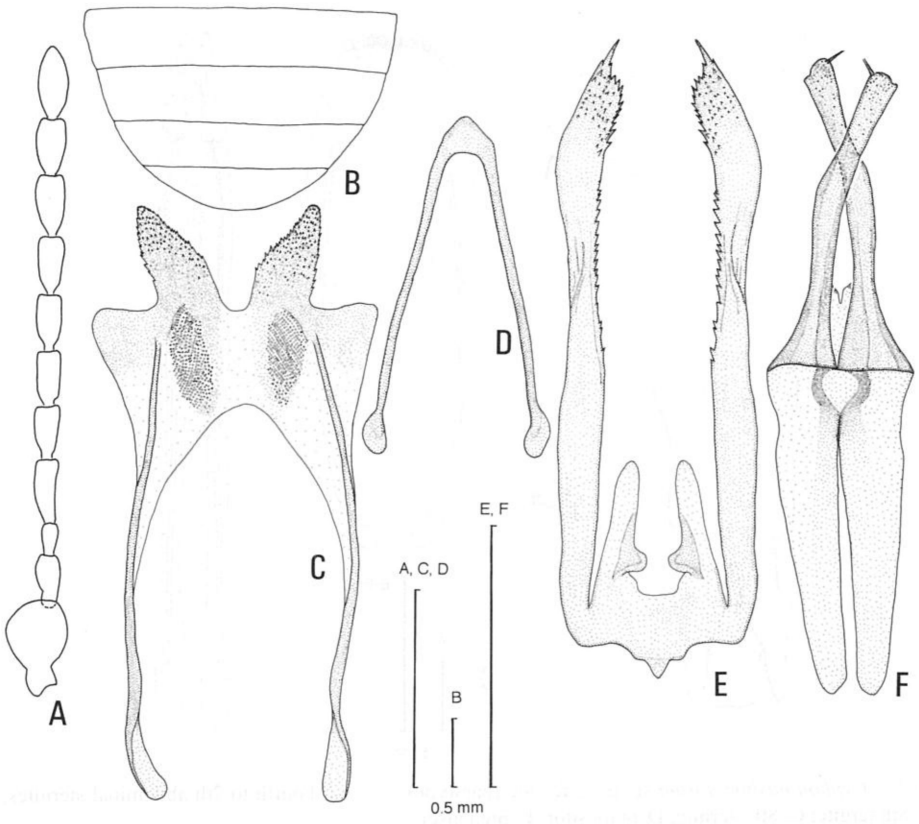

Fig. 2. *Cyphon hashimotorum* sp. nov., male (paratype). —— A, Left antenna; B, 4th to 7th abdominal sternites; C, 8th tergite; D, 9th tergite; E, tegmen in ventral aspect; F, penis in ventral aspect.

well sclerotized, V-shaped. Tegmen well sclerotized; lateral arms serrate in apical 1/4 and on inner margins from about middle to apical 1/3, with pointed apex; a pair of short projections protruding posteriorly from interior part of lateral arms, about 1/4 length of lateral arms. Penis long, well sclerotized; anterior half flat, with deep median notch; caudal half consisting of a pair of club-like projections, which are crossing at about apical 1/4, widest at the base, covered sparsely with fine punctures in apical area, with two prominent setae at the lateral angles of apices.

Female. Abdomen with a pair of shallow concavities on lateral areas of 5th and 6th sternites; apical margin of 7th sternite somewhat pointed. Eighth tergite moderately sclerotized, trapezoidal, with short and rather long setae in apical area, with short spines on posterior margin, covered with minute spines at the interior part of the base of apodeme, with a pair of long apodemes protruding from near antero-lateral corners; 8th sternite lightly sclerotized, oblong, with some setae near postero-lateral corners, with concaved posterior margin, which is covered closely with minute spines. Oviposi-

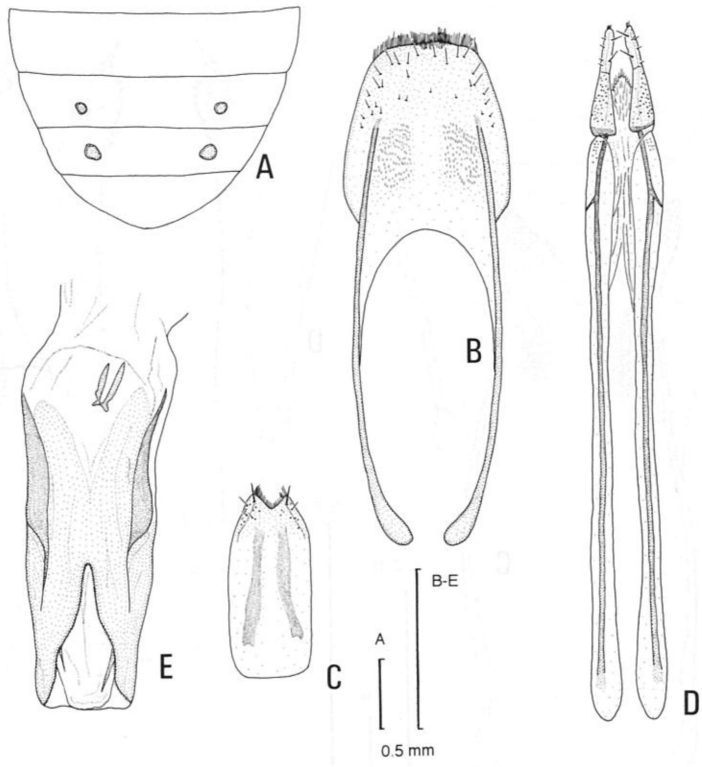

Fig. 3. *Cyphon hashimotorum* sp. nov., female (paratype). —— A, Fourth to 7th abdominal sternites; B, 8th tergite; C, 8th sternite; D, ovipositor; E, prehensor.

tor very long; coxite with short setae in lateral area and with some rather long setae in internal area; stylus closely punctate; approximate ratio of the lengths of coxite, stylus and baculus as follows:— 1.0 : 1.4 : 12.8; prehensor distinct, well sclerotized, deeply notched on posterior margin of ventral part.

Measurements of type series.

Male (n=8): TL 3.05–3.30 (3.18) mm; PW 1.60–1.80 (1.72) mm; PL 0.70–0.75 (0.73) mm; EL 2.35–2.55 (2.45) mm; EW 1.90–2.40 (2.12) mm.

Female (n=2): TL 2.70 & 3.10 mm; PW 1.35 & 1.55 mm; PL 0.55 & 0.60 mm; EL 2.15 & 2.49 mm; EW 1.90 & 2.10 mm.

Type series. Holotype: ♂, Ohtake, Ishigaki-jima, Ryukyu Isls., 23~29–III–1996, H. YOSHITOMI leg. (genitalia removed and preserved in microvial). Paratypes: [Ishigaki-jima] 4 ♂♂, same data as for the holotype (genitalia on slides Nos. HY 212–213; left antenna on slide No. HY 211); 1 ♂, Sakieda, 16–IV–1995, M. NAGASE leg.; 1 ♂, Mt. Omoto, 13–VI–1975, S. IMASAKA leg.; 2 ♂♂, 1 ♀, ditto, 16–X–1987, T. & T. NAKANE leg.; 1 ♀, Shinkawa, 15–III–1995, Y. HIRANO leg. (genitalia on slides Nos. HY

235–236). [Iriomote-jima] 1 ♂, Shirahama, 13–IV–1969, M. CHÛJÔ leg.; 1 ♂, Ôtomi, 8–X–1969, S. AZUMA leg.; 1 ♂, Monbanare, 16–IV–1996, N. TAKAHASHI leg.

Distribution. Japan (Ryukyu Isls.: Ishigaki-jima, Iriomote-jima).

Biological notes. At Ohtake, I collected five individuals by sweeping in marsh and paddy field which had not been cultivated for a long time. I set a light trap at Ohtake (type locality) on 27 March, 1996 to obtain this species. Though many scirtid beetles (*Cyphon* spp. and *Scirtes* spp.) were obtained, this species was not attracted.

Remarks. This new species is closely related to *Cyphon rotundatus* KLAUSNITZER, 1973 described from the Philippines, but is distinguishable from it by the male genitalia.

Judging from male genitalic structures, this species seems to constitute a species-group together with the following species which have been known from islands of the western Pacific: *C. rotundatus* KLAUSNITZER; *C. peterseni* KLAUSNITZER and *C. primitus* KLAUSNITZER.

The new species can be easily distinguished from the other Japanese species of the genus by the large and ovate body, coloration, and male and female genitalia. In addition, the shallow concavities on the 5th and 6th abdominal sternites of the female are found only in this species among the previously known species from Japan.

Etymology. The specific name is given after Dr. Satoshi HASHIMOTO and his wife Akemi in expression of my sincere gratitude for their encouragement.

Acknowledgement

I wish to express my cordial thanks to Dr. Masataka SATÔ of Nagoya Women's University and Dr. Shun-Ichi UÉNO of the National Science Museum, Tokyo for critical reading of the original manuscript, and to Dr. Takehiko NAKANE, Mr. Masayoshi NAGASE, Mr. Yukihiko HIRANO, Mr. Shôichi IMASAKA, Dr. Keiichi TAKAHASHI and Mr. Naoki TAKAHASHI who gave me the specimens or helped me in making researches in the field.

要　　約

吉富博之：琉球列島のチビマルハナノミ属の1新種．—— 石垣島と西表島よりチビマルハナノミ属の1新種，*Cyphon hashimotorum* YOSHITOMIハシモトチビマルハナノミを記載した．雄交尾器の特徴から，本種は西太平洋の島嶼から知られている3種と近縁で，1種群を構成している．日本からこれまでに知られている種類とは，大きい円形の体，色彩，雌雄交尾器により，容易に区別できる．

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Elytra, *Tokyo*, **26** (1): 160, May 15, 1998

A New Record of *Babalimnichus masamii* (Coleoptera, Limnichidae) from Yakushima Island

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Babalimnichus masamii M. SATÔ, 1994 is a small limnichid beetle living on coral reefs and is known from Amami-ôshima, Tokuno-shima, Okinawa-hontô (type locality), Okinoerabu-jima, Yoron-tô, Irabu-jima, Miyako-jima and Ishigaki-jima of the Ryukyu Islands (SATÔ, 1994). Recently, I collected this species from Yakushima Island as recorded below.

1 ex., Koseda, 16–VII–1997, H. YOSHITOMI leg.

1 ex., Kurio, 17–VII–1997, H. YOSHITOMI leg.

The above two specimens were collected from the surfaces of rocks at low tide.

I thank Mr. K. OKADA for his kind help in field investigation.

Reference

SATÔ, M., 1994. Note on the genus *Pseudeucinetus* HELLER and its new relative (Coleoptera, Limnichidae). *Spec. Bull. Essa ent. Soc.*, (2): 173–177.

Elytra, Tokyo, **26** (1): 161–166, May 15, 1998

New or Little-known Elateridae (Coleoptera) from Japan, XXXVIII

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Abstract Two new species and a new subspecies of elaterid beetles are described and illustrated. They are named *Ectinus hidaensis*, *Ampedus* (*Pseudelater*) *tsuneoi* and *Ampedus* (*Pseudelater*) *aritai mikyoensis*.

In the present study, I am going to describe two new species and a new subspecies of elaterid beetles from Japan. The holotype of each species to be described in this paper are preserved in the collection of the National Science Museum (Nat. Hist.), Tokyo.

Before going further, I wish to express my sincere gratitude to Dr. Shun-Ichi UÉNO of the National Science Museum (Nat. Hist.), Tokyo, for his reading the manuscript and giving me useful suggestions, and to Messrs. Masato SHIRAISHI and Tsuneo OCHI of Ehime, and Hisayuki ARIMOTO of Osaka for their kindness in offering the specimens used in this study.

Ectinus hidaensis sp. nov.

(Fig. 1 A–J)

Male. Length 11 mm, width about 3 mm. Body elongate, almost parallel-sided and moderately convex above; surface rather shining, black except for castaneous brown elytra; antennae blackish brown and legs yellowish brown; vestiture pale yellow, rather fine and semidecumbent.

Head shallowly and longitudinally canaliculated between eyes; surface densely and deeply punctate; clypeal margin clearly ridged and obtrapezoidal (Fig. 1 C). Antenna elongate, extending beyond posterior angle of pronotum at least by apical segment; 2nd segment small and subcylindrical, 3rd subtriangular and a little shorter than 2nd, 4th about twice as long as 3rd, from 4th to 10th distinctly serrate (Fig. 1 F).

Pronotum elongate, a little longer than its broadest width at posterior angles, with sides slightly incurved in posterior half, then rounded and gradually converging towards anterior angles (Fig. 1 J); disc dome-like, evenly and densely punctate (Fig. 1 H), usually bearing a shallow median longitudinal channel at base; posterior angles produced postero-laterad, each with a distinct carina above. Prosternal process straightly projected posteriad and acutely dentate near apex (Fig. 1 B). Scutellum lingulate, flat-

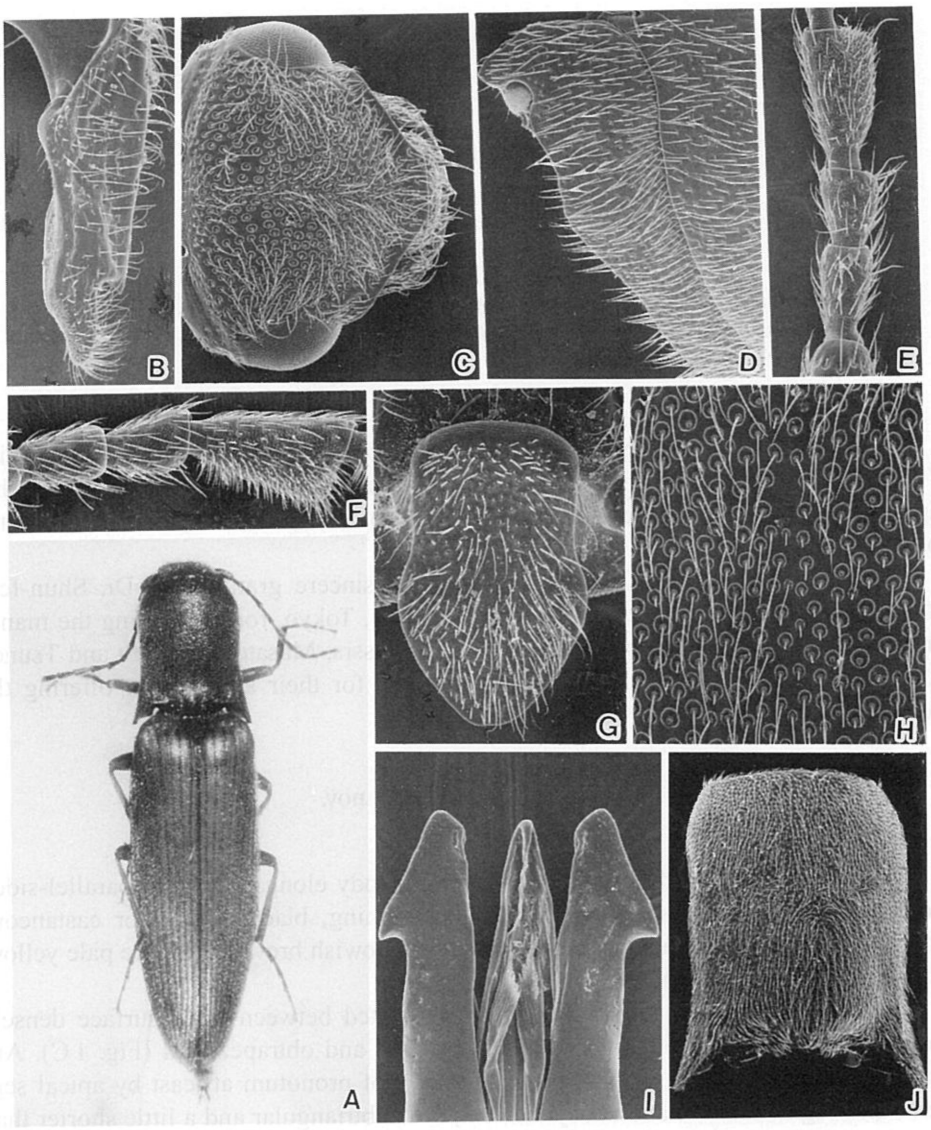

Fig. 1. *Ectinus hidaensis* sp. nov., male (except E which is of a female). —— A, Holotype; B, prosternal process, lateral aspect; C, head, dorsal aspect; D, left basal plate, ventral aspect; E & F, 2nd to 4th segments of antenna; G, scutellum, dorsal aspect; H, some punctures on the disc of pronotum; I, aedeagus, ventral aspect; J, pronotum, dorsal aspect.

tened and pubescent (Fig. 1 G).

Elytra about 2.7 times as long as its basal width, with sides almost parallel in basal halves, thence weakly rounded and gradually convergent towards apices which

are ordinarily pointed; striae normally defined; intervals gently elevated, finely and irregularly rugose. Basal plate as illustrated (Fig. 1 D). Legs slender, claws simple.

Aedeagus as illustrated; median lobe rather short, gradually narrowing towards apex; apical portions of lateral lobes usually surpassing median lobe, each apical portion more or less narrowly and obliquely truncated with the outer margin obliquely and almost straightly extending posteriad (Fig. 1 I).

Female. Length 12 mm. Very similar to male, but the body is robuster and the antenna is shorter, usually a little shorter than posterior angle of pronotum.

Holotype: ♂, Kawai-mura in Gifu Prefecture, 18~19–VI–1972, H. ÔHIRA leg. Paratypes: 3 ♂♂, 2 ♀♀, same date as for the holotype; 3 ♂♂, 3 ♀♀, Mt. Hakusan in Gifu Prefecture, 20~21–VI–1972, H. ÔHIRA leg.; 2 ♂♂, 1 ♀, Mt. Ohdai in Nara Prefecture, 25–VI–1987, H. ARIMOTO leg.; 2 ♂♂, 1 ♀, Mt. Ishizuchi in Ehime Prefecture, 7–VI–1992, M. SHIRAISHI leg.

Distribution. Honshu and Shikoku, Japan.

This new species is closely allied to *Ectinus longicollis* (LEWIS, 1894) from Honshu, but can be distinguished from the latter by the longer and slenderer body, longer antennae, not flattened and usually minutely rugose intervals of elytra, and narrower and subtriangular apical portions of lateral lobes of aedeagus with the apices more or less obliquely truncated. The specimens from Mt. Ohdai in Nara Prefecture and Mt. Ishizuchi in Ehime Prefecture usually possess black elytra and legs.

Ampedus (*Pseudelater*) *tsuneoi* sp. nov.

(Fig. 2 A–B)

Male. Length 9.5 mm, width about 2.8 mm. Body slender, fusiform and moderately convex above; surface shining, black except for reddish brown elytra (basal margin and most parts of apical portion black to blackish brown); antennae black and legs blackish brown. Vestiture black and semidecumbent.

Head gently convex between eyes, flattened with vertical portion between antennae; clypeal margin obtusely angulate and more or less depressed at middle. Antennae elongate, extending beyond posterior angles of pronotum at least by apical two segments; basal segment robust and oblong-ovate, 2nd small and subglobose, 3rd triangular and a little shorter than 4th, from 3rd to 10th distinctly serrate (Fig. 2 B).

Pronotum subtrapezoidal, a little wider than its basal width, with sides slightly sinuate just before posterior angles, thence gradually tapering towards anterior angles; disc simply convex, finely, sparsely and evenly punctate; posterior angles projected postero-laterad, with each tip slightly bent downwards and bearing distinct carina above. Prosternal process clearly incurved just behind procoxal cavities. Scutellum lingulate, flattened and subvertical.

Elytra about 2.6 times as long as its basal width, with sides almost parallel in basal halves, thence rounded and gradually convergent towards apices which are ordinarily pointed; striae well defined, deeply and coarsely punctate; intervals gently ele-

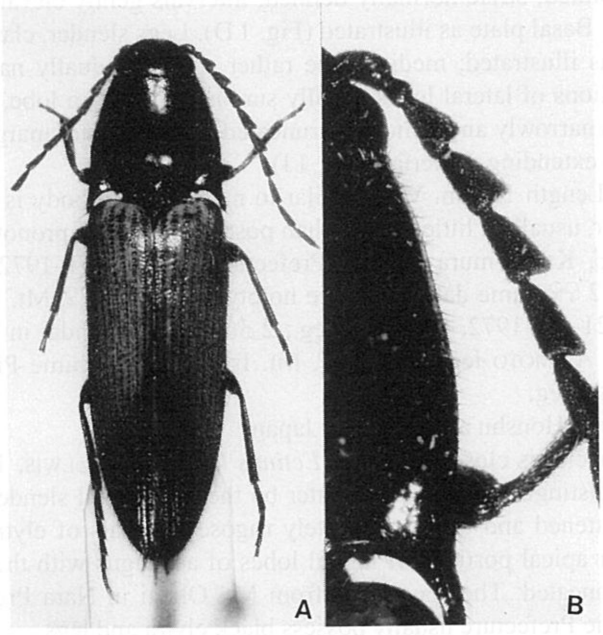

Fig. 2. *Ampedus* (*Pseudelater*) *tsuneoi* sp. nov. —— A, Holotype (male); B, right half of pronotum and some basal segments of right antenna.

vated, irregularly and roughly rugose. Legs slender; claws simple.

Female. Unknown.

Holotype: ♂, Tsuchigoya on Mt. Ishizuchi, Ehime Prefecture, 17–VI–1990, T. OCHI leg.

Distribution. Shikoku, Japan.

This new species somewhat resembles *Ampedus* (*Pseudelater*) *nikkoensis* ÔHIRA, 1973 from Nikkô in Tochigi Prefecture, Honshu, but can be distinguished from the latter by the robuster body, more coarsely and deeply punctate striae of elytra, black antennae and legs, the former of which are more distinctly serrate from 3rd to 10th segments, and more sharply projected and ventrally bent apex of each posterior angle of pronotum.

Ampedus* (*Pseudelater*) *aritai mikyoensis subsp. nov.

(Fig. 3)

Female. Length 11 mm, width about 3.3 mm. Body robust, moderately elongate and rather shining; surface dark reddish brown except for head, scutellum, and most parts of ventral surfaces of body black. Legs also black except for tarsi slightly blackish brown. Vestiture golden fulvous and semidecumbent.

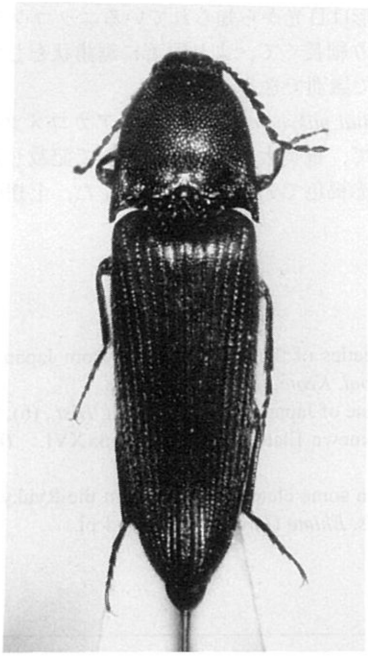

Fig. 3. *Ampedus* (*Pseudelater*) *aritai mikyoensis* subsp. nov. Holotype (female).

This new subspecies can be distinguished from the nominotypical subspecies from Is. Amami-Ôshima by the slenderer body with darker pronotum and elytra, a little smaller and more evenly punctate disc of pronotum, and more clearly elevated intervals of elytra.

Holotype: ♀, Mikyô on Is. Tokuno-shima, 2～5–V–1995, H. ÔHIRA leg.

Distribution. Is. Tokuno-shima of the Ryukyu Islands.

要　　約

大平仁夫：日本産コメツキムシ科の新種，XXXVIII. —— 本報告では，本州，四国および琉球に分布する2新種1新亜種を記載した．

1．*Ectinus hidaensis*（ヒダムネナガカバイロコメツキ）の基産地は，岐阜県の飛騨地方（川合村，白山）で，この地方のものは上翅が褐色であるが，奈良県大台ケ原や愛媛県石鎚山地のものは黒色であるし，肢も黒色をしている．本種は従来，一部の文献でムネナガカバイロコメツキ*E. longicollis*として記録されてきたが，体はより細長くて触角も長いし，雄交尾器の側突起の末端部の三角状部はより細長い．この末端部の形態は地域により若干の変異があるが，末端は多少とも斜め内方の切断状である．

2．*Ampedus* (*Pseudelater*) *tsuneoi*（ツチゴヤアカコメツキ）は，愛媛県石鎚山系の土小屋において越智恒夫氏により採集された．体長は9.5 mmで上翅が赤褐色をした種で，触角は第3節か

ら鋸歯状をしている．一般外形は日光から知られているニッコウアカコメツキ*A.* (*P.*) *nikkoensis* に類似しているが，触角はより細長くて，より顕著に鋸歯状をしていて，前胸背板の後角部が斜め下方に湾曲してとがるので識別できる．

3．*Ampedus* (*Pseudelater*) *aritai mikyoensis*（ミキョウアカコメツキ）は，徳之島の三京から筆者が採集した雌個体に基づいて，奄美大島産の亜種として記載した．体は奄美大島産のものに比して小型で細長く，より濃赤褐色で光沢を有する．また，上翅の間室部はより顕著に隆起する．

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Elytra, *Tokyo*, **26** (1): 166, May 15, 1998

Additional Record of *Stenhomalus cephalotes* (Coleoptera, Cerambycidae) from Vietnam

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A little-known obriine species, *Stenhomalus cephalotes* PIC (1928, Mél. Exot.-Ent., (51), p. 28) was described from Tonkin of northern Vietnam, and was also recorded from Laos (GRESSITT & RONDON, 1970). It has a closer relationship to *S. taiwanus* MATSUSHITA from the Japanese Islands including the Ryukyus, East China and Taiwan. I recently examined a single male specimen of the species collected from Mt. Tam Dao of northern Vietnam. I would like to record it again from Vietnam as below.

Specimen examined. 1 ♂, Mt. Tam Dao, Vinh Phu Prov., N. Vietnam, V–1997, local collector.

Elytra, Tokyo, **26** (1): 167–171, May 15, 1998

A New Species of the Subgenus *Dryopomera* (Coleoptera, Oedemeridae) from the Yaeyama Islands of the Ryukyus

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Abstract A new oedemerid species, *Dryopomera* (*Dryopomera*) *kurosai* sp. nov., is described from Ishigaki-jima and Iriomote-jima of the Yaeyama Islands, Southwest Japan. It is very similar in general appearance to *D.* (*D.*) *yatoi* (NAKANE) from the Ryukyus.

The oedemerid subgenus *Dryopomera* comprises eighteen species known from Southeast Asia and its adjacent areas. In East Asia including Japan, only one species, *Dryopomera yatoi* (NAKANE), has hitherto been known from Honshu, Shikoku, Kyushu, the Tokara Islands of the Ryukyus, and Taiwan.

Recently, I had an opportunity to examine many oedemerid specimens from the Yaeyama Islands of the Ryukyus, which included a strange species of *Dryopomera*. After a careful examination, it became clear that it is evidently new to science. In the present paper, I am going to describe it as a second species of the genus from East Asia.

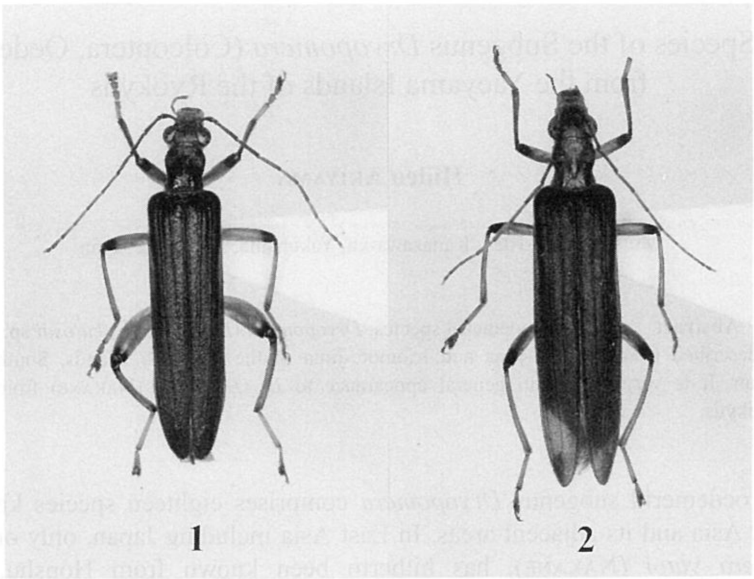
Before going further, I wish to express my deep gratitude to Dr. Kazuyoshi KUROSA of Tokyo for his continuous guidance on my study, and to Dr. Masatoshi TAKAKUWA of the Kanagawa Prefectural Museum of Natural History, Odawara, for his critically reading the original manuscript of this paper. Deep thanks are also due to Dr. Sadahiro OHMOMO of Tsukuba, Messrs. Shigeo TSUYUKI of Zushi, Tomoji MIKAGE of Ageo and Shoichi IMASAKA of Kurume for supplying with valuable materials, and also to Dr. Vladimir ŠVIHLA, Department of Entomology, National Museum of Prague, for his helping in literature.

Dryopomera* (*Dryopomera*) *kurosai sp. nov.

[Japanese name: Yaeyama-hoso-kamikirimodoki]

(Figs. 1–4, 9–10, 15, 18)

Colour mostly brownish; head yellowish light brown, slightly darkened between eyes; mandibles yellowish light brown except for pitchy brown apices; maxillary palpi yellowish brown; pronotum and scutellum yellowish brown; elytra brown; ventral surface yellowish brown; legs largely yellowish light brown, apices of femora and tibiae,



Figs. 1–2. *Dryopomera* (*Dryopomera*) *kurosai* sp. nov.; 1, male, holotype; 2, female, paratype.

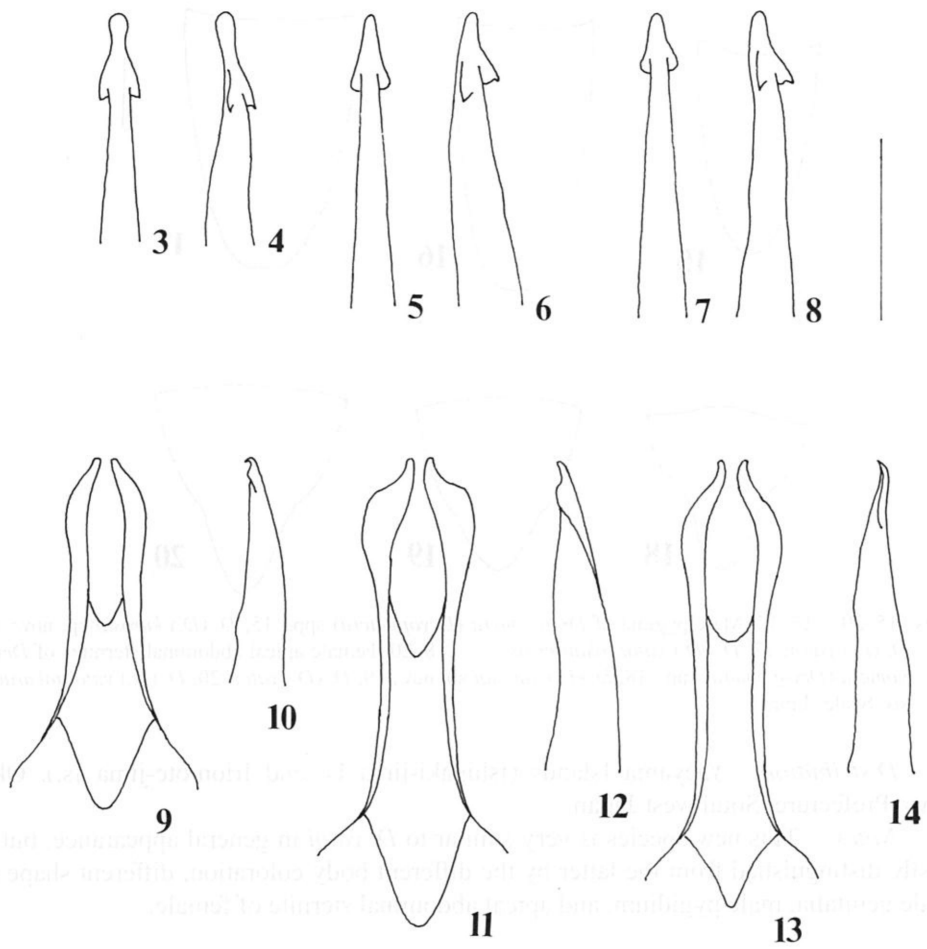
4th segments of front and middle tarsi and 3rd segments of hind tarsi dark brown.

Male. Head including eyes a little wider than pronotum (1.5 : 1.25), with interspace between eyes slightly narrower than the width between antennal insertions; surface very finely coriaceous, finely punctate and bearing rather shiny pubescence; eyes convex. Antennae filiform, long, slightly extending beyond the middle of elytra, with apical segment excavated dorsally in apical half. Pronotum distinctly longer than wide, constricted behind the middle; disc provided with a pair of shallow depressions in front of middle, without longitudinal keel between them, and with a shallow depression at centre just before base. Elytra almost parallel-sided, finely coriaceous, densely pubescent, suture straight; vein 4 reaching apical third, without a cross vein connected with vein 3. Hind femora thickened, hind tibiae slightly curved inwards. Pygidium parabolic, with rounded apex (Fig. 15). Genitalia relatively short; median lobe arrow-shaped at apex, the tip of which is inflatedly rounded (Figs. 3–4); lateral lobes parallel-sided though slightly arcuate near apices, with tips sharply hooked in lateral view (Figs. 9–10).

Female. Body slightly robust. Antennae slightly extending to basal halves of elytra. Pronotum with three shallow impressions on disc. Elytra slightly wider than those in male, hardly narrowed posteriorly. Apical abdominal segment more or less widened, with sides sinuately convergent towards apices which are rounded (Fig. 18).

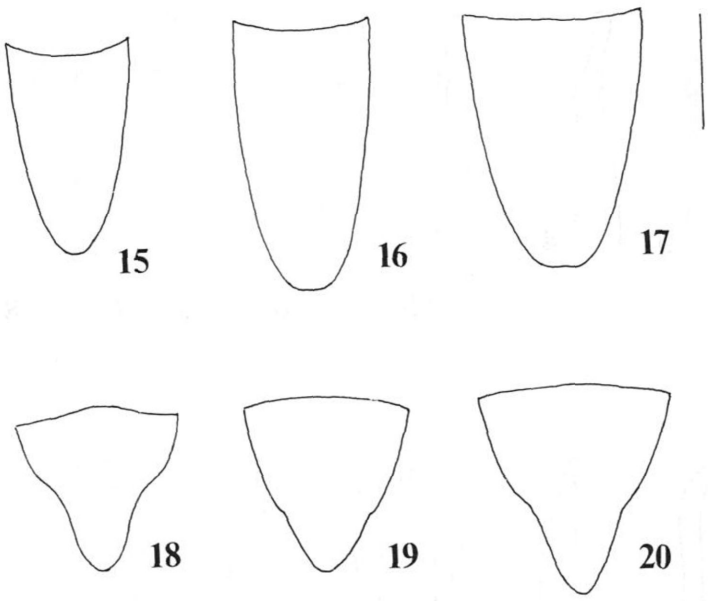
Length (♂♀) 11.5–14.0 mm.

Type series. Holotype ♂, Mt. Omoto-dake, Ishigaki-jima Is., Okinawa Pref.,



Figs. 3–14. Male genitalia of *Dryopomera* (*Dryopomera*) spp. —— 3, 5, 7, Median lobes in dorsal view; 4, 6, 8, same in lateral view; 9, 11, 13, lateral lobes in dorsal view; 10, 12, 14, same in lateral view. —— 3, 4, 9, 10, *D.* (*D.*) *kurosai* sp. nov.; 5, 6, 11, 12, *D.* (*D.*) *yatoi*; 7, 8, 13, 14, *D.* (*D.*) *yatoi tokaraensis*. Scale: 1 mm.

southern Ryukyus, 11–IV–1976, Y. IWASAKI lgt. (deposited in the Kanagawa Prefectural Museum of Natural History, Odawara). Paratypes: same locality as the holotype: 1 ♂, 30–III–1973, T. MIKAGE lgt.; 1 ♂, 1 ♀, 7–V–1963, Y. ARITA lgt.; 1 ♀, 23–III–1976, K. MURAKAMI lgt.; 1 ♂, Yonehara, Ishigaki-jima Is., 10–IV–1981, Y. MATSUNAGA lgt.; 1 ♂, Ishigaki-shi, Ishigaki-jima Is., 19–III–1996, K. TAKAHASHI lgt.; 1 ♀, Ishigaki-shi, 13–IV–1997, K. TAKAHASHI lgt.; 1 ♀, Ishigaki-shi, 25–IV–1997, K. TAKAHASHI lgt.; 2 ♂♂, 3 ♀♀, Maryûdono-taki, Iriomote-jima Is., Okinawa Pref., 20–XII–1995, M. KIMURA lgt.



Figs. 15–20. 15–17. Male pygidia of *Dryopomera* (*Dryopomera*) spp.; 15, *D.* (*D.*) *kurosai* sp. nov.; 16, *D.* (*D.*) *yatoi*; 17, *D.* (*D.*) *yatoi tokaraensis*. —— 18–20. Female apical abdominal sternites of *Dryopomera* (*Dryopomera*) spp.; 18, *D.* (*D.*) *kurosai* sp. nov.; 19, *D.* (*D.*) *yatoi*; 20, *D.* (*D.*) *yatoi tokaraensis*. Scale: 1 mm.

Distribution. Yaeyama Islands (Ishigaki-jima Is. and Iriomote-jima Is.), Okinawa Prefecture, Southwest Japan.

Notes. This new species is very similar to *D. yatoi* in general appearance, but is easily distinguished from the latter by the different body coloration, different shape of male genitalia, male pygidium, and apical abdominal sternite of female.

要　　約

秋山秀雄：日本産カミキリモドキの1新種．—— 日本産の*Dryopomera*属には，これまでホソカミキリモドキ*D. yatoi*とその亜種*D. yatoi tokaraensis*が知られていたが，今回石垣島と西表島よりヤエヤマホソカミキリモドキ（新称）*Dryopomera kurosai* sp. nov.を記載した．この種は，ホソカミキリモドキによく似ているが，雄の尾節板と交尾器，雌の腹部末端節の形などにより区別することができる．

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Sci. Rept. Saikyo Univ., **1**: 171–188.
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Elytra, Tokyo, **26** (1): 171–172, May 15, 1998

A Second Locality of *Stenhomalus muneaka* (Coleoptera, Cerambycidae) in Western Honshu

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Stenhomalus muneaka and its two relatives, *S. incongruus* and *S. parallelus*, form a species complex (the so-called *S. incongruus* complex) within the genus, and allopatric to Honshu, the Tsushima Islands and East China, respectively. This group was carefully studied in the previous paper of mine (NIISATO, 1988). On the other hand, a *Stenhomalus* species of this group had already been recorded by LEE (1987, p. 79, pl. 10, fig. 94) from the Korean Peninsula with the name *S. muneaka* in the previous year of my publication. It is almost doubtless that the Korean species recorded by LEE (1987) belongs to *S. parallelus* because of the stout appendages and the parallel-sided elytra shown with a photograph in LEE's book, and also for the reason of the zoogeographical affinity between the Tsushima Islands and the Korean Peninsula.

For more than ten years, we have received information that *S. muneaka* or its relative was collected from the Kinki and Chûgoku Districts of western Honshu. The rumors seemed highly reliable, though no additional record of this complex of *Stenhomalus* has so far been published. Last November, a single specimen of this group collected at Taishakukyô of the Chûgoku District was submitted to me for taxonomical study through the courtesy of Mr. Ryouji TOYOSHIMA. After a closer examination, it was revealed that the specimen in question agreed well with the type population of *S. muneaka* because of its paler coloration, ampler hind body, rather thin antennae and legs, and also the male genital organ which furnishes the most important character for species determination of this group. In this short report, I will record *S. muneaka* from the Chûgoku District as a second locality of the species. For the abbreviations used in the description, see other papers of mine.

I am much indebted to Mr. Ryouji TOYOSHIMA for giving me the opportunity to study invaluable specimen, and to Dr. Shun-Ichi UÉNO of the National Science Museum (Nat. Hist.), Tokyo, for his constant guidance.

Stenhomalus muneaka HAYASHI

Stenhomalus muneaka HAYASHI, 1981, Ent. Rev. Japan, **36**, p. 29; type locality: Kuzuba-tôge Pass in Niigata Pref.; 1984, Coleopt. Japan Col., Osaka, **4**, p. 52, pl. 10, fig. 22. —— KUSAMA & TAKAKUWA, 1984, Longicorn-Beetles of Japan in Color, p. 271, pl. 31, fig. 212. —— NIISATO, 1988, Kontyû, Tokyo, **56**, pp. 795–796, figs. 6–7.

Other references are omitted (cf. NIISATO, 1988).

Diagnostic description. Male. Body length 5.20 mm. Colour blackish russet, with yellowish orange prothorax, antennal segments 4–8 at each base and all legs yellow, moderately shiny; head dark russet in middle, yellowish in the rests; elytra blackish russet, with faint reddish tinge. Hairs yellowish in colour, generally flying and irregular in length, though densely silvery white pubescent on elytra and at pronotal base. Head distinctly wider than pronotum; HW/PA 1.46, HW/PW 1.17, FW/FL 1.55. Antennae slender, 1.42 times as long as body. Pronotum provided with sparse irregular-sized punctures, with a pair of gently raised areas at sides slightly before middle; PL/PA 1.23, PL/PW 1.08, PL/EL 0.33, PB/PA 0.90. Elytra shorter than in those of the type population, EL/EW 2.32 (2.55 on an average in the type population), weakly ample posteriad, with sides gently arcuate in apical 2/5, rather strongly punctured. Legs moderately thin. Male genital organ almost identical with that of the type population, though the median lobe is fairly broad near base, with bluntly pointed extremity.

Specimen examined. 1 ♂, Taishakukyô, Hiba-gun, Hiroshima Pref., W. Honshu, Japan, larva collected on 23–III–1997, emerged on 30–IV–1997, R. TOYOSHIMA leg.; host plant: *Celtis jessoensis* (in coll. T. NIISATO.)

Notes. The species of the *S. incongruus* complex are clearly discriminated from one another by the male genital organ, but their external features are not so specialized except for the elytral proportion, and the development of antennae and legs. As was described above, the specimen from the Chûgoku District was quite identical with the type population of *S. muneaka* from the Himekawa Valley of the Jyôétsu area, central Honshu, though the two localities are widely isolated. This fact may suggest that the speciation of *S. muneaka* took place somewhere in the western part of the Japanese Islands in rather a recent period after the formation of the Tsushima Straits at least about 85,000 years ago.

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Elytra, *Tokyo*, **26** (1): 173–200, May 15, 1998

Study of Asian Strongyliini (Coleoptera, Tenebrionidae)

V. Twenty New Species of the Genus *Strongylium* from East Asia

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Abstract This is the fifth part of the study of the Asian Strongyliini and deals with 20 new species of the genus *Strongylium* from East Asia. They are described under the following names: *S. phedongense* sp. nov., *S. kambaitiense* sp. nov., *S. birmanicum* sp. nov., *S. kingdonwardi* sp. nov., *S. cicindeliforme* sp. nov., *S. lumulumuense* sp. nov., *S. itoi* sp. nov., *S. kenokokense* sp. nov., *S. trifasciatum* sp. nov., *S. pilifasciatum* sp. nov., *S. pici* sp. nov., *S. yai* sp. nov., *S. moritai* sp. nov., *S. nangbangense* sp. nov., *S. kohanemum* sp. nov., *S. kanchanaburiense* sp. nov., *S. akitai* sp. nov., *S. tabanai* sp. nov., *S. tanikadoi* sp. nov. and *S. merkli* sp. nov.

This paper is the fifth part of my study concerning the Asian Strongyliini and deals with twenty new species of the genus *Strongylium* from various areas of East Asia.

The specimens examined are submitted to me for taxonomic study mainly from the collections of the Muséum National d'Histoire Naturelle, Paris, the Natural History Museum, London, and Természettudományi Múzeum, Budapest. Other materials, besides the specimens in my collection, are submitted to me personally from Messrs. Stanislav Bečvář (Czech Academy of Sciences), Kiyoshi Ando (Ehime University), Katsumi Akita (Hisai City), Motohiko Tanikado (Ibaraki City), Masakazu Tabana (Suita City), and Kazuyuki Kawada (Kawasaki City).

I wish to express my heartfelt appreciation to Dr. Claude Girard and Mlle Jeanne Charbonnel, Muséum National d'Histoire Naturelle, Paris, Messrs. Malcolm Kerley and Martin J. D. Brendell, the Natural History Museum, London, Dr. Ottó Merkl, Természettudományi Múzeum, Budapest, and the other persons mentioned above, for their invaluable support in the course of the present study. Appreciations are also due to Messrs. Seiji Morita and Kaoru Sakai of Tokyo, for taking photographs inserted in this paper. Finally, my deepest thanks should be expressed to Dr. Shun-Ichi Uéno, National Science Museum (Nat. Hist.), Tokyo, for his constant guidance of my taxonomic studies.

Depositories of the holotypes to be designated are given in each description.

Strongylium phedongense sp. nov.

(Figs. 1, 21, 22)

Brownish black, elytra, tarsi, 5th to 11th segments of antennae, etc., lighter in colour; dorsal surface moderately shining, ventral surface feebly alutaceous; each surface almost glabrous. Elongate and subcylindrical.

Head subdecagonal, very weakly micro-shagreened, rather closely punctate; clypeus transverse, flattened in basal portion, and rather strongly bent downwards in front, with fronto-clypeal border almost straight, very finely impressed; genae obliquely, moderately raised, with obtuse outer margins; frons somewhat T-shaped, gently inclined forwards; eyes large and subreniform, rather strongly convex laterad, obliquely, roundly inlaid into head, diatone about 1/10 times the width of an eye diameter; vertex with a vague impression at the middle. Antennae filiform, ratio of the length of each segment from basal to apical: 0.6, 0.2, 1.2, 0.92, 0.94, 0.88, —, —, —, —, —.

Pronotum subquadrate, 1.2 times as wide as long, widest slightly before the middle and also at base, sinuate before base; apex feebly produced and finely rimmed; base bordered and rimmed, slightly bisinuous; sides rounded and steeply declined to lateral margins, which are finely rimmed, though the rims are invisible from above; front angles rounded, hind angles acute; disc moderately convex, shallowly grooved in medial part, very weakly micro-shagreened, rather closely, irregularly scattered with small punctures, which are often connected with one another. Scutellum triangular, raised in posterior portion, very weakly micro-shagreened, sparsely scattered with microscopic punctures.

Elytra 2.5 times as long as wide, 4.9 times the length and 1.6 times the width of pronotum, slightly widened posteriad, widest at apical 1/3; dorsum rather strongly and longitudinally convex, weakly depressed in basal 1/4 around sutural strioles, highest at basal 1/4; disc punctato-striate, the punctures small and somewhat longitudinal, often fused with one another, the striae forming short grooves, though the grooves are irregularly interrupted by ridges transversely connecting intervals; intervals gently convex, weakly micro-shagreened, scattered with microscopic punctures, somewhat transversely micro-aciculate.

Male anal sternite weakly depressed in linguiform; legs slender, not modified; ratios of the lengths of pro-, meso- and metatarsomeres: 0.32, 0.25, 0.23, 0.26, 1.22; 1.5, 0.79, 0.65, 0.52, 1.49; 2.12, 0.93, 0.71, 1.48.

Male genitalia short fusiform, 3.4 mm in length, 0.75 mm in width, rather noticeably curved in lateral view; fused lateral lobes 1.4 mm in length with weakly prolonged apex.

Body length: 20–22 mm.

Holotype: ♂, Phedong, R. P. DESGODINS leg. (MNHNP). Paratypes: 1 ex., Lachen–Lachung, Sikkim, British India, VIII–1933; 1 ex., Padong, British Bootang, 1914, L. DUREL leg.; 1 ex., British Bootang, 1900, MARIN BASTI leg.; 1 ex., Gopldhara, Darjeel-

ing, 4,720–6,100 ft., 14–IX–1917, H. STEVENS (NHML).

Notes. This new species resembles *S. macrops* WIEDEMANN, 1823, originally described from Bengal, but can be distinguished from the latter by the dorsal surface more strongly shining, the head with more rounded eyes, the pronotum less closely, irregularly punctate, and the elytral intervals less distinctly punctate.

Strongylium kambaitiense sp. nov.

(Figs. 2, 23)

This new species closely resembles *S. phedongense* sp. nov., but can be distinguished from the latter by the following characteristics.

Body slightly bolder; head very weakly micro-shagreened, slightly more closely and coarsely punctate; clypeus more transverse, more noticeably flattened in basal portion, with fronto-clypeal border almost straight though not impressed; genae with outer margins more noticeably rounded and strongly raised; eyes more distinctly rounded laterad, diatone about 1/8 times the width of an eye diameter; vertex obviously with a longitudinal impression at the middle extending to occiput. Antennae filiform, ratio of the length of each segment from basal to apical: 0.6, 0.2, 1.2, 0.85, 0.85, 0.8, 0.75, 0.65, 0.65, 0.6, 0.75.

Pronotum almost trapezoidal, 1.3 times as wide as long, widest at base, feebly narrowed apicad, though slightly sinuous before base; apex almost straight, finely rimmed; base noticeably bisinuous, finely bordered and boldly rimmed; sides steeply declined to lateral margins, which are finely rimmed, though the rims are invisible from above; front angles rounded, hind angles slightly acute; disc very weakly micro-shagreened, more noticeably grooved on median line, more closely and irregularly scattered with small punctures, with three pairs of shallow impressions, one at apical 1/5, another at basal 1/4, and the other near base, and also with a somewhat triangular depression in medio-basal portion. Scutellum somewhat linguiform, feebly elevated, scattered noticeably, and closely with microscopic punctures in apical part.

Elytra 2.3 times as long as wide, 5.2 times the length and 1.8 times the width of pronotum, feebly widened posteriad, widest at apical 1/3; dorsum slightly less strongly convex, highest at basal 1/3; disc more noticeably punctato-striate, the punctures very small and longitudinally fused with one another, the striae rather bold and irregularly interrupted by ridges, which connect the intervals transversely; intervals more distinctly convex, feebly but more distinctly micro-shagreened and micro-aciculate, more sparsely scattered with microscopic punctures; humeri slightly more noticeably produced laterad; apices less distinctly produced.

Male anal sternite weakly and semicircularly depressed; legs less slender, not modified; ratios of the lengths of pro-, meso- and metatarsomeres: 0.5, 0.25, 0.26, 0.27, 1.2; 2.0, 0.8, 0.7, 0.5, 1.37; 2.25, 0.85, 0.65, 1.5.

Male genitalia in the holotype specimen almost lost (eaten by a dermestid) except for fused lateral lobes, which are about 2 mm in length and with slightly prolonged

apices. (The other four specimens are females.)

Body length: 19–22 mm.

Holotype: ♂, Kambaiti 7,000 ft. alt., NE Burma, 4~8–VI–1934, R. MALAISE leg. (NHML). Paratypes: 1 ex., same data as for the holotype; 3 exs., 22–VI–1934, same locality and collector.

Strongylium birmanicum sp. nov.

(Figs. 3, 24, 25)

Castaneous, with head more or less darkened; dorsal surface moderately, somewhat vitreously shining, ventral surface feebly alutaceous; each surface almost glabrous. Elongate and subcylindrical.

Head subdecagonal, very weakly micro-shagreened, rather closely punctate, the punctures fused with one another on vertex; clypeus transverse, gently depressed in basal portion, rather strongly bent downwards in front, with fronto-clypeal border arcuate and finely impressed; genae obliquely, rather strongly raised, with obtuse outer margins; frons rather wide, gently inclined forwards; eyes medium-sized for a member of the genus and subreniform, diatone almost of the same width as an eye diameter; vertex medially with an obsolete impression. Antennae filiform, ratio of the length of each segment from basal to apical: 0.5, 0.2, 0.95, 0.65, 0.6, 0.6, 0.55, 0.5, 0.5, 0.5, 0.6.

Pronotum rather quadrate, 1.17 times as wide as long, widest at the middle, slightly sinuate before base; apex gently produced and rimmed, the rim feebly thickened in middle; base bordered, thickly rimmed, feebly sinuous on each side; sides steeply inclined, almost evenly rounded laterad, with lateral margins finely rimmed, the rims in anterior halves visible from above; front angles obtuse, hind angles feebly projected; disc moderately convex, very weakly micro-shagreened, distinctly rugoso-punctate, with a pair of impressions at base on each side, and a shallow depression in postero-medial part close to base. Scutellum triangular with rounded apex, feebly elevated, very weakly micro-shagreened, closely scattered with microscopic punctures in lateral portions (impunctate in medio-longitudinal part).

Elytra 2.55 times as long as wide, 5.2 times the length and 1.66 times the width of pronotum, feebly widened posteriad, widest at apical 1/3; dorsum rather strongly convex longitudinally, highest at the middle; disc punctato-striate, the striae deeply incised though irregularly interrupted, three to ten punctures confluent and forming a section; intervals gently convex longitudinally and often transversely connected by ridges with one another, very weakly micro-shagreened and micro-aciculate, sparsely scattered with microscopic punctures.

Legs slender, not modified; ratios of the lengths of pro-, meso- and metatarsomeres: 0.35, 0.25, 0.25, 0.25, 1.2; 1.0, 0.6, 0.6, 0.4, 1.25; 1.35, 0.75, 0.45, 1.25.

Male genitalia fusiform, 2.75 mm in length, 0.4 mm in width, gently curved in lateral view; fused lateral lobes 1.25 mm in length with acute apex.

Body length: 14–17 mm.

Holotype: ♂, Kambaiti, NE Burma, 7,000 ft. alt., 22–VI–1934, R. MALAISE leg. (NHML). Paratypes: 2 exs., same data as for the holotype; 2 exs., 28–V–1934, 1 ex., 17–V–1934, 1 ex., 4~8–VI–1934, same locality and collector as for the holotype.

Notes. This new species resembles *S. interruptum* BLAIR, 1930, originally described from Darjeeling, but can be distinguished from the latter by the noticeably punctate pronotum with lateral margins clearly ridged in anterior halves, and front angles not rounded but obtusely angulate, and the elytral intervals transversely connected by the ridges with one another.

Strongylium kingdonwardi sp. nov.

(Figs. 4, 26, 27)

This new species resembles *S. subaeneum* PIC, 1917, originally described from Yunnan, but can be distinguished from the latter by the following characteristics:

Body shape and coloration almost the same as those of *S. subaeneum*; dorsal surface less shining, distinctly alutaceous.

Head very weakly micro-shagreened, more strongly, coarsely punctate; clypeus slightly narrower, with fronto-clypeal border slightly arcuate, finely impressed; genae slightly more transverse, with rounded outer margins; frons somewhat T-shaped, slightly more steeply inclined; eyes more transverse, more deeply inlaid into head, diatone about 2/7 the width of an eye diameter; vertex medially with a longitudinal impression. Antennae filiform, reaching basal 1/3 of elytra, ratio of the length of each segment from basal to apical: 0.7, 0.2, 1.2, 1.0, 0.9, 0.85, 0.85, 0.85, 0.85, 0.8, 1.15.

Pronotum short barrel-shaped, 1.25 times as wide as long, widest slightly before the middle; apex almost straight, finely rimmed, the rim feebly thickened medially; base finely bordered, feebly sinuous on each side and rimmed, the rim thickened in middle; sides roundly produced laterad, more noticeably sinuate before base, finely rimmed, the rims almost invisible from above; front angles rounded, hind angles more acute; disc feebly micro-shagreened, closely rugoso-punctate, with an obsolete medial impression and also with a pair of somewhat comma-shaped impressions near base. Scutellum triangular, slightly convex, finely punctate, with an impunctate medial part.

Elytra 2.44 times as long as wide, 5.8 times the length and 1.8 times the width of pronotum, widest at apical 1/3; dorsum rather strongly convex longitudinally, highest at basal 1/4; disc finely punctato-striate, the punctures small, becoming larger and more elongate laterad, the striae often interrupted in lateral portions; intervals feebly convex, distinctly micro-shagreened and sculptured; humeri gently swollen; apices rounded.

Legs slender, without special modifications; ratios of the length of each segment from basal to apical: 0.35, 0.2, 0.23, 0.5, 1.2; 1.25, 0.7, 0.6, 0.4, 1.38; 1.6, 0.65, 0.55, 1.35.

Male genitalia somewhat elongated triangular, gently curved in lateral view, about 3.0 mm in length, 0.6 mm in width; fused lateral lobes about 1.45 mm in length with

slightly prolonged and sharply pointed apex.

Body length: 19–22 mm.

Holotype: ♂, Seinghku Valley, 6,000 ft. alt., Upper Burma, 10–VIII–1926, F. KINGDOM WARD leg. (NHML). Paratypes: 1 ex., same data as for the holotype; 1 ex., Nam Tamai Valley, 3,000 ft. alt., Upper Burma, 25–VII–1938, R. KAULBACK leg.; 1 ex., Hkamti Long, 4,000 ft. alt., 18–IX–1926, F. KINGDOM WARD leg.

Strongylium cicindeliforme sp. nov.

(Figs. 5, 28–30)

This new species resembles *S. tricondyloides* (WESTWOOD, 1875), originally described from Penang and Singapore, but can be distinguished from the latter by the following characteristics:

Body smaller (ca. 10.5 mm); head and pronotum obviously bluish; head with larger eyes, diatone less than 1/8 times the width of an eye diameter; antennae with ratio of the length of each segment from basal to apical: 0.5, 0.2, 0.8, 0.92, 0.72, 0.7, 0.7, —, —, —, —.

Pronotum more elongate, slightly less than 1.5 times as wide as long, more clearly punctate and depressed in a V-shape in posterior portion, with a pair of swellings more strongly convex at apical 1/8.

Elytra 3 times as long as wide, 3 times the length and 1.6 times the width of pronotum, more noticeably constricted at basal 1/3; disc more distinctly, transversely wrinkled in basal halves; apices more strongly produced apicad and more sharply prominent.

Male metatibiae slenderer, less strongly widened, flattened and twisted in middle; ratios of the lengths of pro-, meso- (lost in the type material) and metatarsomeres: 0.4, 0.29, 0.26, 0.25, 1.2; —, —, —, —, —; 3.4, 1.27, 0.79, 1.41.

Male anal sternite excavated somewhat in an Ω-shape (inverted U-shape in *S. tricondyloides*), with apex truncate and weakly emarginate; male genitalia smaller and slenderer, subfusiform, 1.7 mm in length, 0.34 mm in width; fused lateral lobes 0.7 mm in length, with apices weakly prolonged and pointed.

Holotype: ♂, Bau, Sarawak, 27–IX~15–X–1909, C. J. BROOKS leg., B. M. 1936–681 (NHML). Paratype: 1 ex., Quop, W. Sarawak, 21–III–1914, G. E. BRYANT leg.; 1 ex., Pontianak, Borneo Occ., 1898 (TMB).

Strongylium lumulumuense sp. nov.

(Figs. 6, 31, 32)

Piceous, basal halves of femora and claws lighter in colour; dorsal surface rather strongly, metallically shining, ventral surface feebly alutaceous; each surface almost glabrous. Subcylindrical, moderately convex longitudinally.

Head subdecagonal, almost vertical in front, closely, irregularly punctate; clypeus

semicircular, weakly depressed in basal portion, bent downwards in front, with fronto-clypeal border widely arcuate and finely sulcate; genae strongly raised, with rounded outer margins; frons widely Y-shaped, steeply inclined; eyes rather large, subreniform, convex laterad, obliquely inlaid into head, sulcate along postero-internal margins, diatone about 2/7 times the width of an eye diameter; vertex medially with a longitudinal impression, extending to occiput. Antennae subfiliform, ratio of the length of each segment from basal to apical: 0.5, 0.2, 0.8, 0.55, 0.55, 0.4, 0.4, 0.35, 0.35, 0.35, 0.5.

Pronotum trapezoidal, 1.2 times as wide as long, widest at the middle, subparallel-sided in basal half, then rounded in apical half; apex almost straight and rimmed, the rim weakly thickened in middle; base bisinuous, bordered and rather thickly rimmed; sides steeply inclined, finely, somewhat triangularly rimmed, the rims invisible from above; front angles rounded; hind angles slightly obtuse; disc moderately convex, irregularly punctate, the punctures sparsely intermixed with smaller punctures, distinctly impressed in medial part, with a pair of rounded impressions at basal 1/3, also with a pair of oblique impressions close to hind corners. Scutellum short linguiform, elevated apicad, depressed in medio-basal part, scattered with minute punctures in lateral portions.

Elytra 2.1 times as long as wide, 4.75 times the length and 1.86 times the width of pronotum, gently widened posteriad, widest at apical 1/3; dorsum moderately convex, irregularly undulate, highest at basal 1/3; disc shallowly punctato-striate, the punctures rather small, elongate, 5th striae deepened near base; intervals scattered with microscopic punctures, sutural intervals weakly ridged in posterior portions, odd intervals distinctly convex, even intervals only feebly convex, intervals sometimes transversely connected with one another with ridges, 1st and 3rd intervals connected with each other at base, 9th very slightly expanding laterad in posterior halves; humeri moderately swollen; apices very feebly produced apicad.

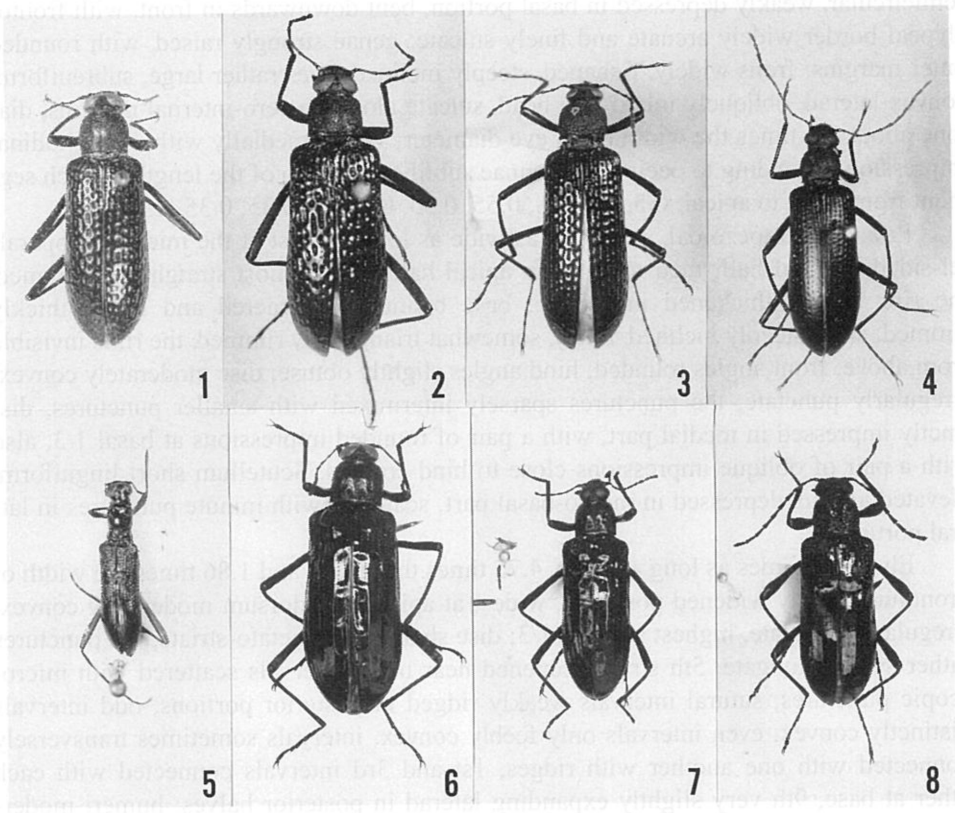
Legs slender, male mesotibiae weakly incurved; ratios of the lengths of pro-, meso- and metatarsomeres: 0.3, 0.2, 0.2, 0.2, 1.2; 0.9, 0.6, 0.55, 0.35, 1.25; 1.3, 0.65, 0.35, 1.35.

Male genitalia elongated fusiform, weakly curved in lateral view, 3 mm in length and 0.5 mm in width; fused lateral lobes somewhat nib-shaped, 1.25 mm in length, with acute apices.

Body length: 16.5–18.5 mm.

Holotype: ♂, Mt. Kinabaru, Sabah, N Borneo, 1–IV–1981, K. SUGIYAMA leg. (NSMT). Paratypes: 2 exs., Lumu Lumu, 5,500 ft. alt., Mt. Kinabalu, N Borneo, 13–IV–1929, H. M. PENDLEBURY, (NHML); 1 ex., 6–IV–1929, 1 ex., 8–VI–1929, 1 ex., 15–V–1929, same locality and collector as for the holotype; 1 ex., Headquarters, 1,500–1,700 m alt., Mt. Kinabalu, Sabah, 11–IV–1976, S. NAGAI leg. (MNHNP).

Notes. None of the previously described species have such elytra as are possessed by this new one. It is, however, related to the new species to be described on the following page.



Figs. 1–8. Habitus of *Strongylium* spp. —— 1, *S. phedongense* sp. nov., holotype, ♂; 2, *S. kambaitiense* sp. nov., holotype, ♂; 3, *S. birmanicum* sp. nov., holotype, ♂; 4, *S. kingdonwardi* sp. nov., holotype, ♂; 5, *S. cicindeliforme* sp. nov., holotype, ♂; 6, *S. lumulumuense* sp. nov., holotype, ♂; 7, *S. itoi* sp. nov., holotype, ♂; 8, *S. kenokokense* sp. nov., holotype, ♂.

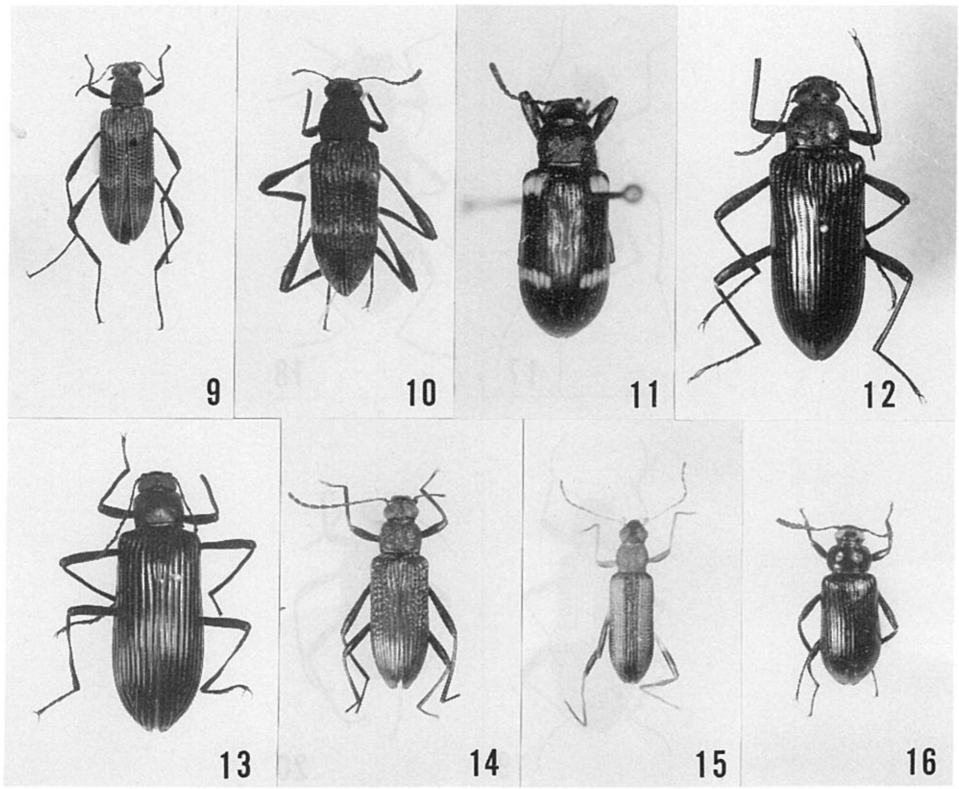
Strongylium itoi sp. nov.

(Figs. 7, 33, 34)

This new species closely resembles the preceding new one, *S. lumulumuense* sp. nov., but can be distinguished from the latter by the following characteristics:

Body smaller and slenderer; coloration and lustre almost the same as in *S. lumulumuense*.

Head more closely and coarsely punctate; clypeus narrower, more noticeably flattened in basal part, more extended apicad, straight at apex, with fronto-clypeal border arcuate, more clearly impressed; genae with outer margins more strongly raised and angulate; frons shorter, somewhat T-shaped; eyes obviously larger, approximated to each other, rounded laterad, broadly inlaid into head, diatone 1/11 times the width of

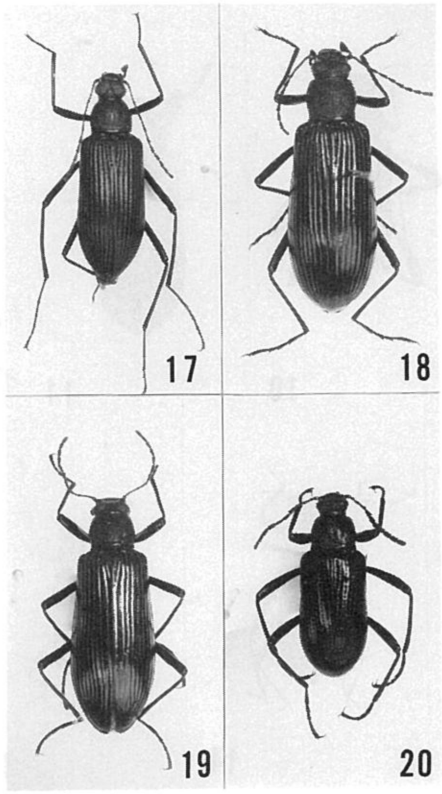


Figs. 9–16. Habitus of *Strongylium* spp. —— 9, *S. trifasciatum* sp. nov., holotype, ♂; 10, *S. pilifasciatum* sp. nov., holotype, ♀; 11, *S. pici* sp. nov., holotype, ♀; 12, *S. yai* sp. nov., holotype, ♀; 13, *S. moritai* sp. nov., holotype, ♂; 14, *S. nangbangense* sp. nov., holotype, ♂; 15, *S. kohanemum* sp. nov., holotype, ♂; 16, *S. kanchanaburiense* sp. nov., holotype, ♂.

an eye diameter; vertex more raised, medially with a longitudinal impression; occiput more noticeably depressed on each side. Antennae slightly bolder, reaching basal 1/12, ratio of the length of each segment from basal to apical: 0.78, 0.2, 1.22, 0.83, 0.85, 0.88, 0.73, 0.68, 0.67, 0. 65, 0.79.

Pronotum very similar in shape to that of *S. lumulumuense*, 1.18 times as wide as long, widest at the middle, hardly sinuate before base, with clearer medio-longitudinal impression; apex sublinear, more clearly bordered and finely rimmed; base bisinuous, more clearly bordered; sides gently rounded; front angles rounded, hind angles rectangular; disc rather closely punctate, the punctures slightly larger than those of *S. lumulumuense*, with impressions at the middle and basal 1/3 on each side. Scutellum sublinguiform, feebly micro-shagreened, more closely, finely punctate.

Elytra more elongate, 2.43 times as long as wide, 4.5 times the length and 1.56 times the width of pronotum, slightly narrowed at basal 1/3, widest at apical 1/3; dor-



Figs. 17–20. Habitus of *Strongylium* spp. —— 17, *S. akitai* sp. nov., holotype, ♂; 18, *S. tabanai* sp. nov., holotype, ♂; 19, *S. tanikadoi* sp. nov., holotype, ♂; 20, *S. merkli* sp. nov, holotype, ♂.

sum more convex, undulate, highest at basal 2/9; disc almost similar to *S. lumulumuense*, with rows of punctures; intervals more noticeably scattered with microscopic punctures, odd intervals convex; sutural strioles rather noticeably impressed; humeri almost of the same shape as in *S. lumulumuense*; apices more produced apicad.

Legs very slightly bolder; male metatibia slightly gouged at basal 1/4 of inner face; ratios of the lengths of pro-, meso- and metatarsomeres: 0.25, 0.21, 0.23, 0.22, 1.2; 1.2, 0.63, 0.59, 0.39, 1.28; 1.32, 0.68, 0.37, 1.26.

Male genitalia thinner, elongated fusiform, very weakly curved in lateral view, 3 mm in length, 0.48 mm in width; fused lateral lobes somewhat nib-shaped, 1.23 mm in length, flattened in apical half, with acute apices.

Body length: ca. 17 mm.

Holotype: ♂, nr. Keningau, Sabah, N Borneo, 19–IV–1989, M. ITO leg. (NSMT). Paratypes: 1 ex., same data as for the holotype; 2 exs., Sabah, Borneo, 14–IV～19–V–1984, S. NAGAI leg.; 2 exs., Crocker Range, 1,400 m alt., 16 miles NW of Keningau,

12–V–1984, S. NAGAI leg.; 1 ex., Tinanamantawaran, nr. Ranau, Sabah, 30~31–I–1984, S. NAGAI leg.; 1 ex., Crocker Range, 1,400 m alt., 16 miles NW of Keningau, 2~26–IV–1984, S. NAGAI leg.

Strongylium kenokokense sp. nov.

(Figs. 8, 35, 36)

The new species somewhat remebles *S. lumulumuense* sp. nov., but can be distinguished from the latter by the following characteristics:

Body slightly more elongate; each surface more metallically shining. Head wider, obviously strongly, less closely punctate; clypeus narrower, with fronto-clypeal border arcuate and indistinctly sulcate; genae more transverse, with obtuse outer margins; frons shorter, more steeply inclined; eyes somewhat securiform, shorter, more noticeably convex laterad, rather noticeably sulcate along postero-internal margins, diatone 1/3 times the width of an eye diameter; vertex less strongly raised, medially with an impression. Antennae longer, reaching basal 1/5 of elytra, ratio of the length of each segment from basal to apical: 0.6, 0.2, 0.58, 0.55, 0.72, 0.63, 0.62, 0.62, 0.61, 0.61, 0.73.

Pronotum short bell-shaped, 1.1 times as wide as long, widest at base, feebly sinuous before base; apex almost straight, more finely, though clearly rimmed; base bisinuous, bordered, rather thickly rimmed; sides steeply inclined, finely, triangularly bordered, the margins almost invisible from above; front angles rounded; hind angles slightly acute; disc noticeably convex, longitudinally impressed in middle, with a large rounded depression in anterior half, a somewhat triangular depression at base, and also with a vague oblique impression close to base on each side; surface very strongly, irregularly punctate, the punctures often fused with one another. Scutellum triangular with rounded sides, sparsely scattered with minute punctures.

Elytra 2.34 times as long as wide, 4.18 times the length and 1.57 times the width of pronotum, gently widened posteriad, widest at apical 1/3; dorsum moderately convex, weakly, irregularly undulate, with a pair of low gibbosities slightly behind basal 1/10; disc with rows of slightly elongate punctures, which are larger and sparser than those in *S. lumulumuense*; intervals more sparsely scattered with microscopic punctures, each interval almost flat, 9th less distinctly expanded laterad in posterior halves; humeri gently swollen; apices moderately rounded.

Legs shorter, more noticeably punctate; tibiae clavate; ratios of the lengths of pro-, meso- and metatarsomeres: 0.29, 0.25, 0.23, 0.24, 1.2; 1.0, 0.6, 0.5, 0.4, 1.36; 1.2, 0.6, 0.37, 1.33.

Male genitalia short fusiform, weakly curved in lateral view, 2.48 mm in length, 0.5 mm in width; fused lateral lobes nib-shaped, 1 mm in length, with pointed apex.

Body length: 16.0–16.5 mm.

Holotype: ♂, nr. Keningau, Sabah, N Borneo, 19–IV–1989, M. ITO leg. (NSMT). Paratypes: 1 ex., Kenokok, 3,300 ft., Mt. Kinabalu, N Borneo, 22–IV–1929, H. M.

PENDLEBURY (NHML); 1 ex., Sarawak, N Borneo, Coll. HOSE, no further data (MNHNP).

Strongylium trifasciatum sp. nov.

(Figs. 9, 37, 38)

Dark yellowish brown, feebly with reddish tinge, hairs on surfaces gray; head, pronotum and scutellum weakly shining though rather densely clothed with bent hairs, elytra moderately shining, with three fasciae of hairs at basal, middle and apical parts, ventral surface alutaceous. Elongate, gently convex longitudinally.

Head somewhat hexagonal; closely and rugosely punctate; clypeus semicircular, weakly micro-shagreened, gently bent in front, with fronto-clypeal border widely arcuate and sulcate; genae obliquely raised, with rounded outer margins; frons moderately inclined forwards, somewhat T-shaped; eyes subreniform, noticeably convex laterad, obliquely inlaid into head, diatone about 1/3 times the width of an eye diameter; vertex with a longitudinal impression. Antennae slightly clavate, ratio of the length of each segment from basal to apical: 0.45, 0.2, 0.6, 0.6, 0.26, 0.25, 0.25, 0.25, 0.24, 0.24, 0.26.

Pronotum trapezoidal, 1.19 times as wide as long, widest at base, gently narrowed anteriad in middle, rather noticeably so in apical portions; apex almost straight, thinly ridged; base noticeably ridged and widely bisinuous; front angles rounded, hind angles subrectangular; sides steeply inclined, with lateral borders not remarkable; disc gently convex, impressed close to base on each side, shallowly and longitudinally grooved in medial part, wholly closely punctate, each puncture somewhat umbilicate and with a long bent hair. Scutellum subcordate, micro-shagreened, closely punctate, and densely clothed with bent hairs.

Elytra 2.65 times as long as wide, 4.74 times the length and 1.48 times the width of pronotum, widest at base, with three remarkable fasciae of hairs, one being slightly oblique and located at basal 1/5, another transverse and at apical 4/9, and the other somewhat triangular in apical 2/7; dorsum longitudinally convex, gently flattened in antero-medial part, with a pair of indistinct gibbosities at basal 1/9; disc with rows of rather large punctures, each with small granules on both sides of upper edge; 1st (sutural), 8th and 9th intervals clothed with bent hairs; humeri and apices without modification.

Male anal sternite slightly truncate at apex; legs rather slender; male protibia slightly thickened apicad, with ventral face weakly gouged in apical 2/5; male mesotibia slightly thickened apicad, weakly bent at basal 2/5; male metatibia slightly thickened apicad, feebly curved in middle; ratios of the lengths of pro-, meso- and metatarsomeres: 0.2, 0.16, 0.17, 0.17, 1.2; 2.75, 1.22, 0.98, 0.67, 1.44; 3.3, 1.22, 0.7, 1.58.

Male genitalia rather elongate, gently curved in lateral view, 2 mm in length, 0.32 mm in width, slightly constricted between basal piece and lateral lobes; fused lat-

eral lobes fusiform, about 1 mm in length, with nib-shaped apices.

Body length: ca. 11 mm.

Holotype: ♂, Sumatra, "vidit" 1885, RITSEMA coll. (MNHNP).

Notes. The new species resembles *S. griseifasciatum* PIC, 1917, from Nias Is., Indonesia, in having fasciae of hairs on the elytra, but can be distinguished from the latter by possession of three, not two, fasciae. The new one is obviously a member of the species-group to which *S. cultellatum* MÄKLIN, 1864, *S. costipenne* MÄKLIN, 1864, etc., belong, because of the rows of elytral punctures obviously granulated.

Strongylium pilifasciatum sp. nov.

(Fig. 10)

Dark reddish brown, major portion of head, and apical margin of pronotum brownish black; hairs on surfaces pale yellow; head and pronotum alutaceous, sparsely clothed with hairs, scutellum densely clothed with hairs, elytra weakly, vitreously shining, with 3 bands of hairs, legs weakly shining and haired, ventral surface somewhat alutaceous, though noticeably clothed with hairs. Elongate, gently convex longitudinally, though flattened in middle.

Female. Head somewhat rhombical, partly micro-shagreened, closely, irregularly rugoso-punctate; clypeus trapezoidal, gently widened and inclined apicad, with fronto-clypeal border finely sulcate, almost straight in middle, bent forwards in lateral portions; genae obliquely raised, with rounded outer margins; frons gently inclined forwards; eyes subreniform, convex laterad, obliquely inlaid into head, diatone 0.4 times the width of an eye diameter; vertex medially with a vague longitudinal impression. Antennae subclavate, reaching base of pronotum, ratio of the length of each segment from basal to apical: 0.43, 0.2, 0.74, 0.61, 0.37, 0.35, 0.34, 0.37, 0.37, 0.38, 0.4.

Pronotum 1.22 times as wide as long, widest at the middle; apex almost straight, thickly rimmed; base slightly sinuous on each side, ridged; sides steeply declined to lateral margins, which are moderately produced laterad, and bidenticulate; front angles rounded and hind angles obtuse in dorsal view; disc weakly convex, weakly depressed longitudinally along median line, obliquely impressed close to base on each side, whole surface of pronotum closely punctate, the punctures finely ocellate and often irregularly fused with one another. Scutellum short linguiform, rather closely punctate and densely haired.

Elytra 2.25 times as long as wide, 4 times the length and 1.37 times the width of pronotum, widest near base, with 3 remarkable bands of hairs, one being transverse and located at basal 1/5, another also transverse at apical 4/9, the other obliquely crescent-shaped in apical 1/4; dorsum moderately convex, weakly depressed in antero-internal part, with a pair of low gibbosities at basal 1/9; disc with rows of rather large punctures, whose bottoms are rounded and flattened, and whose upper edges possess four tubercles, two larger ones on respective sides and the two smaller ones in front and behind; intervals sparsely scattered with small, haired punctures, the inner two in-

tervals moderately elevated, those in lateral portions noticeably ridged; humeri only slightly, longitudinally swollen; apices slightly projected.

Legs rather slender; femora and tibiae of middle and hind legs thickened apicad; ratios of the lengths of pro-, meso- and metatarsomeres: 0.3, 0.2, 0.2, 0.2, 1.2; 2.8, 1.04, 0.96, 0.68, 1.76; 3.24, 1.3, 0.72, 1.64.

Body length: ca. 11.5 mm.

Holotype: ♀, Pontianak, West Borneo, 1901, Coll. Oberthur (MNHNP).

Notes. The new species rather closely resembles the preceding new species, *S. trifasciatum* sp. nov., but can be distinguished from the latter by the robuster body with wider and distinctly denticulate pronotum, elytra with rows of larger punctures, and femora and tibiae more noticeably thickened.

Strongylium pici sp. nov.

(Fig. 11)

Blackish brown, antennae, elytra, and apical portions of femora piceous, two pairs of elytral patches and anal sternite yellow; head and pronotum weakly, sericeously shining, scutellum and elytra gently, somewhat vitreously shining; dorsal surface almost glabrous, ventral surface sparsely haired. Oblong-ovate, moderately convex above.

Female. Head subhexagonal, partly micro-shagreened, irregularly rugoso-punctate; clypeus somewhat trapezoidal, widely depressed in basal portion, rather strongly bent downwards in front, with fronto-clypeal border widely arcuate and grooved; genae somewhat obliquely rhombical and rather distinctly raised, with obtuse outer margins; frons gently inclined forwards, though becoming steeper close to fronto-clypeal border; eyes subreniform, gently convex laterad, somewhat obliquely inlaid into head, diatone about 1.6 times the width of an eye diameter; vertex medially with a vague impression. Antennae clavate, reaching basal part of elytra, ratio of the length of each segment from basal to apical: 0.36, 0.2, 0.6, 0.37, 0.33, 0.35, 0.36, 0.37, 0.32, 0.33, 0.42.

Pronotum subquadrate, 1.19 times as wide as long, widest at the middle and base; apex straight, ridged in a wide V-shape; base bordered and rimmed, weakly sinuous on each side; sides gently produced, weakly sinuate before base, steeply declined to lateral margins, which are finely rimmed, the rims hardly visible from above; front angles rounded, hind angles slightly acute; disc with a pair of swellings, which are divided by a wide longitudinal groove; surface very weakly micro-shagreened, coarsely and irregularly punctate, each puncture with a fine hair at each centre. Scutellum linguiform, slightly convex, micro-shagreened, sparsely scattered with microscopic punctures in lateral portions.

Elytra 2.09 times as long as wide, 3.59 times the length and 1.46 times the width of pronotum, feebly widened posteriad, widest at apical 3/8, narrowed at basal 1/3, with two pairs of patches, ones at basal 1/9 narrower and thicker, the others at apical

3/8 wider and thinner, each margin of patches more or less sinuous; dorsum moderately convex, weakly depressed at basal 3/8, highest at basal 1/4; disc with rows of fine punctures, which are slightly longitudinal and closely set, those in lateral portions becoming larger and sparsely set; intervals almost flattened, very weakly micro-shagreened, scattered with microscopic punctures, often finely, transversely aciculate; humeri gently swollen; apices rounded.

Legs medium-sized, without peculiarities; ratios of the lengths of pro-, meso- and metatarsomeres: 0.24, 0.16, 0.16, 0.17, 1.2; 0.49, 0.25, 0.23, 0.25, 1.22; 0.59, 0.33, 0.31, 1.21.

Body length: 9.5–11 mm.

Holotype: ♀, Tonkin, Montes Mauson, IV–V., 2–3,000', H. FRUHSTORFER coll. (MNHNP). Paratypes: 2 exs., same data as for the holotype (TMB); 1 ex., Tonkin, Than Moi, VI–VII, FRUHSTORFER coll. (TMB).

Notes. The present new species resembles *S. bourcieri* PIC, 1917, originally described from Tonkin, in having 4 remarkable patches on the elytra, but can easily be distinguished from the latter by the smaller body with elytral patches differently shaped and located. In the case of *S. bourcieri*, the anterior patches are located at basal 1/3.

This species resembles *S. gibbosipenne* NAKANE, 1963, in general features, and also *S. pseudogibbosipenne* MASUMOTO, 1981. Though lacking in the elytral patches, these species might be the relatives of the present new one and form a species-group of their own.

Strongylium yai sp. nov.

(Fig. 12)

Dark coppery brown with brassy tinge, antennae and tarsi piceous, head, pronotum, scutellum and ventral surface weakly shining, elytra gently and metallically shining; each surface almost glabrous. Subcylindrical.

Female. Head subrhombical, closely punctate; clypeus semicircular, gently inclined forwards, moderately bent downwards, with fronto-clypeal border arcuate and finely sulcate; genae somewhat obliquely rhombical, weakly raised outwards; frons rather wide and short, gently inclined forwards, with an impunctate area at the middle; eyes transversely ovate, distinctly convex laterad, obliquely inlaid into head, diatone about 2/5 times the width of an eye diameter; vertex very softly impressed and impunctate in middle. Antennae subfiliform, reaching basal 1/9 of elytra, ratio of the length of each segment from basal to apical: 0.8, 0.23, 1.12, 0.96, 0.8, 0.78, 0.76, 0.75, 0.73, 0.68, 0.72.

Pronotum trapezoidal, 1.3 times as wide as long, widest at base; apex very slightly produced forwards in medial portion, finely rimmed, bordered on each side; base clearly bordered and ridged, gently sinuous on each side; sides moderately produced laterad, feebly sinuate before base, steeply declined to lateral margins, which are

finely rimmed, the rim invisible from above; front angles rounded, hind angles slightly angulate; disc moderately convex, longitudinally and shallowly depressed in medial part, rather closely though irregularly scattered with shallow punctures, with a pair of impressions close to base. Scutellum triangular with rounded sides, feebly convex, scattered with fine punctures in postero-lateral portions.

Elytra 2.4 times as long as wide, 4.5 times the length and slightly less than 1.5 times the width of pronotum, narrowest at basal 1/3 and widest at apical 4/9; disc rather strongly convex, highest at basal 1/6, very weakly depressed between sutural strioles; disc punctato-striate, the punctures rather closely set and somewhat rhombical at upper edges, those in inner portion small, becoming finer apicad, those in antero-lateral portions comparatively large; 1st and 2nd, and 3rd and 4th striae united and impressed close to base; intervals gently convex, sparsely scattered with microscopic punctures; humeri rather distinctly swollen; apices without peculiarities.

Legs rather slender; ratios of the lengths of pro-, meso- and metatarsomeres: 0.5, 0.39, 0.3, 0.35, 1.95; 1.68, 0.79, 0.77, 0.75, 2.23; 1.8, 0.81, 0.78, 2.26.

Body length: 30 mm.

Holotype: ♀, Ban Nang Bang, nr. Sai Yok National Park, Kanchanaburi Pref., W Thailand, 13–V–1985, M. SAWAI leg. (NSMT).

Notes. This new species somewhat resembles *S. orientale* MÄKLIN, 1864, originally described from Java and Borneo, but can be distinguished from the latter by the robuster body, with dorsal surface coppery brown with brassy tinge, wider pronotum, triangular scutellum, and elytra with strial punctures rounded and closely set.

Strongylium moritai sp. nov.

(Figs. 13, 39, 40)

This new species is also a member of the species-group of *S. orientale*, and resembles the preceding new one, *S. yai* sp. nov., but can be discriminated from the latter by the following characteristics:

Smaller (27–30 mm) and slenderer; wholly black; elytra shiny not metallically but lacquer-like. Head slightly more convex, more noticeably though weakly micro-shagreened, more finely punctate; clypeus more strongly dilated apicad, more strongly bent downwards, with fronto-clypeal border linearly impressed; genae more strongly raised towards outer margins, which are triangular; frons obviously steeply inclined forwards; eyes obviously large, noticeably convex laterad and obliquely inlaid into head, diatone 1/11 times the width of an eye diameter; vertex somewhat rhombically impressed in middle. Antennae subfiliform, ratio of the length of each segment from basal to apical: 0.8, 0.2, 1.2, 1.17, 1.0, 0.84, 0.81, 0.78, 0.76, 0.74.

Pronotum slightly wider, 1.26 times as wide as long, widest at basal 2/5, more noticeably sinuate before base; apex slightly produced (almost straight in *S. yai*), more clearly bordered and rimmed, the rim feebly thickened in middle; base bisinuous, narrower, more clearly bordered, and slightly more thickly rimmed; sides slightly more

rounded; front angles rounded, hind angles more acute; disc gently convex, hardly grooved in medial part, impressed at basal 2/5 on each side, weakly micro-shagreened, rather closely, irregularly punctate, the punctures obviously smaller than those in *S. yai*. Scutellum slightly elongated triangular and flattened (slightly wide-based triangular and feebly convex in *S. yai*), very weakly micro-shagreened, scattered with fine punctures.

Elytra more elongate, 2.33 times as long as wide, 5.15 times the length and 1.73 times the width of pronotum, widest at apical 2/5; dorsum more convex, highest at basal 2/5; disc obviously more finely punctato-striate, 4th and 5th striae connected with each other, the connection more anteriorly located; intervals more convex, more finely aciculate and punctate, the sutural ones not flattened but convex; basal parts of elytra not so depressed as in *S. yai*; humeri and apices almost of the same shape as in *S. yai*.

Legs slightly slenderer; protibia in male with ventral side weakly gouged in apical 3/5; mesotibia in male gently curved; metatibia in male remarkably compressed and slightly constricted in middle; ratios of the lengths of pro-, meso- and metatarsomeres: 0.39, 0.23, 0.22, 0.25, 1.49; 2.1, 0.72, 0.63, 0.59, 1.81; 2.38, 0.8, 0.67, 1.78.

Male genitalia short fusiform, 4.1 mm in length, 0.9 mm in width, gently curved in lateral view; fused lateral lobes about 1.7 mm in length, with elongate and acute apex.

Holotype: ♂, Gnong Jasar, West Malaysia, 2–IV–1976, Y. MIYAKE leg. (NSMT). Paratypes: 1 ex., same data as for the holotype; 5 exs., 19 miles from Tapha, W Malaysia, 31–III–1976, Y. MIYAKE leg.; 1 ex., Cameron Highlands, W Malaysia, 23–IV–1974, C. C. CHUA leg. (MNHNP); 1 ex., Cameron Highlands, VI–1981, no collector's name.

Strongylium nangbangense sp. nov.

(Figs. 14, 41–43)

Blackish brown, with pronotum, elytra, mouth parts, gula, etc., yellowish brown, each surface almost glabrous and weakly bearing greenish metallical reflection. Elongate fusiform, rather strongly convex above.

Head transversely elliptical, moderately convex above, rather closely punctate; clypeus oblong, weakly depressed in basal portion, gently bent downwards in front, clearly bordered from frons by widely arcuate sulcus; genae oblique, moderately raised, with rounded outer margins; frons somewhat T-shaped, gently inclined forwards; eyes large, rounded convex laterad, broadly inlaid into head, diatone about 1/8 times the width of an eye diameter. Antennae reaching basal 1/5 of elytra, 7 apical segments weakly flattened and more or less dilated to each apex, ratio of the length of each segment from basal to apical: 0.5, 0.2, 0.7, 0.65, 0.6, 0.6, 0.55, 0.6, 0.55, 0.5, 0.55.

Pronotum quadrate, slightly less than 1.4 times as wide as long, widest at the mid-

dle; apex triangularly and widely ridged, the ridge almost smooth though sparsely scattered with minute punctures; base very feebly bisinuous and ridged, the ridge becoming thicker in middle, smooth and sparsely scattered with minute punctures; sides rather steeply declined to finely ridged lateral margins, which are gently arcuate laterad and barely visible from above; front angles rounded, hind angles rectangular; disc gently convex, longitudinally grooved in middle, the groove forming an I-shape, obliquely impressed at base on each side, whole surface very weakly micro-shagreened, rather closely and coarsely punctate, bottom of each puncture micro-granulate. Scutellum triangular and feebly convex above, very weakly micro-shagreened, scattered with a few small punctures.

Elytra 2.33 times as long as wide, 4.4 times the length and 1.3 times the width of pronotum, very feebly widened posteriad and widest at apical 3/7; dorsum rather strongly convex though very feebly flattened in middle, weakly tri-undulate, though the posterior undulation is indistinct; disc punctato-striate, the striae in antero-lateral portions interrupted, the punctures longitudinally fused with one another, becoming larger, forming coarse foveae; intervals very weakly micro-shagreened, sparsely scattered with microscopic punctures, the intervals in inner portion gently convex, those in lateral portions ridged; apices roundly produced posteriad and feebly dehiscent.

Male anal sternite semicircularly depressed in apical 2/3, with apex truncate and slightly, widely emarginate; legs rather slender, male metatibia twisted, with inner margin weakly gouged in basal half; ratios of the lengths of pro-, meso- and metatarsomeres: 0.3, 0.25, 0.25, 0.2, 1.2; 2.15, 1.2, 0.8, —, —; 1.8, 0.7, 0.55, 1.4.

Male genitalia slender, 3.35 mm in length and 0.5 mm in width, gently constricted near basal portion of lateral lobes, almost straight in lateral view; fused lateral lobes 1.5 mm in length, with prolonged apex.

Body length: ca. 9 mm.

Holotype: ♂, Ban Nang Bang, nr. Sai Yok National Park, Kanchanaburi Pref., W Thailand, 12–V–1985, M. SAWAI leg. (NSMT). Paratypes: 4 exs., Koh Anem Vill., Ban Rai, Kanchanaburi Pref., W Thailand, 14–V–1985, M. SAWAI leg.

Notes. This new species resembles *S. azuripes* ARDOIN, 1967, originally described from Laos and should be a relative of it, but can be easily distinguished from the latter by the smaller body in different colour, with the male metatibia less strongly twisted.

Strongylium kohanemum sp. nov.

(Figs. 15, 44, 45)

Pale yellowish brown, with head, apical halves of antennae, sutural and marginal portions of elytra, and apical halves of meso- and metafemora brownish black, pronotum and scutellum slightly reddish; head except for clypeus and pronotum feebly, somewhat sericeously shining, clypeus and elytra moderately, somewhat alutaceously shining, ventral surface feebly so; each surface almost glabrous, rather elongate, gently

convex longitudinally.

Head somewhat triangular, gently convex above, weakly micro-shagreened, irregularly punctate, the punctures often fused with one another in middle part; clypeus short, flattened in basal half, gently inclined in middle part and bent downwards in front, bordered from frons by widely arcuate fine sulcus; genae obliquely raised, with obtusely angulate outer margins; frons gently inclined forwards; eyes large, roundly convex laterad, obliquely and roundly inlaid into head, diatone about 1/2 times the width of an eye diameter. Antennae filiform, reaching basal 1/3 of elytra, ratio of the length of each segment from basal to apical: 0.35, 0.2, 0.65, 0.55, 0.5, 0.45, 0.4, 0.4, 0.35, 0.35, 0.35.

Pronotum rather barrel-shaped, 1.2 times as wide as long, widest at the middle; apex sublinearly, finely rimmed, though slightly thickened in middle, scattered with microscopic punctures; base almost straightly, clearly bordered, more boldly rimmed than apex, scattered with microscopic punctures; sides steeply inclined laterad, without marginal ridges; front angles obtuse, hind angles subrectangular; disc gently convex, medially with a longitudinal groove, whole surface weakly micro-shagreened, rather closely, coarsely punctate, the punctures often fused with one another. Scutellum sublinguiform, weakly micro-shagreened, scattered with a few shallow punctures.

Elytra 2.75 times as long as wide, 4.1 times the length and 1.4 times the width of pronotum, subparallel-sided though weakly widened posteriad, widest at 1/3; dorsum rather strongly convex, slightly flattened in middle part; disc punctato-striate, the punctures rather large, rounded at bottoms and subquadrate at upper edges, areas between punctures often feebly, transversely ridged; intervals very weakly micro-shagreened and ridged; humeri without peculiarities; apices slightly dehiscent.

Male anal sternite gently, roundly depressed at apex. Legs rather slender; inner margin of male metatibia distinctly gouged in basal half and slightly twisted; ratios of the lengths of pro-, meso- and metatarsomeres: 0.4, 0.25, 0.25, 0.25, 1.2; —, —, —, —, — (mesotarsi lost); 2.8, 1.0, 0.65, 1.45.

Male genitalia subfusiform, weakly curved in lateral view, 1.25 mm in length,

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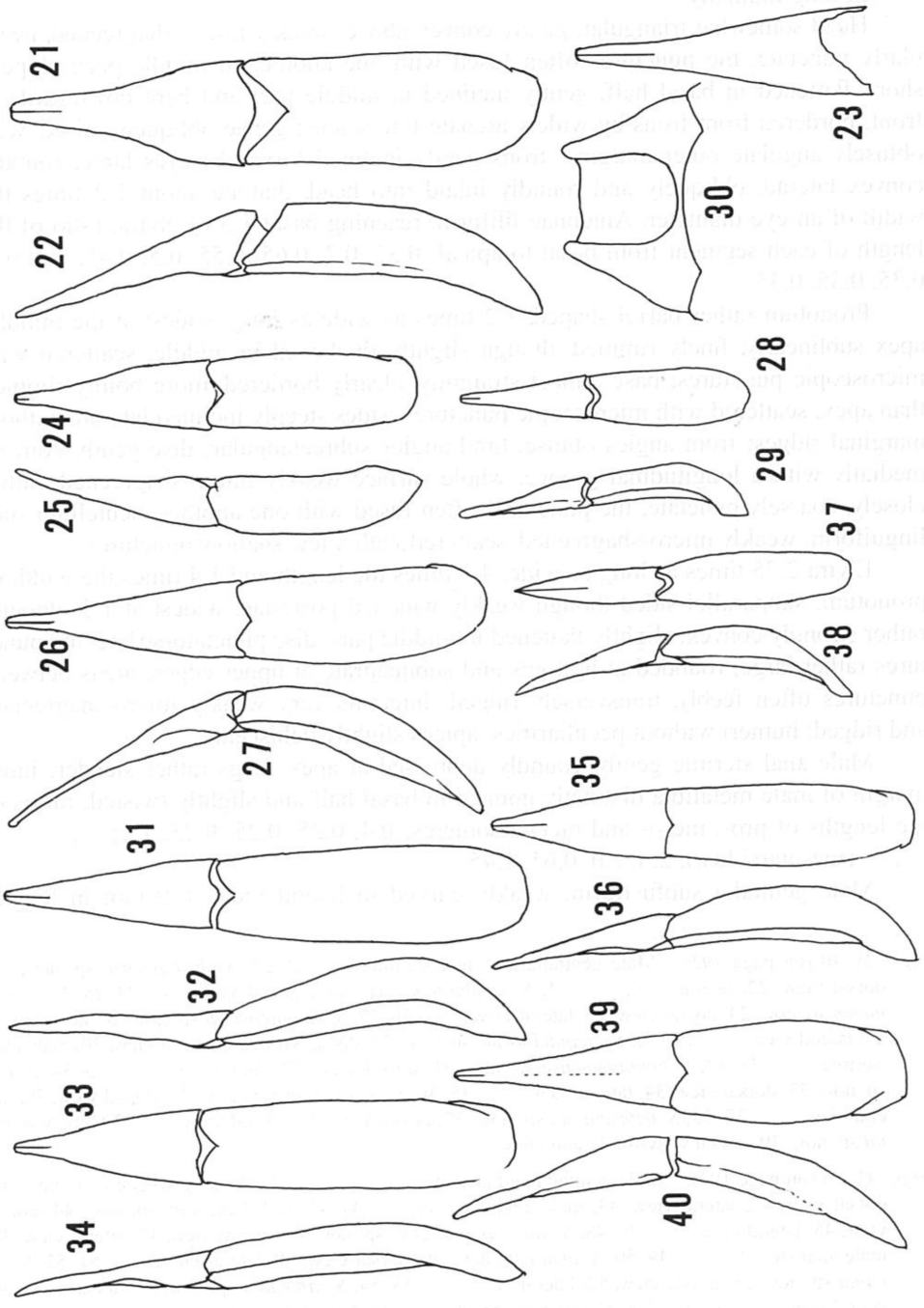
Figs. 21–40 (on page 192). Male genitalia and anal sternite. —— 21–22, *S phedongense* sp. nov., 21, dorsal view, 22, lateral view. —— 23, *S. kambaitiense* sp. nov., dorsal view. —— 24–25, *S. birmanicum* sp. nov., 24, dorsal view, 25, lateral view. —— 26–27, *S. kingdonwardi* sp. nov., 26, dorsal view, 27, lateral view. —— 28–30, *S. cicindeliforme* sp. nov., 28, dorsal view, 29, lateral view, 30, male anal sternite. —— 31–32, *S. lumulumuense* sp. nov., 31, dorsal view, 32, lateral view. —— 33–34, *S. itoi* sp. nov., 33, dorsal view, 34, lateral view. —— 35–36, *S. kenokokense* sp. nov., 35, dorsal view, 36, lateral view. —— 37–38, *S. trifasciatum* sp. nov., 37, dorsal view, 38, lateral view. —— 39–40, *S. moritai* sp. nov., 39, dorsal view, 40, lateral view.

Figs. 41–56 (on page 193). Male genitalia and anal sternites. —— 41–43, *S. nangbangense* sp. nov., 41, dorsal view, 42, lateral view, 43, male anal sternite. —— 44–45, *S. kohanemum* sp. nov., 44, dorsal view, 45, lateral view. —— 46–48, *S. kanchanaburiense* sp. nov., 46, dorsal view, 47, lateral view, 48, male anal sternite. —— 49–50, *S. akitai* sp. nov., 49, dorsal view, 50, lateral view. —— 51–52, *S. tabanai* sp. nov., 51, dorsal view, 52, lateral view. —— 53–54, *S. tanikadoi* sp. nov., 53, dorsal view, 54, lateral view. —— 55–56, *S. merkli* sp. nov., 55, dorsal view, 56, lateral view.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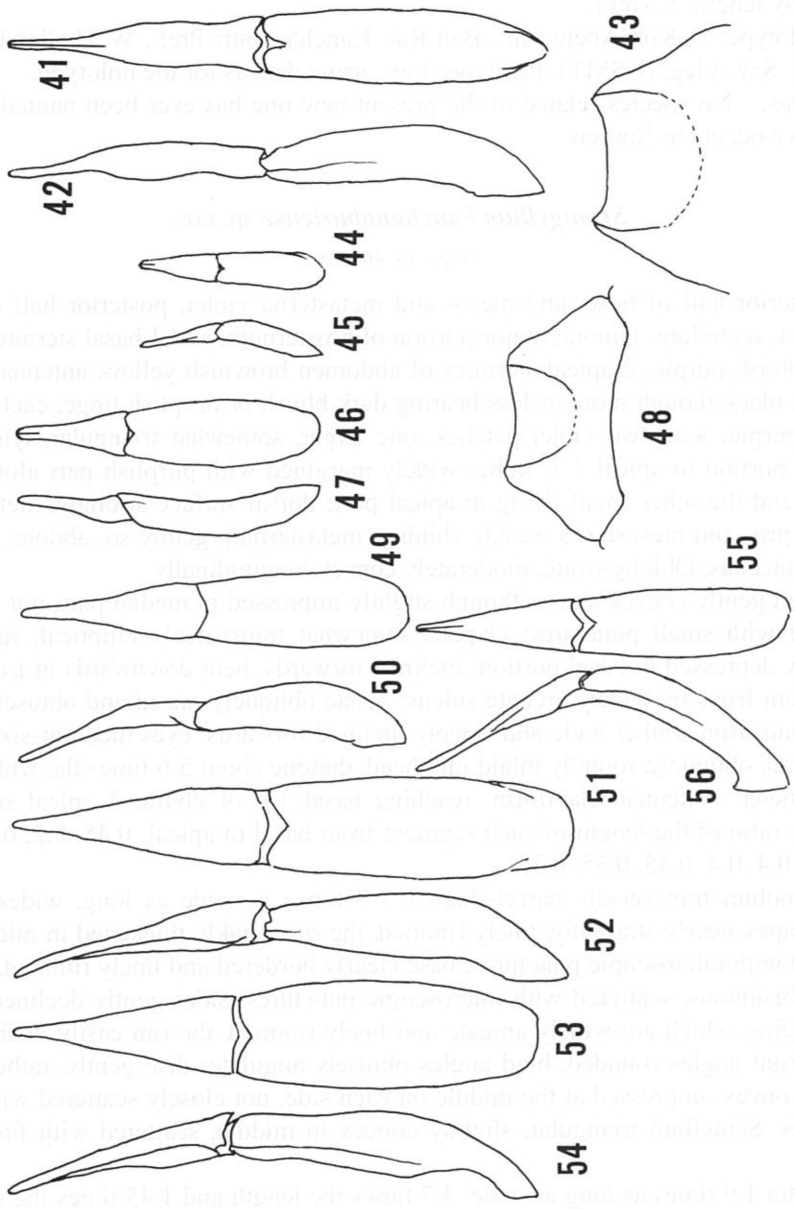
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0.25 mm in width; fused lateral lobes rather nib-shaped, 0.45 mm in length, with dorsal surface microscopically punctate, and acute apex.

Body length: 6.5 mm.

Holotype: ♂, Koh Anem vill., Ban Rai, Kanchanaburi Pref., W Thailand, 14–V–1985, M. SAWAI leg. (NSMT). Paratype: 1 ex., same data as for the holotype.

Notes. No species related to the present new one has ever been named, though its relative occurs in Borneo.

Strongylium kanchanaburiense sp. nov.

(Figs. 16, 46–48)

Anterior half of head, and meso- and metasterna violet, posterior half of head, pronotum, scutellum, femora, major portion of prosternum, and 3 basal sternites of abdomen bluish purple, 2 apical sternites of abdomen brownish yellow, antennae, tibiae and tarsi black though more or less bearing dark bluish or purplish tinge, each elytron golden purple, with two violet patches, one larger, somewhat triangular, lying from humeral portion to apical 1/3, rather widely margined with purplish part along inner margin, and the other small, lying in apical part; dorsal surface strongly, metallically shining, pro- and mesosterna weakly shining, metasternum gently so, abdomen somewhat alutaceous. Oblong-ovate, moderately convex longitudinally.

Head gently convex above, though slightly impressed in medial part, not sparsely scattered with small punctures; clypeus somewhat transversely elliptical, rather remarkably depressed in basal portion, inclined forwards, bent downwards in front, bordered from frons by widely arcuate sulcus; genae obliquely raised and obtusely angulate laterad; frons rather wide and steeply inclined forwards; eyes medium-sized, convex laterad, obliquely, roundly inlaid into head, diatone about 5/6 times the width of an eye diameter. Antennae claviform, reaching basal 1/6 of elytra, 7 apical segments widened, ratio of the length of each segment from basal to apical: 0.45, 0.2, 0.65, 0.5, 0.5, 0.4, 0.4, 0.4, 0.35, 0.35, 0.35.

Pronotum transversely barrel-shaped, 1.8 times as wide as long, widest at the middle; apex nearly straightly, finely rimmed, the rim weakly thickened in middle and scattered with microscopic punctures; base clearly bordered and finely rimmed, the rim slightly bisinuous, scattered with microscopic punctures; sides gently declined to lateral margins, which are widely arcuate and finely rimmed, the rim easily visible from above; front angles rounded, hind angles obtusely angulate; disc gently, rather transversely convex, impressed at the middle on each side, not closely scattered with small punctures. Scutellum triangular, slightly convex in middle, scattered with fine punctures.

Elytra 1.9 times as long as wide, 4.7 times the length and 1.43 times the width of pronotum, slightly widened posteriad, widest at apical 1/3; dorsum gently convex, thickest at basal 1/3; disc punctato-striate, the striae sometimes interrupted, the punctures rather closely set; intervals feebly elevated, scattered with microscopic punctures;

humeri gently swollen; apices feebly produced.

Male anal sternite truncate and slightly emarginate, semicircularly depressed in apical portion. Legs slightly thickened; male protibia curved ventrad, with ventral side weakly gouged and haired in apical 3/5; male metatibia with inner side distinctly gouged and twisted, and apical portion somewhat spatulate; ratios of the lengths of pro-, meso- and metatarsomeres: 0.3, 0.2, 0.25, 0.25, 1.2; 1.85, 0.85, 0.75, 0.5, 1.4; 1.25, 0.7, 0.4, 1.25.

Male genitalia fusiform, only feebly curved in lateral view, 1.8 mm in length, 0.33 mm in width; fused lateral lobes 0.7 mm in length, with dorsal surface minutely punctate and apex weakly prolonged.

Body length: 7.5 mm.

Holotype: ♂, Ban Nang Bang, nr Sai Yok National Park, Kanchanaburi Pref., 14–V–1985, H. AKIYAMA leg. (NSMT).

Notes. The new species closely resembles *S. chiangdaoense* MASUMOTO, 1997, from N Thailand, but can be easily distinguished from the latter by the larger and more solid body, with pronotum obviously wider, and elytra distinctly patched.

Strongylium akitai sp. nov.

(Figs. 17, 49, 50)

Dark reddish brown, head, disc of pronotum, apical portions of femora, metasternum, inner parts of abdomen, etc., brownish black; each surface sericeous; almost glabrous. Elongate, rather strongly convex.

Head subdecagonal, convex in middle, weakly micro-shagreened, rather closely, finely punctate; clypeus semicircular, flattened in basal portion, gently inclined and haired in front, with fronto-clypeal border widely V-shaped and rather noticeably grooved; genae rather strongly, obliquely raised, with rounded outer margins; frons somewhat Y-shaped, gently inclined forwards, finely ridged; eyes distinctly large, convex laterad, rather broadly, somewhat obliquely inlaid into head, diatone about 1/12 times the width of an eye diameter; vertex medially with a vague longitudinal impression. Antennae subfiliform, reaching basal 1/3 of elytra, ratio of the length of each segment from basal to apical: 0.5, 0.2, 1.23, 1.12, 0.83, 0.8, 0.68, 0.56, 0.51, 0.49, 0.53.

Pronotum somewhat trapezoidal, 1.13 times as wide as long, widest at the middle, rounded apicad and weakly narrowed basad; apex feebly produced, finely, bisinuously bordered, rimmed, the rim thickened in middle; base bisinuously ridged, slightly produced in middle; front angles rounded, hind angles subrectangular; sides steeply declined to lateral margins, which are finely rimmed and hardly visible from above; disc gently convex, weakly micro-shagreened, rather closely punctate, the punctures sparsely intermixed with smaller ones, with a vague medial groove, which is longitudinally, finely impressed in the anterior portion in the holotype. Scutellum triangular with gently rounded sides, flattened, very weakly micro-shagreened, scattered with microscopic punctures.

Elytra subfusiform, 2.22 times as long as wide, 4.1 times the length and 1.61 times the width of pronotum, widest at apical 4/9; dorsum rather strongly convex, though antero-internal portion less strongly so, highest at basal 1/3; disc grooved and punctate, the punctures small, haired, rounded at each bottom, transversely, somewhat elliptically notching intervals at upper edges; marginal groove not interrupted by small prominence; intervals gently convex, micro-shagreened, very weakly micro-reticulate and scattered with microscopical punctures; humeri weakly swollen; apices slightly projected.

Male anal sternite semicircularly depressed in apical 2/3, with truncated apex. Legs slender, male protibia almost straight with ventral side very feebly gouged in apical 3/4; male mesotibia gently curved inwards; male metatibia almost straight, with inner side very weakly gouged in basal 4/7; ratios of the lengths of pro-, meso- and metatarsomeres: 0.69, 0.37, 0.36, 0.24, 1.2; 2.27, 1.22, 0.91, 0.53, 1.30; 2.38, 1.12, 0.58, 1.32.

Male genitalia subfusiform, weakly curved in lateral view, 2.3 mm in length, 0.48 mm in width; fused lateral lobes 1.23 mm in length, with prolonged apex.

Body length: 13–14.5 mm.

Holotype: ♂, Funcha-rindô, Amami-oshima Is., Kagoshima Pref., 28–VIII–1985, K. KAWADA leg. (NSMT). Paratype: 1 ex., nr. Nagakumo Pass, 290–310 m alt., Tatsugô, Amami-oshima Is., 29–VIII–1985, K. AKITA leg.

Notes. This new species closely resembles *S. kawadai* MASUMOTO, 1981, originally described from Ishigaki Is., but can be distinguished from the latter by the slenderer body, with larger eyes, pronotum more finely, not rugosely punctate, scutellum not elevated but flattened, elytra with the grooved punctures not ovate but rounded, intervals neither ridged nor wrinkled, marginal grooves not interrupted by the swelling, and slenderer legs.

Strongylium tabanai sp. nov.

(Figs. 18, 51, 52)

Piceous, with mouth parts, apical parts of 11th antennal segments, basal parts of tarsi, claws, membranous parts between abdominal sternites, etc., more or less lighter in colour; head and pronotum weakly shining, elytra rather strongly, vitreously shining, ventral surface except for metasternum feebly alutaceous, metasternum moderately shining; each surface except for antennae and tarsi almost glabrous, antennae and tarsi haired. Elongate, convex longitudinally, feebly widened posteriad.

Head subdecagonal, slightly micro-shagreened, closely punctate; clypeus semicircular, flattened in basal portion, gently bent downwards and truncate in front, with a short transverse impression in middle, fronto-clypeal border fine and arcuate; genae obliquely rhombical, noticeably raised outwards, with rounded outer margins; frons rather wide though short; eyes subreniform, convex laterad, somewhat triangularly inlaid into head, grooved along inner margins, diatone 0.6 times the width of an eye di-

ameter; vertex weakly raised, shallowly and widely grooved in middle. Antennae subfiliform, reaching basal 1/6 of elytra, ratio of the length of each segment from basal to apical: 0.47, 0.2, 0.8, 0.58, 0.58, 0.55, 0.52, 0.49, 0.45, 0.42, 0.58.

Pronotum somewhat barrel-shaped, 1.25 times as wide as long, widest at apical 2/5, rather noticeably sinuous before base; apex almost straight, thinly though clearly rimmed, the rim finely punctate; base bisinuous, thickly rimmed, the rim finely punctate; sides gently convex laterad, with lateral margins finely bordered; front angles obtuse, hind angles acute; disc gently convex, very shallowly impressed in medio-posterior part and at basal 1/3 on each side, very slightly micro-shagreened, closely and irregularly punctate, the punctures sometimes connected to one another, their bottoms microscopically granulate. Scutellum triangular, remarkably concave in medio-basal portion, irregularly scattered with fine punctures.

Elytra 2.15 times as long as wide, 4.35 times the length and 1.79 times the width of pronotum, widest at apical 1/3; dorsum rather strongly convex, highest at basal 4/5; disc finely punctato-striate, sutural strioles and basal parts of 5th striae rather noticeably deepened; intervals moderately convex, ridged in 1st intervals, surface of disc very slightly micro-shagreened, scattered with microscopic punctures, finely, transversely aciculate; humeri gently swollen; apices rounded.

Legs slender; male protibiae slightly bent dorsad at basal 1/3; ratios of the lengths of pro-, meso- and metatarsomeres: 0.5, 0.28, 0.32, 0.35, 1.2; 1.4, 0.8, 0.7, 0.6, 1.28; 1.7, 0.88, 0.7, 1.33.

Male genitalia subfusiform, 2.9 mm in length, 0.6 mm in width, gently curved in lateral view; fused lateral lobes 1.5 mm in length, with acute apex.

Body length: 18.5 mm.

Holotype: ♂, Luoji Shan, 2,900 m alt., Puge Xian, Sichuan Sheng, SW China, 22–X–1996, M. TABANA leg. (NSMT).

Notes. This new species resembles *S. chinense* FAIRMAIRE, 1891, originally described from "Tchang-Yang", but can be distinguished from the latter by the larger body, with wider pronotum more strongly and closely punctate, elytra more shiny, more finely punctato-striate, and intervals less strongly convex.

Strongylium tanikadoi sp. nov.

(Figs. 19, 53, 54)

This new species closely resembles the preceding new one, *S. tabanai* sp. nov., but can be distinguished from the latter by the following characteristics:

Body smaller (14–16 mm), shortened; darker in colour, slightly more shiny.

Head slightly wider though more distinctly constricted at neck, more finely punctate, longitudinally with an impunctate part in middle; clypeus shorter, smooth, devoid of short transverse impression, with fronto-clypeal border more clearly impressed and roundly arcuate; genae less noticeably raised, with obtuse outer margins; frons more steeply inclined forwards; eyes more transverse, more convex laterad, roundly inlaid

into head, not grooved along eyes, diatone obviously narrower, 0.48 times the width of an eye diameter; vertex longitudinally, shallowly grooved in middle. Antennae slightly shorter, reaching basal 1/10 of elytra, ratio of the length of each segment from basal to apical: 0.37, 0.2, 0.72, 0.6, 0.58, 0.55, 0.53, 0.47, 0.46, 0.41, 0.47.

Pronotum wider, 1.25 times as wide as long, widest at the middle, less noticeably sinuous before base; apex very slightly sinuous at the middle; base more noticeably bisinuous, rimmed, the rim becoming thinner in lateral portions; lateral margins more finely bordered; front angles more obtuse, hind angles more acute; disc hardly micro-shagreened but smooth, less closely punctate, the punctures slightly smaller and hardly connected with one another, with an oblique impression at base on each side. Scutellum triangular, obviously not concave but flat, slightly micro-shagreened, rather closely scattered with fine punctures in lateral portions.

Elytra 2.17 times as long as wide, 4.5 times the length and 1.84 times the width of pronotum, more widened posteriad, widest at apical 1/3; dorsum less strongly convex, highest at basal 2/5; disc finely punctato-striate, sutural strioles less noticeably deepened, basal parts of 2nd and 3rd striae more clearly so; intervals less strongly convex, less remarkably ridged in 1st intervals, less noticeably micro-shagreened, less so punctate and less so aciculate.

Legs slightly shorter; ratios of the lengths of pro-, meso- and metatarsomeres: 0.57, 0.37, 0.35, 0.32, 1.2; 1.3, 0.72, 0.7, 0.49, 1.23; 1.73, 0.8, 0.62, 1.26.

Male genitalia subfusiform, slightly bolder than those of *S. tabanai* sp. nov., 2.85 mm in length, 0.6 mm in width, gently curved in lateral view; fused lateral lobes shorter, 1.25 mm in length.

Holotype: ♂, Rekejue Xiang, 2,500 m alt., Jinyang Xian, Sichuan Sheng, SW China, 16–X–1996, M. TANIKADO leg. (NSMT). Paratypes: 2 exs., 17–X–1996, same locality and collector as for the holotype.

Strongylium merkli sp. nov.

(Figs. 20, 55, 56)

This new species resembles *S. varians* (PASCOE, 1883), originally described from "Gilolo, Penang", but can be distinguished from the latter by the following characteristics:

Body obviously larger (12–13 mm in length; 9.5–10 mm in *S. varians*) and robuster; head, pronotum except for medial part, scutellum and ventral surface almost dark violet, elytra purplish, pronotum medially with purplish tinge; head and elytra metallically shining, pronotum feebly sericeous, ventral surface weakly shining; each surface almost glabrous.

Head wider, more distinctly grooved in medial portion, more coarsely, irregularly punctate; clypeus semicircular, more noticeably dilated apicad, with fronto-clypeal border more clearly impressed; genae more elongate, with more obtuse outer margins; frons wider; eyes more noticeably convex laterad, diatone 0.8 times (0.7 times in *S.*

varians) the width of an eye diameter; vertex longitudinally ridged in medial portion, weakly depressed on each side. Antennae reaching basal 1/7, slightly thickened apicad, with 7 apical segments flattened and dilated towards each apex, ratio of the length of each segment from basal to apical: 0.78, 0.2, 0.62, 0.58, 0.68, 0.65, 0.67, 0.66, 0.65, 0.63, 0.73.

Pronotum slightly wider, 1.24 times as wide as long (1.19 times in *S. varians*), widest at the middle; apex almost straight, more thickly rimmed in middle; base bisinuous, more thickly rimmed ; sides slightly more produced laterad, more sinuate before base; front angles obtuse with rounded corners; hind angles acute, slightly more projected; disc less strongly convex, feebly micro-shagreened (almost smooth in *S. varians*), scattered with obviously larger punctures. Scutellum subcordate, wider, flattened, more closely scattered with small punctures (feebly convex and sparsely scattered with finer punctures in *S. varians*).

Elytra wider, 1.95 times (2.4 times in *S. varians*) as long as wide, 3.6 times the length and 1.6 times the width of pronotum, widest at apical 1/3, very slightly narrowed in basal 1/3; dorsum slightly more convex, highest at basal 3/8; disc with rows of punctures, which are closer, stronger and somewhat rectangular (oblong-ovate in *S. varians*); intervals slightly convex (almost flat in *S. varians*), very weakly micro-shagreened, aciculate, more frequently scattered with microscopic punctures; humeri more noticeably swollen; apices more noticeably rounded.

Legs slightly more elongate, without special features; ratios of the lengths of pro-, meso- and metatarsomeres: 0.26, 0.21, 0.22, 0.25, 1.2; 0.95, 0.5, 0.5, 0.45, 1.3; 1.02, 0.6, 0.41, 1.35.

Male genitalia fusiform, robuster, 2.3 mm in length, 0.5 mm in width (1.35 mm in length, 0.4 mm in width in *S. varians*), gently curved in lateral view; fused lateral lobes 1 mm in length, with acute apex.

Holotype: ♂, Bac thai, 300 m alt., ca. 50 km NE of Thai-nguen, Vietnam, 16–V–1963, O. KABAKOV leg. (TMB). Paratype: 1 ex., Mt. Mauson, Tonkin, IV–V, 2–3,000", H. FRUHSTORFEER leg. (MNHNP).

要　約

益本仁雄：アジア産ナガキマワリ族（Strongyliini）の研究．V．東アジアのナガキマワリ属の20新種について．—— アジア産ナガキマワリ族の研究の第5回として，東アジアに分布するナガキマワリ属（*Strongylium*）の20新種を記載した．今後，種群ごとにまとめることを考慮して，各種の近似種をノートや記載文中に可能なかぎり明記した．新たに与えた新名は，次のとおりである．*Strongylium phedongense* sp. nov., *S. kambaitiense* sp. nov., *S. birmanicum* sp. nov., *S. kingdonwardi* sp. nov., *S. cicindeliforme* sp. nov., *S. lumulumuense* sp. nov., *S. itoi* sp. nov., *S. kenokokense* sp. nov., *S. trifasciatum* sp. nov., *S. pilifasciatum* sp. nov., *S. pici* sp. nov., *S. yai* sp. nov., *S. moritai* sp. nov., *S. nangbangense* sp. nov., *S. kohanemum* sp. nov., *S. kanchanaburiense* sp. nov., *S. akitai* sp. nov., *S. tabanai* sp. nov., *S. tanikadoi* sp. nov., *S. merkli* sp. nov.

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Elytra, Tokyo, **26** (1): 200, May 15, 1998

New Synonymy in the Genus *Strongylium* (Coleoptera, Tenebrionidae, Strongyliini)

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Through the courtesy of Dr. Claude GIRARD of the Muséum National d'Histoire Naturalle, Paris, I had the opportunity of examining type specimens of the species described by FAIRMAIRE and PIC. The following new synonyms were found in the course of my study on the Asian Strongyliini.

Strongylium westermanni MÄKLIN, 1864

Strongylium westermanni MÄKLIN, 1864, Mon. *Strongylium*, 341.
Strongylium cariosipenne FAIRMAIRE, 1896, Notes Leyden Mus., **18**: 112. [*Syn. nov.*]

Strongylium villosum MÄKLIN, 1864

Strongylium villosum MÄKLIN, 1864, Mon. *Strongylium*, 341.
Strongylium rufotinctum PIC, 1917, Mél. exot.-ent., (23): 18. [*Syn. nov.*]

Elytra, *Tokyo*, **26** (1): 201–205, May 15, 1998

An Addition to the Genus *Necydalis* (Coleoptera, Cerambycidae) from Northern Vietnam

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Abstract A new *Necydalis* species is added to the cerambycid fauna of northern Vietnam, under the name of *N. katsuraorum* sp. nov. It seems to be an isolated species within the subgenus *Necydalis*, because of its short and less elongated body in contrast to the voluminous head and thoraces, and of the slender and hardly ample female abdominal segments.

The Vietnamese species of the genus *Necydalis* were enumerated by TAKAKUWA and NIISATO (1996), who recorded five species, *viz.*, *N.* (*Necydalis*) *hirayamai flemonea*, *N.* (*N.*) *shinborii*, *N.* (*N.*) *marginipennis*, *N.* (*N.*) *strnadi* and *N.* (*Eonecydalis*) *bicolor*. After that, TAKAKUWA (1997) described a new member of the genus under the name of *N.* (*N.*) *kumei* based on a single female specimen collected at Meo Village of northern Thailand. Thus, total six species of the genus have so far been known in the cerambycid fauna of the Indochinese region.

Recently, I had an opportunity to examine a peculiar *Necydalis* specimen collected on Mt. Tam Dao northwest of Hanoi in northern Vietnam. It was found by Mr. Takao ARAI among the coleopteran specimens preserved by Mr. Nobuhiko KATSURA. It was submitted to me for taxonomic study through their courtesy. It is evident that the specimen belongs to a new species since no close relatives are known in the genus. This new species is somewhat related to *N. shinborii* and its close allies, *N. nanshanensis* and *N. yakushimensis*. However, it does not show distinct sexual dimorphism unlike the latter three species, and has a reduced body with voluminous head and prothorax. In the following lines, I will describe it as a seventh member of the genus *Necydalis* from Indochina. The new name is given after Mr. Nobuhiko KATSURA and his family for offer of invaluable specimen used in this study.

I am deeply indebted to Dr. Shun-Ichi UÉNO of the National Science Museum (Nat. Hist.), Tokyo, for constant guidance and reading the original manuscript of this paper. Deep gratitude is also due to Messrs. Takao ARAI and Nobuhiko KATSURA of Shinjuku for their kind help in obtaining the invaluable specimen. The abbreviations used in the description are explained in the other paper of mine published in the present issue of the Elytra.

Necydalis* (*Necydalis*) *katsuraorum sp. nov.

(Figs. 1–2)

Female. A small species, with fairly short body. Colour largely dark reddish brown with black head and thoraces, dull in general, though moderately shiny on fore body; head black, with mouth parts except for mandibles dark yellowish brown, eyes dark brown; elytra dark reddish brown, with black external and sutural margins, the black areas being slightly produced onto disc behind middle, apices slightly infuscate; abdomen dark reddish brown, infuscate near median line on sternites 3–5; antennae and legs dark reddish brown, infuscate on dorsal side of scape, on tarsi and basal halves of femora. Body rather sparsely clothed with golden yellow hairs, and partly with dense silvery white pubescence; head with dense golden yellow pubescence on genae and near eyes; antennae densely with minute pale pubescence and dark brown one; pronotum thinly with pale pubescence, and partly with golden yellow hairs at sides and at centre near base, supplemented with recumbent silvery white pubescence at sides near base; scutellum densely with pale yellowish brown pubescence; elytra rather sparsely with yellowish brown pubescence, though the pubescence becomes denser near suture in basal third and apices; meso- and methathoraces densely with silvery white pubescence and yellowish brown hairs, which become brownish on tarsi and apical halves of tibiae.

Head large and voluminous, distinctly wider than pronotal apex (HW/PA 1.34) and slightly so than the maximum width of pronotum across lateral swellings (HW/PW 1.05), densely and scabrously punctured; frons slightly wider than long (FB/FL 1.33), with sides gently divergent apicad, apex a little wider than base (FA/FB 1.08), provided with a median groove complete and very deep, and rather weak lateral ones, fronto-clypeal suture very deep; clypeus provided with large punctures on apical half, apical margin almost truncate; genae nearly 2/3 the depth of lower eye-lobes; eyes moderate in size, hardly prominent laterad; vertex weakly convex. Antennae short, 0.44 times as long as body, reaching the middle of abdominal tergite 3, moderately thickened and distinctly inflated in apical seven segments; scape subquadrate and weakly arcuate, nearly equal in length to segment 3; segments 2 and 3 simply thickened at each apex, the former segment 1.4 times as long as the latter; relative lengths of segments as follows:— 10.4: 3.1: 10.4: 7.6: 12.2: 10.8: 11.1: 9.4: 8.6: 8.0: 8.4.

Pronotum relatively large though short (PL/PW 1.06); base slightly wider than apex (PB/PA 1.15), gently arcuate, nearly as wide as elytra (PW/EW 098); sides weakly constricted before and behind the lateral swellings at apical 3/7, which are conspicuous though rounded; disc rather weakly convex, transversely concave in apical 2/7, almost flattened in basal seventh, with surface densely and scabrously punctured, and partly provided with large punctures near the smooth median area. Scutellum triangular and narrowly truncate at apex, concave in apical half.

Elytra fairly short (EL/EW 1.05), barely reaching the base of abdominal tergite 3, with sutural margin weakly sinuate; sides weakly produced at humeri, straightly con-

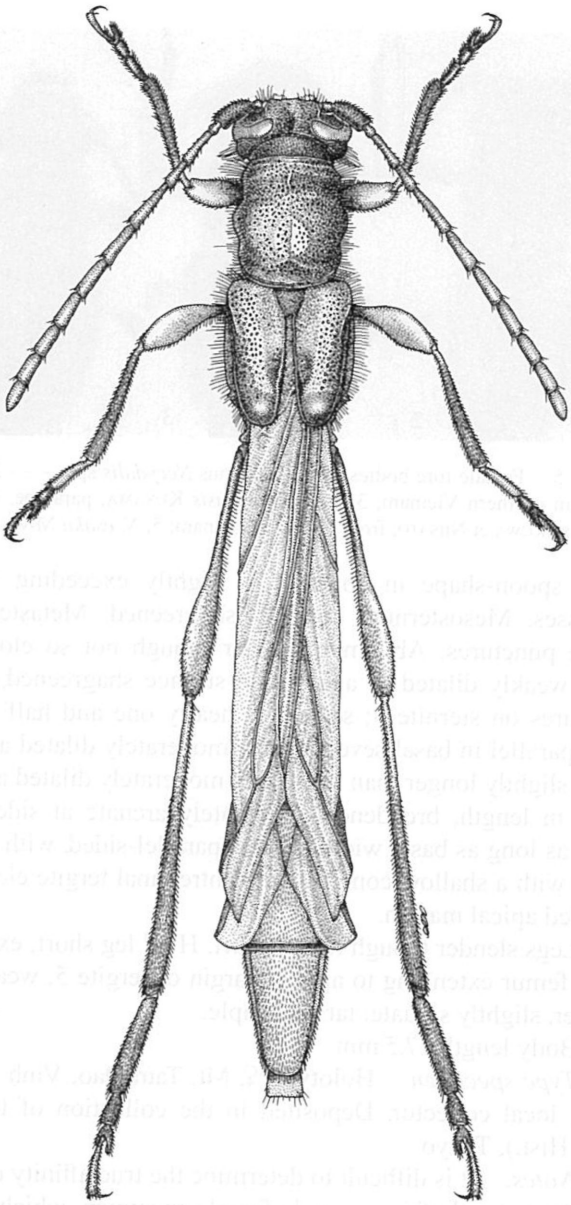
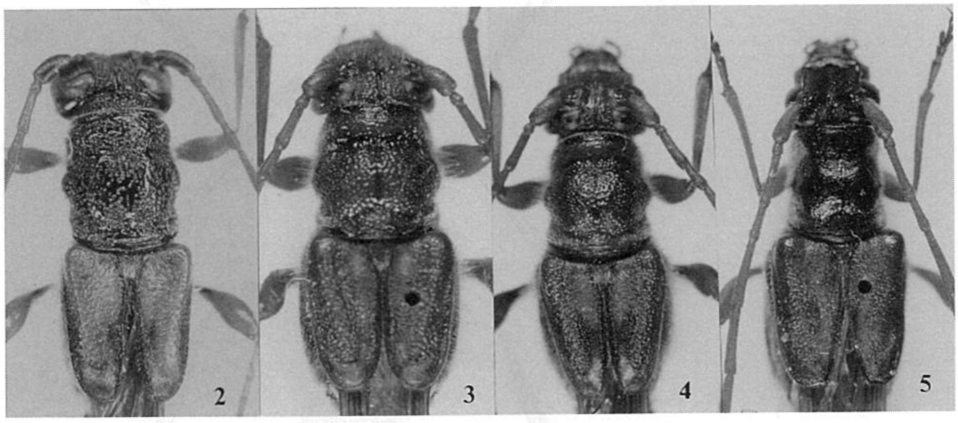


Fig. 1. *Necydalis katsuraorum* sp. nov., holotype ♀, from Mt. Tam Dao in northern Vietnam.

vergent to apical 3/10, then arcuately so to apices which are almost truncate; disc distinctly concave near suture at a level between middle and apical fifth, and moderately so at centre of apical fifth, strongly reflexed in apical fifth, with surface coarsely and densely punctured. Hind wings barely reaching the base of apical tergite.

Prosternum scabrously and coarsely punctured; prosternal process forming a



Figs. 2–5. Female fore bodies of the subgenus *Necydalis* spp. —— 2, *N. katsuraorum* sp. nov., holotype, from northern Vietnam; 3, *N. nanshanensis* KUSAMA, paratype, from central Taiwan; 4, *N. shinborii* TAKAKUWA et NIISATO, from northern Vietnam; 5, *N. esakii* MIWA et MITONO, from central Taiwan.

broad spoon-shape in apical 2/3, slightly exceeding the hind margins of pleural processes. Mesosternum coarsely shagreened. Metasternum densely provided with coarse punctures. Abdomen slender though not so elongate, 0.67 times as long as body, weakly dilated to apex, with surface shagreened, provided with sparse minute punctures on sternite 3; sternite 3 nearly one and half the length of sternite 4, with sides parallel in basal seventh, then moderately dilated apicad, thickened at apex; sternite 4 slightly longer than sternite 5, moderately dilated apicad; sternites 5 and 6 nearly equal in length, broadened, moderately arcuate at sides; anal sternite elongate, 2.3 times as long as basal width, almost parallel-sided, with apex weakly arcuate, and provided with a shallow concavity at centre; anal tergite elongate, divergent to apex, with rounded apical margin.

Legs slender though rather short. Hind leg short, exceeding anal tergite at apex of tibia; femur extending to apical margin of tergite 5, weakly clavate in apical 4/7; tibia slender, slightly sinuate; tarsus simple.

Body length 17.5 mm.

Type specimen. Holotype ♀, Mt. Tam Dao, Vinh Phu Prov., N. Vietnam, 10–V–1997, local collector. Deposited in the collection of the National Science Museum (Nat. Hist.), Tokyo.

Notes. It is difficult to determine the true affinity of this new species, since it has been known only from a single female specimen, which is most probably a small individual. So far as the external characters are concerned, it is somewhat similar to *N. nanshanensis* and its relatives. The voluminous fore body and thick short antennae of this new species remind us of certain tropical species of the subgenus *Necydalis*. This new species probably represents an intermediate state between the *N. nanshanensis* lineage (*N. shinborii*, *N. nanshanensis* and *N. yakushimensis*) and the *N. esakii* one (*N.*

esakii, *N. marginipennis*, *N. mizunumai* and *N. kumei*). It is, however, necessary to confirm its systematic position when additional specimens including males are obtained.

According to personal communication with Mr. N. KATSURA, the holotype of this new species was collected together with such *Necydalis* species as *N. strnadi*, *N. shinborii* and *N. marginipennis* by local collectors of Tam Dao Village. The specimen was brought to Mr. KATSURA as a male of *N. shinborii* because of its small and narrow body form and similar coloration to the male of the latter species. Though I heard of a rumor that a male of this new species was already collected on Mt. Tam Dao, I have unfortunately been unable to trace its source.

要　約

新里達也：北ベトナムから追加発見されたホソコバネカミキリ属の1新種．—— インドシナ地域のホソコバネカミキリ属に関する記録は，1989年に北ベトナムから*N. strnadi* HOLZHCHUH が記載されるまではまったく知られていなかったが，最近になって，TAKAKUWA & NIISATO (1996)は，北ベトナムから2新種，1新亜種を含む5種を記録し，またTAKAKUWA (1997)はタイ北部から1新種を記載した．これによって，同地域からは6種のホソコバネカミキリ類が知られることになった．ところが昨年の夏，北ベトナムのタムダオ山で採集された本属の不明種の1雌個体の標本が，葛信彦，新井孝雄両氏により新たに見出された．この個体は雌でありながら，一見すると，同所的に生息する*N. shinborii*，とくにその雄個体に類似しているが，体と触角はいちじるしく短く，前胸背板は幅広いうえに，雌雄異形がいちじるしく現れる同種の雌個体とはまったく異なる体形と色彩を呈している．その後さらにこの標本を詳細に検討したところ，本属のいずれの既知種とも異なることが判明したので，本論文でカツラホソコバネカミキリ（新称）*Necydalis katsuraorum* sp. nov.として記載命名した．なお，新名は発見者のひとりである葛信彦氏とその家族に献名した．

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Elytra, Tokyo, **26** (1): 206, May 15, 1998

Recognition of *Necydalis hirayamai hirayamai* (Coleoptera, Cerambycidae)

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In a recent paper on the Vietnamese species of *Necydalis* (TAKAKUWA & NIISATO, 1996, Bull. Kanagawa pref. Mus. nat. Sci., (26): 37–39), a distinct subspecies, *N. hirayamai flemonea* (pp. 79–80, figs. 1, 8–12) was newly described from the country for the reason of differentiation in body coloration, shorter hind wings, rounded anal tergite and other minor features. On the other hand, diagnostic characters of the nominotypical subspecies of *N. hirayamai* occurring in Taiwan have so far been taxonomically introduced only in OHBAYASHI's original description, and also discussed in comparison with the Vietnamese one in the above-mentioned paper. In the following lines, I will give a redescription of the nominotypical subspecies of *N. hirayamai* based on recent considerations. The abbreviations used in the description are explained in the other paper of mine published in the present issue of the Elytra (p. 208).

Necydalis (*Necydalis*) *hirayamai hirayamai* OHBAYASHI

Necydalis hirayamai OHBAYASHI, 1948, Ent. Rev. Japan, **1**, p. 13; type locality: Inoue Spa, Taiwan. Other references are omitted.

Diagnostic description. Male. Body length 27.5 mm. Colour reddish brown to red; antennae black in segments 5–11, reddish brown in scape, second segment, and basal parts of segments 3–4; elytra largely reddish brown with infuscate apical parts; hind wings largely black with faint iridescent tinge, though slightly translucent along the anterior margins; abdomen brownish black with pale yellow basal third of sternite 3; legs with hind femur and apex of mid femur black, hind tibia, dorsal sides of fore and mid tibiae, and all tarsi blackish. Hairs and pubescence reddish golden yellow in colour. Head almost as in ssp. *flemonea*; HW/PA 1.12, HW/PW 0.85. Antennae a little longer than a half the length of body. Pronotum irregularly and rather sparsely provided with shallow punctures, except for median transverse callosity which is finely punctured; PL/PW 0.91, PL/PA 1.23, PA/PB 0.81. Scutellum bluntly pointed at apex. Elytra a little longer than wide, more weakly punctured than those of ssp. *flemonea*; EL/EW 1.04, EL/PL 1.16. Hind wings reaching the apex of abdominal segment. Abdomen broader than that of ssp. *flemonea*; anal sternite distinctly wider than long, subtriangularly concave; anal tergite subparallel in basal half, then moderately convergent apicad, with apical margin distinctly emarginate. Median lobe fairly slender than that of ssp. *flemonea*, with distinctly arcuate apical lobe. Paramere distinctly narrowed apicad in dorsal view, with apical part moderately and arcuately dilated ventrad.

Specimen examined. 1 ♂, Mt. Kwangtao Shan, Jenai, Nantou Hsien, C. Taiwan, 6–V–1990, C.-C. LUO leg. (in coll. T. NIISATO).

Elytra, *Tokyo*, **26** (1): 207–211, May 15, 1998

A New *Diplothorax* (Coleoptera, Cerambycidae) from Yunnan, Southwest China

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Abstract A new species of the cerambycine genus *Diplothorax* is described and illustrated from northwestern Yunnan, Southwest China, under the name of *D. ishihamai* sp. nov. It is very peculiar in facies and easily distinguished from the known congeners of the genus. The taxonomical importance of this new species is discussed.

Diplothorax GRESSITT et RONDON of the cerambycine tribe Cleomenini is a poorly known genus, and has hitherto been known from only four species, *viz.*, *D. fasciata* HOLZHCHUH (1981, pp. 74–75, fig. 10) and *D. sangayi* HOLZHCHUH (1985, pp. 394–396, fig. 3) from the Himalayas, *D. paradoxus* GRESSITT et RONDON (1970, pp. 312–313, figs. 47 d, 48 g) from Laos, and *D. lucens* HOLZHCHUH (1995, pp. 28–29, fig. 35) from Sichuan. Most of these species have almost complete elytra, but the type species, *D. paradoxus*, has strongly reduced elytra like a species of the tribe Molorchini. A careful study of comparative morphology has revealed that this genus has a closer relationship to *Procleomenes* GRESSITT et RONDON whose members are widespread in Southeast Asia.

An additional member of *Diplothorax* found in the Nu Jiang Valley of northwestern Yunnan of Southwest China was recently brought to me through the courtesy of Mr. Norio ISHIHAMA of Hokkaido University. At first sight, it was found to belong to a new species because of such peculiarities as the large broad body form, with unusually expanded pronotum, and unique elytral maculation. Besides, the elytra of this new species are intermediate in length between those of *D. paradoxus* and three other known species, that is, they are nearly half the length of the hind body. The elytra of *D. paradoxus* which is the most specialized form are nearly two-fifths the length of hind body, while those of rather an archaic species almost completely cover the abdominal segments. It is of special interest that the reduction of the elytra exhibits a morphocline in the members of *Diplothorax*. As is well known, the difference in the elytral length is regarded as one of the most important characters to separate the members of the tribe Molorchini from those of the Cleomenini in the subfamily Cerambycinae. The morphological gradient of the elytra in such a monophyletic group seems to support my hypothesis that *Diplothorax* and its relatives can be regarded as a rather archaic group of the tribe Molorchini.

In the following lines, I am going to describe the Yunnanese species under the name of *D. ishihamai* sp. nov., and to briefly discuss on its phylogenetic importance.

I wish to express my deep gratitude to Dr. Shun-Ichi UÉNO of the National Science Museum (Nat. Hist.), Tokyo, for his constant guidance and reading through the original manuscript of this paper, and to Mr. Norio ISHIHAMA of Hokkaido University for his offer of the invaluable specimen for the present study.

The abbreviations used in the description are as follows: BL – length of body from the apical margin of clypeus to the posterior margin of anal tergite of abdomen, HW – maximum width of head across eyes, AL – length of antenna, FL – length of frons, FB – basal width of frons, FA – apical width of frons, CL – length of clypeus, CB – basal width of clypeus, PL – length of pronotum, PA – apical width of pronotum, PB – basal width of pronotum, PW – maximum width of pronotum, across lateral tubercles, EL – length of elytra, EW – width of elytra across humeri.

Diplothorax ishihamai sp. nov.

(Fig. 1)

A large species, with remarkably expanded pronotum, reduced elytra which are nearly a half of hind body. Colour black and dark reddish brown, partly reddish and pale yellow, shiny; head black, with dark reddish brown mouth parts except for black mandibular tips and yellowish brown palpi; antennae blackish brown, gradually becoming brownish towards apical segment; pronotum black, with bright reddish brown maculation in the centre of basal 5/7 and just before base, the basal collar dark reddish brown; scutellum black; elytra pale yellow, each provided with dark brown maculations whose margins are mal-defined, 1) a humeral spot extending to both basal and external margins, 2) an oblique short band slanting from basal 2/7 of external margin to basal 4/7 of disc, and widely separated from sutural margin, 3) a transverse band on apical third, 4) apical band on apical 3/14, with anterior margin arcuately emarginate; hind wings translucent blackish brown; prosternum black in apical 3/5, bright reddish brown in basal 2/5 though infuscate near coxal cavities and in the central line including prosternal process; mesosternum bright reddish brown, infuscate near centre and mesosternal process; mesepimeron almost black; metasternum largely black with reddish brown sides; metepisternum bright reddish brown; legs black to blackish brown, mid and hind femora in the peduncles pale reddish brown, and the same part of fore femur slightly brownish; abdomen largely blackish brown.

Head rather voluminous, short, moderately convex, HW/PA 0.94, HW/PW 0.79, provided with coarse and rather large punctures, and with erect pale yellow hairs; frons trapezoidal, gently raised, without a median groove, nearly transverse in apical margin and weakly arcuate at sides, FL/FB 0.75, FA/FB 0.8; vertex strongly concave, provided with deep longitudinal furrows, strongly raised towards antennal cavities; occiput narrow; eyes small, hardly prominent, upper lobes widely separated from lower lobes; genae rather deep, 3/4 the depth of lower eye lobes, bluntly angulate ventrad; clypeus

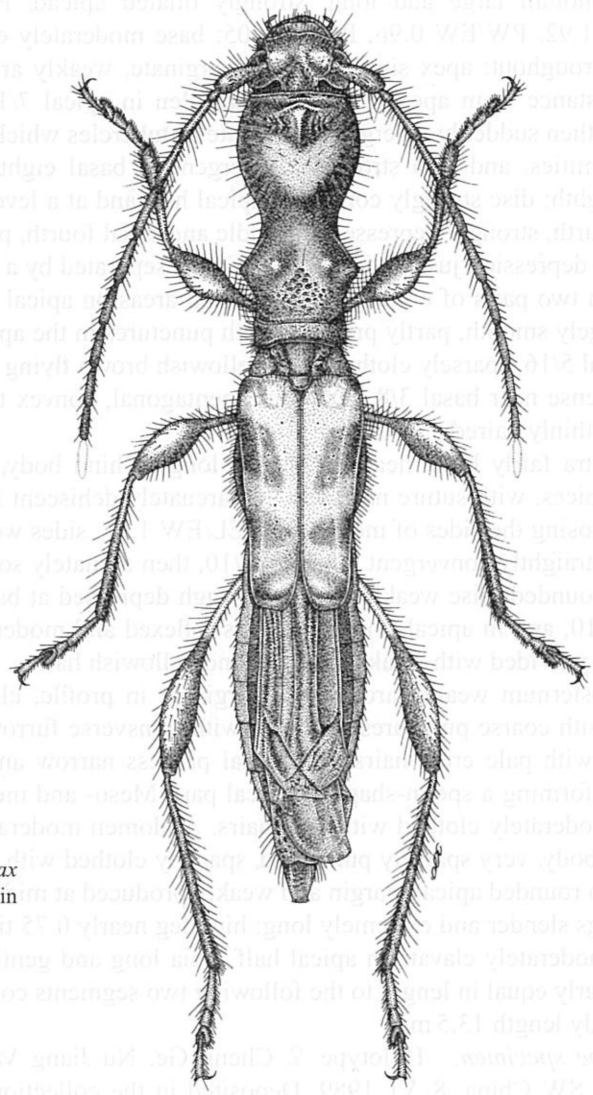

Fig. 1. Habitus of *Diplothorax ishihamai* sp. nov. from Yunnan in Southwest China.

slightly transverse, with arcuately emarginate sides and apical margin, CL/CB 0.2; mandibles short and broad, with obtuse extremities. Antennae thin and rather short, nearly reaching hind coxal cavities, AL/BL 0.55, provided with coarse punctures on basal four segments, clothed with brownish flying hairs, and with recumbent minute pubescence on apical 6 segments; scape weakly clavate, a little shorter than segment 3 and nearly equal in length to segment 4; segments 3–5 thickened at each apex; segment 5 as long as segment 3 and slightly longer than segment 6; segments 6–10 moderately compressed, and slightly decreasing in length towards apex.

Pronotum large and long, strongly dilated apicad, PL/PA 2.27, PB/PA 0.89, PL/PW 1.92, PW/EW 0.96, PL/EL 1.05; base moderately emarginate, distinctly bordered throughout; apex simple and immarginate, weakly arcuate; sides parallel for a short distance from apex, remarkably swollen in apical 7/16, strongly constricted at middle, then suddenly divergent to the lateral tubercles which are strong though obtuse at extremities, and also strongly convergent to basal eighth, and weakly arcuate in basal eighth; disc strongly convex in apical half and at a level between the middle and basal fourth, strongly depressed at middle and basal fourth, provided with a deep obtriangular depression just behind apex which is separated by a central longitudinal ridge, and with two pairs of oblong oblique raised areas on apical fourth and basal 3/8; surface largely smooth, partly provided with punctures in the apical triangular depression, and basal 5/16, sparsely clothed with yellowish brown flying hairs, though the hairs are rather dense near basal 3/8. Scutellum pentagonal, convex though strongly depressed at apex, thinly haired.

Elytra fairly long, nearly a half as long as hind body, moderately narrowed towards apices, with suture narrowly and arcuately dehiscent in apical fourth, considerably exposing the sides of metathorax, EL/EW 1.75; sides weakly expanded at humeri, almost straightly convergent to apical 3/10, then arcuately so to apices which are completely rounded; disc weakly convex, though depressed at base, near suture except for basal 3/10, and in apical fourth which is reflexed and moderately raised; surface very sparsely provided with weak punctures and yellowish hairs.

Prosternum weakly arcuately emarginate in profile, closely wrinkled and intermixed with coarse punctures, and also with transverse furrows in apical half, sparsely clothed with pale erect hairs; prosternal process narrow and strongly compressed at middle, forming a spoon-shape in apical part. Meso- and metathoraces sparsely punctured, moderately clothed with pale hairs. Abdomen moderately elongate, nearly 7/10 of hind body, very sparsely punctured, sparsely clothed with pale erect hairs; anal sternite with rounded apical margin and weakly produced at middle.

Legs slender and extremely long; hind leg nearly 0.75 times as long as body, with femur moderately clavate in apical half, tibia long and gently sinuate, first tarsal segment nearly equal in length to the following two segments combined.

Body length 13.5 mm.

Type specimen. Holotype ♀, Cheng Ge, Nu Jiang Valley, Lu Shui Xian, NW Yunnan, SW China, 8–VI–1989. Deposited in the collection of the National Science Museum (Nat. Hist.), Tokyo.

Notes. *Diplothorax ishihamai* sp. nov. is a remarkable new species isolated within the genus and rather highly modified like *D. paradoxus* (type species!) from Laos. The two species share some peculiar characters such as the reduced elytra and expanded pronotal apical part, which are regarded as derived features within the genus. The elytra of the three other known species are not so much reduced as in *D. ishihamai* and *D. paradoxus*. In the most archaic species, *D. lucens* from Sichuan, the elytra are almost complete, only exposing the anal tergite. The dilatation of pronotum in the

three other species are slightly weaker than in *D. ishihamai* and *D. paradoxus*. The extension of abdominal segments is also peculiar and is considered derivative in the genus. The abdomen of *D. ishihamai* is elongate and nearly equal in length to that of *D. paradoxus*. It is evident that this new species is clearly discriminated from the other congeners by the peculiarities mentioned above, and also by its large broad body and unique elytral maculation.

The original habitat of this new species is unknown. The single female specimen was fortuitously collected inside a running car near the village Cheng Ge along the Nu Jiang Valley in northwestern Yunnan.

要　約

新里達也：中国云南省から発見された*Diplothorax*属の1新種．—— *Diplothorax*属のカミキリムシは，ヒマラヤから2種，インドシナから1種および中国四川省から1種の合計4種がこれまでに知られていたが，今回，中国云南省北西部怒江流域で採集された標本に基づき，本属5番目の種*D. ishihamai* sp. nov.を命名記載した．

本属の基準種である*D. paradoxus*は鞘翅がいちじるしく短縮するコバネ型のカミキリムシであるが，その後に発見された3種は，短鞘翅の傾向は認められるものの基準種ほどではなく，腹部の大部分を覆うほぼ完全な鞘翅をもつものや短鞘翅との中間状態を示すものなど，鞘翅の短縮に段階的な変異が認められる．今回発見された種では，その鞘翅が既知3種と基準種のさらに中間的な長さをもち，この変異はほぼ連続することが明らかになった．カミキリムシの鞘翅短縮は，族以上の高次分類に用いられることもあり，一部のグループでは重要な形質とされてきたが，*Diplothorax*属にみられるように，単系統群のなかでも段階的に生じる変異として観察される．その構成種の大部分が，鞘翅が長いという理由により，ホタルカミキリ族Cleomeninに置かれてきた本属や近縁の*Procleomenes*属などが，コバネ型のカミキリムシのみによって構成されているヒゲナガコバネカミキリ族Molorchiniにむしろ類縁が近く，その祖先的形質を残す諸群ではないかという仮説を，この新種の発見は支持している．

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Elytra, Tokyo, **26** (1): 212, May 15, 1998

Additional Records of Two Vietnamese Molorchine Beetles (Coleoptera, Cerambycidae)

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In recent collecting trips to northern Vietnam made by Japanese coleopterologists, a rather short series of molorchine cerambycid beetles were brought to me for taxonomic study. The collection contains some unrecorded species including new ones. In this brief report, I will record again the two species recently described from northern Vietnam (NIISATO & A. SAITO, 1996, Elytra, Tokyo, **24**, pp. 147–158).

I would like to thank Drs. M. KAWANABE, U. KUROSU and K. MATSUMOTO, Messrs. T. GUYEN, H. KARUBE and Y. OKUSHIMA for their kind help in field works.

Epania vietnamica NIISATO et A. SAITO

Epania vietnamica NIISATO et A. SAITO, 1996, Elytra, Tokyo, **24**, pp.152–154, figs. 1 c–d, 3; type locality: Mt. Tam Dao, Vinh Phu Prov., N. Vietnam.

Specimens examined. 1 ♀, Mt. Tam Dao, Vinh Phu Prov., N. Vietnam, 5–V–1996, Y. OKUSHIMA leg.; 1 ♂, 1 ♀, same locality, VI–1997, local collector.

Notes. The female specimen examined is a fairly small individual as compared with those of the type series. The body is 7.6 mm in length, the pronotum is moderately arcuate at sides and not dilated apicad as in the type series.

This species has so far been known only from Mt. Tam Dao of Vinh Phu Province. The adults are sometimes found from the bloom of *Castanopsis* sp. at the peak of Mt. Tam Dao.

Glaphyra yui masatakai NIISATO et A. SAITO

Glaphyra yui masatakai NIISATO et A. SAITO, 1996, Elytra, Tokyo, **24**, pp.155–156, figs. 1 e–f, 4; type locality: Hoang Lien Son Mts., Lai Chau Prov., N. Vietnam.

Specimen examined. 1 ♀, Mt. Pia Oac, 1,200 m alt., Cao Bang Prov., N. Vietnam, 13–V–1997, T. NIISATO leg.

Notes. The female specimen examined has entirely blackish body, while the allotype has reddish brown appendages. The pronotum is gently arcuate at sides in apical 4/7, and provided with a pair of obvious tubercles at basal 5/14. The body is slightly larger (9.0 mm).

The single female specimen was collected from the top of the bloom of *Castanopsis* sp. standing at the edge of a primary forest, in the late morning on a fine day.

Elytra, Tokyo, **26** (1): 213–215, May 15, 1998

A Possible Hybrid Individual between *Pterolophia zonata* (BATES) and *P. caudata* (BATES) (Coleoptera, Cerambycidae) from Fujisawa, Kanagawa, Japan

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Abstract A possible hybrid individual between *Pterolophia zonata* (BATES) and *Pterolophia caudata* (BATES) (Coleoptera, Cerambycidae) was collected at Fujisawa, Kanagawa, Japan. Its morphological features are attributable to those of the two species, but the whole morphology is biased to the former, suggesting a possibility of successive fertility of the F_1 individual.

I had a chance to examine a puzzling specimen of *Pterolophia* (Cerambycidae, Lamiinae), which apparently resembles both *P. zonata* (BATES) and *P. caudata* (BATES):

1 ♀, Nihon University Shonan Campus, Fujisawa, Kanagawa, Japan, 17–V–1991, a field-practicing student leg. (Fig. 1).

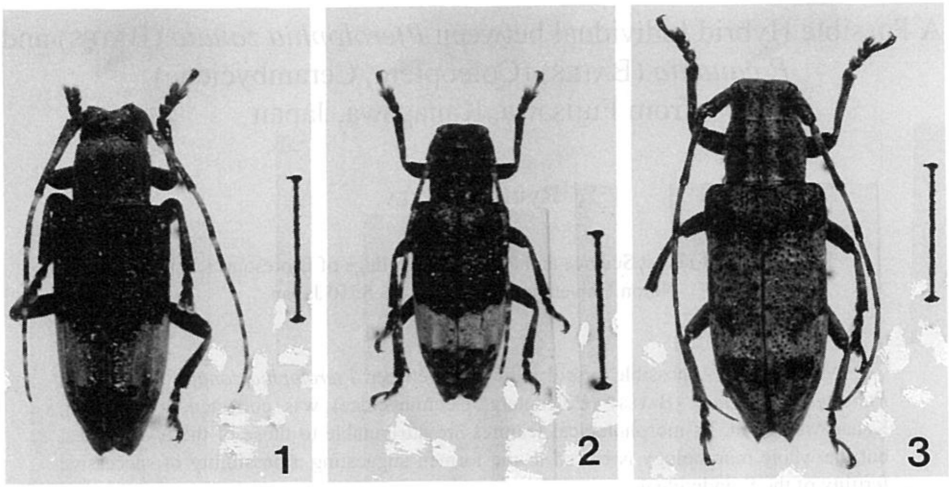
It was collected during students' practice of entomology at a secondary forest in the university campus, probably by beating dead branches of a deciduous broad-leaved tree. In addition, at the same locality, I myself captured a typical individual of *P. zonata* (same date as above) (♀, Fig. 2), and a typical individual of *P. caudata* (21–VI–1989) (♀, Fig. 3), indicating both species' co-existence there.

Since hybridization between these allied species seemed likely, the specimen was thoroughly examined to show the following characters:

Antennae with segments 3 and 4 subequal in length, with distinct blotches or regions of white hairs on almost all segments; pronotum broadest at middle, with median part of posterior edge weakly protruded over scutellum; elytra deeply punctured, with pale band little furnished with punctures, with outermost (3rd) carina almost reduced, with apex not acute (characteristics of *P. zonata*); and, head with gena less than 1.5 times as long as inferior eye-lobe; pronotum broadest at middle, furnished only with golden hairs, with very obscure medio-lateral protuberances (characteristics of *P. caudata*).

Outline of the above-mentioned morphological features, as a whole, suggests that it is a hybrid individual between the two species, with the characteristics of the former somewhat dominant. This might further suggest that it is not a direct F_1 of the two species, but an F_2 or its descendant, which leads to suggest the F_1 is still fertile to some degree.

Interspecific matings have been known among several coleopterous families, such



Figs. 1–3. *Pterolophia* spp. from Fujisawa, Kanagawa Pref. (scale: 5 mm); 1, possible hybrid, ♀; 2, *P. zonata* (BATES), ♀, typical form; 3, *P. caudata* (BATES), ♀, typical form.

as Carabidae (SOTA & KUBOTA, 1995; KUBOTA, 1996; etc.), and examples in the Cerambycidae have also been observed and reported several times (GARDINER, 1954; MAKIHARA, 1987; etc.), among which are those of the tribe Phrissomini (comprising *Parechthistatus* and *Mesechthistatus* for the Japanese fauna). In this group, possible intergeneric (!) hybrids have been reported (TAKAKUWA, 1976; HIRAI, 1987; HIRAI & KINOSHITA, 1992; etc.), and, furthermore, experimental hybridizations have been successfully carried out by KAWAJI (1988). In the case of the genus *Ropica* from the Yaeyama Islands, Japan, KUSAMA and TAKAKUWA (1984) tried to cope with difficult classification of the species by introducing the idea of hybridization, although MAKIHARA (1985) re-classified them not by using this idea.

The present example is a possible new case of hybridization in the family Cerambycidae. Such examples can be rarely, but not never, obtained, to which attention should be paid.

要　　約

岩田隆太郎：神奈川県藤沢市にて得られたアトジロサビカミキリ・トガリシロオビサビカミキリの種間雑種と考えられる個体について．—— アトジロサビカミキリ・トガリシロオビサビカミキリの種間雑種と考えられる個体が，神奈川県藤沢市で得られた．その形態は両種の各形態の組合せであるが，全体としてアトジロサビカミキリの方に偏りを見せ，F_1個体の稔性の可能性をも示唆している．

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Elytra, *Tokyo*, **26** (1): 215–216, May 15, 1998

Two New Records of Cerambycid Beetles (Coleopterta) from Yaku-shima Island, Southwest Japan

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In my recent collecting trip to Yaku-shima Island, Southwest Japan, I was able to find two unrecorded cerambycid beetles, *Pseudiphra apicalis* and *Sciades* (*Miaenia*) *nakanei*. They were collected by beating at the blighted branches on Seibu-rindô of the island. In this short report, I would like to record them as the first records of the species from Yaku-shima Island.

I wish to express my sincere thanks to Mr. Tatsuya NIISATO for his help in preparing the manuscript, and also to Mr. Hiroyuki YOSHITOMI for his help in field works.

1. *Pseudiphra apicalis* (SCHWARZER)

Specimen examined. 1 ♀, Seibu-rindô, Yaku-shima Is., Kagoshima Pref., Japan, 18–VII–1997, K. OKADA leg.

Distribution. Japan: Izu Isls. (Miyake-jima Is., Mikura-jima Is.); Ôsumi Islands: Yaku-shima Is. (new record); Okinawa Isls.: Okinawa-hontô Is.; Taiwan; Philippines: Luson Is., Mindanao Is.

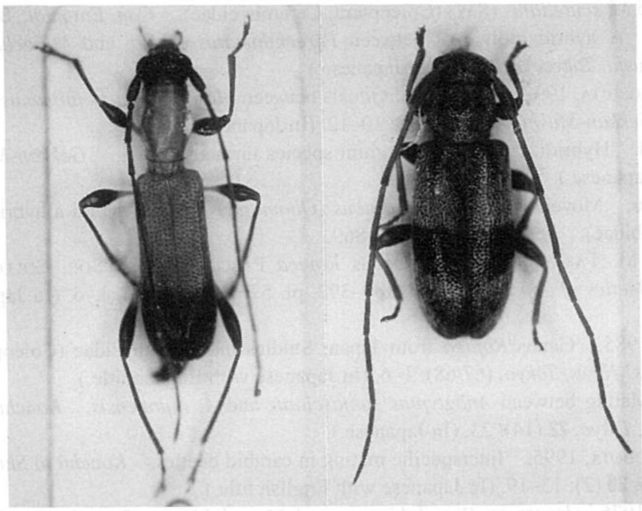

Fig. 1. *Pseudiphra apicalis* (SCHWARZER), ♀ (left), *Sciades* (*Miaenia*) *nakanei* (HAYASHI), ♂ (right); both from Yaku-shima Island of Southwest Japan.

Notes. This species has so far been known from Okinawa-hontô Island and its neighbourhoods, and also from Miyake-jima and Mikura-jima Islands of the Izu Islands, in the Japanese territory. The specimen examined shows a typical colour variation of *P. apicalis*, whose elytra are reddish yellow with black apical 2/5.

2. *Sciades* (*Miaenia*) *nakanei* (HAYASHI)

Specimen examined. 1 ♂, Seibu-rindô, Yaku-shima Is., Kagoshima Pref., Japan, 17–VII–1997, K. OKADA leg.

Distribution. Japan: Ôsumi Islands: Tanega-shima Is., Yaku-shima Is. (new record); Tokara Isls.: Nakano-shima Is.

Notes. *Sciades nakanei* has hitherto been recorded from Nakano-shima Island of the Tokara Islands and Tanega-shima Island of the Ôsumi Islands. This record is a second locality of the species in the Ôsumi Islands.

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Elytra, Tokyo, **26** (1): 217–222, May 15, 1998

Notes on Japanese Chrysomelidae (Coleoptera). Part 3

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Abstract *Nodina issikii* CHÛJÔ and *Chaetocnema confinis* CROTCH are recorded from the Ryukyu Archipelago, Japan. A key to the Japanese species of the genus *Nodina* MOTSCHULSKY is provided.

A number of chrysomelid specimens were kindly offered me for study from Dr. K. KUROSA in Tokyo, Messrs. S. TSUYUKI and Y. UEDA in Kanagawa and Mr. A. TANAKA in Kagoshima, to whom I wish to express my hearty thanks. Based on these material, some distributional data will be given for Japanese chrysomelid beetles. Further, *Chaetocnema* sp. feeding on sweet potatoes in the Ryukyu Islands (TAKIZAWA & KUSIGEMATI, 1996) was found identical with North American *Chaetocnema confinis* CROTCH.

Subfamily Eumolpinae

Colasposoma auripenne MOTSCHULSKY, 1860

Specimen examined. [Ryukyu Islands]: 1 ex., Cape Nagata, Yakushima Is., 8–VII–1994, S. TSUYUKI leg.

Remarks. This is a pest of sweet potatoes in Southeast Asia, occurring widely in the Ryukyu Archipelago, and is recorded herewith from the northernmost island of the archipelago.

Lypesthes kiiensis OHNO, 1958

(Fig. 1 b)

Specimens examined. [Izu Islands]: 2 exs., Mt. Miharayama, Hachijô Is., 13–V–1977, J. OKUMA leg.; 1 ex., Nakanogô, Hachijô Is., 3–V–1987, S. TSUYUKI leg.; 1 ex., Ako-rindô, Miyake Is., 1–V–1978, J. OKUMA leg.

Remarks. *Lypesthes japonicus* OHNO was recorded from Is. Niijima of the Izu Islands (HIRANO *et al.*, 1993), and is distinguished from *L. lewisii* BALY or *L. kiiensis*

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* Part 2, Akitu, Kyoto, (n.s.), (114): 1-7 (1990).

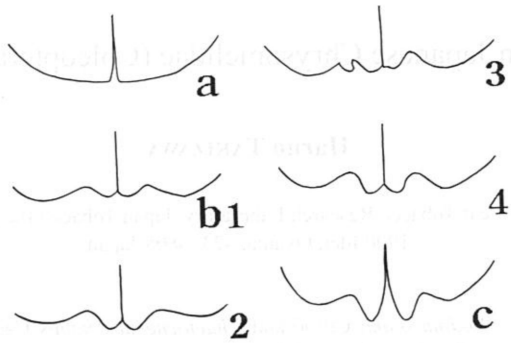

Fig. 1. Apices of elytra of *Lypesthes* spp.: a, *Lypesthes japonicus* from Yahiro-dake, Kyushu; b, *L. kiiensis* from Mihara-yama, Hachijô Is. (1, 2), Ako-rindô, Miyake Is. (3), and Nakanogo, Hachijô Is. (4); c, *L. lewisii* from Shiroyama, Kyushu.

OHNO by truncate apices of elytra. All the examined specimens, including the one determined as *japonicus* by HIRANO *et al.*, have the elytra more or less emarginate at the apices with weak sutural projections as shown in Fig. 1. Based on this character together with long dark-brownish bristles on the elytra and antennae with 3rd and 4th segments subequal in length, these specimens were determined as *L. kiiensis*. Some characters, especially color patterns, in chrysomelid beetles, are known to show considerable variation in isolated populations of the Izu Islands or the Ryukyu Archipelago (OHNO, 1990; KIMOTO, 1974). The *kiiensis* complex of *Lypesthes* is an example of such an insular variation.

Nodina issikii CHÛJÔ, 1956

(Fig. 2 b)

Nodina issikii CHÛJÔ, 1956, Philipp. J. Sci., **85**: 11, 12 (Formosa: Kahodai-Reimei on Mt. Taihei-zan).
Nodina issikii: KIMOTO, 1969, Esakia, Hikosan, (7): 13 (aedeagus figured).

Specimens examined. [Ryukyu Islands]: 2 exs., Omoto-dake, Ishigaki Is., 1–V–1973, K. KUROSA leg.; 1 ex., Nakijin, Okinawa-hontô Is., 31–V–1989, S. OHMOMO leg.; 2 exs., Yona, Okinawa-hontô Is., 1~3–V–1976, H. TAKIZAWA leg.

Remarks. This species, previously known from Taiwan, is firstly recorded from the Ryukyu Archipelago. Four species of the genus occurring in the Ryukyus are distinguished as follows:

Male: fore and middle tarsi with 1st segment distinctly widened.

1. Elytra with punctures in striae narrowly spaced, distance between punctures narrower than their diameter; aedeagus slender, gradually narrowed to blunt apex . . . . . *N. chalcosoma* BALY.

— Punctures in elytral striae widely spaced, with distance between them distinctly wider than their diameter . . . . . 2.

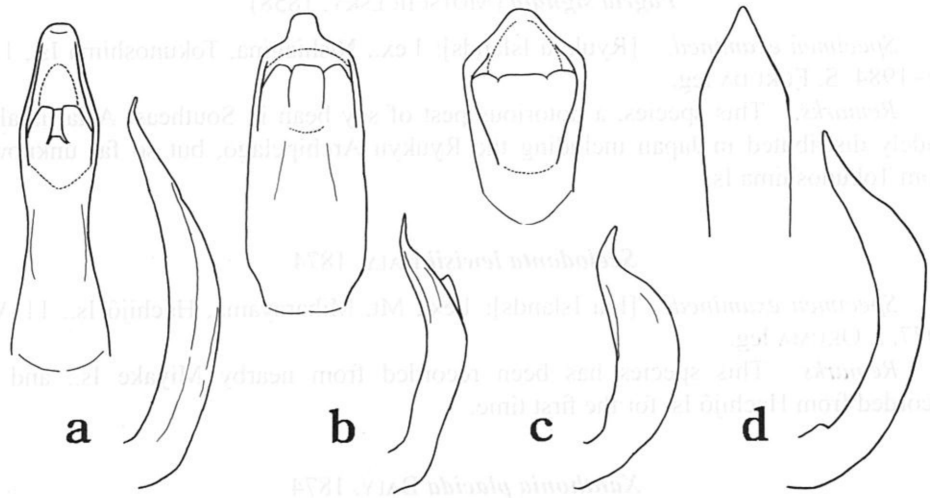

Fig. 2. Apical portion of male aedeagus of *Nodina* spp.: a, *Nodina chalcosoma* from Hirao-dai, Kyushu; b, *N. issikii* from Omoto-dake, Ishigaki; c, *N. morimotoi* from Gajanokobana, Okinawa-hontô; d, *N. kraussi* (after KIMOTO & GRESSITT, 1966).

2. Aedeagus broadly rounded with a small quadrate projection at apex (Fig. 2) ..... *N. issikii* CHÛJÔ.
— Aedeagus rather straightly narrowed to apex (Fig. 2) ..... 3.
3. Aedeagus slender, gradually and straightly narrowed to apex (Fig. 2) ..... *N. kraussi* KIMOTO et GRESSITT.
— Aedeagus rather robust, with broadly triangular apex (Fig. 2) ..... *N. morimotoi* KIMOTO et GRESSITT.

Female: fore and middle tarsi with 1st segment not widened.

1. Elytra with lateral costae starting from humerus ..... 2.
— Elytra without such lateral costae ..... 3.
2. Elytra laterally with a shorter costa between 2 longer ones; punctures in elytral striae narrowly spaced ..... *N. chalcosoma* BALY.
— Elytra without shorter costa between 2 longer ones; punctures in elytral striae widely spaced ..... *N. kraussi* KIMOTO et GRESSITT.
3. Pronotum and frons densely punctate; labrum deeply and somewhat roundly emarginate at anterior margin ..... *N. issikii* CHÛJÔ.
— Pronotum densely covered with fine punctures; frons sparsely punctate; labrum deeply and somewhat angularly emarginate at anterior margin ..... *N. morimotoi* KIMOTO et GRESSITT.

Besides the above 4 species, *N. sauteri* CHÛJÔ occurring in Taiwan was recorded from Okinawa-hontô Is. (CHÛJÔ, 1958) and from Kikaigashima Is. (KISHII, 1976). Its distribution in the Ryukyu Archipelago needs further verification.

Pagria signata (MOTSCHULSKY, 1858)

Specimen examined. [Ryukyu Islands]: 1 ex., Nishiagina, Tokunoshima Is., 11–IV–1984, S. FUKUDA leg.

Remarks. This species, a notorious pest of soy bean in Southeast Asia, is also widely distributed in Japan including the Ryukyu Archipelago, but so far unknown from Tokunoshima Is.

Scelodonta lewisii BALY, 1874

Specimen examined. [Izu Islands]: 1 ex., Mt. Miharayama, Hachijô Is., 11–V–1977, J. OKUMA leg.

Remarks. This species has been recorded from nearby Miyake Is., and is recorded from Hachijô Is. for the first time.

Xanthonia placida BALY, 1874

Specimen examined. [Izu Islands]: 1 ex., near Yakeyama, Kôzushima Is., 7~9–VII–1983, M. NISHIMURA leg.

Remarks. This species has been known from nearby Miyake Is. and Hachijô Is., and is recorded from Kôzushima Is. for the first time.

Subfamily Chrysomelinae

Chrysolina aurichalcea (MANNERHEIM, 1825)

Specimen examined. [Ryukyu Islands]: 1 ex., Kametoku, Tokunoshima Is., 20–IV–1976, J. OKUMA leg.

Remarks. This species is widely distributed in Japan including the Ryukyu Archipelago, and is recorded from Tokunoshima Is. for the first time.

Subfamily Alticinae

Argopus clarki JACOBY, 1885

Specimens examined. [Izu Islands]: 1 ex., Kôzushima Is., 23–VII–1992; 3 exs., Kôzushima Is., 26–V–1992; 1 ex., Niijima Is., 22–VIII–1987, M. NISHIMURA leg.; 1 ex., near Izumitsu, Izu-Ôshima Is., 24~26–IX–1987, M. NISHIMURA leg.

Remarks. This species is herewith recorded from the Izu Islands for the first time.

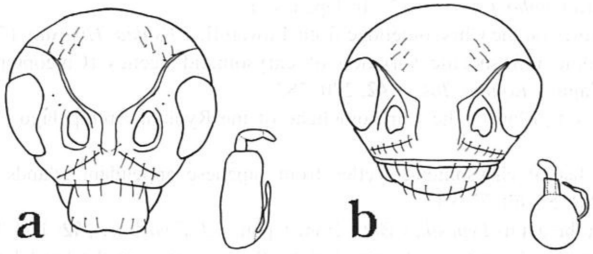

Fig. 3. Head and spermatheca of *Chaetocnema* spp.: a, *Chaetocnema concinna* from Kyushu; b, *C. confinis* from Palau Is. (after TAKIZAWA & KUSIGEMATI, 1996).

Chaetocnema (*Tlanoma*) *confinis* CROTCH, 1873

(Fig. 3 b)

Chaetocnema confinis CROTCH, 1873, Proc. Acad. nat. Sci. Phila., **1873**: 75.

Chaetocnema (*Tlanoma*) sp.: TAKIZAWA & KUSIGEMATI, 1996, Occ. Pap., Kagoshima Univ. Res. Center S. Pacif., (30): 24 (Palau Is., Taiwan, Ryukyu Is.).

Specimens examined. [Ryukyu Islands]: 10 exs., Kunigami, Okinoerabu Is., 5–XI–1996, A. TANAKA leg.; 6 exs., Omonawa, Tokunoshima Is., 20–IX–1976, A. TANAKA leg.

Distribution. N. America, Taiwan, Palau Is., Ryukyu Is.

Remarks. TAKIZAWA and KUSIGEMATI reported the occurrence of this species in the Ryukyu Islands as an undetermined species of the subgenus *Tlanoma*. Recently, Dr. P. JOLIVET in Paris and Dr. M. COX in London kindly determined the Taiwanese specimens of this species as *C. confinis* CROTCH. This looks like *C. concinna* MARSHAM, but is clearly distinguished from the latter by the smaller body with the inter-antennal carina distinctly wider than a diameter of eye (Fig. 3). It is recorded herewith from Tokunoshima Is., and seems widely distributed in the Ryukyu Islands. This species, known as the sweet potato flea beetle in North America, also feeds on sweet potatoes in the Ryukyus, so that its pest status is subject to further studies.

要　約

滝沢春雄：日本産ハムシ科覚書，3. —— 日本の離島のハムシ類の分布を記録し，日本に未知であった2種，*Nodina issikii* CHÛJÔ と *Chaetocnema confinis* CROTCH を琉球諸島から記録した．

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Elytra, Tokyo, **26** (1): 222, May 15, 1998

A New Record of *Microlestes imaii* (Carabidae) from Shikoku, Japan

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The lebiine carabid beetle *Microlestes imaii* HABU, 1972 has been known from Honshu and Kyushu. Recently, I have examined one specimen of this species collected on Mt. Ôtaki-san of Kagawa Prefecture. This is the first record of the species from Shikoku. The collecting data is as given below:

1 ex., Mt. Ôtaki-san, Shionoe-chô, Kagawa Pref., 2–VI–1974, M. TAKAGI leg.

My thanks are due to Mr. Masato TAKAGI for offering me the interesting specimen.


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物採集用具・殺虫管・プレパラート製作用具・名箋・ピンセット・
平均台・液浸用管瓶・ルーペ類・コルク類・その他
営業時間：9時～18時
休 日：毎日曜，祝祭日，10月1日

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