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Weevils of the Genus *Smicronyx* in Japan (Coleoptera: Curculionidae)

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Abstract Weevils of the genus *Smicronyx* in Japan are revised treating four species with *Smicronyx gentianae* sp. nov. from Honshu, Japan. Key to species and illustrations of important features are provided. *Smicronyx inornatus* ANDERSON, 1974, from Pakistan synonymized by KARASYNOV, 1995, with *S. rubricatus* KÔNO, 1930, is resurrected as a valid species with notes on their distinguishing characters.

This paper is dedicated to the late Prof. Hiroyuki SASAJI, an eminent coleopterist and our close friend of long standing, for the commemoration of his great contributions not only to systematics but also to his activities for the conservation of biodiversity. During the preparation of this paper SASAJI's kind cooperation comes up in the senior author's memory for the collection of *Smicronyx madaranus* on *Cuscuta chinensis* at Sanrihama beach in Fukui, where he met this species for the first time.

In this revision of weevils of the genus *Smicronyx* in Japan, four species are treated, of which one is a new species: *S. gentianae* sp. nov., and *S. inornatus* ANDERSON, 1974, from Pakistan is newly resurrected from the synonymy of *S. rubricatus* KÔNO, 1930. Japanese species belong all to the *sculpticollis* group of ANDERSON (1962) in the subgenus *Smicronyx*.

Materials treated in this paper are all preserved in the collection of the Entomological Laboratory, Kyushu University. Drawings were made through the compound and stereoscopic microscopes with the aid of an attached drawing tube and a calibrated eyepiece. Important characters of *S. dentirostris* were already illustrated in the original description (MORIMOTO and LEE, 1992) and not repeated here.

We wish to express our thanks for help in this study to the following entomologists: J. D. BAE, H. ICHIHASHI, S. KIMOTO, C. E. LEE, H. MASUDA, T. MIKAGE, Y. MIYATAKE, Y. MURAKAMI, H. SASAJI and Y. TAKAKURA.

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Key to species of *Smicronyx* in Japan

1(4) Body and legs entirely black, scaling predominantly whitish, ovate and dense on the underside and completely concealing derm.

2(3) Pronotum 1.5–1.8 times as wide as long, with a median whitish narrow scaly stripe besides broad lateral ones; femora unarmed; rostrum in male with a weak median carina. ····· *Smicronyx madaranus* KÔNO

3(2) Pronotum about as wide as long, without median whitish stripe; femora armed with minute teeth; rostrum without median carina in both sexes. ····· *Smicronyx gentianae* sp. nov.

4(1) Body and/or legs entirely or partly brownish to reddish brownish; scaling on the underside sparser exposing derm between scales; femora unarmed.

5(6) Entirely reddish or chestnut brown; rostrum with a denticle at the base of dorsal margin of antennal scrobe on each side; pronotum with punctures confluent to form closely arranged anterolaterally curved rows from the mid line. ····· *Smicronyx dentirostris* MORIMOTO et LEE

6(5) Black, with reddish brown to dark brownish legs and lateral part of elytra; rostrum not dentate near base; pronotum with reticulate punctures; lateral pieces of meso- and metathoraces with denser whitish scales. ····· *Smicronyx rubricatus* KÔNO

Smicronyx gentianae sp. nov.

(Figs. 1–7, 18, 19)

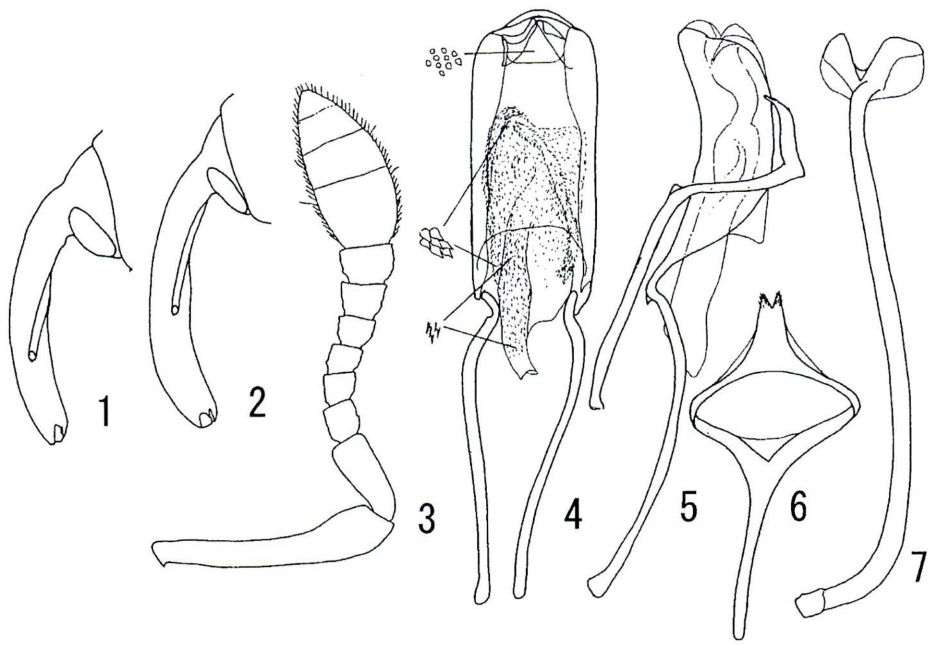
Smicronyx madaranus: HIGUCHI (nec KÔNO), 1953, Saishu to Shiiku, 15: 28 (Fukushima?; biology on *Gentiana scabra*).

Smicronyx sp.: MORIMOTO, 1984, Coleopt. Jpn in col., 4: 290 (Honshu). —— MORIMOTO, 1996, in YUKAWA and MASUDA, Insect and mite galls in Japan: 280 (biology).

Male. Entirely black, with whitish and brownish gray scales; ovate scales dense on the underside, almost whitish on pro-, meso- and metasterna, brownish gray on lateral pieces of meso- and metathraces and antero-lateral area of metasternum, mostly whitish on venter mixing brownish gray ones in the median area; pronotum with a broad lateral stripe on each side, which is whitish mixing a few brownish gray scales along inner margin and replaced with brownish scales at apical third, with a short median stripe before scutellum composed of less than ten ovate and dark brownish scales; elytra with definite whitish patches on shoulder and base of third interval, and indefinite variable transverse patches mixing with a few brownish gray scales at their peripheries; legs with slender whitish and brownish gray scales.

Head bare, with small and sparse punctures; rostrum moderately curved, of the same thickness throughout in lateral aspect, alutaceous, with shallow and indefinite punctures, without carinae, weakly angular at base of the dorsal margin of antennal scrobe on each side; antennae inserted at apical third of rostrum, with proportions in length (width) from scape to club as 166(35) : 60(27) : 26(22) : 21(24) : 19(24) : 19(27) : 24(32) : 25(36) : 116(50), funicle with first segment clavate, second segment cylindrical.

Pronotum as long as wide, widest behind the middle, weakly arcuate at sides from base to a third from apex, then rather strongly narrowed to subapical constriction; disc with dense small punctures, interstices narrower than their diameter and finely wrinkled. Scutellum punctiform.



Figs. 1–7. *Smicronyx gentianae* sp. nov. — 1, Rostrum, male; 2, rostrum, female; 3, antenna; 4, 5, aedeagus, dorsal and lateral aspects; 6, tegmen and parameres; 7, spiculum gastrale.

Elytra 1.25 times as long as wide, widest at the middle, then slightly narrowing to humeri in straight sides, evenly narrowing to apex in a curve; striae narrow and sharp; intervals flat, irregularly with shallow punctures.

Femora clavate, armed with minute teeth, which are almost vestigial on hind legs; tibiae dilated internally and externally at apices, strongly mucronate at inner apex; claws almost parallel and connate for the half of their length.

Prosternum canaliculated, with dense ovate whitish scales, each side of the canal ridged; venter with first and fifth ventrites depressed in the middle. Propygidium with a pair of setiferous pits, pygidium also with a pair of setiferous pits and a simple seta behind the pit in general, but the latter seta often absent in one side.

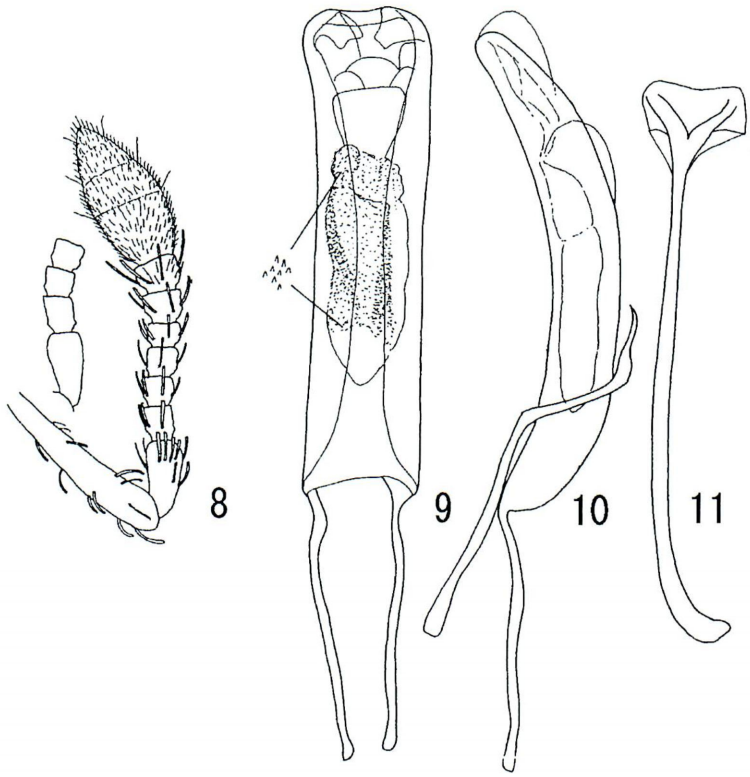
Male aedeagus twice as long as wide, parallel-sided, weakly arcuate at apex, with about 50 sensory pores on each side near apex; internal sac with dense minute spinules of three types, dome shaped spinules near apical orifice, fusiform ones in median and basal areas, and spiny ones in basal area.

Female: Rostrum slenderer, antennae inserted at two-fifth from apex of rostrum; first ventrite flat in the middle.

Length: 2.4–2.6 mm (excluding rostrum).

Holotype: ♂ (Type No. 3243, Kyushu Univ.) and 5 paratypes, 3♂♂, 2♀♀, Mt. Kaikoma, Yamanashi Pref., 30. VII. 1945, H. MASUDA leg.

Distribution. Japan (Honshu).

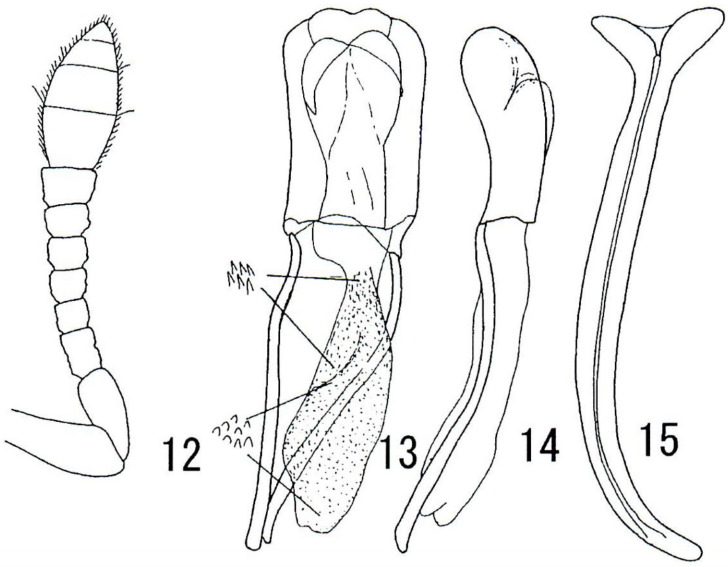


Figs. 8–11. *Smicronyx madaranus* KÔNO. —— 8, Antenna; 9, 10, aedeagus, dorsal and lateral aspects; 11, spiculum gastrale.

Biology. Mr. MASUDA made a note that "these weevils were emerged from the fusiform galls, 30 × 14 mm in size, on the stems of *Gentiana scabra*. These were in pupal and adult staged in the pupal cell, 3.5 × 2.0 mm in size, when collected the galls on July 30, 1945." HIGUCHI (1953) reported that "the galls on *Gentiana scabra* grow from early summer and becoming maximum size in September, new adults emerge from middle to late September, probably hibernate in litter, the full-grown galls are subovate, smooth on surface and reddish, 10–15 mm in diameter, and a few larvae grow in a gall".

Notes. This species is similar to the most species associated with *Cuscuta* spp. in general appearance, but is distinct from the North American and some of Pakistani species by having minute teeth on femora, mostly grayish scaling, and no median grayish scaly stripe on pronotum. This is the second species known to have associated with *Gentiana* following after *Smicronyx reichi* in Europe (LOHSE, 1983).

Among the Japanese species, present new species is easily determined by the characters in the key.



Figs. 12–15. *Smicronyx rubricatus* KÔNO. —— 12, Antenna; 13, 14, aedeagus, dorsal and lateral aspects; 15, spiculum gastrale.

Smicronyx madaranus Kôno

(Figs. 8–11, 17)

Smicronyx madaranus KÔNO, 1930, Ins. Mats., 4: 161 (Iwate). —— SATO, 1963, Saishu to Shiiku, 25: 32 (Nishinomiya; biology, on *Cuscuta australis*). —— SUGA, 1964, Saishu to Shiiku, 26: 88 (Nagoya, on *Cuscuta australis*). —— EGOROV, 1976, Ent. Oboz., 55: 831 (Primorye). —— MORIMOTO, 1984, Coleopt. Jpn in col., 4: 290, pl. 57, fig. 14 (Honshu). —— SAWADA, 1991, Pulex, (79): 402 (Fukuoka: Hainuzuka, in net-trap). —— MORIMOTO, 1996, in YUKAWA and MASUDA, Insect and mite galls in Japan, 280, D-039 (Galls on *Cuscuta chinensis* and *C. pentagona*). —— HONG et al., 2000, Ill. Cat. Curc. Korea: 66 (Korea). —— USUBA, 2004, Handbook of insect galls: 59, fig. 96 (Galls on *Cuscuta chinensis* and *C. pentagona*).

This is similar to *S. gentianae* in coloration and scaling, but is different in the following points: pronotum transverse, 1.5–1.8 times as wide as long, more arcuate at sides, with median whitish scaly stripe on disc; rostrum thick at base, gradually and weakly tapering apically in lateral aspect, with a weak median carina on basal two-thirds in male; femora unarmed; aedeagus slender, 3.4 times as long as wide, weakly concave at apex. Length: 2.2–2.4 mm.

Specimens examined. 1♂, 1♀, Arahama beach, Kashiwazaki City, Niigata Pref., 3. VII. 1992, H. FUKUHARA leg.; 3♂♂, 2♀♀, ditto, S. USUBA leg. (collected galls on *Cuscuta pentagona* on 10. X. 1993, emerged on 23. X); many specimens, Sanrihama, Fukui City, 23. VI. 1982, K. MORIMOTO leg. (collected galls on *Cuscuta chinensis* and emerged from 23. VI to 10. VII); 1♂, Kawaharagoe, Nannoh-chô, Gifu Pref., 14. IX. 1980, T. NOHIRA leg.; 1♂, 1♀, Kisozaki-son, Kuwana-chô, Mie Pref., S. SATO leg. (collected galls on *Cuscuta australis* on 2. X. 1983, emerged on 21. X. 1983); 5♂♂, 4♀♀, Hôsono, Seika-chô, Soura-gun, Kyoto Pref., Y.

MIYATAKE leg. (collected galls on *Cuscuta pentagona* on 25. IX. 1982, emerged on 11. X); 1♀, Kyushu Agric. Exp. Sta., Chikugo City, 7. VIII. 1990 (net trap).

Distribution. Japan (Honshu, Kyushu).

Notes. When tested in the key made by ANDERSON (1962) on North American species, this goes down to *S. pacificus*, but is entirely black, with broad stripe on pronotum on each side and a narrow median stripe formed of ovate whitish scales, and the male aedeagus is slenderer. This is also close to *S. ushoensis* among the species from the Pakistan associated with *Cuscuta* spp. (ANDERSON, 1974), but is different in the scaly pattern of elytra, slenderer male genitalia, and paired parameres cleft to the base.

Biology. Host plants confirmed are *Cuscuta australis*, *chinensis* and *pentagona*, of which the last one is an American species and is spreading in Japan since 1976. Galls on *Cuscuta chinensis* made by a larva are the banana-shaped (11 mm long, 3.5 mm wide) or ovoid (4–8 mm long, 4–6 mm wide) on a side of stem, but those made by several larvae on stem and flower stalk are large spherical or ovoid (up to 13 mm long, 8.5 mm wide), baccate, pale orange in color and shiny on surface. The pupal cell is oblong ovate (2.5–4.0 mm long, 1.8–2.0 mm wide). Annual life cycle is unclear, but the observed data suggest the possibility of a few or continuously overlapped generations from the late spring to autumn on the host plant. Adults must be an active flier as it was collected by a wind net-trap, which is of a large corn-shape set in a tall pole for the collection of the air-born insects (SAWADA, 1991).

Smicronyx dentirostris MORIMOTO et LEE

Smicronyx dentirostris MORIMOTO et LEE, 1992, Esakia, (32): 8 (Korea: Chejudo, Japan: Kyushu, Tsushima; figs. rostrum, antenna, male genitalia). —— HONG et al., 2000, Ill. Cat. Curc. Korea: 66 (Korea).

Entirely reddish brown; suture, ventral side and coxae often chestnut brown; scaling brownish gray, forming indefinite five stripes on pronotum, transverse bands on elytra, and definite basal patch on third interval; underside clothed with spaced scales. Rostrum with a denticle at the base of dorsal margin of antennal scrobe on each side as a prominence behind scape of antenna when rested. Femora unarmed. Male aedeagus twice as long as wide. Body length: 2.4–2.6 mm.

Specimens examined. Type-series, no additional material.

Distribution. Japan (Kyushu: Beppu, Tsushima), Korea (Cheju City: Ora-dong).

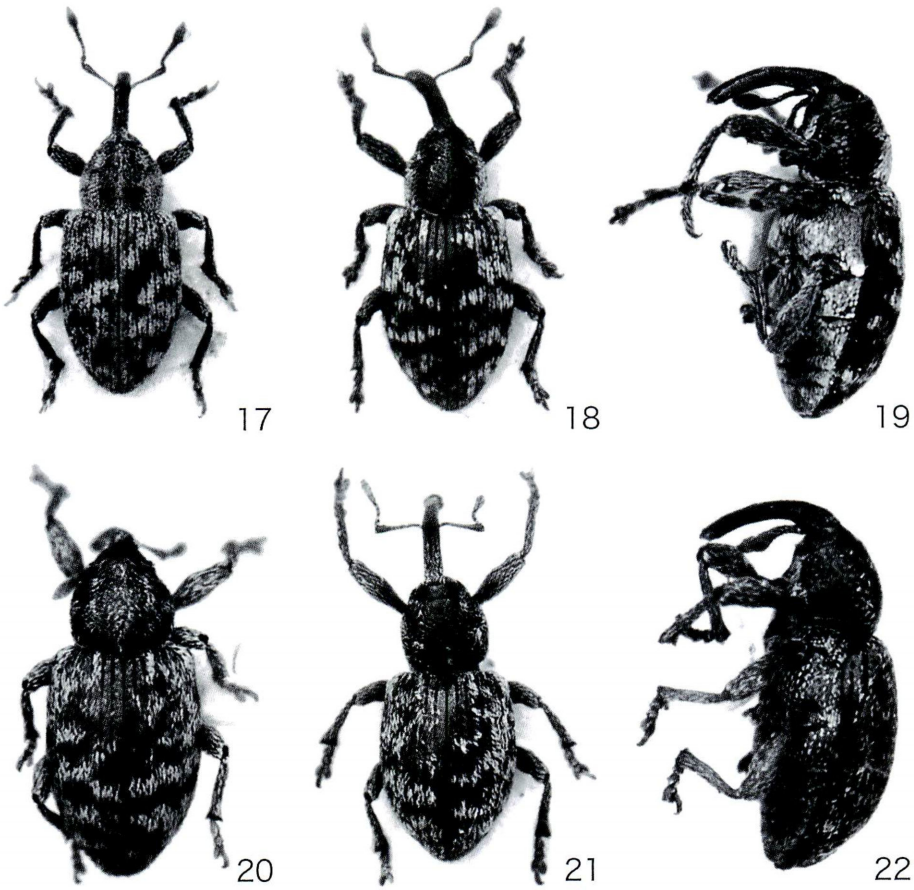
Biology. Unknown.

Notes. This species is easily recognized by its coloration and denticulate rostrum at base on the underside. In Cheju City, this weevil was collected at a levee below the stadium by sweeping, but the host plant was not confirmed.

Smicronyx rubricatus Kôno

(Figs. 12–15, 21, 22)

Smicronyx rubricatus KÔNO, 1930, Ins. Mats., 4: 161 (Kiushu). —— VOSS, 1958, Decheniana, Beihefte 5: 114 (China: Fukien). —— EGOROV, 1976, Ent. Oboz., 55: 831 (Primorye). —— MORIMOTO, 1984, Coleopt. Jpn in col., 4: 290, pl. 57, fig. 13 (Kyushu). —— KARASYNOV, 1995, Reichenbachia, 31: 61 (=



Figs. 17–22. Habitus photographs of *Smicronyx* spp. — 17, *S. madaranus* KÔNO; 18, 19, *S. gentianae* sp. nov.; 20, *S. dentirostris* MORIMOTO et LEE; 21, 22, *S. rubricatus* KÔNO.

S. inornatus ANDERSON). — MORIMOTO and LEE, 1992, Esakia, (32): 8 (Korea: Chejudo). — HONG et al., 2000, Ill. Cat. Curc. Korea: 66 (Korea).

Similar to *S. dentirostris* in structure and scaling, but is different in the following points: bicolorous, body blackish, with reddish brown to dark brownish legs or at least tibiae, antennal scapes and lateral part of elytra in various width, mostly from fourth to seventh intervals; rostrum without denticle at base, more sharply depressed at base on dorsum, with irregular two rows of shallow punctures, interstices between them not carinate; pronotum reticulately punctate. Length: 2.2–2.4 mm.

Specimens examined. 1♂, Senami, N-Echigo, Niigata Pref., 6. VII. 1964, K. BABA leg.; 1♀, Mt. Murakuni, Takefu City, Fukui Pref., 15. VII. 1953, Y. MURAKAMI leg.; 1♀, Sukumo, Kochi Pref., 17. VII. 1953, K. MORIMOTO leg.; 1♀, Ohsakayama, Kitakyushu City, 12. VI. 1977, Y. TAKAKURA leg.; 1♂, Mt. Hiko, Fukuoka Pref., 4. VIII. 1954, S. KIMOTO leg.; 1♂, Mt. Sobo, Oita Pref., 6. VIII. 1954, H KAMIYA leg.; 1♂, NaeLyongRi, SanNaeMeon, NamWeon-

Gun, JeonRaBugDo, Korea, 13. V. 1991, K. MORIMOTO leg.; 1♂, JeongLyongChy, SanNae-Mon, NamWeonGun, JeonRaBugDo, Korea, J. D. BAE leg.; 1♂, 1♀, Mt. TaeBaek, TaeBaek shi, KangWonDo, Korea, 13. VIII. 1991, J. D. BAE leg.; 1♂, 3♀♀, Lushan, Wenchuan Hs., Taiwan, 29. IV. 1977, T. MIKAGE leg. 1♀, Nakhodka-Khabarovsk, Russia, 17. VII. 1958 (at light in train).

Distribution. Japan (Honshu, Shikoku, Kyushu), Korea, China (Fujian), Taiwan (new record), Far East Russia.

Biology. Unknown.

Notes. This species is easily recognized by coloration. The legs are generally reddish brown to dark reddish brown, but often the coxae and femora are almost blackish; brownish area of the elytra are also variable in width, usually longitudinal broad striped on fourth to seventh intervals, often the elytra are almost entirely reddish brown except for the median longitudinal blackish area between the third striae from base to declivity.

KARASYNOV (1995) synonymized *S. inornatus* ANDERSON, 1974, from Pakistan with this species, but these are quite different species separable by the following characters, and thus *S. inornatus* is newly resurrected from the synonymy of *S. rubricatus*.

S. rubricatus: Rostrum without carinae on dorsum; prothorax transverse, 1.6 times as wide as long; femora unarmed.

S. inornatus: Rostrum with three dorsal carinae; prothorax nearly as long as wide; femora armed with a small, ventral subapical tooth.

要　　約

森本 桂・小島 弘昭：日本産ケシツブゾウムシ属. ——— 日本のケシツブゾウムシ属のうち，リンドウの茎に虫こぶを形成するリンドウケシツブゾウムシ *Smicronyx* sp. とした種を *S. gentianae* sp. nov. として記載した．この属の4種は，全体黒色で腹面が密に鱗片で覆われる上記の種とマダラケシツブゾウムシ *S. madaranus*（マメダオシ，ハマネナシカズラ，アメリカネナシカズラに虫こぶを形成），及び体全体または一部が赤褐色で腹面鱗片が疎らなアカケシツブゾウムシ *S. dentirostris* とアカスジケシツブゾウムシ *S. rubricatus* の2群に大別できる．前群は，前胸が幅広く，背面中央に鱗片による狭い中央条があり，腿節に歯のないマダラケシツブと，前胸は長さと幅が等しく，背面中央に白色条がなく，腿節に小さな歯のあるリンドウケシツブに区別できる．後群は，全体赤褐色で，吻基部直前で触角溝上縁後端が下方へ突出するアカケシツブと，黒色で脚の全体または一部，及び上翅第4～7間室（変異あり）が赤褐色のアカスジケシツブに区別できる．パキスタン産の *S. inornatus* ANDERSON はアカスジケシツブの異名とされたが，区別点を記して別種とした．

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Occurrence of *Stygiotrechus* (Coleoptera: Trechinae) on the Japan Sea Side of Western Honshu, Japan

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Abstract A new species of the trechine genus *Stygiotrechus* is described for the first time from the Japan Sea side of Chûgoku District, western Honshu, Japan. It is closely similar in external morphology to *S. iyonis* S. UÉNO et ASHIDA, but is unique in the short symmetrical aedeagus of the male genitalia. This remarkable species is dedicated to the memory of the late Dr. Hiroyuki SASAJI under the name *Stygiotrechus sasajii* S. UÉNO et NAITÔ.

The present paper is designed for dedication to the memory of the late Dr. Hiroyuki SASAJI (1935–2006), a distinguished coleopterologist in Japan specialising in the taxonomy of the Cucujoidea and an old friend of UÉNO's. He always helped UÉNO in pursuing studies on trechine beetles, and even found out an old mine adit inhabited by a new species of *Trechiama* (cf. UÉNO, 1980, pp. 206–209). NAITÔ was a member of a research group organised by SASAJI and learned many things from his writings.

The new trechine beetle selected for dedication is an endogean species of the genus *Stygiotrechus* recently discovered on the Japan Sea side of western Honshu, West Japan. Until then, the genus was considered to spread mainly from northern Kyushu, eastwards along the northern side of the Inland Sea of Seto-naikai, to the middle reaches of the Yodo-gawa River, and spread out here and there into northern Shikoku and the Kii Peninsula (cf. UÉNO, 1969 a, 1976; ASHIDA and KITAYAMA, 2003; etc.). Field investigations were repeatedly made in the blank areas on the northern side of Chûgoku District, above all in the Shimané Peninsula and the Iwami area, since an isolated blind trechine had been known from a lava cave lying on the Island of Daikon-jima near Matsué City. This isolated species, *Daiconotrechus iwatai* (S. UÉNO) (1970, p. 610, figs. 4–6; 1971, p. 183, fig. 1) was originally described as a derivative member of *Stygiotrechus* and was considered to have certain relationship with the genus *Coreoblemus* S. UÉNO (1969 b, p. 66), whose members were distributed in the southeastern part of the Korean Peninsula and the Tsushima Islands. We surmised then that any additional discoveries might fill in the taxonomical gap between these genera. Unfortunately, however, our efforts were not repaid for a long time. We came across neither *Stygiotrechus* nor *Daicono-*

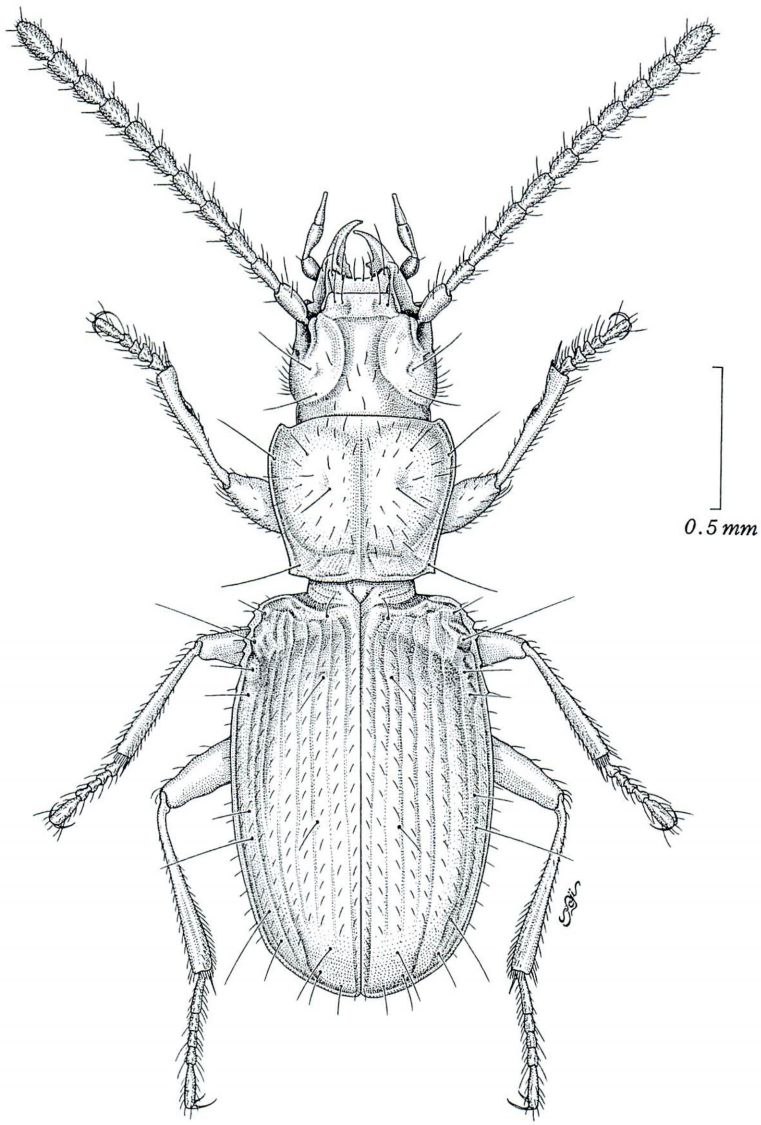


Fig. 1. *Stygiotrechus sasajii* S. UÉNO et NAITÔ, sp. nov., ♂ from Shimojô of Kawahira-chô in Gôtsu-shi.

trechus, and our expectation became completely defeated[1]. It was therefore most unexpected that a *Stygiotrechus* was discovered in the spring of last year at the central part of the Iwami area, and what was more, on low hills near the coast of the Sea of Japan.

The trechine beetle under consideration looked like a member of the group of *Stygiotrechus ohtanii*, which has the widest range of distribution within the genus. It was, however, revealed after a careful dissection that this trechine was incredibly different from all the described species of the genus in the peculiar configuration of its male genital organ. It should be regarded as an isolated species of uncertain origin, and is doubtless new to science. In the present paper, we are going to describe it under the name *Stygiotrechus sasajii* in dedication to the late Dr. Hiroyuki SASAJI.

1) Very recently, a second species of *Daiconotrechus* was discovered in the Tsushima Islands, and is now waiting for proper description (UÉNO, in preparation).

The abbreviations used herein are the same as those explained in previous papers by UÉNO (*e.g.*, 1969 a, p. 485).

Stygiotrechus sasajii S. UÉNO et NAITÔ, sp. nov.

(Figs. 1–3)

Length: 2.50–2.70 mm (from apical margin of clypeus to apices of elytra).

Externally very similar to *S. iyonis* S. UÉNO et ASHIDA (2003, p. 410, figs. 1–3) from the Takanawa Peninsula at the northwestern part of Shikoku, only differing from it in some inconspicuous character states of pronotum and relatively short elytra on an average. Radically different from *S. iyonis* in the configuration of male genitalia to be described later.

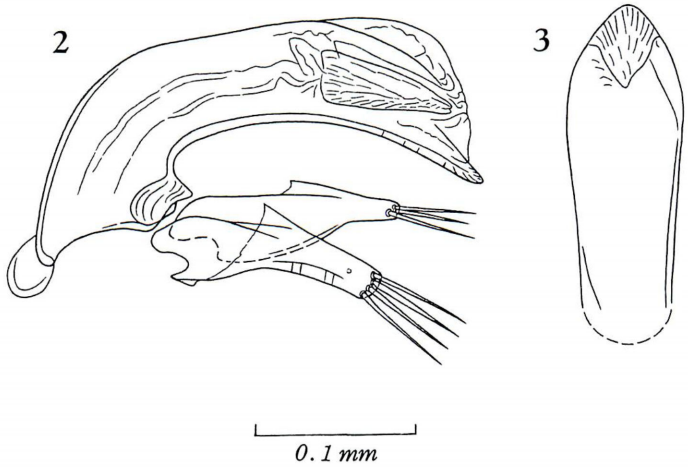
Colour as in *S. iyonis*. Microsculpture, pubescence and chaetotaxy identical with those in *S. iyonis*, though the microsculpture is less sharply impressed on elytra. Head as in *S. iyonis*, HW/HL 1.17 in the holotype ♂ (H), 1.22 in the allotype ♀ (A); antennae reaching basal three-tenths of elytra in H, basal third of elytra in A.

Pronotum generally similar to that of *S. iyonis*, but the front angles are more distinctly produced, narrow and sharp though small; hind angles more obtuse though minutely denticulate at the corners; base more oblique and less deeply emarginate on each side inside hind angle; basal area covered with less sharply impressed microsculpture; PW/HW 1.29 in H, 1.27 in A, PW/PL 1.17 in H, 1.14 in A, PW/PA 1.23 in H, 1.20 in A, PW/PB 1.30 in H, 1.27 in A, PA/PB 1.06 in both H and A [PB/PA 0.94 in H, 0.95 in A].

Elytra a little shorter on an average than in *S. iyonis*, widest at about four-ninths from bases; EW/PW 1.37 in H, 1.38 in A, EL/PL 2.45 in H, 2.42 in A, EL/EW 1.52 in H, 1.54 in A; shoulders square as in *S. iyonis*, moderately reflexed; sides more regularly, though feebly, arcuate than in *S. iyonis*; apices conjointly and more widely rounded than in *S. iyonis*; striation as in *S. iyonis*, though inner striae are a little more deeply impressed on the disc than in the latter.

Legs somewhat shorter than in *S. iyonis*, though identical with the latter in conformation.

Male genital organ very small and lightly sclerotized, strikingly different in configuration from those of the other members of the *ohtanii* group. Aedeagus only one-fifth as long as elytra,



Figs. 2–3. Male genitalia of *Stygiotrechus sasajii* S. UÉNO et NAITÔ, sp. nov., from Shimojô of Kawahira-chô in Gôtsu-shi; left lateral view (2), and apical part of aedeagus, dorso-apical view (3).

short and fairly thick, feebly arcuate at middle, slightly inflated at the apical part with short apical lobe, and abruptly curved at the basal part, which has fairly large basal orifice whose sides are shallowly emarginate; viewed dorsally, apical part broad, rapidly and arcuately narrowed to blunt extremity; viewed laterally, apical lobe very short and narrow, almost invisibly reflexed, and ending in a nearly pointed tip; ventral margin widely but lightly emarginate in profile. Inner sac armed with a subspatulate copulatory piece about three-tenths as long as aedeagus, and narrowed towards apex, which is split into narrow processes. Styles fairly large, left style broader and a little longer than the right; in the holotype, left style provided with four apical setae, while the right one with only three apical setae.

Type series. Holotype: ♂, Shimojô, 4. VI. 2006, T. NAITÔ leg. Allotype: ♀, Hongô, 29. V. 2006, T. NAITÔ leg. Both deposited in the collection of the National Science Museum (Nat. Hist.), Tokyo.

Localities of the type series. Shimojô, 120 m in altitude, in Kawahira-chô (type locality!), and Hongô, 60 m in altitude, in Hazumi-chô, both in Gôtsu-shi of Shimané Prefecture, western Honshu, West Japan.

Notes. It is difficult to determine the true affinity of this new species at the present moment. In external morphology, it appears to belong to the *ohtanii* group, but the unusually small male genitalia are quite unique in configuration, that is, the aedeagus is short and symmetrical, not sigmoidally curved in dorsal view, slightly inflated at the apical part instead of being tapered, and the apical lobe is very short and straight, not decurved. Such an aedeagal peculiarity could be regarded as a sound proof of the isolated status of *S. sasajii*, if there were no close external similarity to *S. iyonis* and other members of the *ohtanii* group. Further investigations in western Honshu are needed for clarifying true relationship of this interesting species.

Stygiotrechus sasajii was found on both sides of the lower reaches of the Gô-no-gawa River that empties into the Sea of Japan. The northeastern locality (Hongô) on the right side of the river is about 98 km distant to the west-southwest in a beeline from the Island of Daikonjima, on which lies the type locality of *Daiconotrechus iwatai*. The southwestern locality (Shimojô) on the left side of the river is about 8 km distant from the northeastern one. At the former locality (Hongô), the allotype was found walking on the lower side of a large stone dug out from the upper layer of a thick gravel deposit filled up with clay. At the latter locality (Shimojô), the holotype was taken from a similar habitat, though favourable spots are much limited as compared with the Hongô site. At any rate, *S. sasajii* seems to be a rare species, since only one specimen each has been obtained from the two known habitats in spite of repeated searches made by the junior author.

要　　約

上野 俊一・内藤 隆夫：中国地方の日本海側で発見されたノコメメクラチビゴミムシ. ——ノコメメクラチビゴミムシ属の甲虫類は，九州北部から瀬戸内海のおもに北岸沿いに東方へ拡がり，淀川の中流域に到達している．また，紀伊半島にかなり広く分布しているが，実態はまだよくわかっていない．ところが昨年になって，中国地方の日本海側に位置する江津市の２ヵ所，それも海岸からそれほど遠くない場所の地中環境から，この属の一種が見つかった．地理的に孤立したこの新種は，外形的にはコンゴウメクラチビゴミムシ群に含まれるもののようにみえ

るが，雄交尾器の形態は同属のどの種のものともまったく異なるので，現時点で真の類縁関係を判定するのはむずかしい．この特異な新種を，昨年の夏に逝去された佐々治寛之博士に捧げて，ササジメクラチビゴミムシ *Stygiotrechus sasajii* S. UÉNO et NAITÔ と命名し，日本の甲虫学の発展に大きく貢献された功績を讃えるとともに，長年にわたる厚誼に感謝し，ご冥福をお祈りしたい．

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A New Genus and Species of the Subfamily Colydiinae (Zopheridae: Coleoptera) from the Ogasawara Islands

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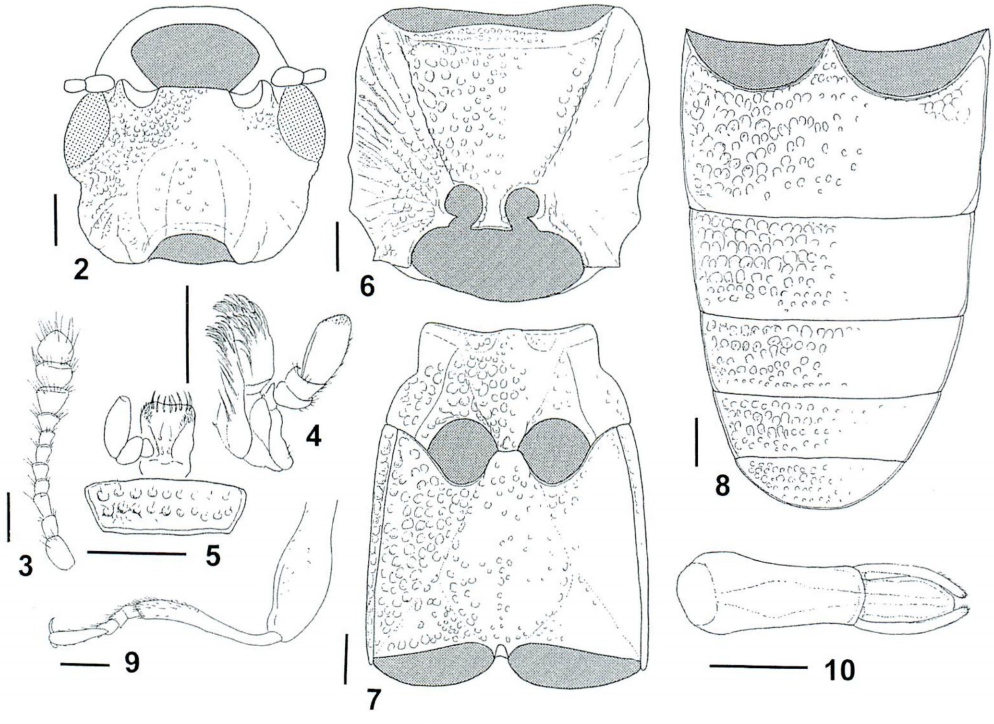
Abstract A new genus and species of the Zopheridae, *Sasajia hiroyukii* gen. et sp. nov., is described on the specimens collected from the Ogasawara Islands. New generic and specific names are given after the late Dr. Hiroyuki SASAJI.

Fig. 1. *Sasajia hiroyukii* gen. et sp. nov.: habitus (holotype).

This paper is designed for dedication to the memory of Dr. Hiroyuki SASAJI (1935–2006), one of the leading specialists of the superfamily Cucujioidea in the Twentieth Century of Japan. He had guided the authors for a long time in studying the Tenebrionidae.

In dedicating a new species to his memory, it seems to the present authors most appropriate to select a new colydiine collected from the Ogasawara Islands. MASUMOTO noticed that this species was new to the fauna of Japan about two years ago, and had asked Dr. SASAJI's opinion about its systematic position. Since then, they discussed on its systematic status for a year, and finally concluded that a new genus of the subfamily Colydiinae should be erected for this unknown species. It was a pity that SASAJI passed away before the manuscript of the paper dealing with this species was completed. MASUMOTO, therefore, asked Katsumi AKITA, who is well acquainted with SASAJI, for the coauthorship of this small paper.

Before going further into details, the authors wish to thank Mr. Yukihiko HIRANO, Odawara City, and Mr.Yoshinori KANEKO, Hakone Town, who offered the precious materials for this study. Appreciation should be expressed to Dr. Makoto KIUCHI, Tsukuba City, for taking clear photograph inserted in this paper. Finally, they would like to express their cordial thanks to Emer. Curator Dr. Shun-Ichi UÉNO, for his critically reading the manuscript of this paper.



Figs. 2–10. *Sasajia hiroyukii* gen. et sp. nov. — 2, Head (ventral view); 3, antennae; 4, maxilla; 5, labium; 6, prothrax; 7, meso- and metathoraces; 8, abdomen; 9, protarsus; 10, male genitalia (ventral view). Scales: 0.1 mm.

Sasajia gen. nov.

Type species: *Sasajia hiroyukii* gen. et sp. nov.

Body rather elongate, subparallel-sided, only weakly convex dorsad, not serrate along outer margins; each surface almost glabrous, without granules or humps. Head trapezoidal, gently inclined apicad, with clypeus rather long. Antennae 11-segmented, with the apical three segments moderately clavate. Eyes rather elongate. Pronotum nearly quadrate, weakly convex, flattened in major central part, impressed at base on both sides, with all margins finely bordered and rimmed, front angles rounded, hind angles bisinuous and angulate at the corners. Scutellum medium-sized, semicircular. Elytra punctato-striate, gently convex, flattened in major interior parts; lateral margins rather noticeably bordered and rimmed, particularly so in basal parts. Pygidium visible from above.

Terminal segments of maxillary palpi somewhat hatchet-shaped; mentum narrowed; gula longitudinally subelliptical, finely bordered. Prosternum rather wide, obtrapezoidal, gently convex medially, with area between procoxae weakly raised, prosternal process feebly produced posteriad, weakly depressed and truncate at apex; mesosternum somewhat elongated obpentagonal, weakly convex medially, rather closely punctate; distance between mesocoxae about half

the diameter of a mesocoxa; metasternum subquadrate, gently convex medially, with a longitudinal depression along median line; metacoxae not touched but rather close to each other. Abdominal sternites becoming shorter apicad.

Legs medium-sized in similar groups; femora widened in middle; tibiae gently widened and curved outwards, protibia with an apical spur on exterior side; mesotibia with an apical spur at interior side; metatibia with an apical spur on interior side; tarsi subcylindrical, of the 4–4–4 formula, not specially modified, without any tufts on ventral sides; claws falciform.

Notes. The species of this genus somewhat resembles those of the genus *Todima* (type species: *T. rufula* GROUVELLE) from Australia, in having the elongate body with flattened dorsal part, antennal segments clavate in apical parts, and the similar shape of clypeus, but can be distinguished from the latter by the antennae with apical three segments simply widened, tarsi subcylindrical and of the 4–4–4 formula, the scutellum widely triangular, and the mentum narrowed.

Sasajia hiroyukii sp. nov.

[Japanese name : Sasaji-hosokatamushi]

(Figs. 1–10)

Dark brown, with anterior part of head and lateral parts of elytra lighter in colour, legs yellowish brown; dorsal surface dully shining. Body subparallel-sided, only weakly convex dorsad.

Head rather densely punctate, the punctures in medial and posterior parts somewhat longitudinally ovate and often fused with one another; clypeus feebly convex in middle, moderately produced anteriad, with apex medially emarginate and feebly lobed on both sides, frontoclypeal border not defined; genae somewhat longitudinal, defined from clypeus by fine sulci, with outer margins weakly rounded; frons feebly convex, diatone about 6.5 times the width of transverse diameter of an eye in dorsal view; occiput weakly constricted. Eyes elongated ovate, hardly produced laterad, weakly convex antero-laterad. Antennae clavate, reaching apical 1/5 of pronotum, with three apical segments widened, the 10th widest, the terminal one somewhat pear-shaped, ratio of the length of each segment from base to apex: 0.06, 0.04, 0.03, 0.03, 0.03, 0.03, 0.03, 0.04, 0.05, 0.06, 0.06.

Pronotum subquadrate, slightly wider than long, weakly narrowed basad; apex very weakly emarginate widely in middle, very finely rimmed; base feebly produced, entirely rimmed, slightly sinuous near hind angles; sides strongly inclined laterad in anterior part, gently so in medial and posterior parts, with lateral margins finely bordered and rimmed, sinuate at basal 1/3 and hooked just behind the sinuosities; front angles obtusely angulate, hind angles obtuse in dorsal view; disc broadly flattened in middle, rather closely punctate, the punctures longitudinally ovate and often fused with one another in lateral parts, with a pair of distinct impressions near base. Scutellum rather transverse, very feebly raised, sparsely scattered with microscopic punctures in antero-medial part.

Elytra 2.1 times as long as wide, 2.3 times the length of pronotum, feebly produced laterad, widest at basal 2/5, and very slightly wider than pronotum; dorsum weakly convex, flattened in middle, weakly depressed in areas between basal 2/9 and basal 4/9, rather abruptly inclined laterad; disc punctato-striate, the punctures in striae nearly rounded and closely set; intervals weakly convex, almost impunctate; humeri weakly swollen, each with a small tooth at the cor-

ner, also with a short ridge extending ventrad from the tooth; apices moderately rounded.

Prosternum wide, rather closely, coarsely punctate, with truncate prosternal process; mesosternum somewhat triangular, rather closely punctate; metasternum wide and punctate, the punctures in medial part small and sparse, those in lateral parts larger and closer. Abdomen rather punctate, segments I–IV almost impunctate in each apical margin; apex of anal segment rounded.

Tibiae gently widened apicad and curved; ratios of the lengths of pro-, meso- and metatarsal segments from base to apex: 0.24, 0.2, 0.24, 0.64; 0.24, 0.20, 0.24, 0.60; 0.24, 0.24, 0.24, 0.76.

Male genitalia about 0.3 mm in length, 0.08 mm in width, weakly curved in lateral view in basal 1/3, basal piece widened basad, gently constricted in anterior 1/3; median lobe somewhat nib-shaped in dorsal view, 0.09 mm in length; parameres extending to before apex of median lobe, approximate with each other in apical parts.

Body length: 2.6–2.7 mm.

Holotype: ♂, around Chibusa-yama, Haha-jima Is., Ogawawara Isls., Japan, 20. VI. 1994, Y. KANEKO leg. (National Science Museum, Tokyo). Paratypes: 1 ex., same data as for the holotype; 1 ex., southern part, Haha-jima Is., Ogasawara Isls., Japan, 24. VI. 1994, Y. KANEKO leg; 2 exs., Okumura, Chichi-jima Is., Ogasawara Isls., Japan, 14–15. II. 1995, Y. KANEKO leg.

要　　約

益本 仁雄・秋田 勝己：小笠原諸島産コブゴミムシダマシ科ホソカタムシ亜科の新属・新種．——筆者の1人である益本仁雄は，金子義紀氏が小笠原諸島で採集された不明種を平野幸彦氏から研究に供せられた．当初は，ゴミムシダマシ科の1種だと考えていたが，よく調べてみると今日のゴミムシダマシ科の範疇から外れることがわかった．そこで，故佐々治寛之博士とともにこの甲虫の正体を検討した結果，コブゴミムシダマシ科ホソカタムシ亜科の新属新種であることがわかった．益本は佐々治博士と共著で記載をするべく準備を進めたが，途中で佐々治博士は他界された．そこで，新たに日本・台湾のゴミムシダマシの共同研究者である秋田勝己と共に，ここに新属・新種 *Sasajia hiroyukii* gen. et sp. nov. ササジホソカタムシを記載した．ヒラタムシ上科についての研究にご指導をくださった，故佐々治寛之博士のご冥福をお祈りする次第である．

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Addition to the Callichromatine Genus *Schmidtiana* (Coleoptera: Cerambycidae) from the Philippines

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Abstract A new callichromatine species of the genus *Schmidtiana* is described and illustrated from Marinduque Island of the Philippines. This new species is externally similar to *S. palawana* (SCHULZE), but is clearly distinguished by the unique conformation of dorsal expansion of prosternum and the rectangular 8th abdominal segment in the male.

Twenty-five members of the callichromatine genus *Schmidtiana* have so far been known from Southeast Asia, five species of them occur in the Philippine Archipelago (VIVES and NIISATO, 2004). Recently I was able to examine a strange *Schmidtiana* collected from Marinduque Island of the Philippines. The callichromatine in question may have some relationship to *S. palawana* (SCHULZE) from Palawan Island, though evidently discriminated from the latter mainly by the rounded dorsal expansion of prosternum and the simply rectangular 8th abdominal segment in the male. In this paper, I will describe and illustrate it as a new member of the genus from the Philippine Archipelago.

This paper is dedicated to the memory of the late Dr. Hiroyuki SASAJI who was one of the most excellent coleopterologists in Japan. He was also my teacher of taxonomy, and continuously guided and encouraged from my college student time nearly quarter century ago.

I wish to express my hearty thanks to Dr. Shun-Ichi UÉNO for his continuous guidance, and to the late Mr. Takuya OHTANI for his kind arrangement of material used in this study.

Schmidtiana sasajii sp. nov.

(Figs. 1 and 2a–g)

Body length (measured from apical margin of clypeus to elytral apices) 41 mm in male, 43 mm in female.

Similar to *S. palawana*, especially in body form and colour. Colour as in the brown form of *S. palawana*, and almost perfectly agreeing with its variation. Body clothed with golden brown pubescence, partly almost glabrous or with pale hairs; head thinly pubescent, almost glabrous in front; pronotum and scutellum densely with reddish yellow velvety pubescence; prosternum including dorsal expansion quite glabrous; elytra gold yellow pubescent; meso- and metathoraces in most part densely with silvery gray pubescence; ventrite in male densely with silvery gray pubescence near apical margins of basal two segments and at sides of the following two, though

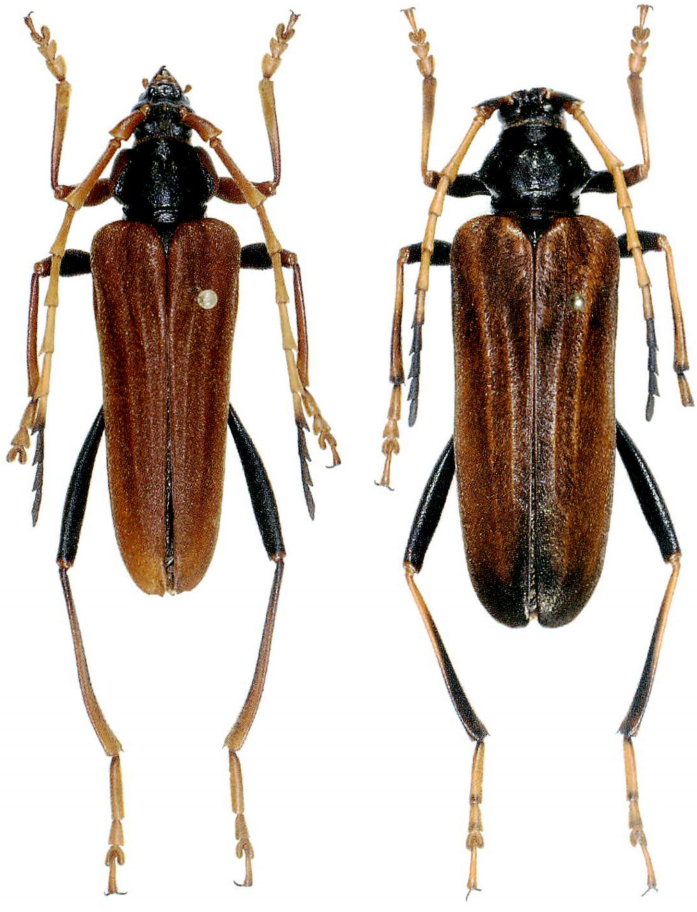

Fig. 1. *Schmidtiana sasajii* sp. nov., holotype ♂ (left) and allotype ♀ (right).

in female pubescent near apical margin of basal segment and at sides of the following.

Head almost as in *S. palawana* though more strongly produced anteriad, closely finely punctured, with labrum dilated apicad and deeply triangularly concave at apex; antennae attaining to apical fifth in male or apical 2/5 in female of elytra. Male pronotum moderately transverse, 1.33 times as long as the maximum width at basal 2/5, with apex 7/10 the width of base; disc distinctly convex and forming a large median callosity which is faintly divided by a shallow median groove in apical half and closely finely punctured on surface, with apex weakly transversely furrowed with fine punctures, though only furrowed near base, sides with a few large punctures; dorsal expansion of prosternum covered at a level between just behind base and just before basal collar, finely and closely punctured, with sides somewhat projected forwards in front, straightly divergent to basal 2/5 where they are rounded, then rather suddenly and arcuately convergent to posterior ends, inner margins strongly produced inwards near basal 3/10. Female pronotum strongly transverse, 1.56 times as long as the maximum width at basal 2/5, finely and closely punctured throughout except near apex and base weakly transversely furrowed, with sides arcuately distinctly divergent to strong lateral spines at basal 2/5. Scutellum narrow triangular in male or narrow trapezoudal in female. Elytra almost as in *S. palawana* though slightly shorter and

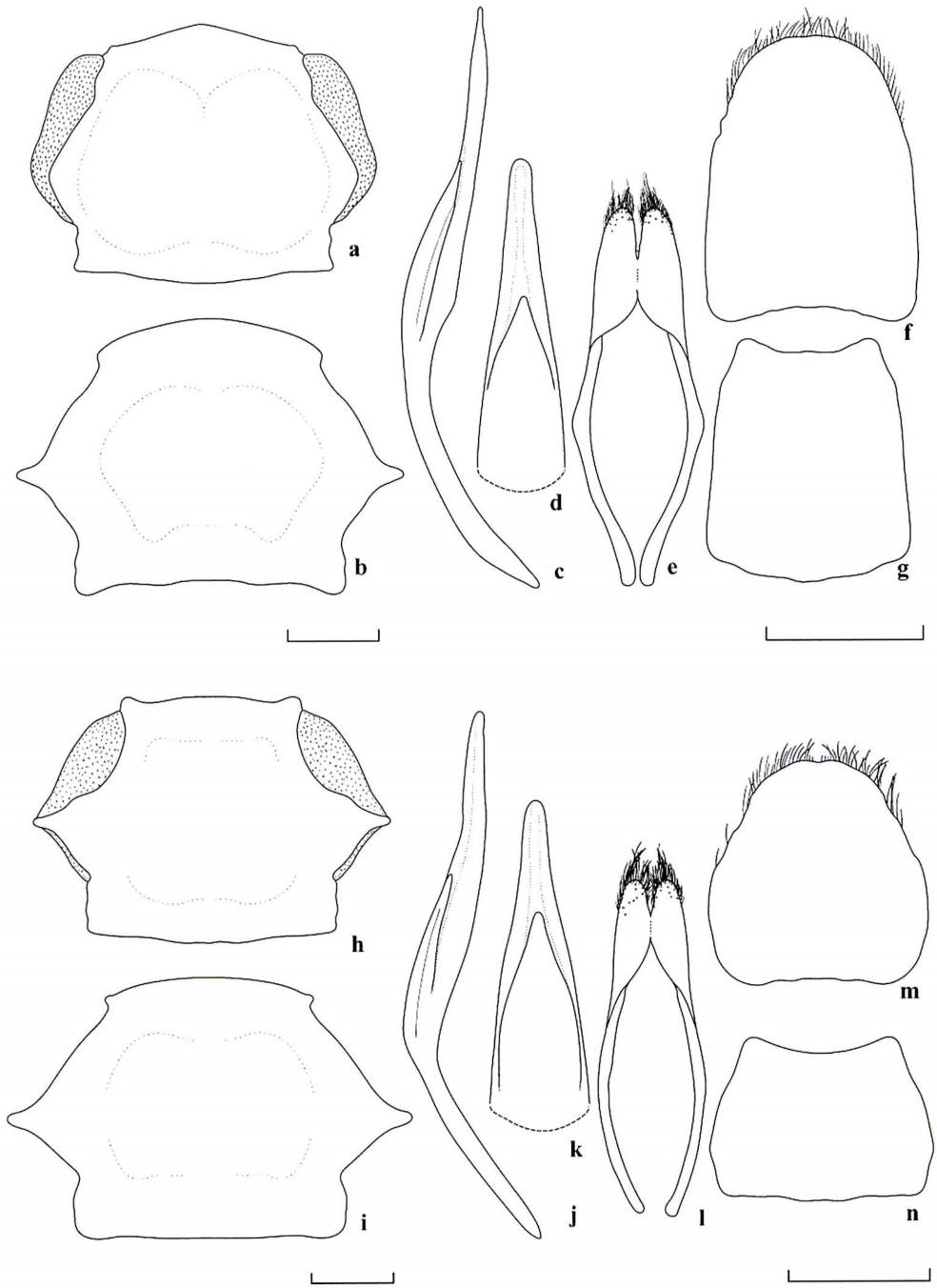

Fig. 2. Prothorax and male genital organ of *Schmidtiana sasajii* sp. nov. (a–g) and *S. palawana* (SCHULZE) (h–n). ——— a, h, Male prothorax in dorsal view; b, i, female prothorax in dorsal view; c, j, median lobe in lateral view; d, k, ditto, apical part in dorsal view; e, 1, tegmen in dorsal view; f, m, 8th abdominal tergite in dorsal view; g, n, 8th abdominal sternite in ventral view. Scale 2.5 mm.

more strongly narrowed at least in male. Ventral surface almost as in *S. palawana* though rather strongly emarginate at sides of prosternum. Legs almost as in *S. palawana* though slightly stouter.

Male genital organ basically similar to that of *S. palawana* but quite different in shape of 8th abdominal segment. Median lobe slenderer and more weakly convex, with dorsal plate triangularly pointed apicad, and barely attained to apical half of apical lobe which is almost flattened in profile. Tegmen almost as in *S. palawana* though the parameres are a little more widely dehiscent. Eighth tergite rectangular, with sides subparallel in basal 3/5 then slightly convergent to broadly rounded apex. Eighth sternite weakly emarginate at apical margin.

Type series. Holotype ♂ and allotype ♀, Marinduque Island, the Philippines, VI. 1987 (no further data available since the specimens were collected by local people). The holotype is deposited in the National Science Museum (Nat. Hist.), Tokyo, and the allotype is in the private collection of NIISATO.

Distribution. Marinduque Is., the Philippines.

Notes. Externally this new species is closely similar to *S. palawana* (SCHULZE) from Palawan Island. It may be indistinguishable by the coloration only, and almost agrees with the brown form of the Palawan species. However, independency of the new species is doubtless in view of the unique conformation of dorsal expansion of prosternum and the 8th abdominal segment in the male. Dorsal expansion of the male prosternum is one of the important characters for identifiying of the genus. The expansion of the new species is formed by the arcuate tubercles instead of strong spines as in *S. palawana*. Besides, the male genital organ also shows unique character at the specific level. The present new species has the simply rectangular 8th abdominal segment, which is quite different from that of *S. palawana*. True affinity of *S. sasajii* sp. nov. may be rather apart from *S. palawana* in spite of their external similarity.

The type locality Marinduque is a small island located to the south of Luzon Island, and is considered to belong to the same island-group the so-called "Luzon region" according to zoogeographical view by VAN-WRIGHT (1994). Only the single species of the genus, *S. iliocana* (SCHULZE), has so far been known from northern Luzon of the region. The Luzon species seems to be rather isolated among the Philippine members of the genus. *Schmidtiana sasajii* sp. nov. is not only the sixth member of the genus from the Philippines but also furnishes an evidence of faunal similarity between the Luzon and Palawan regions.

The specific name of the present new species is dedicated to the memory of the late Dr. Hiroyuki SASAJI. I have promised him that I would name and describe "*sasajii*" for a beautiful Asian callichromatine, though I was unable to realize it in his lifetime.

要　　約

新里 達也：マリンドッケ島産 *Schmiditiana* 属の１新種 ——— フィリピン諸島・マリンドッケ島から *Schmiditiana* 属のアオカミキリの１新種を記載した．本種は，パラワン島に分布する *S. palawana* に比較的近縁なものとみなされ，とくに色彩はその種内変異のなかに完全に納まるほどよく似ている．しかし，本新種の雄では，前胸腹板の背面拡張部の両側が *S. palawana* のように突起状とはならないことや，腹部第８節が楕円形を呈することなどの，いくつかの重要な形質において大きい差異が認められるので，真の類縁関係は，*S. palawana* にそれほど近いものではないのかも知れない．

References

VAN-WRIGHT, R. I., 1994. The Philippines — Key to the biogeography of Wallacea? In KNIGHT, W. J., and J. D. HOLLOWAY (eds.), *In* Insect and the Rain Forest of South East Asia (Wallacea), 19–34. Royal Entomological Society of London.

VIVES, E., and T. NIISATO, 2004. Description of a new *Schmidtiana* species (Coleoptera, Cerambycidae) from the Philippines, with biogeographical notes on the genus in the Philippine Archipelago. *Elytra, Tokyo*, **32**: 443–450.

*For other references, see VIVES and NIISATO (2004).

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Notes on the Flea Weevil Genus *Orchestes* in Japan (Coleoptera: Curculionidae: Rhamphini)

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Abstract Result of the revisional study of the Japanese flea weevil genus *Orchestes* ILLIGER is provided. Subgeneric classification of *Orchestes* is followed after KOJIMA and MORIMOTO (1996). *Salius* SCHRANK, 1798 and *Euthoron* THOMSON, 1859 are synonymized with *Orchestes* s. str. and *Alyctus* THOMSON, 1859 (= *Threcticus* THOMSON, 1859) is resurrected the status as a subgenus of *Orchestes*. Two new species, *O. sasajii* sp. nov. and *O. nitidulus* sp. nov. are described and *O. hidakai* (MORIMOTO, 1984) and *O. yokoae* MORIMOTO et MIYAKAWA, 1996 are redescribed. *Orchestes japonicus* HUSTACHE, 1920 is synonymized with *O. koltzei* FAUST, 1887 and *O. testaceus* (MÜLLER, 1776) is recorded from Japan for the first time. A list of the Japanese species of the genus *Orchestes* is also given with distribution and biological data.

In Japan, weevil fauna is characteristic in having the richness species of xylophagous and tree-living taxa compared with Europe (MORIMOTO et al., 2006). The flea weevils, tribe Rhamphini in general live on the leaves of broad-leaved trees, and the larvae mine their young leaves. Presently a total of 52 species are known from Japan and the fauna is very rich compared with the neighboring area or European countries: Korea (18 spp.), Far East Russia (27 spp.) and middle Europe (33 spp.). Among the tribes, *Orchestes* is the most diverse taxon and also regarded as the derived one according to the result of their phylogenetic analysis (KOJIMA and MORIMOTO, 1996). Some of them are well known as forest pests and their outbreaks often cause serious damage to the plants by defoliation.

First comprehensive taxonomic study of the Japanese species of *Orchestes* was done by KÔNO (1930) and revised by MORIMOTO (1984) who recognized 26 species in three subgenera under the genus *Rhynchaenus*. Later, MORIMOTO and MIYAKAWA (1996) added two species to the fauna. As a result, 28 species have ever been known from Japan.

In their recent catalogue, ALONSO-ZARAZAGA and LYAL (1999) synonymized subgenus *Alyctus* with *Orchestes*, and *Salius* (= *Euthoron*) resurrected the status as an independent subgenus from the synonymy of *Orchestes* without comment. However, the type species of *Salius* (*O. fagi*) is very similar to a certain species of *Orchestes* s. str. such as *O. sanguinipes* and *O.*

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horii as explained by MORIMOTO (1984). And, *Alyctus* is distinguishable from *Orchestes* in the key prepared by KOJIMA and MORIMOTO (1996). Thus, we will follow the system of KOJIMA and MORIMOTO (1996) and recognize three subgenera *Orchestes* s. str. (= *Salius*, **syn. nov.**, = *Euthoron*, **syn. nov.**), *Nomizo* and *Alyctus* **stat. res.** (= *Threcticus*, **syn. nov.**) in the genus *Orchestes*. Key to the genera and subgenera of the East Asian Rhamphini was prepared by KOJIMA and MORIMOTO (1996) and it was corrected by KOJIMA (1997).

In this paper, we will provide the results of recent revisional study of the genus *Orchestes* in accordance with the additional new information and materials. Two new species are described and two rare species are redescribed. A new synonymy is confirmed and a new record to the Japanese fauna is added. Totally, 31 species are recognized in the genus *Orchestes* from Japan and the list is presented.

We dedicate this paper to the late Dr. Hiroyuki SASAJI who was an eminent coleopterist leading the society in Japan.

Abbreviations used in this paper are as follows: ELKU (Entomological Laboratory, Kyushu University, Fukuoka), KUM (Kyushu University Museum, Fukuoka), IM (Isao MATOBA Collection, Wakayama), HY (Hiraku YOSHITAKE Collection, Tokyo), SMTD (Staatliches Museum für Tierkunde, Dresden).

Orchestes* (*Orchestes*) *sasajii sp. nov.

(Figs. 1, 7, 13–19)

Rhynchaenus sp.: MORIMOTO and LEE, 1992: 9 (Cheju I.).

Male and female. Black, antennae reddish brown, tarsi reddish brown to dark brown; derm uniformly clothed with brownish gray fine hairs except scutellum densely clothed.

Head rugosely punctate; forehead between eyes linear, narrowest at posterior third, with row of setae, then dilated anteriorly and posteriorly, faintly concavely continuous to base of rostrum dorsally in profile. Rostrum 4.0 (male) or 4.5 (female) times as long as wide. Antennae with scape nearly as long as basal three segments of funicle combined, antennal insertion index 34.3 (male) or 32.5 (female).

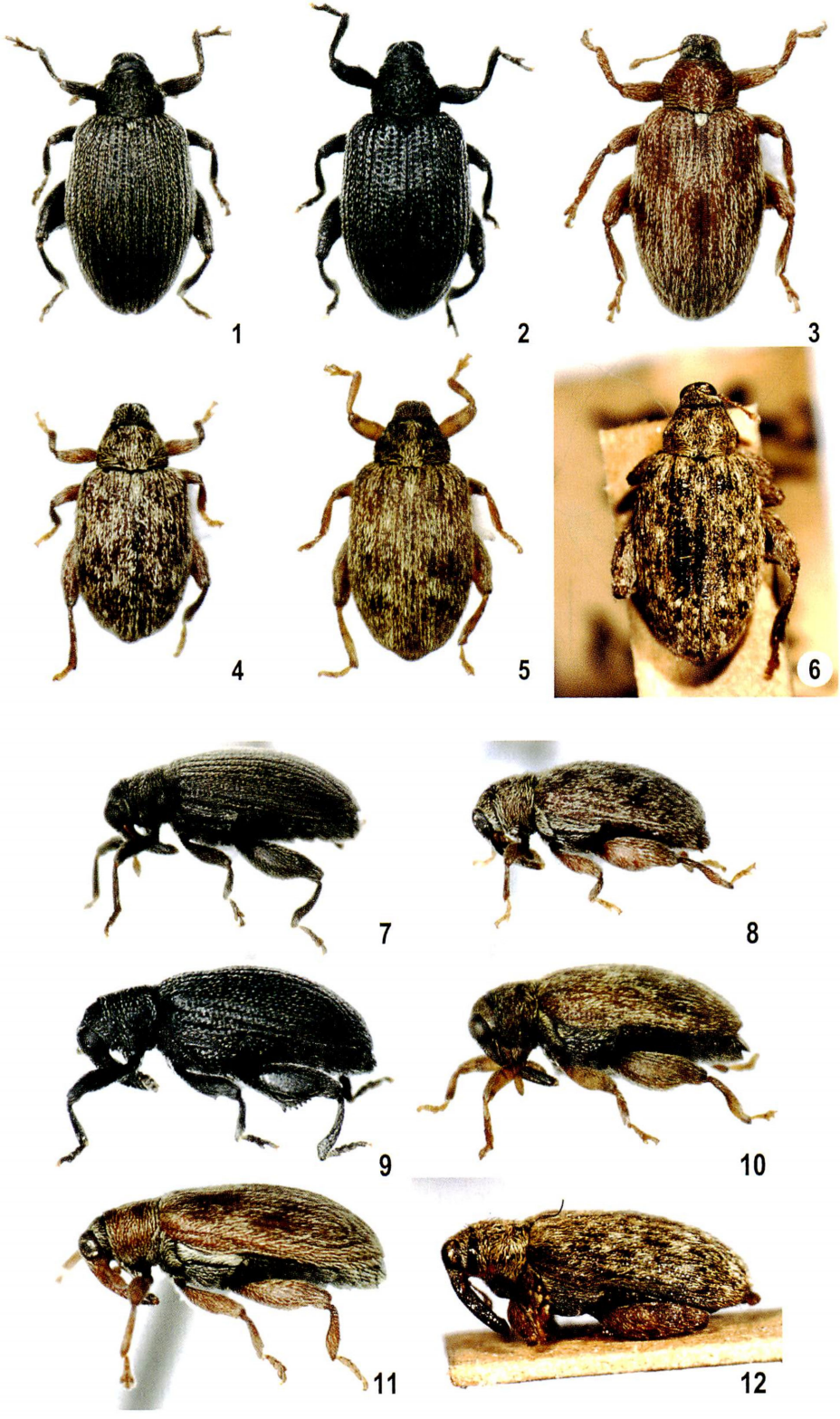
Prothorax 1.3–1.4 times as wide as long, widest at basal third, disk densely punctate and coriaceous, each side with one or two erect setae behind widest point. Scutellum tongue-shaped. Elytra 1.6 times as long as wide; intervals each with three rows of hairs; striae each with row of finer hairs.

Fore coxal cavities and coxae contiguous. Fore and middle femora unarmed. Hind femora 2.2 times as long as wide, each with six to seven denticles, three to four long setae, two long spines along hind margin.

Internal sac of male aedeagus with patch of condensed spinules and several kinds of minute ones.

Length: 2.3–2.9 mm; width: 1.1–1.4 mm.

Figs. 1–12. Habitus photographs of *Orchestes* spp., —— 1–6, dorsal views, 7–12, lateral views. 1, 7, *O. sasajii* sp. nov.; 2, 9, *O. nitidulus* sp. nov.; 3, 11, *O. testaceus* (MÜLLER); 4, 8, *O. hidakai* (MORIMOTO); 5, 10, *O. yokoae* MORIMOTO et MIYAKAWA; 6, 12, *O. koltzei* FAUST (syntype).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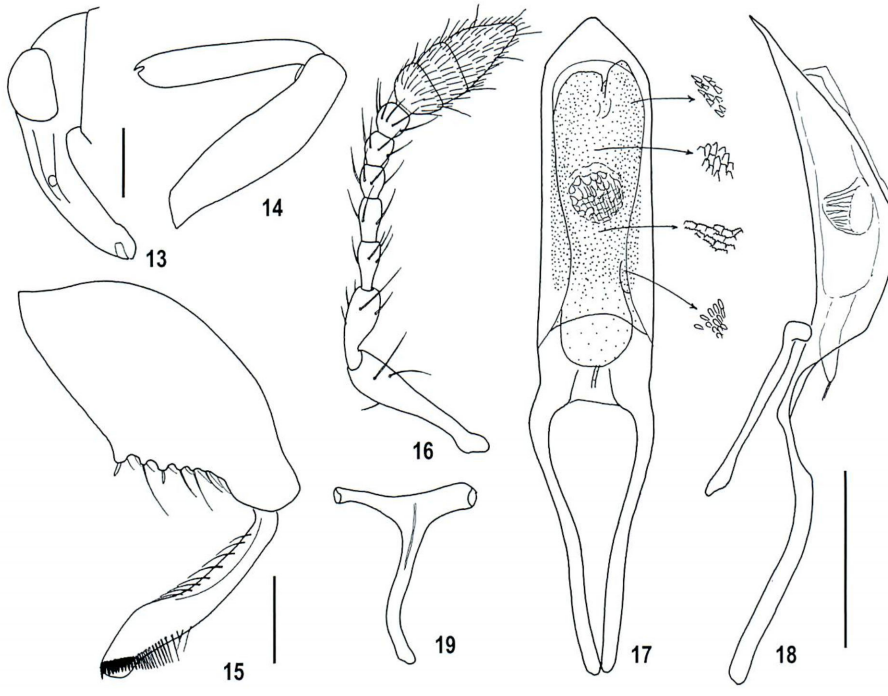


Figs. 13–19. *Orchestes* (*Orchestes*) *sasajii* sp. nov. —— 13, Male head; 14, fore femur and tibia; 15, hind femur and tibia; 16, antenna; 17, aedeagus, dorsal; 18, ditto, lateral; 19, tegmen. Scales = 0.25 mm.

Holotype ♂ (Type No. 3244, ELKU), Mt. Mitake, Tsushima, 30. V. 1995, H. KOJIMA leg.

Paratypes: [Japan: Honshu] 1♀, Nakanosawa-rindô, Fujiwara-machi, Tochigi Pref., 19. V. 1989, S. MIYAKAWA leg. (KUM); 1♂, Sasagamine, Niigata Pref., 23. VIII. 1962, K. BABA leg. (ELKU).; 1♀, Kurokawa, N-Echigo, 10. VI. 1976, K. BABA leg. (ELKU); 1♀, Tamodani, Izumi-mura, Fukui, 5. V. 1982, H. SASAJI leg. (KUM); 2♀♀, Mt. Daigatake, Hakone-machi, Kanagawa Pref., 17. V. 1999, H. YOSHITAKE leg. (HY); 7♂♂, 3♀♀, Mt. Manzaburodake, Izu hanto, Shizuoka Pref., 19. V. 1980, J. OKUMA leg. (KUM); 2♂♂, 2♀♀, Amagi, Shizuoka Pref., 12. V. 1968, K. UNNO leg. (KUM); 6♂♂, 11♀♀, Mt. Togasayama, Izu hanto, Shizuoka Pref., 17. V. 1980, J. OKUMA leg. (KUM); [Japan: Shikoku] 1♀, Omogokei, Ehime Pref., 18. VII. 1993, H. KOJIMA leg. (KUM); [Japan: Kyushu] 1♂, Gokanoshou, Kumamoto Pref., 9. VIII. 1992, H. KOJIMA leg. (KUM); [Japan: Tsushima] 1♂, Izuhara~Sasu-tôge, 7. VI. 1941, T. SHIRÔZU leg. (ELKU); 1♂, Kamizaka~Sasu-tôge, 3. VII. 1983, J. Okuma leg. (KUM); 2♀♀, Mt. Ariake, 8. VII. 1992, T. UENO leg. (KUM); 1♀, Mt. Tatera, 4. VII. 1992, T. UENO leg. (KUM); 1♀, Mt. Shiratake, 5. VII. 1992, H. KOJIMA leg. (KUM); 1♂, same locality as holotype, 6. VII. 1992, H. KOJIMA leg. (KUM); 2♂♂, 2♀♀, same data as holotype (KUM); [Korea: Cheju I.] 1♀, Yongshil, Mt. Hallasan, 24. VII. 1990, S. MIYAMOTO leg. (ELKU).

Distribution. Japan (Honshu, Shikoku, Kyushu, Tsushima), Korea (Cheju I.).

Biology. The adults were captured on *Carpinus laxiflora* (Betulaceae; Akashide in

Japanese), but the larval host has not yet been confirmed (K. IZAWA, personal communication).

Remarks. This species is easily confused with black color forms of *O. horii* (KÔNO) and *O. sanguinipes* ROELOFS, but the forehead between eyes is linear and the fore and middle femora are unarmed in the present species. This species is also similar to *O. aterrimus* ROELOFS, but the later belongs to the subgenus *Alyctus* and the structure of hind leg is different from *O. sasajii* sp. nov.

Orchestes* (*Orchestes*) *nitidulus sp. nov.

(Figs. 2, 9, 20–26)

Male and female. Black, antennae and tarsi dark to blackish brown, claws reddish brown; derm uniformly clothed with grayish fine hairs.

Head rugosely punctate; forehead between eyes as wide as apex of antennal scape, almost straightly continuous to base of rostrum dorsally in profile. Rostrum 3.8 (male) or 4.0 (female) times as long as wide. Antennae with scape as long as basal two segments of funicle combined, antennal insertion index 36 (male) or 31 (female).

Prothorax 1.3 times as wide as long, widest at basal third, disk densely punctate and coriaceous, without erect seta at sides. Scutellum oval, haired as others. Elytra 1.5 times as long as wide; intervals moderately shiny, each with two rows of hairs; striae with row of finer hairs.

Fore coxal cavities and coxae contiguous. Fore and middle femora each armed with spine. Hind femora 2.3 times as long as wide, with eight denticles, six long hairs and two long spines along hind margin.

Internal sac of male aedeagus with three kinds of minute spinules, without sclerite.

Length: 2.2–2.8 mm; width: 1.3–1.4 mm.

Holotype ♂ (Type No. 3245, ELKU), Shukushibetsu-rindô, Biratori-chô, Hokkaido, 1. VII. 1998, N. TAKAHASHI leg.

Paratypes: 1 ♂, Mt. Ashibetsu-dake, Furano City, Hokkaido, 26. VI. 1998, N. TAKAHASHI leg. (KUM); 1 ♀, Esaoman, Hidaka, Hokkaido, 29. VI. 1958, Y. TAKENOUCHI leg. (ELKU).

Distribution. Japan (Hokkaido).

Biology. Unknown.

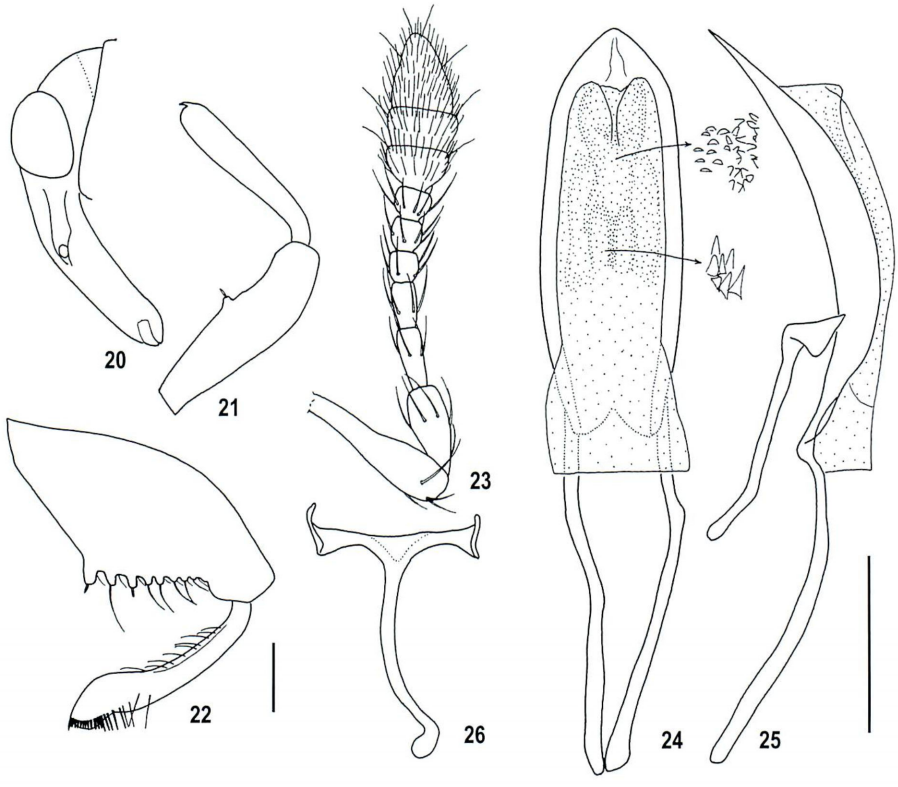
Remarks. This species is similar to *O. nitens* MORIMOTO in having the entirely black body uniformly clothed with hairs without any hairy marking. But, the derm is more strongly shining and clothed with brownish black hairs in *O. nitens*, whereas it is clothed with grayish fine hairs in the present species. The inner sac of male aedeagus of *O. nitens* provides with a characteristic H-shaped sclerite (cf. Fig. 31 of MORIMOTO, 1984).

Orchestes* (*Orchestes*) *hidakai (MORIMOTO, 1984)

(Figs. 4, 8, 27–33)

Rhynchaenus (*Orchestes*) *hidakai* MORIMOTO, 1984: 68 (female).
Orchestes (*Orchestes*) *hidakai*: KOJIMA and MORIMOTO, 1996: 115. —— KOJIMA, 2006: 30.

Male and female. Rusty red to dark reddish brown, antennae and tarsi light brown, head, rostrum, pro- to metasterna infuscate, legs reddish to dark reddish brown; derm clothed with

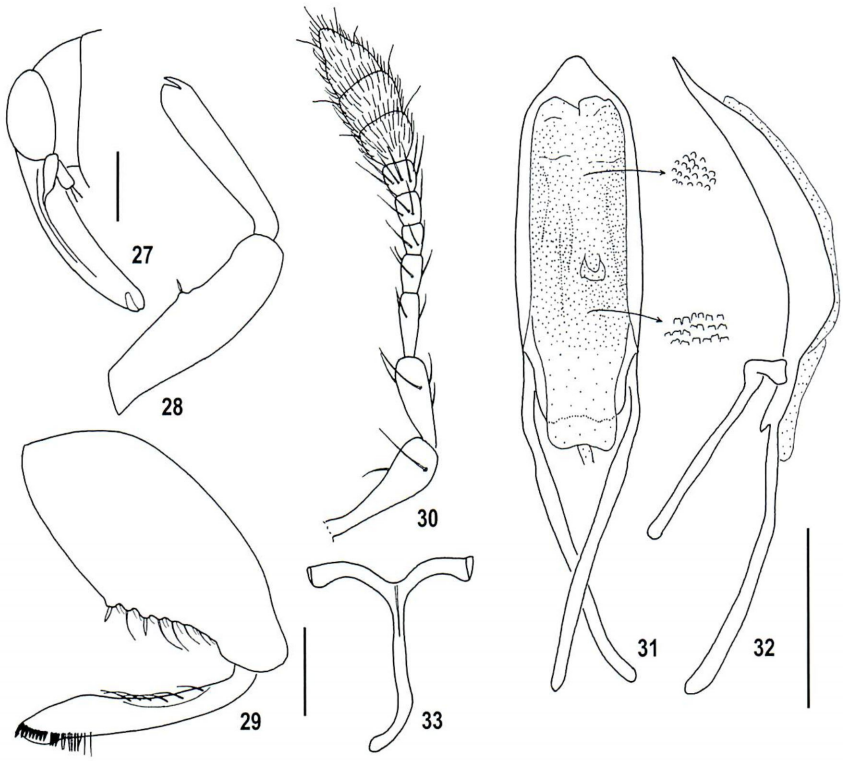


Figs. 20–26. *Orchestes* (*Orchestes*) *nitidulus* sp. nov. —— 20, Male head; 21, fore femur and tibia; 22, hind femur and tibia; 23, antenna; 24, aedeagus, dorsal; 25, ditto, lateral; 26, tegmen. Scales = 0.25 mm.

yellowish gray and fine brownish prostrate hairs, metasternum and first to fourth ventrites sparsely clothed with finer grayish hairs, yellowish gray hairs more or less irregularly arranged on pronotum and elytra making indefinite mottles, which are contrast with small dark patches of brownish fine hairs, a little denser along side margins behind eyes to metepisterna and form faint postscutellar patch.

Head densely punctate, with trace of median bare carina; forehead between eyes narrowest at posterior third, with two rows of hairs, then dilated anteriorly and posteriorly, almost straightly continuous to base of rostrum dorsally in profile. Rostrum 3.0–3.5 (male) or 3.5–4.0 (female) times as long as wide, antennal scrobes each extending anteriorly as sulcus. Antennae with scape as long as club, as long as first and second segments of funicle combined, antennal insertion index 25.0–27.5 (male) or 23.0–25.0 (female).

Prothorax 1.4–1.5 times as wide as long, widest at basal third; disk reticulately punctate, coriaceous, each side usually with one or two erect setae behind widest point. Scutellum ovate, haired as on base of second interval. Elytra about 1.5 times as long as wide; intervals finely rugulose, each with three rows of hairs; striae with shallow punctures, each puncture with similar hair to that of interval.



Figs. 27–33. *Orchestes* (*Orchestes*) *hidakai* (MORIMOTO). — 27, Male head; 28, fore femur and tibia; 29, hind femur and tibia; 30, antenna; 31, aedeagus, dorsal; 32, ditto, lateral; 33, tegmen. Scales = 0.25 mm.

Fore coxal cavities and fore coxae contiguous. Fore and middle femora each armed with spine. Hind femora 2.0–2.2 times as long as wide, with six denticles, three or four long hairs, two or three long spines along hind margin.

Internal sac of aedeagus with sclerite and two kinds of minute spinules.

Length: 1.8–2.6 mm; width: 0.9–1.3 mm.

Specimens examined. [Japan: Honshu] 14♂♂, 6♀♀, Hokkaido Univ. Forest, Kozagawa-chou, Wakayama Pref., 3. V. 2006, H. KOJIMA leg. (N33º110', E135º40'; insecticide fogging; KUM); [Japan: Kyushu] 1♂, Obama, Nagasaki, 25. II. 1960, T. HIDAKA leg. (holotype, ELKU).

Distribution. Japan (Honshu, Kyushu).

Biology. Weevils were captured from *Quercus gliva* (Ichiigashi in Japanese) by the insecticidial fogging method in Wakayama Prefecture.

Remarks. This species was described based on a specimen collected by shifting the moss and the sex was determined as female, but it was a small male. Elytra are mottled with two kinds of hairs and not uniformly clothed with hairs as described in the original description.

Orchestes (*Orchestes*) *yokoae* MORIMOTO et MIYAKAWA, 1996

(Figs. 5, 10)

Orchestes (*Orchestes*) *yokoae* MORIMOTO et MIYAKAWA, 1996: 85 (female).

Male and female. Very similar to *O. hidakai* (MORIMOTO) including the feature of male aedeagus, but differs in the following points: rostrum slenderer, 3.7–4.0 (male) or 5.0 (female) times as long as wide and prothorax a little broader, 1.5–1.6 times as wide as long.

Length: 2.2–2.7 mm; width: 1.1–1.3 mm.

Specimens examined. 1♀, Mt. Yuwandake, Amami-Oshima, 3. IV. 1989, Y. TAKEMATSU leg. (holotype, ELKU); 1♀, Chuo-rindo, Amami-Oshima, 26. III. 1990, Y. OKUSHIMA leg. (paratype, ELKU); 1♀, 5. III. 1993, S. NIRASAWA leg. (paratype, ELKU); 1♂, 1♀, Mt. Yuidake, Amami-Oshima, 23–26. IV. 1997, H. YOSHITAKE leg. (HY); 1♂, 1♀, 3–6. IV. 2006, I. MATOBA leg. (IM).

Distribution. Japan (Ryukyus: Amami-Oshima I.).

Biology. Unknown.

Orchestes (*Orchestes*) *koltzei* FAUST, 1887

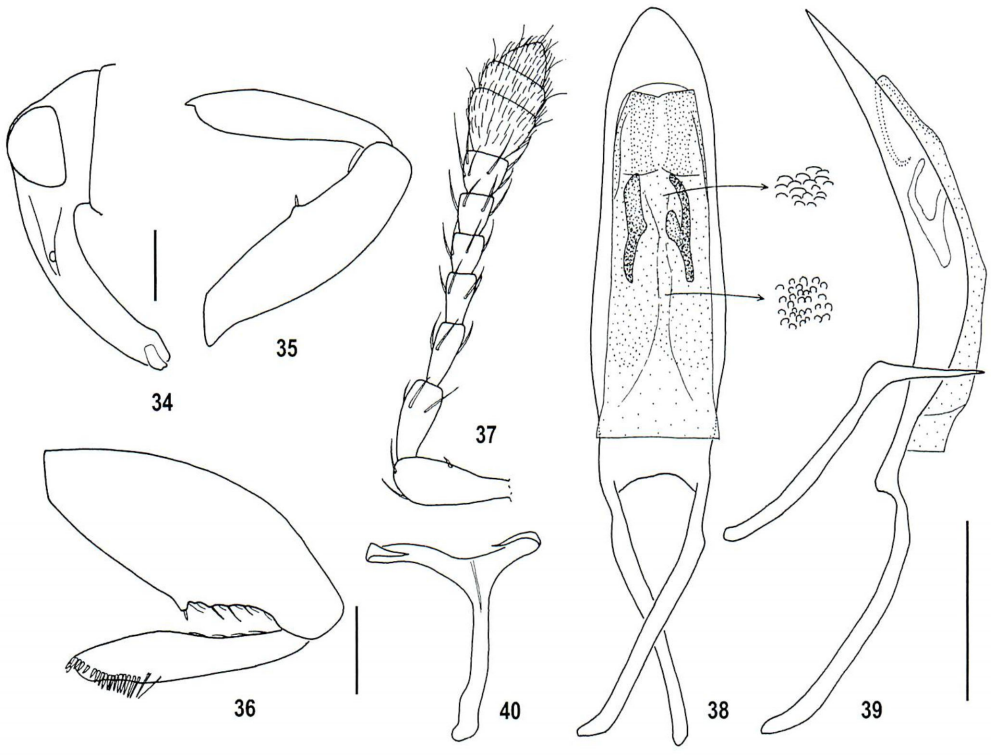
(Figs. 6, 12)

Orchestes koltzei FAUST, 1887: 171 (Chabarofka).
Rhynchaenus koltzei: KLIMA, 1935: 16.
Rhynchaenus (*Rhynchaenus*) *koltzei*: TER-MINASSIAN, 1953: 314.
Rhynchaenus (*Orchestes*) *koltzei*: EGOROV, ZHERIKHIN and KOROTYAEV, 1996: 480.
Orchestes japonicus HUSTACHE, 1920: 632. **syn. nov.**
Orchestes (*Orchestes*) *japonicus*: KOJIMA and MORIMOTO, 1996: 114.
Rhynchaenus japonicus: KLIMA, 1935: 15. — KISHI, 1994: 365.
Rhynchaenus (*Orchestes*) *japonicus*: MORIMOTO, 1984: 61.
Orchestes excellens: KÔNO, 1930 (nec ROELOFS): 23.
Rhynchaenus excellens: KÔNO, 1950 (nec ROELOFS): 1270, fig. 3662.
See MORIMOTO (1984) for synonymy and redescription.

Orchestes japonicus has been well known as a forest pest under the name of 'Oak jumping weevil' and attacks the young leaves of deciduous *Quercus* spp. such as *Q. acutissima*, *Q. serrata* and *Q. dentata* in Japan (KISHI, 1994). This species is also known to occur in Korea (HONG et al., 2000). Synonymy of this species with *O. koltzei* known from the Far East Russia is herein confirmed after examination of the type materials.

Specimens examined. 2 syntypes of *O. koltzei* (SMTD). Many specimens from Japan and Korea (ELKU, KUM).

Distribution. Japan (Hokkaido, Okushiri I., Honshu, Shikoku, Kyushu, Tsushima), Korea (incl. Cheju I.), Russian Far East.



Figs. 34–40. *Orchestes* (*Alyctus*) *testaceus* (MÜLLER). —— 34, Male head; 35, fore femur and tibia; 36, hind femur and tibia; 37, antenna; 38, aedeagus, dorsal; 39, ditto, lateral; 40, tegmen. Scales = 0.25 mm.

Orchestes* (*Alyctus*) *testaceus (MÜLLER, 1776)

(Figs. 3, 11, 34–40)

Curculio testaceus MÜLLER, 1776: 90.
Orchestes testaceus of authors
Rhynchaenus testaceus of authors
Rhynchaenus (*Threcticus*) *testaceus* of authors
Orchestes (*Alyctus*) *testaceus*: KOJIMA and MORIMOTO, 1996: 115.

See ANDERSON (1989) for synonymy and redescription and VIRAMO (1970a, b) for synonymy of the Palaearctic Region.

This species is easily recognized from other Japanese species belonging to the subgenus *Alyctus* by the combinations of the following characters: entirely to predominantly red to reddish brown, pronotum and elytra maculate with white to silvery-gray or golden hairs, forehead between eyes as wide as or wider than apex of antennal scape, scutellum densely clothed with white to silvery-gray scales, fore and middle femora each armed with spine, hind femora with three denticles, few stout setae and one spine along hind margin and internal sac of aedeagus with pair of pincher-like sclerites.

Specimens examined. 1♂, 1♀, Bibi, Chitose City, Hokkaido, 7–19. VI. 1998, H. YOSHITAKE leg. (HY); 3♂♂, 3♀♀, Benten, Tomakomai-shi, Hokkaido, 8. VI. 1998, H.

YOSHITAKE leg. (HY).

Distribution. Holarctic, Japan (Hokkaido) – **new record.**

A list of the genus *Orchestes* in Japan

Collecting data of each new local record, which is appended superscript number, see footnotes.

1. *Orchestes* (*Nomizo*) *kamiyai* (MORIMOTO, 1984)
   Distribution. Japan (Honshu, Kyushu).
2. *Orchestes* (*Alyctus*) *aterrimus* ROELOFS, 1874
   Distribution. Japan (Hokkaido, Rishiri I. – new local record[1], Honshu, Kyushu), Kuril Isls., Sakhalin.
   Host association: *Alnus firma* (Betulaceae).
3. *Orchestes* (*Alyctus*) *testaceus* (MÜLLER, 1776)
   Distribution. Japan (Hokkaido), Holarctic.
   Host association. *Alnus* and *Betula* spp. (Betulaceae).
4. *Orchestes* (*Alyctus*) *kimotoi* (MORIMOTO, 1984)
   Distribution. Japan (Honshu).
   Host association. *Corylus heterophylla* (Betulaceae).
5. *Orchestes* (*Alyctus*) *rusci* (HERBST, 1795)
   Distribution. Japan (Hokkaido), Kuril Isls., Sakhalin, Korea, China, Siberia, Europe.
   Host association: *Betula* spp. (Betulaceae).
6. *Orchestes* (*Alyctus*) *cylindricus* (MORIMOTO, 1984)
   Distribution. Japan (Kyushu).
   Host association. *Lithocarpus edulis* (Fagaceae).
7. *Orchestes* (*Alyctus*) *jozanus* KÔNO, 1930
   Distribution. Japan (Hokkaido, Honshu, Shikoku, Kyushu), Kuril Isls., Sakhalin.
   Host association. *Malus sieboldii* (Rosaceae).
8. *Orchestes* (*Alyctus*) *galloisi* KÔNO, 1930
   Distribution. Japan (Hokkaido, Honshu, Shikoku, Kyushu, Tsushima, Koshiki-jima Isls. – new local record[2], Yakushima), Kuril Isls., Sakhalin, Russian Far East, China.
   Host association. *Quercus acutissima*, *Q. serrata* (Fagaceae).
9. *Orchestes* (*Orchestes*) *miyatakei* (MORIMOTO, 1984)
   Distribution. Japan (Honshu, Kyushu – new local record[3]).
   Host association. *Pterocarya stenoptera* (Juglandaceae).
10. *Orchestes* (*Orchestes*) *sasajii* KOJIMA et MORIMOTO, 2007
    Distribution. Japan (Honshu, Shikoku, Kyushu, Tsushima), Korea (Cheju I.).
    Host association. *Carpinus laxiflora* (Betulaceae)
11. *Orchestes* (*Orchestes*) *sanguinipes* ROELOFS, 1874 (zelkova jumping weevil)
    Distribution. Japan (Honshu, Shikoku, Kyushu, Sado I., Tsushima), Korea (incl. Ulreung I. and Cheju I.).
    Host association. *Zelkova serrata* (Ulmaceae).

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1. Oshidomai, Rishiri I., Hokkaido, 1 ex., 10. VII. 1991, K. SHIGEMATSU leg. (KUM).
2. Makinotsujidan, Koshiki-jima Isls., Kagoshima Pref., 4 exs., 8. VIII. 1974, J. OKUMA leg. (KUM).
3. Kyushu Univ., Hakozaki, Higashi-ku, Fukuoka Pref., 11 exs., 7. VII. 2002, H. KOJIMA leg. (KUM).

12. *Orchestes* (*Orchestes*) *lateritius* (MORIMOTO, 1984)
    Distribution. Japan (Hokkaido, Honshu – new local record[4]), Korea (Ulreung I.).
    Host association. *Ulmus davidiana* (Ulmaceae) – new host association. Adults were reared from the seeds (Mr. Y. IGARASHI, personal communication).
13. *Orchestes* (*Orchestes*) *horii* (KÔNO, 1937)
    Distribution. Japan (Honshu, Miyake-jima I., Mikura-jima I., Shikoku, Okinoshima I., Kyushu, Tsushima, Fukue-jima I.*, Hisaka-jima Is.*, Danjo Isls., Yakushima*, Nakanoshima I.*, Akuseki-jima I., Okinawa-hontô I.*, Ishigaki-jima I.*, Hateruma-jima I.*, Yonaguni-jima I.*), Korea (incl. Ulreung I. and Cheju I.) [asterisk indicates new local record[5]].
    Host association. *Celtis sinensis*, *Trema orientalis* – new host association (Ulmaceae).
14. *Orchestes* (*Orchestes*) *harunire* (MORIMOTO, 1984)
    Distribution. Japan (Honshu, Kyushu), Korea (Ulreung I.).
    Host association. *Ulmus davidiana* (Ulmaceae).
15. *Orchestes* (*Orchestes*) *nitens* (MORIMOTO, 1984)
    Distribution. Japan (Honshu, Shikoku, Kyushu).
    Host association. *Ulmus laciniata*, *U. parvifolia* (Ulmaceae).
16. *Orchestes* (*Orchestes*) *nitidulus* KOJIMA et MORIMOTO, 2007
    Distribution. Japan (Hokkaido).
17. *Orchestes* (*Orchestes*) *mutabilis* BOHEMAN, 1843
    Distribution. Japan (Hokkaido, Okushiri I., Honshu, Shikoku, Kyushu – new local record[6]), Korea, Kuril Isls., Sakhalin, Siberia.
    Host association. *Ulmus davidiana*, *U. laciniata*, *U. parvifolia* – new host association (Ulmaceae), *Corylus heterophylla* (Betulaceae).
18. *Orchestes* (*Orchestes*) *hustachei* (KLIMA, 1935)
    Distribution. Japan (Hokkaido, Honshu, Sado I., Shikoku, Kyushu), Korea, Russian Far East.
    Host association. Leaf galls of aphids on *Zelkova serrata* and *Ulmus davidiana* (Ulmaceae).
19. *Orchestes* (*Orchestes*) *truncatipennis* (MORIMOTO, 1984)
    Distribution. Japan (Shikoku, Tsushima*, Nakadôri-jima I., Fukue-jima I*, Amami-Oshima I., Okinawa-hontô I., Ishigaki-jima I., Iriomote-jima I.) [asterisk indicates new local record[7]].
    Host association. *Distylium racemosum* (Hamamelidaceae).
20. *Orchestes* (*Orchestes*) *excellens* ROELOFS, 1874
    Distribution. Japan (Honshu, Shikoku, Kyushu), Sakhalin, Russian Far East.
21. *Orchestes* (*Orchestes*) *koltzei* FAUST, 1887 (oak jumping weevil)
    = *O.* (*O.*) *japonicus* HUSTACHE, 1920
    Distribution. Japan (Hokkaido, Okushiri I., Honshu, Shikoku, Kyushu, Tsushima), Korea (incl. Cheju I.), Russian Far East.
    Host association. *Quercus acutissima*, *Q. serrata*, *Q. dentate* (Fagaceae).

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7. Mt. Taterayama, Tsushima, 1 ex., 27. VIII. 1991, K. MATSUMOTO leg. (KUM). Ôsezaki, Fukue-jima I., Nagasaki Pref., 5 exs., 11. V. 1994, H. KOJIMA leg. (KUM).

22. *Orchestes* (*Orchestes*) *nomizo* KÔNO, 1930
Distribution. Japan (Hokkaido, Honshu), Sakhalin, Kuril Isls., Kamchatka, Korea (Ulreung I.), China.
Host association. *Betula platyphylla*, *B.* spp., *Alnus* spp., *Corylus sieboldiana* (Betulaceae).
23. *Orchestes* (*Orchestes*) *villosus* (MORIMOTO, 1984)
Distribution. Japan (Honshu, Shikoku, Kyushu).
Host association. *Quercus variabilis* (Fagaceae).
24. *Orchestes* (*Orchestes*) *amurensis* FAUST, 1887
Distribution. Japan (Hokkaido, Okushiri I., Honshu, Shikoku, Kyushu, Fukue-jima I. – new local record[8], Tsushima), Korea, Russian Far East.
Host association. *Quercus salicina*, *Q. serrata*, *Q. acutissima*, *Castanea crenata* (Fagaceae), *Corylus heterophylla* (Betulaceae).
25. *Orchestes* (*Orchestes*) *jota* (FABRICIUS, 1787)
Distribution. Japan (Honshu, Shikoku, Kyushu), Korea, Siberia, Europe.
Host association. *Populus* spp., *Salix* spp. (Salicaceae), *Alnus* spp., *Betula* spp. (Betulaceae), *Myrica gale* (Myriaceae), *Juglans mandshurica* (Juglandaceae).
26. *Orchestes* (*Orchestes*) *variegatus* ROELOFS, 1874
Distribution. Japan (Hokkaido, Honshu, Shikoku, Kyushu, Tsushima).
Host association. *Quercus glauca*, *Castanopsis cuspidata* (Fagaceae).
27. *Orchestes* (*Orchestes*) *hidakai* (MORIMOTO, 1984)
Distribution. Japan (Honshu, Kyushu).
Host association. *Quercus gilva* (Fagaceae).
28. *Orchestes* (*Orchestes*) *yokoae* MORIMOTO et MIYAKAWA, 1996
Distribution. Japan (Amami-Oshima I.).
29. *Orchestes* (*Orchestes*) *heritierae* (MORIMOTO, 1984)
Distribution. Japan (Iriomote-jima I.).
Host association. *Heritiera littoralis* (Sterculiaceae).
30. *Orchestes* (*Orchestes*) *dorsoplanatus* ROELOFS, 1874
Distribution. Japan (Honshu, Shikoku, Kyushu, Tsushima, Koshiki-jima Isls.*, Fukue-jima I.*, Hisaka-jima I.*, Nakanoshima I.), Taiwan, China [asterisk indicates new local record[9]].
Host association. *Castanopsis cuspidata* (Fagaceae).
31. *Orchestes* (*Orchestes*) *trifasciatus* (MORIMOTO, 1984)
Distribution. Japan (Honshu, Kyushu).
Host association. *Castanea crenata*, *Quercus* sp. (Fagaceae).

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要　　約

小島 弘昭・森本　桂：日本産ノミゾウムシ族 *Orchestes*属の分類ノート．——— 日本産 *Orchestes* 属の分類学的再検討を行った結果，2新種（*O. sasajii*, *O. nitidulus*），1新記録種 *O. testaceus* (MÜLER) が見いだされたので報告した．アムール川流域から記載された *O. koltzei* FAUST, 1887のタイプ標本を調べた結果，落葉性カシ類の食葉性害虫として知られるカシワノミゾウムシ *O. japonicus* HUSTACHE, 1920 と同一種であることが判明したので，後者を前者の同物異名とした．また，原記載時に一方の性しか知られていなかった珍しい2種（*O. hidakai*, *O. yokoae*）については，両性の特徴，個体変異も含め再記載を行った．さらに，日本産 *Orchestes* 属31種について分布および関連植物（成虫採集記録あるいは寄主植物）のデータとともにリストをつけた．なお，*Orchestes* 属の亜属の分類は，KOJIMA and MORIMOTO (1996) の体系に従った．

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A New *Pterostichus* (Coleoptera: Carabidae) from North Japan

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Abstract A new pterostichine carabid beetle, *Pterostichus* (*Phonias*) *sasajii* sp. nov., is described from North Japan.

It has been well known for more than twenty-five years that a problematical species of *Argutor* occurs in North Japan. It appeared at that time to be closest to *Pterostichus sotkaensis* (JEDLIČKA, 1958, p. 238) among the fourteen described species.

Although it is different from the latter species mainly in the shape of pronotum (cf. JEDLIČKA, 1962, fig. 26), I was unable to decide with confidence the true systematic status of this form then because of lack of our knowledge about the pterostichine fauna of the Far East.

In recent years, our knowledge of the carabids of northern elements has gradually advanced. The main purpose of this paper is to dedicate the carabid beetle in question to the memory of the late Dr. Hiroyuki SASAJI who passed away last year. He had affectionately watched my study of carabid beetles for a long time. My deep thanks are due to him, and the new species of *Pterostichus* described herein is named in his memory.

The abbreviations used herein are the same as those explained in my previous papers. The holotype and allotype of this new species are deposited in the National Science Museum (Nat. Hist.), Tokyo. The ratios of body parts shown in the descriptive part are those of the specimens from the type locality.

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.

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Special thanks are expressed to Dr. German Sh. LAFER, who gave me advice about *Pterostichus* of the Far East.

Pterostichus (Phonias) sasajii MORITA, sp. nov.

[Japanese name : Sasaji-hoso-naga-gomimushi]

(Figs.1–7)

Pterostichus (Argutor) sp.: MATSUMOTO *et al.*, 1981, Sayabane, Tokyo, (7): 5; KASAHARA, 1985, List of Carabid Beetles from Akita: 15.

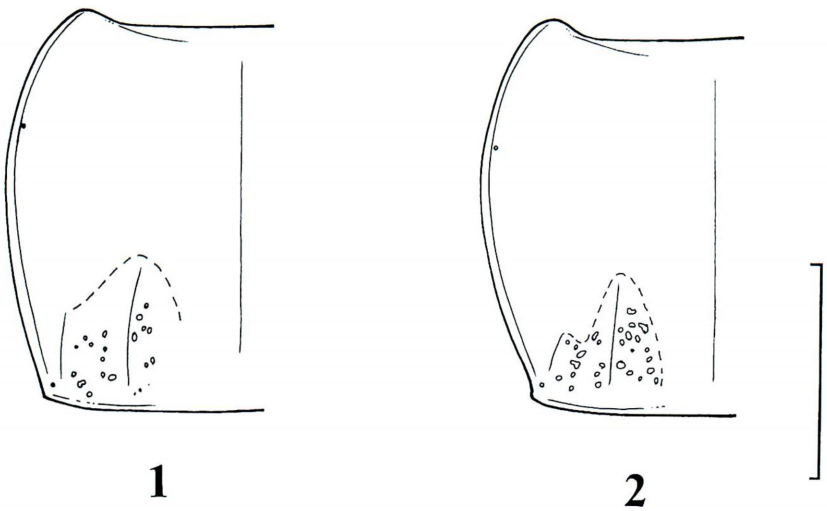
Diagnosis. Body elongate; elytra black to blackish brown; hind angles of pronotum obtuse; basal foveae of pronotum shallow; sides of pronotum sometimes very shallowly sinuate just before hind angles; aedeagus rather short and stout; basal part of aedeagus without triangular projection; dorsal membraneous part with two elongate poorly sclerotized areas; right paramere of male genitalia with more elongate apical part in left lateral view.

Description. Length: 6.4 –7.5 mm (from apical margin of clypeus to apices of elytra).

Body elongate and moderately convex. Head and pronotum black; elytra black to blackish brown; sides of pronotum, epipleuron and appendages dark brown to brown; dorsal surface slightly shiny; ventral side almost black to blackish brown.

Head convex; eyes moderately convex; frontal furrows deep, divergent posteriad and usually reaching the level of the anterior supraorbital pores or sometimes a little before that level, and with several wrinkles; lateral grooves deep, linear, and extending to the post-eye level; PW/HW 1.38–1.46 (M 1.43) in 5♂♂, 1.41–1.46 (M 1.43) in 5♀♀; genae short and oblique; microsculpture composed of isodiametric meshes; surface sparsely punctate; mentum tooth stout and bifid; relative lengths of antennal segments as follows: I : II : III : IV : V : VI : XI ≒ 1 : 0.50 : 0.94 : 0.96 : 0.94 : 0.93 : 1.06.

Pronotum square and weakly convex; apex almost straight and bordered at the sides; PW/PL 1.21–1.26 (M 1.23) in 5♂♂, 1.18–1.23 (M 1.20) in 5♀♀; sides weakly arcuate throughout or sometimes very shallowly sinuate just before hind angles; base wide, straight or weakly arcuate and bordered at the sides; PW/PA 1.38–1.48 (M 1.44) in 5♂♂, 1.41–1.48 (M



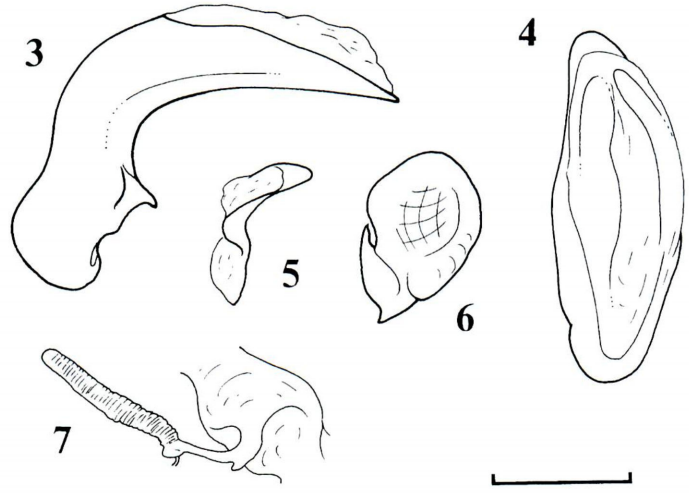
Figs. 1–2. Outline of the left side of pronotum in *Pterostichus (Phonias) sasajii* MORITA, sp. nov. from the type locality showing individual variation (Scale: 1 mm).

1.45) in 5♀♀, PW/PB 1.15–1.26 (M 1.21) in 5♂♂, 1.18–1.25 (M 1.21) in 5♀♀, PA/PB 0.78–0.86 (M 0.80) in 5♂♂, 0.82–0.86 (M 0.84) in 5♀♀; apical angles moderately produced and rather widely rounded at the tips; hind angles obtuse; anterior pair of setae inserted at a little before the widest part, posterior one a little before and inside hind angles; anterior transverse impression almost vanished; median line finely impressed, reaching neither apex nor base; basal fovea rather shallow, linear, with two bottoms on each side, and usually rather coarsely punctate; median part of base convex; microsculpture composed of fine and wide or transverse meshes, and partially disordered.

Elytra elongate, convex and widest at about middle or a little behind the middle; EW/PW 1.24–1.30 (M 1.26) in 5♂♂, 1.20–1.25 (M 1.23) in 5♀♀, EL/EW 1.59–1.65 (M 1.62) in 5♂♂, 1.45–1.53 (M 1.50) in 5♀♀; shoulders widely rounded; sides very weakly arcuate throughout with a very shallow preapical emargination; apices conjointly rounded, and apex of each elytron subangulate; scutellar striole rather long, situated on interval II, and joining stria 2; basal pore situated on interval II and joining scutellar striole; basal border moderately arcuate and joining stria 1; striae almost smooth, or rarely weakly crenulate; intervals weakly convex; interval III usually with a dorsal pore on each side, sometimes with two pores, rarely lacking, and joining stria 2 sometimes on interval III; ordinary pore situated between middle and basal 7/10 of elytra in ♂, and between middle and 3/4 in ♀; an additional pore situated at the same range of the ordinary one; in 1 ♀, an additional pore situated at basal 2/5 of elytra; microsculpture composed of fine transverse meshes; inner plica visible; epipleuron gradually narrowed towards apex; marginal series composed of 12 to 14 pores.

Ventral side almost smooth, partially and irregularly wrinkled; basal two or three segments of meso- and metatarsi each with inner and outer sulci on dorsal side; claw segment of meso- and metatarsi with very short hairs on ventral side; TL/HW 0.96–1.09 (M 1.02) in 5♂♂, 1.22–1.34 (M 1.27) in 5♀♀.

Aedeagus rather short, stout, and bent at basal third; basal part without triangular projec-



Figs. 3–7. Genital organ of *Pterostichus* (*Phonias*) *sasajii* MORITA, sp. nov., from the type locality.—— 3, Aedeagus, left lateral view; 4, aedeagus, dorsal view; 5, right paramere, left lateral view; 6, left paramere, left lateral view; 7, a part of female genitalia, mainly showing spermatheca. (Scale: 0.5 mm).

tion; dorsal membraneous part with two elongate poorly sclerotized areas; apical lobe short, narrow, and with simply rounded apex; right paramere elongate, and with elongate apical part in left lateral view; left paramere oval; spermatheca as in Fig.7.

Type series. Holotype: ♂, allotype, ♀, Oodake, Hakkôda-san Mts., Aomori Pref., 12. VII. 1993, S. MORITA and S. YAMAUCHI leg. (NSMT). Paratypes: 3♀♀, Oodake, Hakkôda-san Mts., Aomori Pref., 9. VII. 1988, S. MORITA leg.; 1♂, same locality, 24. VII. 1988, A. ABE leg.; 2♂♂, same locality, 6. VIII. 1988, A. ABE leg.; 22♂♂, 22♀♀, same locality, 12. VII. 1993, S. MORITA and S. YAMAUCHI leg.; 1♂, 2♀♀, same locality, 6. VIII. 1993, S. YAMAUCHI leg.; 1♂, 4♀♀, Nakazato-chô, Riv. Iwaki-gawa, Aomori Pref., 5. VII. 1987, Y. IMURA leg.; 7♂♂, Jûsanko, Riv. Iwaki-gawa, Aomori Pref., 28. V. 2000, S. KUDOH leg.; 4♂♂, 9♀♀, Wakamiya, Riv.Iwaki-gawa, Aomori Pref., 20. V. 2000, S. MORITA leg.; 5♂♂, 2♀♀, same locality, 9–10. VI. 2000, S. MORITA leg.; 19♂♂, 5♀♀, Usoriyama-ko, Mt. Osore-zan, Aomori Pref., 30. VI. 1985, S. MORITA leg.; 1♀, Obuchi-numa, Shimokita Peninsula, Aomori Pref., 28. VI. 1985, S. MORITA leg.; 5♂♂, 5♀♀, Sukawa Spa, Mt. Kurikoma-yama, Iwate Pref., 14. VI. 1986, S. MORITA leg.; 1♀, Ônuma, Hachimantai, Akita Pref., 20. VI. 1983, F. SATÔ leg.; 1♀, Yashima, Mt. Chôkai-san, Akita Pref., 12. VI. 1987, S. FUJIOKA leg.; 2♂♂, Sakata-shi, Riv. Mogami-gawa, Yamagata Pref., 15. XII. 1991, A. IZUMI leg.; 2♂♂, 2♀♀, Kabuto-numa, Sarobetsu, Hokkaido, 28. VI. 1982, S. and E. MORITA leg.; 2♂♂, 5♀♀, same locality, 4–5. VII. 1982, S. MORITA leg.; 2♂♂, 1♀, Asahikawa, Riv. Ishikari-gawa, Hokkaido, 6. V. 1982, T. MATSUMOTO leg.; 1♂, Ishikari, Riv. Ishikari-gawa, Hokkaido, 14. VI. 1975, S. MORITA leg.; 2♂♂, 1♀, Hachiman-chô, Ishikari-shi, Hokkaido, 14. V. 2001, T. MIYATA leg.; 1♂, 1♀, Ishikari-chô, Hokkaido, 29. V. 1970, K. TERADA leg.; 9♂♂, 9♀♀, Môraikaigan, near Sapporo, Hokkaido, 25. VIII. 1981, S. MORITA leg.; 5♂♂, 8♀♀, Abashiriko, Memanbetsu-chô, Hokkaido, 25–27. VI. 1977, S. MORITA leg.; 10♂♂, 5♀♀, same locality, 10–12. VI. 1993, A. IZUMI leg.; 3♂♂,7 ♀♀, Takkobu-numa, near Kushiro-shi, Hokkaido, 6–7. VI. 1993, A. IZUMI leg.; 4♀♀, Utonai-ko, Hokkaido, 5. V. 1981, S. MORITA leg.; 1♀, same locality, 18. VI. 1981, A. IZUMI leg.; 5♂♂, 3♀♀, Onishi, Ohmu T., Hokkaido, 21. VI–5. VII. 1994, S. HORI leg.; 7♂♂, 4♀♀, Nopporo, Ebetsu T., Hokkaido, 28. V–10. VI. 2006, S. HORI & D. SUMIKAWA leg.

Range. North Japan (Hokkaido, Aomori Pref., Akita Pref., Iwate Pref., and Yamagata Pref.).

Notes. This new species is more similar to *Pterostichus longinquus* BATES (1873, p.286) in West Japan than that in Central Japan, though it is not so greatly different from the former in morphological features. In this paper, I prefer to consider it to be a good species.

It is distinguished from *P.* (*P.*) *longinquus* by the following points: 1) genae shorter, 2) hind angles obtuse, 3) basal foveae of pronotum shallower, 4) sides of pronotum sometimes very shallowly sinuate just before hind angles, and 5) right paramere of male genitalia with more elongate apical part in left lateral view.

Until recently, *P. longinquus* has been placed in the subgenus *Argutor*. In 1988, JEANNE erected the subgenus *Biphonias* for the species. However, it was later listed as a junior synonym of *Phonias* (KRYZHANOVSKIJ *et al.*, 1995, p. 99).

BOUSQUET's comprehensive work (1999) is so useful for studying Japanese pterostichine carabids, that this species is placed in the subgenus *Phonias* for the time being.

要　　約

森田 誠司：北日本産ナガゴミムシの１新種．――― 東北地方および北海道に広く分布している小型のナガゴミムシを新種と認め，故佐々治寛之先生に献名してササジホソナガゴミムシ *Pterostichus* (*Phonias*) *sasajii* sp. nov. と命名記載した．この種は，コホソナガゴミムシ *P.* (*P.*) *longinquus* BATES に近い種であるが，上翅は，黒褐色，前胸背板の後角が角張るなどの点で識別される．

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Ent. Rev. Japan, **62** (1): 47–50, June 30, 2007

A New *Catops* (Coleoptera: Leiodidae: Cholevinae) from the Daba Shan Mountains of South Shaanxi, Central China

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Abstract A new species of the cholevine genus *Catops* PAYKULL, *Catops sasajii*, is described from the Daba Shan Mountains of South Shaanxi, Central China. This new species belongs to the *fusc*us group, but can be distinguished from other members mainly by the configuration of male genitalia.

The *fuscus* group (*sensu* JEANNEL, 1936, pp. 369, 397; ZWICK, 1968, p. 1, and 1981, p. 33) of the cholevine genus *Catops* is presently contained eighteen species according to PERREAU (2000). In East Asia, *Catops loebli* PERREAU was recently described from East Nepal, which is the eastern limit of the distribution within the group except for *Catops fuscus repentinus* SZYMCZAKOWSKI from "umg. Tokyo" known only the type specimen. No species of the group has virtually been recorded from China, though RŮŽIČKA (1995) mentioned to an undescribed species from NW China.

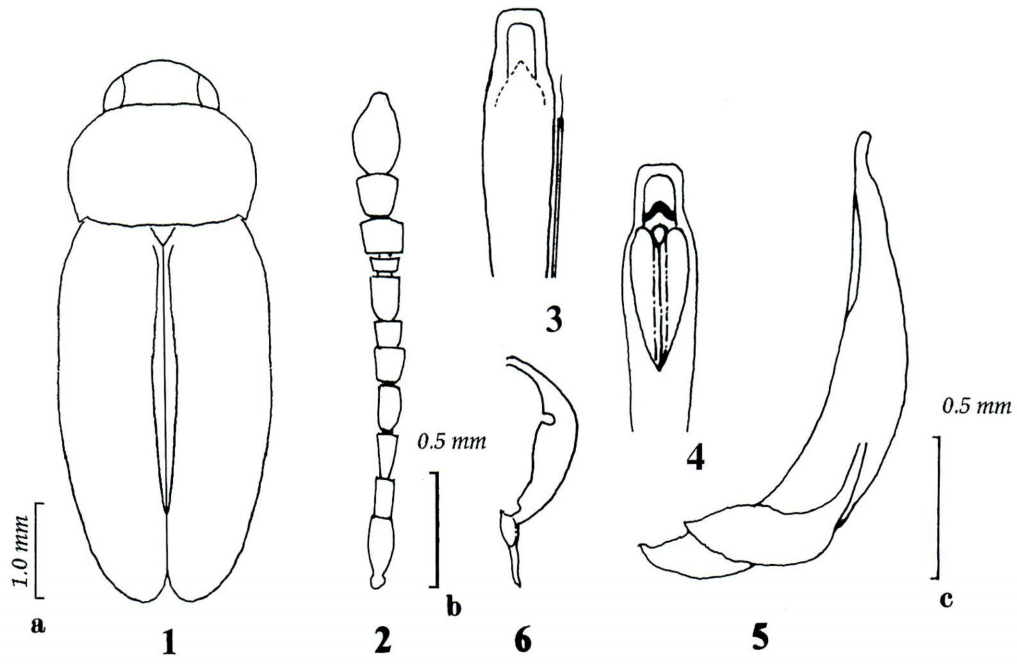
Recently, a single *Catops* species from Shaanxi, China, was brought into my hands. After a close examination, I have concluded that the species is new and then belongs to the *fuscus* group; therefore, I describe it in the present paper. This paper is dedicated with my deep sorrow to the memory of the late Dr. Hiroyuki SASAJI. He gave me an encouraging support to an anniversary project that I participated it as an editor.

The following relative measurements are mentioned in the description (those of the abbreviation are given in parentheses): length of head (HL); greatest width of head (HW); medial length of pronotum (PL); greatest width of pronotum (PW); length of elytra (EL); greatest width of elytra (EW); length of the median lobe of aedeagus (AL). Segmental measurements of antenna (SMA) are also given; whole length of specimen is the total of HL+PL+EL. The holotype of the new species will be preserved in the Institute of Zoology, Chinese Academy of Sciences, Beijing (CAS).

Catops sasajii M. NISHIKAWA, sp. nov.

(Figs. 1–6)

Male. Length 6.13 mm, width 2.38 mm. Body elliptical, almost clothed with short, yellowish brown, adpressed pubescence in dorsal surface. Colour dark reddish brown, except for mouth-



Figs. 1–6. *Catops sasajii* M. NISHIKAWA, sp. nov., ♂, from Ten'ya Village env., Daba Shan Mts., South Shaanxi, Central China. —— 1, Outline of body; 2, right antenna; 3, median lobe and left paramere of aedeagus in dorso-apical view; 4, median lobe in ventro-apical view; 5, aedeagus in lateral view; 6, right half of genital segment. Scales: a for Fig. 1, b for Figs. 2 and 6, and c for Figs. 3–5.

parts, labrum, antennal segments I–II and XI, and tarsi paler, with opalescent lustre on elytra.

Head gently convex, uniformly punctate, the punctures shallow, with microsculpture formed by minute punctures, weakly emarginate at front margin, widest at the level of occipital carina (HL:HW=1:1.3); labrum transverse, subtrapezoidal, distinctly emarginate at front margin, with distinct punctures; maxillary palpi normal in shape, with last segment 1.8 times as long as the penultimate one; eyes normal, well prominent. Antennae long, with segment VIII asymmetrical in length between dorsal and ventral sides, distinctly marginate in both edges, and XI pear-shaped. SMA (length followed by width) in the holotype as follows: I, 0.25, 0.13; II, 0.18, 0.10; III, 0.23, 0.10; IV, 0.18, 0.10; V, 0.13, 0.11; VI, 0.10, 0.13; VII, 0.15, 0.15; VIII, 0.08 (0.05 in ventral side), 0.14; IX, 0.13, 0.18; X, 0.15, 0.16; XI, 0.33, 0.18.

Pronotum transverse, subtrapezoidal, gently marginate except for front margin distinct, widest at basal 1/3, with base almost as wide as elytral base, PW/HW 1.68, PW/PL 1.58; front margin slightly emarginate; front angles rounded; sides well arcuate; basal margin gently arcuate, strongly emarginate in each side inside hind angle, which is projected posteriorly, obtuse at the tip; surface with transversely rugose punctures, shiny among punctures; microsculpture formed by closely minute punctures. Scutellum triangular, with sparse punctures. Hind wings full.

Elytra elongate-ovate, convex, widest at the middle, EW/PW 1.20, EL/PL 3.16, EL/EW 1.66; sides arcuate, converging apicad, with apices separately rounded; suture entire; sutural

striae almost distinct, each gently arcuate outwards; surface with transversely rugose punctures; microsculpture formed by densely granulate punctures; epipleura ending at about apical 1/5, with punctures as those on elytra.

Mesosternum glabrous with microsculpture obliquely rugose. Metasternum closely setiferous, with transversely rugose punctuations. Abdominal sternites simple in shape, except for sternite VIII widely but weakly projected in the middle of posterior margin, with rugose punctures. Genital segment as shown in Fig. 6, spiculum gastrale tuberculate in middle.

Legs normal in size, with profemora smooth on under side; protibiae robust, gradually expanded towards apex along inner margin; protarsi dilated in basal three segments, the first one 1.25 times as wide as the apex of protibia; mesotarsi with the first segment also dilated, the largest, about 7/8 as wide as the apex of mesotibia; metafemora roundly depressed before apex on under side.

Median lobe of aedeagus similar to that of *Catops loebli* PERREAU (1988, Fig. 35) in shape, slightly twisted, relatively long (AL/EL 0.43), gradually expanded towards apical 1/5, rectangularly projected in apical portion, which is gently convergent apicad, broadly truncate at the apex, with round apical angles; surface concave, almost ridged in sides being marginally tuberculate in apical portions, with rectangular groove longitudinally at the middle of preapical portion in dorsal view; the apex transversely tuberculate, bracket-shaped in posterior view; dorsal side arcuate, distinctly bent upwards in apical portion, and ventral side arcuate in lateral view; ventral surface excavated in preapical portion, with ligulae large, elongate-cordiform; inner sac with ventral dent reversed V-shaped, well sclerotized, exposed backwardly from ligulae. Parameres slender, outwardly dilated in prebasal portions, reaching about apical 1/5 of median lobe. Basal piece moderate in size.

Female unknown.

Type specimen. Holotype: ♂, Ten'ya Village env., 2,200–2,600 m in alt. 31°55'N 109°05'E, Daba Shan Mts., South Shaanxi, Central China, 18–26. VI. 2004, A. PLUTENKO leg.

Notes. This new species is similar to *Catops fuliginosus* ERICHSON from Europe and the westernmost Asia, *C. loebli* PERREAU from East Nepal, *C. persicus* HENROT from Iran and *C. schwarzi* IABLOKOFF-KHNZORIAN from Kyrgyzstan of the *fuscus* group in having the rectangular apical portion of the median lobe of aedeagus. The new species most resembles to *C. loebli* by the absence of the trace of elytral striae and the similarity of aedeagal configuration. But the former differs from the latter in the following points: 1) body size is distinctly larger, 2) the first segment of protarsi is distinctly wider than the apex of protibiae, and 3) median lobe is distinctly bent upwards in apical portion.

Acknowledgements

I wish to express my deep gratitude to an anonymous reviewer, and to Mr. Andrey PLUTEN-KO, Smolensk, Russia, for offering the material used in this study. I also thank to Dr. Hong-zhang ZHOU, Institute of Zoology, CAS, Beijing, for his aid to deposit the type specimen.

要　　約

西川 正明：中国陝西省大巴山脈産チビシデムシ属（甲虫目，タマキノコムシ科，チビシデムシ亜科）の１新種．――― 中国陝西省大巴山で得られたチビシデムシ属の種を *fuscus* 種群に属する新種と認め，*Catops sasajii* M. NISHIKAWA, sp. nov. と命名して記載した．この新種は，雄交尾器の形態的特徴により，同群他種と明瞭に区別できる．なお，中国から本群に属するチビシデムシ属の新種が記録されるのは初めてである．

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Taxonomical Notes on the Japanese Species of the Genus *Batrisodes* Reitter, with a Description of a New Species from Yonagunijima Island of the Ryukyus (Coleoptera: Staphylinidae: Pselaphinae)

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Abstract The Japanese species of the genus *Batrisodes* Reitter are revised. A new species *B. sennin* is described from Yonagunijima Island, the Ryukyus, Japan. *B. coiffaiti* Jeannel is transferred to the genus *Tribasodites*. *B. galloisi* Jeannel and *B. vargus* Kurbatov should be the members of the nominotypical subgenus. The eight Japanese species of the subgenus *Excavodes* O. Park is classified into five species groups, namely, the *dorsalis*-, *stipes*-, *rugicollis*- *angustus*-, and *sennin*-groups.

The genus *Batrisodes* was separated from the large genus *Batrisus* by Reitter (1882) with the type species, *Batrisus delaporti* Aubé known from Europe. In the system by Raffray (1911), twenty-one Japanese species were included in this genus. Though the genus *Batrisodes* redefined by Raffray is considered to be a too large and polyphyletic taxon. Still now, it also includes many species described from tropical to subtropical areas of Southeast Asia, most of which should be moved to other genera of the *Tribasodes* group as shown by Nomura and Idris (2003).

Orlando Park (1951, 1953) classified the Nearctic species into eight newly defined subgenera, *Batriasymmodes*, *Babnormodes*, *Pubimodes*, *Excavodes*, *Elytrodes*, *Spifemodes*, *Empinodes* and *Declyvodes*. Later, *Batriasymmodes* was upgraded to a full genus. Jeannel (1958) adopted his system, and classified eleven Japanese species into three subgenera, *Batrisodes* s. str. (*B. coiffaiti*), *Pubimodes* O. Park (*B. harmandi*, *B. globlifer*) and *Excavodes* O. Park (the remaining eight).

Kurbatov (1992) added a species, *B. vargus*, from Kunashiri Is., Kuril Isls., and its subgeneric position was not shown. However, it is closely allied to *B. galloisi* Jeannel after his original description. He also described the following two species of *Batrisodes* from Far East Russia: *B. tornatilis* Kurbatov is very similar to *B. vargus* in shape of the male genitalia (Kurbatov, 1990); *B. singularis* Kurbatov belongs to an isolated group in the genus after the original description (Kurbatov, 1985).

In the present study, *Batrisodes coiffaiti* described by Jeannel (1958) on the basis of one female specimen is transferred to the genus *Tribasodites* with examination of the male speci-

mens. *Batrisodes galloisi* JEANNEL described as a member of the subgenus *Excavodes* from Honshu, and its allied species *B. vargus* and *B. tornatilis* should belong to the nominotypical subgenus.

Besides, a special type of new species, *Batrisodes sennin* is described from Yonagunijima Island, the Ryukyus. It is classified into the subgenus *Excavodes* by having the long trichome at the apex of hind tibia and the head with frontoclypeal modifications in the male. The eight Japanese species of this subgenus can be classified into five species-groups, namely, the *dorsalis*-, *stipes*-, *rugicollis*-, *angustus*-, and *sennin*-groups. A key to species-groups is also given in the present study.

Materials and Methods

For the SEM observations, the holotype of *Batrisodes sennin* sp. nov. was examined by a scanning electron microscope (SEM: JEOL JSM-6380LV) without coating, with a low acv 0.9–2.0 kV. It was digital-micrographed from various angles. Scale bars in all figures are in micrometres. Measurements of the body and drawing of the male genitalia were made with a stereo microscope (Leica MZ Apo).

The depositories of the material examined are abbreviated as follows: CFA: Collection of Dr. Fernando ANGELINI; MNHN: Muséum national d'Histoire naturelle, Paris; NSMT: National Science Museum, Tokyo.

The following exotic species of the genus *Batrisodes* were examined for comparison in subgeneric taxonomy (the depository of the material is parenthesized). Europe: *B.* (*Batrisodes*) *delaporti* (AUBÉ) (NSMT, CFA), *B.* (*B.*) *venustus* (REICHENBACH) (NSMT), *B.* (*B.*) *buqueti* (AUBÉ) (NSMT), *B.* (*B.*) *ruprechtii* (KOLENATI) (NSMT), *B* (*B.*) *tichomirovae* LÖBL (NSMT); Far East Russia: *B.* (*B.*) *tornatilis* KURBATOV (NSMT), *B* (*B.*) *oculatus* (AUBÉ) (NSMT); North America: *B.* (*Pubimodes*) *nigricans* (LECONTE) (MNHN), *B* (*P.*) *tridens* CASEY (NSMT), *B.* (*P.*) *striatus* (LECONTE) (NSMT), *B.* (*P.*) *denticollis* (CASEY) (NSMT), *B.* (*Excavodes*) *frontalis* (LECONTE) (MNHN), *B.* (*E.*) *globosus* (LECONTE) (NSMT), *B.* (*Babnormodes*) *riparius* (SAY) (MNHN), *B* (*Elytrodes*) *ionae* (LECONTE) (MNHN), *B.* (*Declyvodes*) *bistriatus* (LECONT) (MNHN), *B.* (*Spifemodes*) *schaumii* (AUBÉ) (MNHN).

Genus ***Batrisodes*** REITTER

[Japanese name: Toge-arizukamushi Zoku]

Batrisodes REITTER, 1882, Dt. ent. Z., 26: 134. Type species: *Batrisus delaporti* AUBÉ, designated by LUCAS (1920).

Alytus HAMPE, 1863, Wien. ent. Monats., 7: 286. Type species: *Trichonyx adnexus* HAMPE, by monotypy.

Batrisodinus JEANNEL, 1950, Fn. Fr., 53: 351. Type species: *Batrisus oculatus* AUBÉ, by original designation.

Remarks. This genus is similar to the Palearctic genus *Batrisus* in having the following characters in the male: 1) the almost symmetrical male genitalia, 2) the eleventh antennal segment with basiventral spine in many species, and 3) the mid femur and tibia each with spine (s) or denticle (s) in general. However, it differs from *Batrisus* by the following features in the male: 1) the endophallus of the male genitalia is broad and very weakly sclerotized, 2) the male

sexual character(s) is present on the clypeus or frons in general, and 3) the tenth antennal segment is swollen in many species in the male.

The Japanese species *Batrisodes coiffaiti* was described by JEANNEL (1958) from Shikoku on the basis of only a female specimen, as a member of the nominotypical subgenus. After a detail examination of some additional specimens including the males, this species was clearly classified to the genus group of *Tribasodes* defined by NOMURA and IDRIS (2004) by the pronotum with a pair of lateral denticles, the hind trochanter with a spine on the posterior side and the asymmetrical male genitalia with a well-demarcated dorsal apophysis. And it was considered to belong to the genus *Tribasodites* JEANNEL in having the slightly thickened antennal segment VI in the male and the abdominal segment IV without dorsolateral concavity. This species should be called *Tribasodites coiffaiti* (JEANNEL, 1958), comb. nov. in the present study.

According to NEWTON and CHANDLER (1989), this genus contains the following eight subgenera, *Batrisodes* s. str., *Babnormodes*, *Pubimodes*, *Excavodes*, *Elytrodes*, *Declivodes*, *Spifemodes* and *Empinodes*, The latter seven of them were defined by O. PARK (1951, 1953) on the basis of Nearctic species. JEANNEL (1958) distinguished the nominotypical subgenus from the seven Nearctic subgenera by lacking spur (*éperon*, in original) at the apex of the hind tibia, though the type species *B. delaporti* (AUBÉ) known from Europe has a short "spur" at the apex of the hind tibia (Fig. 1A). Additionally, the "spur" or the "*éperon*" on the hind tibia is not a simple sclerite but a slender trichome after an observation by SEM (Fig 1B), hence it should be called "trichome" below.

In the present study, the nominotypical subgenus is separable from the other subgenera by having a very short trichome at the apex of the hind tibia.

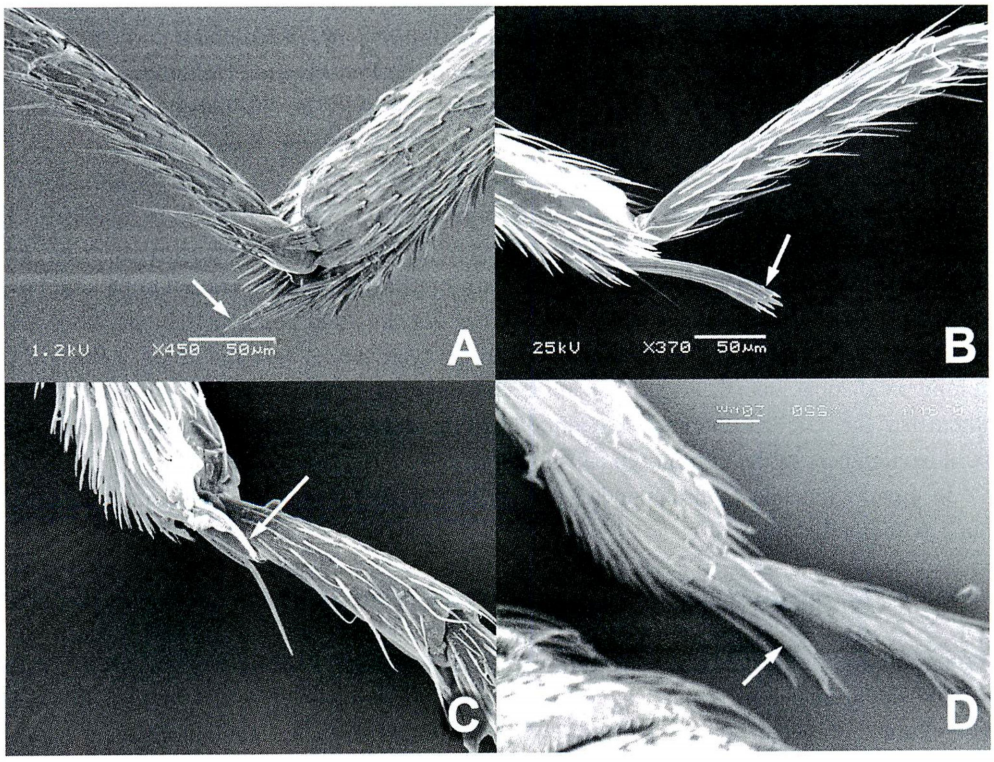

Fig. 1. Hind tibial trichomes in *Batrisodes* spp. —— A, *B.* (*Batrisodes*) *delaporti* (AUBÉ); B, *B.* (*B.*) *oculatus* (AUBÉ); C, *B.* (*B.*) *galloisi* JEANNEL; D, *B.* (*Excavodes*) *sennin*, sp. nov.

A Key to the Subgenera of the Genus *Batrisodes* REITTER Known from Japan

1. Hind tibiae each with a very short trichome at apex; antennal segment X swollen, XI with a short denticle at base on ventral side in male. ..... *Batrisodes* s. str.
—Hind tibiae each with a long trichome at apex; antennal segment X swollen or normal, XI with or without denticle in male. 2
2. Vertex with a pair of setose dorsal tentorial pits; antennal segment X strongly swollen and asymmetrical in male. ..... *Pubimodes* O. PARK
—Vertex with a pair of glabrous dorsal tentorial pits; antennal segment X almost the same in size as IX, symmetrically subglobose in male. ..... *Excavodes* O. PARK

Subgenus ***Excavodes*** O. PARK

Excavodes O. PARK, 1951, Geol. Surv. Alabama, Mus. Pap., (31): 12. Type species: *Batrisodes frontalis* (LECONTE).

Remarks . This subgenus is separated from the nominotypical subgenus and the other subgenera by having the following characters: 1) the hind tibia with long apical trichome more than 1/3 the length of hind tarsal segment II (less than 1/3 in many species of *Batrisodes* s. str.), 2) the antenna is slender and the antennal segments IX to XI symmetrical in the male (IX to X are each swollen and asymmetrical in the male in *Pubimodes*, etc.; X is swollen and XI is denticulate in *Batrisodes* s. str.), 3) the dorsal tentorial pits are devoid of scales nor setae (densely setose in *Pubimodes*), 4) the head is modified in the male on the clypeus to the frons including clypeal projections, transverse excavation in the clypeofrontal region, frontal horn or frontal expansion (without sexual modification in *Elytrodes*, *Spifemodes*, *Empinodes* and *Declyvodes*). The type species of this subgenus *B. frontalis* known from Pensylvania, United States is distinct in having the strongly expanded frons with shallow concavity on the dorsal side. Within the Japanese species, *B. caviceps* (SHARP) is the most closely allied to the type species.

The Japanese species *B. galloisi* JEANNEL described from Chuzenji, (Nikko, Tochigi Prefecture, Honshu) as a member of this subgenus is closely allied to the type species of the genus, *B. delaporti*. *B. vargus* described by KURBATOV (1992) from Kunashiri Is., Kuril Isls., and *B. tornatilis* by KURBATOV (1990) from Ussuri, Far East Russia are known to be allied to *B. galloisi* and to each other. In *B. galloisi* and *B. tornatilis*, the hind tibial trichome is short (about 1/4 of the length of hind tarsal segment II) as in the type species and the allied species of the nominotypical subgenus (*B. vargus* has not been examined) as shown in Fig. 1C. And the male of them has the swollen antennal segment X and the denticulate XI. These species therefore, should be members of the nominotypical subgenus.

In conclusion, the eight Japanese species of *Excavodes* are classified into five species groups as shown below.

A Key to the Species Groups for Japanese Species of the Subgenus *Excavodes* O. PARK

1. Pronotum without spine on dorsal surface; antennal segment I strongly extended anteriad on inner side in male. 2
—Pronotum with a pair or two pairs of spines on dorsal surface; antennal segment I hardly

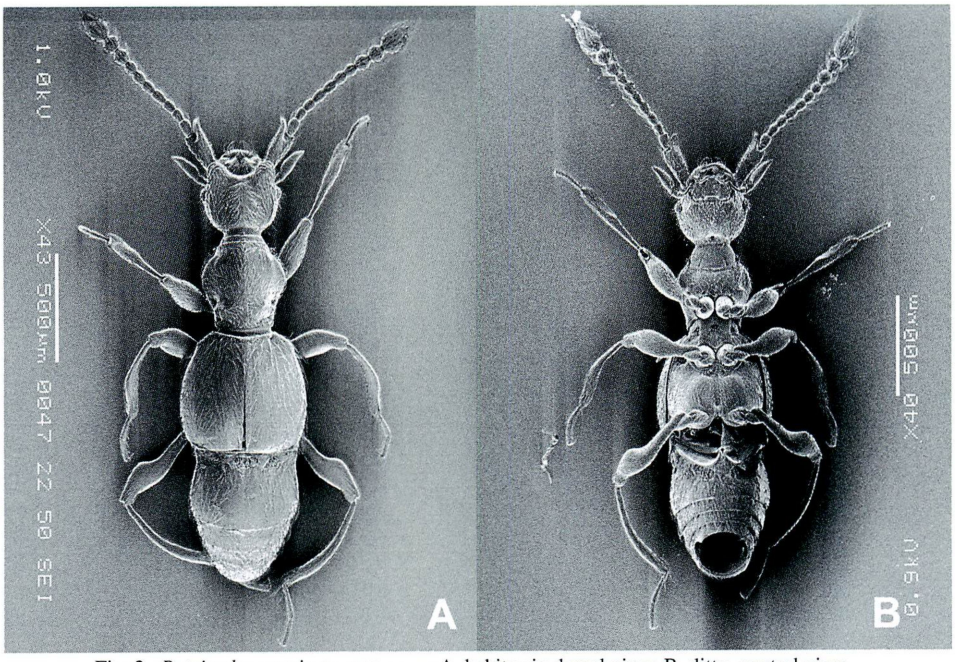

Fig. 2. *Batrisodes sennin* sp. nov. —— A, habitus in dorsal view; B, ditto, ventral view.

extended anteriad on inner side in male..... 3
2. Head and pronotum rugosely punctured and mat..... *dorsalis* group
—Head and pronotum sparsely with minute punctures and shiny..... *sennin* group
3. Pronotum with two pairs of spines on dorsal surface..... *stipes* group
—Pronotum with a pair of spines on dorsal surface..... 4
4. Clypeus with a pair of lateral projections on anterior margin in male; frons with a short median horn beneath frontal expansion..... *rugicollis* group
—Clypeus arcuately or angulately expanded anteriad in male, without lateral projection; frons strongly expanded anteriad and concave on dorsal side, with very short median horn. ..... *angustus* group

Batrisodes sennin sp. nov.

[Japanese name: Sennin-toge-arizukamushi]

(Figs. 1D, 2–5)

Etymology. The name of the new species "sennin" is derived from the nickname of the late Dr. Hiroyuki SASAJI in his young age. Originally, the Japanese word "sennin" means a legendary wizard living in the mountains and capable of performing miracles. Dr. SASAJI had a taste for alcohol as well as "sennin" in Japanese and Chinese folktales.

Holotype: ♂, preserved in NSMT, Mt. Inbidake S, Yonagunijima Is., Ryukyus, Japan, 15–19. III. 2005, by FIT (NG–3), S. NOMURA leg.

Male (Figs. 3A–E). Body length 2.05 mm, width 0.61 mm, large and elongate, color reddish brown.

Head slightly wider than long, nearly ovoid in dorsal view, sparsely covered with minute

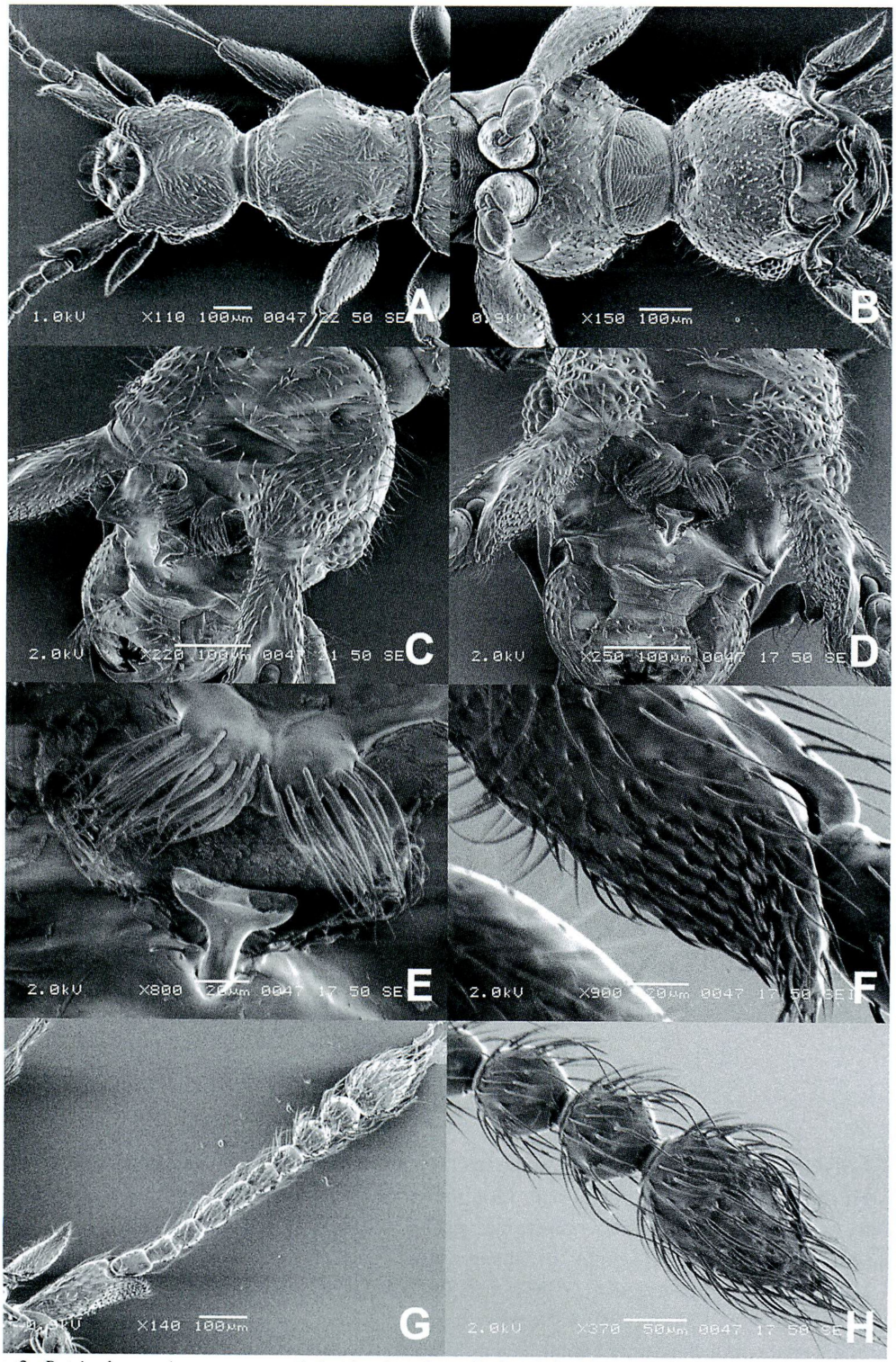

Fig. 3. *Batrisodes sennin* sp. nov. —— A, head and prothorax in dorsal view; B, ditto, in ventral view; C, head in anterolateral view; D, ditto, in anterior view; E, ditto, enlarged; F, antennal segment I in internal view; G, left antenna; H, ditto, apical part enlarged.

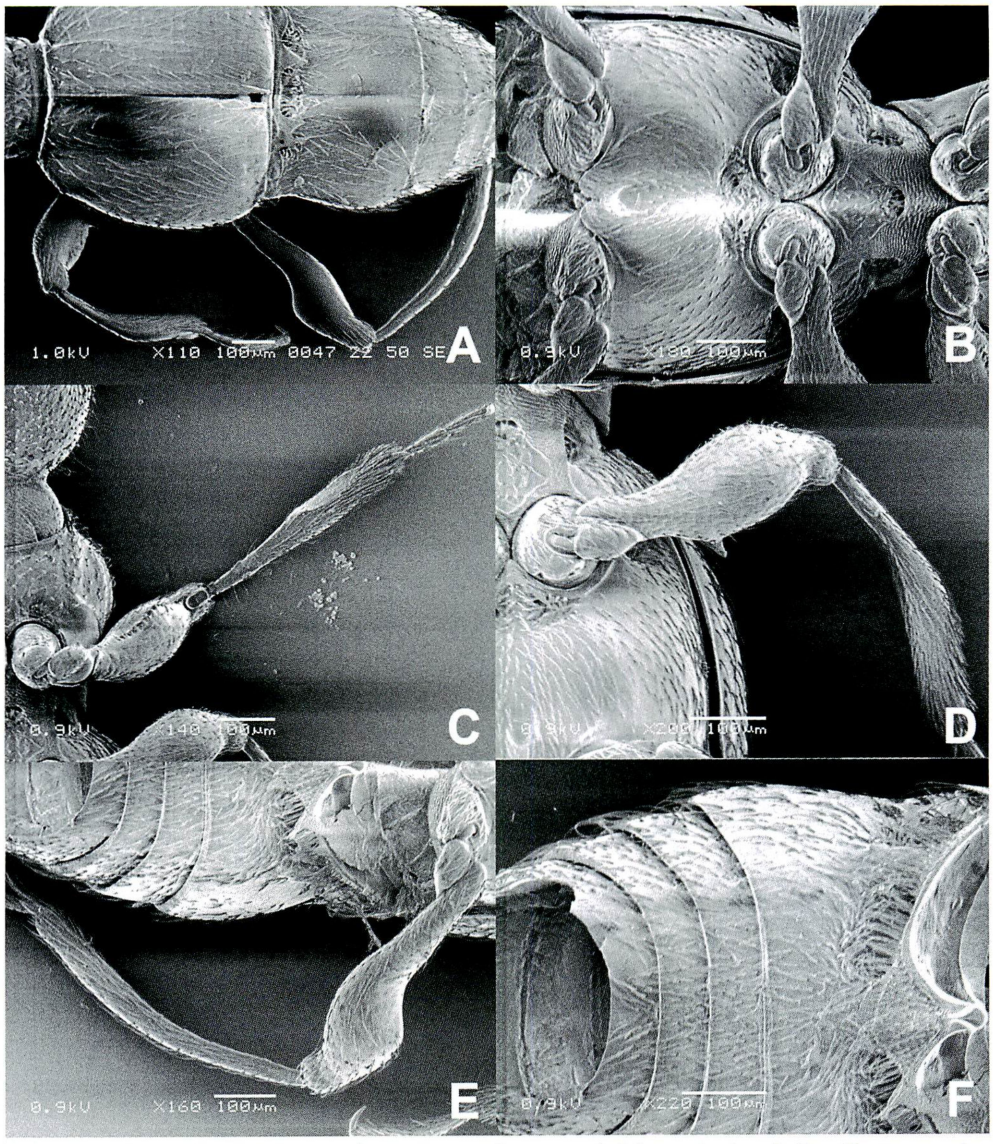

Fig. 4. *Batrisodes sennin* sp. nov. —— A, meso-, metathoraces and abdomen in dorsal view; B, meso- and metathoraces in ventral view; C, left fore leg in ventral view; D, left mid leg in ventral view; E, left hind leg in ventral view; F, abdomen in ventral view.

pubescence on dorsal surface; clypeus short, transverse, with a trapezoidal projection on anteromedian part, and a pair of small angular expansions in anterolateral parts; frontoclypeal region transversely concave, with a small, T-shaped nodule at anteromedian part, a pair of short trichomes at the middle, and a short, trapezoidal horn between antennal tubercles: frons strongly convex on both antennal tubercles, arcuately emarginated and shallowly concave between antennal tubercles, with a shallow transverse sulcus near the middle; vertex almost flat, with a pair of minute dorsal tentorial pits; postgenae broad, weakly rounded, densely covered with suberect hairs. Eyes very small and semispherical, each composed of about 20 facets. Antennae (Fig. 3F–H) long and elongate, 1.00 mm in length; segment I large and thick, about as long as

segments II to V combined, strongly extended anteriad on inner side, densely with short secretory setae on inner side of the extension; II to VII subequal in width, each small and ovoid, slightly longer than wide; VIII as wide as VII, subglobose; IX to X subequal, each thick and subglobose; XI large and thick, about as long as IX + X, ovoid, 1.5 times as long as wide; relative length (width) of each segment to width of segment I from base to apex 2.0 (1.0): 0.7 (0.5): 0.6 (0.5): 0.6 (0.5): 0.7 (0.5): 0.6 (0.5): 0.6 (0.5): 0.5 (0.5): 0.7 (0.7): 0.7 (0.7): 1.5 (1.0). Maxillary palpi large, elongate; segment I short; II elongate, thickened distally; III short, nearly triangular; IV the largest, fusiform, 3.2 times as long as wide, widest at basal 1/4.

Pronotum (Fig. 3A) slightly longer than head, slightly longer than wide, widest near the middle, rounded on lateral sides, weakly convex on dorsal side, sparsely covered with minute

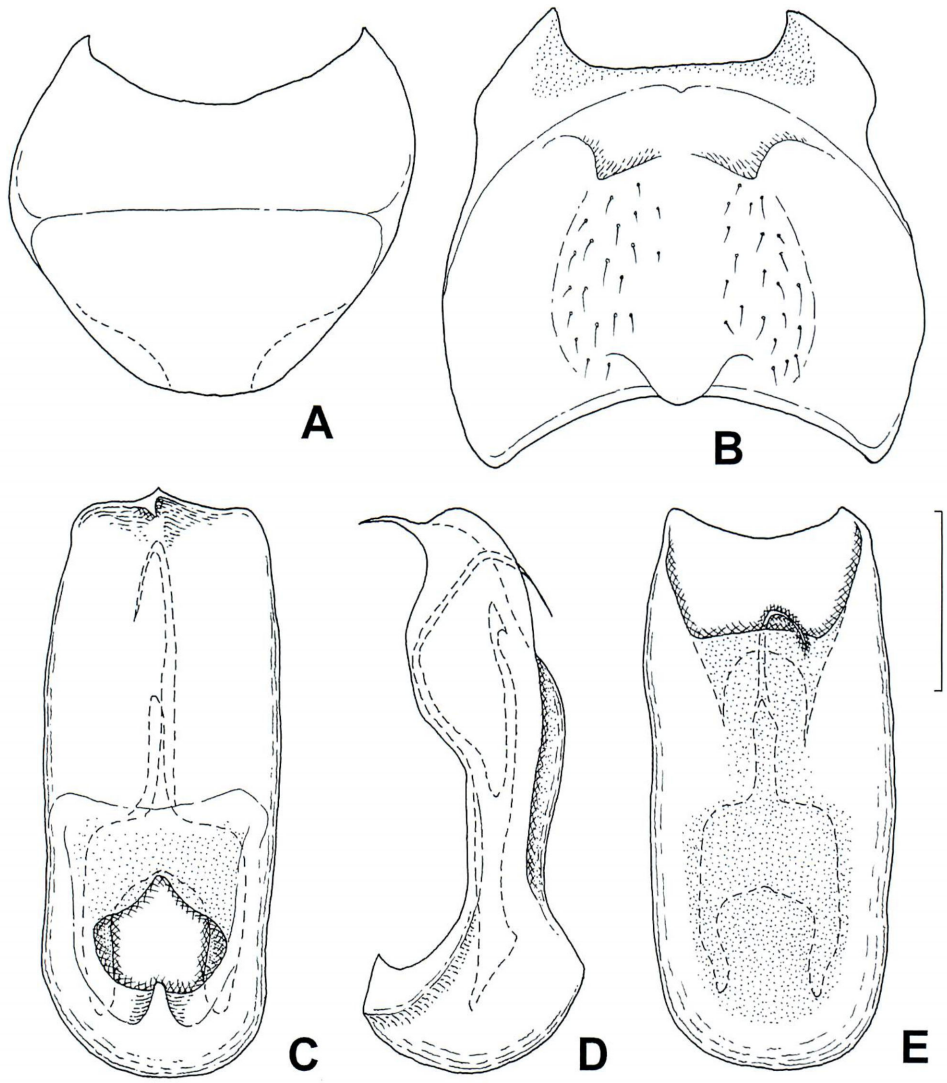

Fig. 5. *Batrisodes sennin* sp. nov. —— A, abdominal tergite VIII in posterior view; B, abdominal sternite VIII in ventral view; C, male genitalia in ventral view; D, ditto, in lateral view; E, ditto, in dorsal view. (Scale: mm)

pubescence, with a pair of large lateral foveae at basal 1/3, and two pairs of small antebasal foveae in both basilateral parts. Elytra (Fig. 4A) slightly wider than long, widest at about basal 1/3, weakly convex on dorsal side, sparsely covered with minute pubescence on dorsal surface; each elytron with three basal foveae and an indistinct longitudinal sulcus running from outer basal foveae to near the middle. Legs (Figs. 4C–E) long and stout; mid femora thick, each with a short spine on posterior side; mid tibiae slender, each weakly curved inwards; hind femora thick, each with shallow excavation in basal half on anterior side; hind tibiae slender, gently thickened distad, weakly curved inwards; hind tibial trichome long and slender, about a half as long as hind tarsal segment II.

Abdomen (Figs. 4A, F) slightly longer, slightly narrower than elytra, longer than wide, widest at about basal 1/3, then gently narrowed posteriad, rounded at apex, sparsely covered with pubescence; segment IV the largest, weakly convex on dorsal side, with two pairs of basal foveae, a pair of short, triangular basal carinae between outer and inner basal foveae and with a pair of narrow, triangular paratergites demarcated by indistinct oblique lateral carinae; V to VII each short and transverse; tergite VIII (Fig. 5A) short, nearly trapezoidal in exposed part; sternite VIII (Fig. 5B) semicircular, shallowly concave in the middle, sparsely covered with short suberect setae in the middle concavity, with a small transverse concavity in basimedian part, nearly triangular small projection in posteromedian part.

Male genitalia (Figs. 5C–E)weakly sclerotized and almost symmetrical; median lobe nearly quadrate, longer than wide, flattened dorso-ventrally, with small basal foramen, large and transverse apical orifice and a small projection at apex; endophallus very weakly sclerotized, broad and bifurcate in basal part, with long and very slender dorsal and ventral spines in apical part.

Female. Unknown.

Distribution: Ryukyus (Yonagunijima Is.).

Remarks. This new species is easily separated from the other species of the subgenus *Excavodes* by having the anteriorly extended antennal segment I, the head with a pair of well convex antennal tubercles and the pronotum devoid of coarse punctures or dorsal spines. It is also similar to the genus *Petaloscapus* known from the Japanese mainland in having the extended antennal segment I. However, it apparently belongs to the genus *Batrisodes* by the head lacking large frontal nodule and the symmetrical male genitalia without strongly sclerotized endophallus.

Acknowledgements

I wish to express my sincere thanks to the late Dr. Hiroyuki SASAJI for his continuous guidance and encouragement extended to my study. My special thanks are due to Dr. Shun-Ichi UÉNO for his kind assistance and critical reading of the manuscript. I am also much indebted to Dr. Serguei A. KURBATOV (Moscow) and Dr. Fernando ANGELINI for their kind offer of some reference specimens. I extend my sincere thanks to Dr. Thierry DEUVE, Dr. Nicole BERTI and Dr. Taghavian AZADEH for their kind support for reexamination of the type material preserved in the Muséum national d'Histoire naturelle, Paris.

This study is supported in part by the Grant-in-aid No.18208006 of the Japan Society for the Promotion of Science (JSPS).

要　　約

野村 周平：日本産トゲアリヅカムシ属（ハネカクシ科，アリヅカムシ亜科）に関する分類学的ノート．付 琉球列島与那国島産１新種の記載．——— *Batrisodes* REITTER トゲアリヅカムシ属の日本産種について分類学的再検討を行った．JEANNEL (1958) が四国から記載した *B. coiffaiti* を *Tribasodes* 属群に含まれる *Tribasodites* 属へ移した．本州から知られる *B. galloisi* JEANNEL と国後島から書かれた *B. vargus* KURBATOV は名義タイプ亜属に所属するのが妥当と判断された．琉球列島与那国島から，本属としては特異な１新種，*B. sennin* センニントゲアリヅカムシを記載命名した．本種名は先頃亡くなられた故 佐々治寛之博士の若い時代の愛称に因み，博士に献呈する意味で名づけられた．さらに本種が所属する *Excavodes* 亜属の日本産８種を検討し，*dorsalis* 種群，*stipes* 種群，*rugicollis* 種群，*angustus* 種群および *sennin* 種群の５つに分類した．末尾に日本産種のリストを付した．

なお，本研究は日本学術振興会科学研究費補助金（課題番号 18208006）による助成を受けている．

Appendix: A List of Japanese Species of *Batrisodes*

Genus *Batrisodes* REITTER

Subgenus *Batrisodes* s. str.

B. (*B.*) *galloisi* JEANNEL, 1958 Type locality: Senjuga, Chuzenji, Nikko, Tochigi Pref.

B. (*B.*) *vargus* KURBATOV, 1992 Type locality: Kunashiri Is., Kuril Isls.

Subgenus *Pubimodes* O. PARK, 1951

B. (*B.*) *harmandi* RAFFRAY, 1904 Type locality: “environs de Tokyo”.

B. (*B.*) *globrifer* JEANNEL, 1958 Type locality: Mt. Takao, Tokyo.

Subgenus *Excavodes* O. PARK, 1951

The *sennin* group

B. (*B.*) *sennin* sp. nov. Type locality: Mt. Inbidake, Yonagunijima Is., Ryukyus.

The *dorsalis* group

B. (*B.*) *dorsalis* JEANNEL, 1958 Type locality: Mt. Takao, Tokyo.

The *stipes* group

B. (*B.*) *stipes* (SHARP, 1874) Type area: “Japan”.

The *rugicollis* group

B (*B.*) *ornatifrons* (SHARP, 1883) Type locality: Chuzenji, Nikko, Tochigi Pref.

B. (*B.*) *acutifrons* JEANNEL, 1958 Type locality: Kumanotaira, nr. Karuizawa, Gunma Pref.

B. (*B.*) *rugicollis* (SHARP, 1883) Type locality: Oyama, Kanagawa Pref.

The *angustus* group

B. (*B.*) *angustus* (SHARP, 1874) Type locality: Kiga, Hakone, Kanagawa Pref.

B. (*B.*) *caviceps* (SHARP, 1883) Type locality: Yuyama (Mt. Ichifusayama), Kumamoto Pref.

Genus *Tribasodites* JEANNEL, 1959

T. coiffaiti (JEANNEL, 1958), comb. nov. Type locality: Kawauchi, Ino-cho, Kôchi Pref.

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Two New Species of the Harpaline Subgenus *Amaroschesis* from Sichuan, China (Coleoptera: Carabidae)

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1–7–18 Higashiuneno, Kawanishi City, Hyôgo Pref., 666–0117 Japan

Abstract Two new species of the subgenus *Amaroschesis* of the genus *Trichotichnus* are described as following: *Trichotichnus* (*Amaroschesis*) *hiroyukii* and *T.* (*A.*) *rotundatus*. Those are collected in high mountains in Sichuan. Former species is estimated to be related closely to *Trichotichnus denticollis* SCHAUBERGER and similar species and the latter one to *Trichotichnus obtusicollis* SCHAUBERGER and relatives.

The subgenus *Amaroschesis* is composed of apterous species and highly diversified in the mountainous regions of China by the allopatric speciation as in the case of other taxa, such as *Carabus*, *Pterostichus* etc., owing to the isolation of their habitats by the steep mountains and deep valleys in the old continent of China. They are diverisfied even in the same mountain by segregating their habitats. For example, in trechine species same matters occur. Recently I obtained an opportunity to examine materials of the subgenus again and found new species among them.

In this paper, I am going to describe two new species under the name of *Trichotichnus* (*Amaroschesis*) *hiroyukii* and *T.* (*A.*) *rotundatus* and give some taxonomic note. The former species, "*hiroyukii*" is named after the late Dr. Hiroyuki SASAJI of emeritus professor of Fukui University. He had been the president of the Japan Coleopterological Society for recent seven years. In last summer, he suddenly passed away. He has been a world-famous Coleopterist and majoring with systematics of Superfamily Cucujoidea, especially of the family Coccinellidae. His death is a serious loss for Coleopterological field. I wish to express my deepest regret for the sad happening.

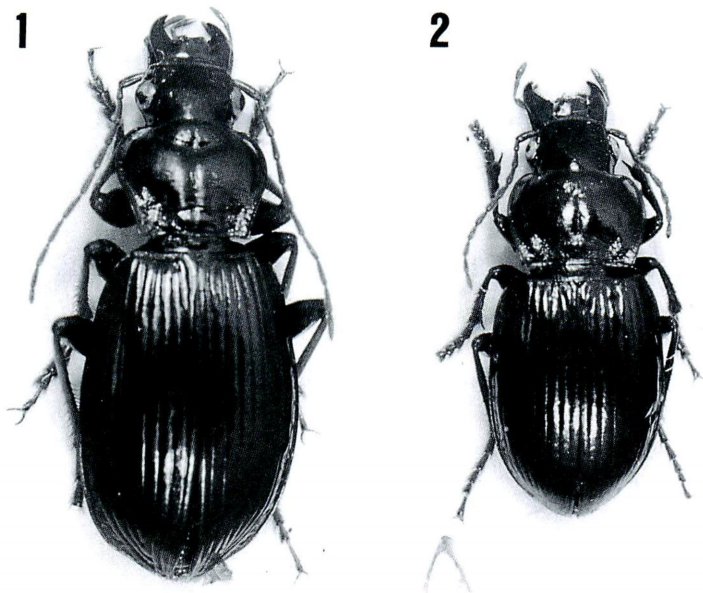
Specimens of holotypes will be preserved in the Osaka Museum of Natural History. Concerning measurement, refer the author's former paper.

Trichotichnus* (*Amaroschesis*) *hiroyukii N. ITO, sp. nov.

(Figs. 1 and 3)

Body more or less narrowly oblong, very slightly brownish black, shiny, iridescent on elytra; maxillary and labial palpi, antennae, tibiae and tarsi light brown, mandibles dark reddish brown, femora dark brown.

Head not large, a little less than two-thirds as wide as the pronotal width, weakly convex, with narrow interocular space; labrum subsquare, gently produced at apical angles; clypeus very shallowly emarginate, weakly elevated; clypeal suture vaguely and linearly carved; frontal



Figs. 1–2. Habitus of *Trichotichnus* spp. — 1, *Trichotichnus* (*Amaroschesis*) *hiroyukii* N. Ito, sp. nov.; 2, *T.* (*A.*) *rotundatus* N. Ito, sp. nov.

impressions shallow but clear, completely carved to supraorbital grooves; eyes large, almost hemispherical; temples short, one-fifth of eye length, steeply convergent behind; space between genuine ventral margins of eyes and buccal fissure somewhat wide; mandibles relatively elongate, comparing with usual species of the subgenus; antennae slender, long as apical five segments attaining elytra, 3rd segment pubescent in apical four-fifths, equal in length to the 4th, and 2.2 times as long as the 2nd; labial palpi slender; ligula gently expanded forwards, apex weakly bisinuate, acute at lateral angles; paraglossae narrow, not surpassing beyond ligular apex; microsculptures finely impressed, consisting of mixture with isodiametric and subsquare meshes.

Pronotum cordate, one-third wider than long, moderately convex, well reflected at sides, especially strongly so near base; sides fairly curved apicad and sinuately convergent basad from apical two-fifths; apex slightly emarginate, with border narrowly obscure in narrow middle; base slightly wider than apex (1.06–1.07 in ratio), obtrapezoidally and shallowly emarginate, entirely and clearly bordered; apical angles narrowly rounded; basal angles acute in a right angle, feebly toothed at tips; lateral furrows relatively wide, gradually expanded towards base; basal foveae deep, large and elliptical, joining with lateral furrows; front transverse impression wide and rather deep, the hind one narrow; median line thin, engraved from the front impression to base; dorsal surface widely smooth on disc, sparsely and minutely punctate in middle apical area, sparsely and coarsely so in lateral furrows and basal foveae where the punctures are partly confluent; microsculpture fine and clear, largely consisting of transverse meshes and of mixtures with square and isodiametric meshes on lateral furrows and basal foveae.

Elytra oval, full-cheeked, a half longer than wide, moderately convex, without punctures; sides gently arcuately divergent to apical one-fourth, thence abruptly convergent apicad, with

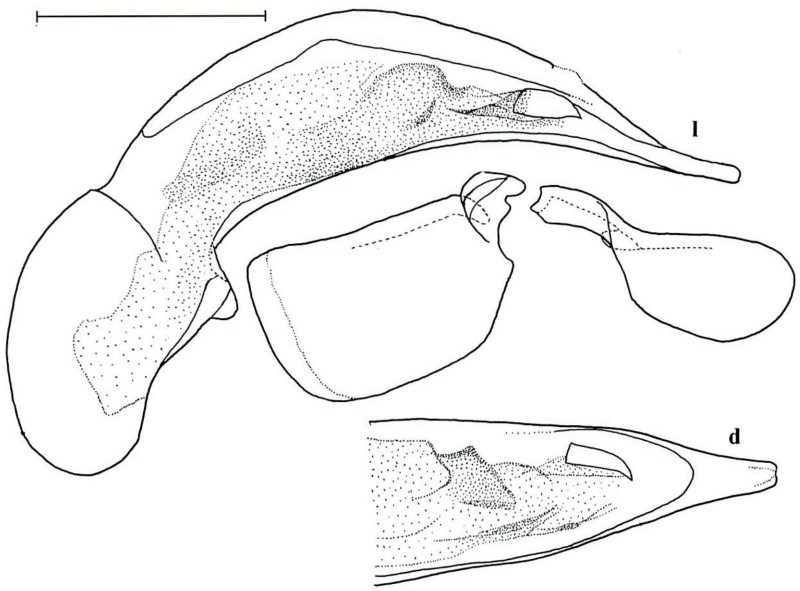


Fig. 3. Male genitalia of *Trichotichnus* (*Amaroschesis*) *hiroyukii* N. Ito, sp. nov. l, lateral aspect; d, dorsal aspect. Scale: 1 mm.

shallow preapical sinus; apices gently produced behind, very narrowly rounded at tips; bases feebly emarginate, rounded at humeral angles; striae shallow and finely crenulate, scutellary striole long; intervals almost flat on disc, slightly raised on apical areas, a discal pore of 3rd interval situated near middle; marginal series subinterrupted in middle, space between pores in middle rather wide, (8–10)+(1–3)+(10–11) in number; surface finely and transversely micro-lined. Hind wings reduced, though rather long than as usual, two-fifths the elytral length.

Ventral surface vaguely punctate on prosternum and prepisterna, rather coarsely so on mesepisterna, and moderately and sparsely so on metepisterna and lateral areas of metasternum; metepisterna short, 0.71 times as long as wide; 6th abdominal sternite of male usually unisetose at each side, though two specimens are bisetose at right side and one specimen is so at left side, weakly rounded at apical margin.

Legs long; hind femora bisetose along hind margin; fore tibiae trispinous at apico-external margin, dorsally without sulcus; tarsi long, 1st segments of mid tarsi bisquamose only at apices, hind tarsi 1.15 times as long as the width of head including eyes, 1st segment three-elevnths shorter than the 2nd and 3rd taken together, one-third longer than the 2nd, 3rd one-fifth longer than the 4th, claw segment quadrisetose along external margin and quinquesetose along inner margin of ventral side.

Aedeagus (Fig. 3) gently curved, gradually tapered backwards from middle, thin at apex and not thickened at tip; apical orifice widely opened, inner sac armed with a robust peg-shaped sclerite near apex; apical lobe elongate, twice as long as wide, shallowly emarginate at each side, distal margin not rounded and barely notched at middle.

Length: 10.3–11.0 mm. Width: 4.3–4.9 mm.

Female unknown.

Holotype: ♂, valley 13 km ESE Tuowu, 28°46–47'N, 102°20–24'E, alt. 4,300 m, mixed forest, SW Sichuan, China, 13–17. VI. 2006, J. KALÁB leg. Paratypes: 7♂♂, same data as the holotype (preserved in the author's collection).

Remarks: This new species is the third one armed with a peg-shaped spine in the aedeagal inner sac and is in close relationship with *Trichotichnus* (*Amaroschesis*) *denticollis* SCHAUBERGER and related species.

The new species is similar to *T.* (*A.*) *watanabei* N. ITO from Qinling Mts. in Shaanxi, but the pronotum is more clearly cordate as more strongly convergent backwards, sinuate near base, deeper in basal foveae and much more strongly reflected at sides, the elytra are not angulate but rounded at humeral angles, and the aedeagus bears only a robust sclerite and does not bear any clusters of small sclerites in inner sac, and is notched at tip of apical lobe instead of being widely rounded.

The new species resembles *T.* (*A.*) *cordaticollis* SCHAUBERGER, but is the head is smaller and with more prominent eyes, the pronotum is more convergent backwards and much more strongly reflected, the elytra are rounded at humeral angles instead of being obtuse and angulate, and the aedeagus is not hooked dorso-basad at apex and notched at tip of apical lobe instead of being uniformly rounded.

The new species is allied to *T.* (*A.*) *denticollis* SCHAUBERGER from Tatsienlu in Sichuan, but the pronotum is wider and much more strongly reflected at sides, the elytra are not angulate at humeral angles and with a discal pore in each instead of being lacking, and the aedeagus does not possess any clusters of small sclerites in inner sac of apical orifice and with apical lobe which is narrower, notched at the distal margin instead of being rounded, and is not thickened ventrally at the tip.

Etymology: The specific name, "*hiroyukii*" is explained in the introduction.

Trichotichnus* (*Amaroschesis*) *rotundatus N. ITO, sp. nov.

(Figs. 2 and 4)

Body widely oblong, fairly convex, black, shiny, not iridescent; labial and maxillary palpi, antennae and tarsi brown, mandibles and parts of tibiae dark reddish brown.

Head moderate in largeness, 0.67 times as wide as the pronotal width, fairly convex, with several rugosities on frons; labrum almost square, triangularly emarginate at apex; clypeus thick, transversely depressed between a pair of lateral pore, shallowly emarginate apically; clypeal suture obscure to more or less clear; frontal impressions various in clearness, obliterated near middle, not reaching supraorbital grooves; eyes small and not convex; temples long, 0.44–0.46 times as long as the eye length, thick, and gently convergent behind; genuine ventral margin of eyes widely isolated from buccal fissure; antennae submoniliform, short, apical two segments reaching elytra, 3rd segment glabrous in basal third, well thickened apicad, as long as the 4th and a half longer than the 2nd; mandibles stout; labial palpi short and slender; ligula parallel-sided, truncate at apex; paraglossae narrow, prolonged a little beyond ligular apex; microsculpture rather clearly visible as mixture with isodiametric and subsquare meshes.

Pronotum transversely subquadrate, approximately a half wider than long, gently arcuate throughout at sides, gently elevated; apex moderately emarginate, clearly and finely bordered

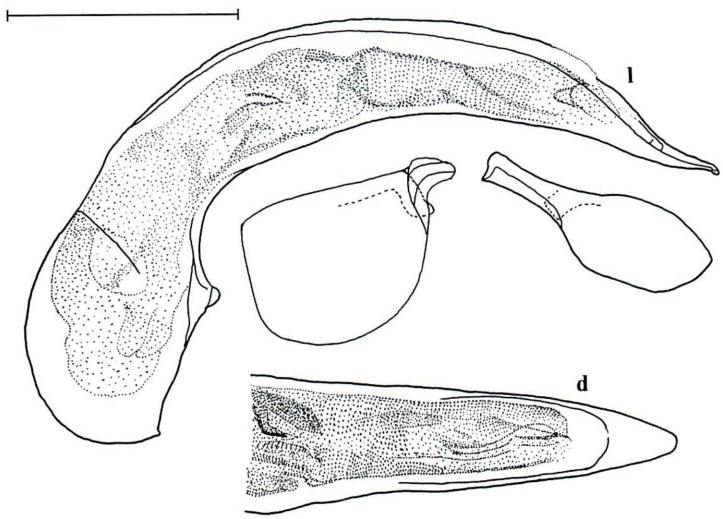


Fig. 4. Male genitalia of *Trichotichnus* (*Amaroschesis*) *rotundatus* N. Ito, sp. nov. l, lateral aspect; d, dorsal aspect. Scale: 1 mm.

throughout; base nearly one-tenth wider than apex, shallowly emarginate, almost straight in middle, thickly bordered lengthwise; apical angles narrowly rounded; basal angles a little larger than right angle, not blunt; lateral furrows gradually expanded basad from apex, flattened, fused with basal foveae, each fovea is transverse, mostly flattened and feebly and roundly concave near inner side; front transverse impression shallow and vague, the hind one short and narrow; median line fine and clear, engraved between both impressions; dorsal punctures absent on disc, coarsely and moderately punctate in the lateral furrows and basal foveae, the latter especially coarsely punctured and partly confluent; microsculpture partly observed as fine isodiametric meshes on disc, and wholly as clear isodiametric ones in lateral furrows and basal foveae.

Elytra short, ovate, widest at middle, three-tenths longer than wide, one-fourth wider than the pronotal width, well convex, impunctate; apices not produce behind, weakly arcuate at margins, and narrowly rounded and separated at tips; bases each almost straight, forming very obtuse and angulate with lateral border; striae very shallow, somewhat wide and finely crenulate, scutellary striole relatively long, often joining1st striae; intervals wholly flat, without any discal pores on 3rd intervals; marginal series divided into three groups, composed of 7 + 2 + 9 umbilicate pores; microsculpture clearly impressed, consisting of transverse meshes. Hind wings rudimentary.

Ventral surface obscurely punctuate on prosternum and prepisterna and sparsely and somewhat clearly so on meso- and metepisterna and lateral areas of metasternum; metepisterna quadrate, short, 0.78 times as long as wide; 6th abdominal sternite of male bisetose at each side and widely rounded at apical margin.

Legs short; hind femora bisetose along hind margin; fore tibiae each trispinous apicoexternally, without sulcus; mid tarsi of male bearing biseriate adhesive squamae only near apex, hind tarsi one-tenth shorter than the width of head, 1st segment 0.70–0.72 times as long as the

2nd and 3rd taken together and three-tenths longer than the 2nd, 3rd two-fifths longer than the 4th, ventral surface of claw segment quadrisetose along inner margin and trisetose along external one.

Aedeagus (Fig. 4) clearly arcuate, shallowly sinuate near apex, slightly directed oblique-ventrad at tip; apical orifice widely opened, inner sac without any sclerites; apical lobe triangular, rounded at distal margin.

Length: 7.5–8.5 mm. Width: 3.3–3.7 mm.

Female unknown.

Holotype: ♂, mts. 13 km WSW Maidilong, 28°34'N, 101°04'E, alt. 4,300 m, alpine meadow, screes, S Sichuan, China, 28–30. VI. 2006, J. KALÁB leg. Paratypes: 4♂♂, same data as the holotype (preserved in the author's collection).

Remarks: According to the external characteristics, this new species is closely related to *Trichotichnus* (*Amaroschesis*) *obtusicollis* SCHAUBERGER and the relatives.

The new species is closely allied to *T.* (*A.*) *langmusiensis* N. ITO from Langmusi in Gansu, but the body is smaller in size, the pronotum is more transverse and with lateral furrows wider, the elytra are shorter and not bearing discal pore of 3rd interval.

The new species is similar to *T.* (*A.*) *subreticulatus subreticulatus* N. ITO from Heisui in North Sichuan, but the head is larger, the pronotum is deepened in basal foveae instead of being weakly humped, wider in lateral furrows, and more coarsely punctuate, the elytra are a little more convex, more clearly microsculptured and without any discal pores, and the aedeagus does not possesses hemispherical sclerites.

Etymology: The specific name, "*grotundatus*" is derived from the rounded pronotal sides in Latin.

要　　約

伊藤　昇：中国四川省からの *Amaroschesis*亜属の２新種．―― 中国大陸における *Trichotichnus*属の *Amaroschesis*亜属の種多様性は極めて顕著である．本稿では新たに，本亜属の２新種を，*Trichotichnus* (*Amaroschesis*) *hiroyukii* および *T.* (*A.*) *rotundatus* と命名記載した．前者は，*T.* (*A.*) *denticollis* SCHAUBERGER とその近縁種に，後者は，*T.* (*A.*) *obtusicollis* SCHAUBERGER とその近縁種に関係が深い．小種名 "*hiroyukii*" は，本会会長で福井大学名誉教授の故佐々治寛之博士に因む．佐々治博士は，ヒラタムシ上科の分類学的研究において，日本のみならず世界の甲虫学発展に寄与された．特にテントウムシ族の研究はすばらしく，分類学的な面において日本のテントウムシの全容がほぼ解明されたといっても過言ではない．佐々治博士の早すぎるご逝去は，誠に残念であり，哀悼の意をこめて献名した．

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Description of a New Species of the Genus *Dexialia* (Coleoptera: Endomychidae) from Japan

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Abstract. *Dexialia sasajii*, a new mychothenine species of Endomychidae is described from Honshû, Japan, with the illustrations of habitus and diagnostic features.

The genus *Dexialia* was established by SASAJI (1970) based on the species, *Dexialia ovalis*, from Taiwan. Since then, SASAJI (1978, 1984, 1995) transferred the Japanese species, *Exysma minor* (CHÛJÔ, 1941) to this genus, and added two new species into the Japanese fauna. Consequently, three species, *D. minor* (CHÛJÔ), *D. spectabilis* SASAJI and *D. mirabilis* SASAJI, have been known from Japan.

Recently, I had an opportunity to examine many specimens of *Dexialia* collected at a wide range from Aomori Pref., northernmost of Honshû, to Hyôgo Pref., southwestern Honshû, Japan. My careful examination revealed that they belong to a new species, having a close relationship to *D. minor* (CHÛJÔ), and I will describe this new species under the name, *Dexialia sasajii* sp. nov. in the present paper.

Before going further, I wish to express my hearty thanks to Mr. Toshihiro OZAKI of Aomori Pref., Mr. Isamu TANAKA of Hyôgo Pref., Mr. Kentarou TOYOSHIMA of Gifu Pref., Mr. Hideyuki YOKOZEKI of Mie Pref., and Mr. Futoshi ICHIKAWA of Mie Pref., for their kind offer of valuable materials, and to Assoc. Prof. Masahiro SAKAI of Entomological Laboratory, College of Agriculture, Ehime University, for critically reading the manuscript of this paper.

Dexialia sasajii sp. nov.

[Japanese name: Usumon-marugata-tentôdamashi]

(Figs. 1–9)

Male. Body subhemispherical, strongly convex on dorsum, about 1.4 times as long as wide; general colour reddish brown; head and pronotum blackish brown except for diluted lateral portions; elytra blackish brown, with 2 pairs of brownish opaque markings: anterior pair subcircular, with the border quite nebulose, occupying basal half and almost reaching lateral margin; posterior pair also subcircular, occupying apical 2/5 (Fig. 1); 1st to 6th segments of antennae and legs yellowish brown, 7th to 9th (club-segments) dark brown.

Head about 0.6 times as wide as pronotum; punctures on head sparse and relatively large, separated on an average by 1.5 to 3 times their diameter; clypeus rather sharply narrowed apicad, with anterior margin truncated; eyes moderate in size, well bulging, interocular distance 0.33 times as wide as the width of head across eyes; maxillary palpus with terminal segment (Fig. 2)

fusiform and about 2 times as long as wide; mentum (Fig. 4) subtrapezoidal, 2.7 times as wide as long. Antennae (Fig. 3) nine-segmented; 1st segment large, dilated inward; 2nd roundish, about 1.7 time as long as wide, constricted at base; 3rd clavate, about 2.2 times as long as wide, and about 2.2 times as long as 4th; 4th and 5th as long as wide; 6th slightly wider than long; 7th enlarged, about 1.1 times as wide as long, dilated inward at the middle, then abruptly tapering apicad; 8th about 1.2 times as wide as long; 9th elongate-oval, about 1.4 times as long as wide, rounded at apex.

Pronotum (Fig. 7) about 2 times as wide as long, widest at basal third, then gradually narrowed to the middle, and strongly so in apical half; lateral sulcus short, about a half as long as the pronotal length; punctures larger than those on head; anterior margin gently arcuate anteriorly in median half; anterior corners roundly produced; posterior corners nearly rectangular.

Scutellum transverse pentagonal, about 2 times as wide as long.

Elytra strongly convex, conjointly about 1.1 times as long as wide, widest at basal third, and distinctly wider than pronotum; humeral elevations distinct, sides reflexed along side margin except for subapical portion, weakly and uniformly arcuate on reflexed margin, then sharply narrowed toward apex; a small, round and deep fovea (Fig. 9) located at just inside of each apex near suture; punctures on elytra much larger and somewhat denser than those on pronotum; pubescence long, as long as those on scutellum.

Prosternal process (Fig. 5) about 2.2 times as long as wide, distinctly carinate at sides, weakly and straightly broadened posteriad, with posterior tip much exceeding fore coxae.

Metasternum (Fig. 6) sparsely punctuated, provided with deep small fovea behind each middle coxal cavity.

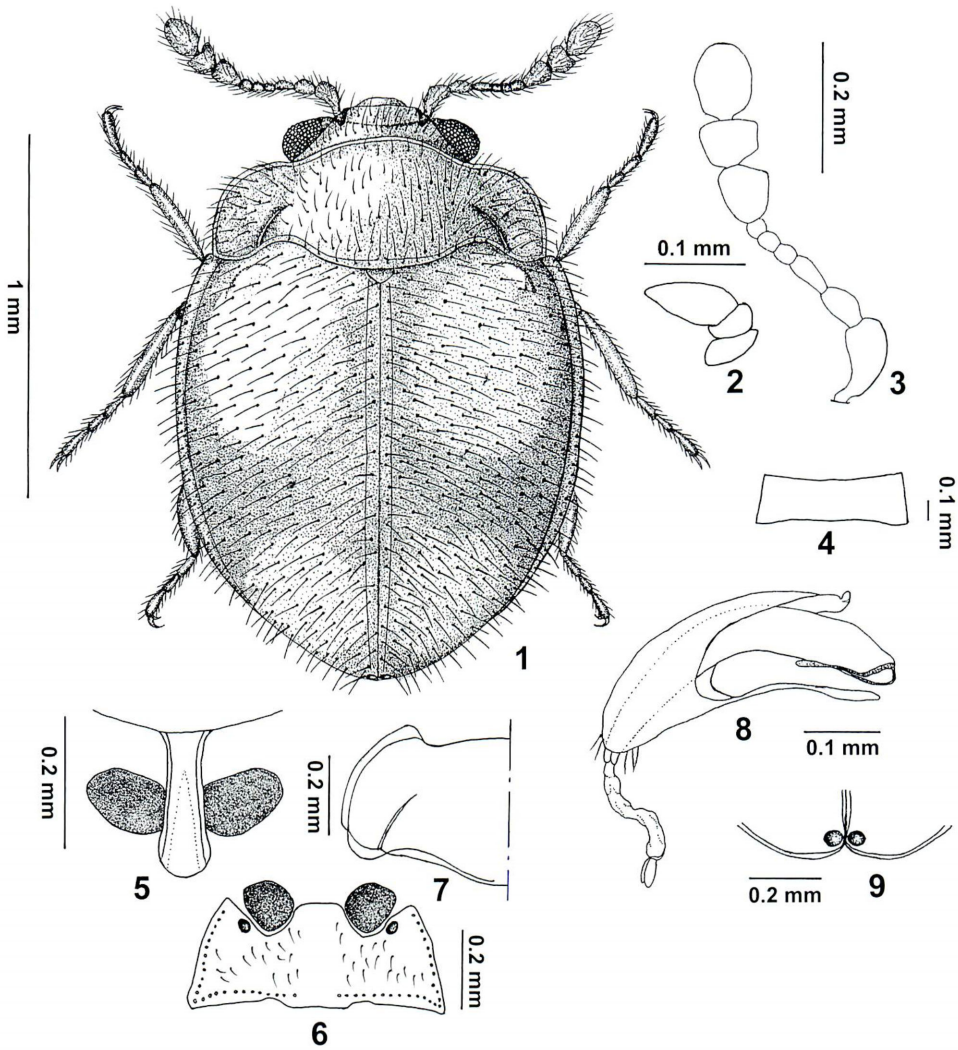
Legs slender; tarsal formula 3–3–3, with claw segments fairly long.

Male genitalia (Fig. 8) rather stout; median lobe cylindrical, dilated apically, gently arcuate, and thickened around apical ostium; endophallus with complicated conformation; tegmen with lateral lobes asymmetrical; one lobe distinctly hooked at apex, and the other rod-like and sinuate.

Female. The external sexual dimorphism indistinct except for elytral fovea at apex which is nonexistent in female.

Body length: 1.5–1.7mm; width: 1.15–1.25.mm.

Type series. Holotype: ♂, Mt. Minamimatayama, Taiki-chô, Mie Pref., 4. XI. 1996, N. NARUKAWA leg. (preserved in the collection of the Osaka Museum of Natural History, Type No. OMNH-Ti-220). Paratypes: 4♂♂, 16♀♀, Mitori, Goshogawara-shi, Aomori Pref., 12. VII. 2003, T. OZAKI leg.; 10♂♂, 20♀♀, ditto, 18. VII. 2004, T. OZAKI leg.; 2♂♂, Ooyamanagane, Kodomari-mura, Aomori Pref., 26. VIII. 1997, T. OZAKI leg.; 1♂, Ozu, Kuze-chiku, Ibigawa-chô., Gifu Pref., 9. IX. 2006, K. TOYOSHIMA leg.; 1♀, Kôchi-dani, Inabe-shi., Mie Pref., 11. V. 1985, N. NARUKAWA leg.; 1♂, ditto, 21. VII. 1985, N. NARUKAWA leg.; 1♂, ditto, 27. V. 1989, N. NARUKAWA leg.; 1♂, ditto, 4. VI. 1989, N. NARUKAWA leg.; 1♀, ditto, 21. VI. 1989, N. NARUKAWA leg.; 1♀, Mt. Kiraramine, Komono-chô, Mie-Pref., 3.IV. 1993, H. YOKOZEKI leg.; 1♂, 2♀♀, Mt. Nonoboriyama, Kameyama-shi, Mie Pref., 28. VII. 1985, N. NARUKAWA leg.; 1♀, Mt. Myoujindake, Matsusaka-shi, Mie Pref., 10. VII. 1998, N. NARUKAWA leg.; 1♀, Mt. Mayoidake, Oodai-chô, Mie Pref., 16. VII. 2000, N. NARUKAWA leg.; 1♂, Mt. Minamimatayama, Taiki-chô, Mie Pref., 4. XI. 1996, N. NARUKAWA leg.; 1♀, ditto, 12. X. 1997, F. Ichikawa leg.; 1♂, 2♀♀, ditto, 3. IX. 2000, N. NARAKWA leg.; 1♂, Otomi, Haga-chô, Hyôgo Pref., 29. VI. 2003, I. TANAKA leg. Some paratypes (2♂♂, 3♀♀) are preserved in the collec-



Figs. 1–9. *Dexialia sasajii* sp. nov. — 1, dorsal habitus; 2, maxillary palpus; 3, antenna; 4, mentum; 5, prosternal process amd procoxal cavities; 6, metasternum; 7, pronotum; 8, male genitalia, lateral view; 9, apex of elytra, dorsal view.

tion of the Osaka Museum of Natural History and the others are in my collection.

Distribution. Japan (Honshû).

Remarks. This new species resembles *Dexialis minor* (CHÛJÔ, 1941) in color, but the former is easily distinguished from the latter by the following features: pronotum widest at one-third from base, elytra having 2 pairs of brown markings of which the borders are opaque, apex of each elytron of male furnished with distinct deep fovea. Distinctions from *D. spectabilis* and *D. mirabilis* are stated in the follwing key.

Etymology. The specific epithet is named in honour of the late Dr. Hiroyuki SASAJI, who was a excellent specialist of Cucujoidea and one of the greatest Coleopterologist in Japan.

Key to the species of the genus *Dexialia* of Japan

1(2) Body about 1.1 times as long as wide. Lateral sides of prosternal process strongly emarginate. Elytra reddish brown, with a pair of transverse oval black spots at apical 2/3. ..... *D. mirabilis* SASAJI

2(1) Body about 1.3–1.4 times as long as wide. Lateral sides of prosternal process nearly straight.

3(4) Elytra blackish brown, with a pair of large and round yellowish brown markings. ..... *D. spectabilis* SASAJI

4(3) Elytra reddish brown, without distinct marking.

5(6) Promotum widest at base. Apex of each elytron of male without distinct deep fovea. Metasternum without distinct deep small fovea behind each middle coxal cavity. ..... *D. minor* (CHÛJÔ)

6(5) Promotum widest at one-third from base. Apex of each elytron of male furnished with distinct deep fovea. Metasternum provided with distinct deep small fovea behind each middle coxal cavity. ..... *D. sasajii* sp. nov.

要　　約

生川 展行：日本のヒメマルガタテントウダマシ属の１新種．――本州で採集されたヒメマルガタテントウダマシ属の１新種をウスモンマルガタテントウダマシ *Dexialia sasajii* と名付けて記載した．また日本産本属全種の検索表も付して同定の便を図った．本種は *D. minor* (CHÛJÔ) に似ているが，上翅の色彩や，前胸背，雄交尾器の形状，雄上翅端に深い窪みを有する点，後胸腹板に小穴を備える点で，明らかな違いが認められた．なお本新種の種小名は，日本の偉大な甲虫学者で，ヒラタムシ上科の専門家であった故佐々治寛之名誉教授に捧げた．

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A New Genus and Species of the Tribe Mecysmoderini from Japan, with Comments on the Subgenus *Coelioderes* (Coleoptera: Curculionidae: Ceutorhynchinae)

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Abstract *Xenysmoderodes* YOSHITAKE gen. nov. is established for *X. sasajii* YOSHITAKE sp. nov. from Japan in the tribe Mecysmoderini of the subfamily Ceutorhynchinae and is characterized mainly by wide and shallowly depressed forehead, large eyes not approximated anteriorly, the short and robust rostrum, dorsally visible antennal scrobes, laterally compressed pronotum with a complete median carina, narrow elytral intervals which are slightly wider than striae, slender legs with edentate femora and appendiculate claws, and sternal canal being evident only on the prosternum. In addition, we revised the status of genus-group taxa in the Mecysmoderini, according to the modern standard for generic classification of the Ceutorhynchinae. Consequently, *Coelioderes* KOROTYAEV stat. nov. is raised to genus level from subgenus of *Mecysmoderes* SCHOENHERR, with the following taxonomic changes: *Coelioderes nigrinus* (HONG et WOO) comb. nov., *C. fulvus* (ROELOFS) comb. nov., *C. kuatunensis* (VOSS) comb. nov., *C. lesnei* (HUSTACHE) comb. nov., *C. kerzhneri* (KOROTYAEV) comb. nov., *C. koreanus* (KOROTYAEV et HONG) comb. nov. and *C. nipponicus* (KOROTYAEV) comb. nov. from *Mecysmoderes*.

Introduction

Mecysmoderini WAGNER, 1938 are easily distinguished from the other tribes of Ceutorhynchinae GISTEL, 1848 by the antennal funicle with six segments and the pronotum projecting posteriorly at the middle of its basal margin (WAGNER, 1938; COLONNELLI, 1992). The tribe Mecymoderini comprises 105 species, mainly from the Oriental region (COLONNELLI, 2004; KOROTYAEV and HONG, 2004; YOSHITAKE and NOERDJITO, 2004; YOSHITAKE, 2005; HUANG *et al.*, 2005).

Presently, mecysmoderinid weevils are classified into six genera (cf. COLONNELLI, 2004): *Mecysmoderes* SCHOENHERR, 1837; *Coeliosomus* MOTSCHULSKY, 1858; *Belonnotus* SCHULTZE, 1899; *Cysmemoderes* COLONNELLI, 1992; *Xenysmoderes* COLONNELLI, 1992; and *Watanabesaruzo* YOSHITAKE et YAMAUCHI, 2002. As noted by YOSHITAKE and YAMAUCHI (2002), however, the generic classification system of the Mecysmoderini is still in need of a revision, mainly due to the large number of undescribed species that are morphologically diverse.

Recently, KOROTYAEV and HONG (2004) suggested that *Mecysmoderes* should be treated as a comprehensive genus constituting the monotypic tribe Mecysmoderini and established the sub-

genus *Coelioderes* KOROTYAEV in *Mecysmoderes* sensu KOROTYAEV in KOROTYAEV and HONG (2004) for seven East Asian species: *Mecysmoderes nigrinus* HONG et Woo, 1999, *M. fulvus* ROELOFS, 1875, *M. kuatunensis* VOSS, 1958, *M. lesnei* HUSTACHE, 1916, *M. kerzhneri* KOROTYAEV, 1994, *M. koreanus* KOROTYAEV et HONG, 2004, and *M. nipponicus* KOROTYAEV, 2004. This subgenus is apparently equivalent to genus rank in the current classification system of Mecysmoderini (COLONNELLI, 2004), but the authors did not mention taxonomic treatment of any previously recognized genera, leading to confusion about the intratribal classification.

To improve the Mecysmoderini classification system, here we establish a new genus in the tribe based on a new species from Japan and revise the rank of the genus-group taxa in the tribe.

Materials and methods

We examined specimens from the following institutions and private collection: Entomological Laboratory, Faculty of Agriculture, Kyushu University, Fukuoka (ELKU); Museum of Nature and Human Activities, Sanda (MNHA); private collection of H. YOSHITAKE, Kunitachi (PCHY). All descriptive work in this study was completed by H. YOSHITAKE. Methods used here for descriptions are the same as those explained by YOSHITAKE and YAMAUCHI (2002). The holotype of the new species is preserved in ELKU.

Taxonomy

Xenysmoderodes YOSHITAKE, gen. nov.

Type species: *Xenysmoderodes sasajii* YOSHITAKE, sp. nov.

Diagnosis. Xenysmoderodes is distinctive enough from any other genera of Mecysmoderini mainly by the following characteristics: forehead shallowly depressed (Fig. 2); eyes relatively large, but not approximated anteriorly (Figs. 3, 4); rostrum short and robust, lacking median carina (Figs. 3, 4); antennal scrobes visible from above in basal part, and scapes lacking apical projection (Fig. 5); pronotum laterally compressed, longitudinally wrinkled-punctured, emarginate in the middle of anterior margin (Fig. 6); pronotal carina complete (Fig. 6); pronotal process slender, acutely projected (Figs. 6–9); ocular lobes less developed (Figs. 6, 7, 15); elytral intervals slightly wider than striae (Fig. 10); femora slender, unarmed on all legs; claws appendiculate (Fig. 14); sternal canal evident only on prosternum (Fig. 15); upper flange of pygidium lacking projections (Fig. 18).

Description. Body small, less than 2.00 mm in length. Head (Figs. 3, 4) with a long median carina extending from vertex to base of forehead, coarsely and reticulately punctured, not sulcate behind eyes; forehead narrow, rather strongly depressed. Eyes (Figs. 3, 4) relatively large, rather strongly prominent from outline of head, not approximated anteriorly. Rostrum (Figs. 3, 4) robust, 1.21–1.24 times (male) or 1.26–1.33 times (female) as long as prothorax, weakly curved; dorsum lacking median carina; antennal scrobes basally clearly visible from above. Antennae stout; scape (Fig. 5) nearly as long as funicle, hardly projected at apex; club oblong-ovate, finely pubescent except basal 1/3. Prothorax (Figs. 6–9) 1.33–1.43 times as wide as long; dorsum longitudinally wrinkled-punctured, moderately convex; pronotal process slen-

der, acutely projected at apex, with a median carina extending from tip to anterior margin of pronotum; median carina often flanked by shorter indistinct carinae in basal half; sides rather strongly compressed; anterior margin slightly produced anteriorly and shallowly emarginate in the middle, raised anteriorly in profile; ocular lobes moderately developed, fringed with short vibrissae. Posterior process of mesoscutellum (Fig. 11) vestigial, invisible from above. Elytra (Fig. 10) 1.08–1.13 times as long as wide, 1.47–1.53 times as wide as prothorax; intervals slightly wider than striae, more or less convex, each bearing a row of squamate granules; odd-numbered intervals slightly more prominent than even-numbered ones; striae linear, less marked, strongly shiny, each with a row of minute hairs or hair-like scales in the middle; punctures in striae deep and separated by a distance more than its diameter; sides widest just behind humeri, slightly bisinuate in basal half, then straightly convergent toward subapical calli. Hind wings moderately developed, translucent, covered with minute hairs. Legs slender; femora clavate, edentate; metafemoral springs present; claws (Fig. 14) slender, appendiculate, widely separated from each other, lacking lateral setae; appendages slightly shorter than claws, evidently separated from each other. Prosternum (Fig. 15) with deep sternal canal before fore coxae; mesosternum (Fig. 15) shallowly depressed in the middle for reception of rostrum; anterior part of metasternum hardly depressed. Pygidium (Fig. 18) with upper flange smooth, lacking projections.

Distribution. Japan.

Etymology. The masculine generic name is derived from the similarity with *Xenysmoderes*.

Xenysmoderodes sasajii YOSHITAKE, sp. nov.

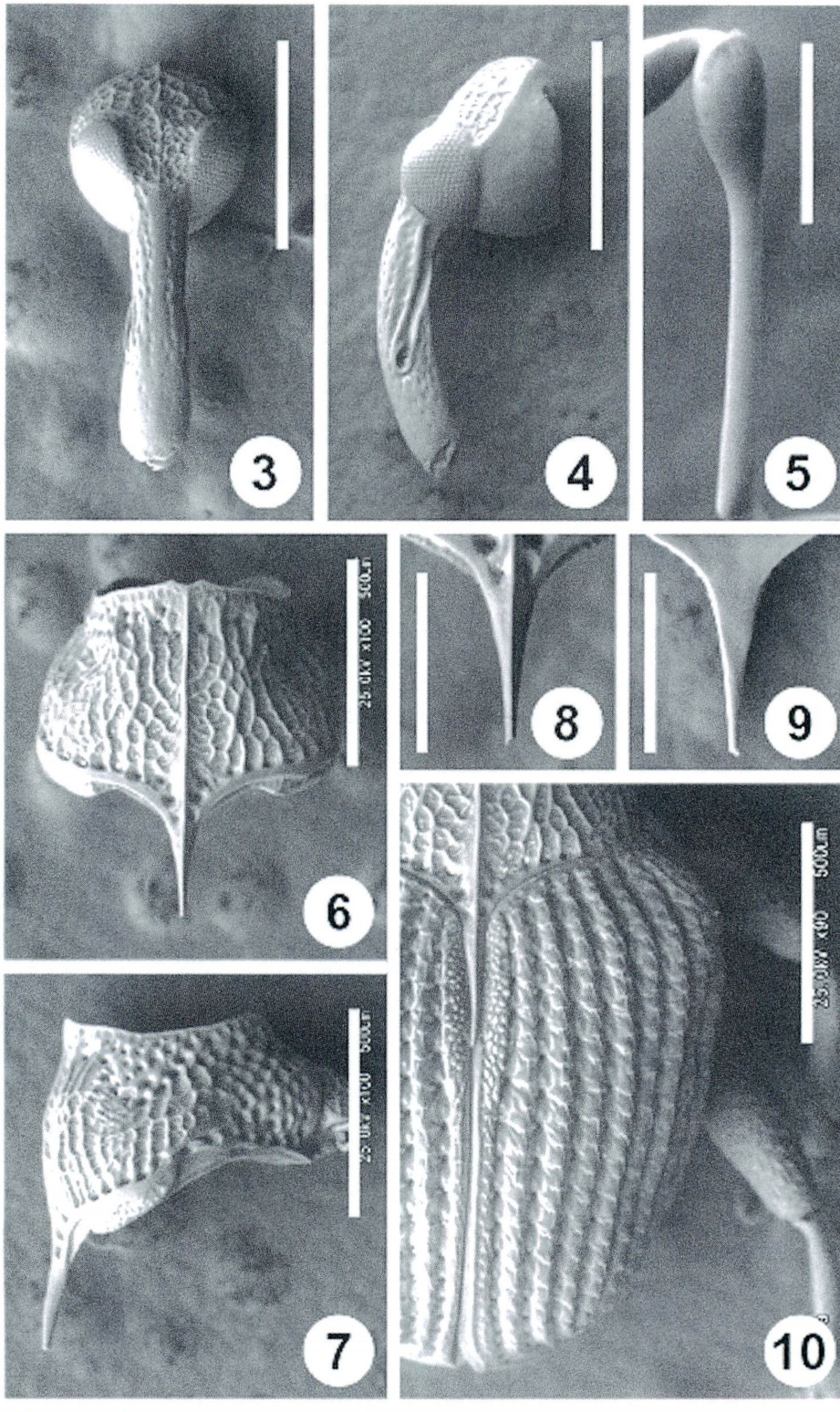
(Figs. 1–27)

Diagnosis. In addition to its body coloration, this species is characterized by the following characteristics in the male: hind femora fringed with golden slender scales in basal 1/3 of the posterior margin (Fig. 12); metasternum and ventrite I (Fig. 16) covered with golden slender broom-shaped scales on disc (Fig. 13); ventrite V shallowly concave and furnished with golden erect hair-like scales on disc (Fig. 17); aedeagal body (Fig. 19) wide and shallowly concave at apex.

Figs. 1–2. *Xenysmoderodes sasajii* sp. nov. — 1, Dorsal habitus; 2, lateral habitus.

Description. Male. Body length: 1.63–1.65 mm. Rostrum length: 0.65–0.66 mm. Maximum width of pronotum: 0.73–0.74 mm. Pronotum length: 0.53–0.54 mm. Maximum width of elytra: 1.10–1.13 mm. Elytra length: 1.20–1.24 mm. N = 3 for all measurements. Habitus as shown in Figs. 1, 2. Reddish brown in general appearance; antennae paler; head, rostrum, meso- and metasterna, and venter darker. Integument shiny and thinly covered with scales.

Head (Figs. 3, 4) moderately covered with golden linear scales, except periphery with

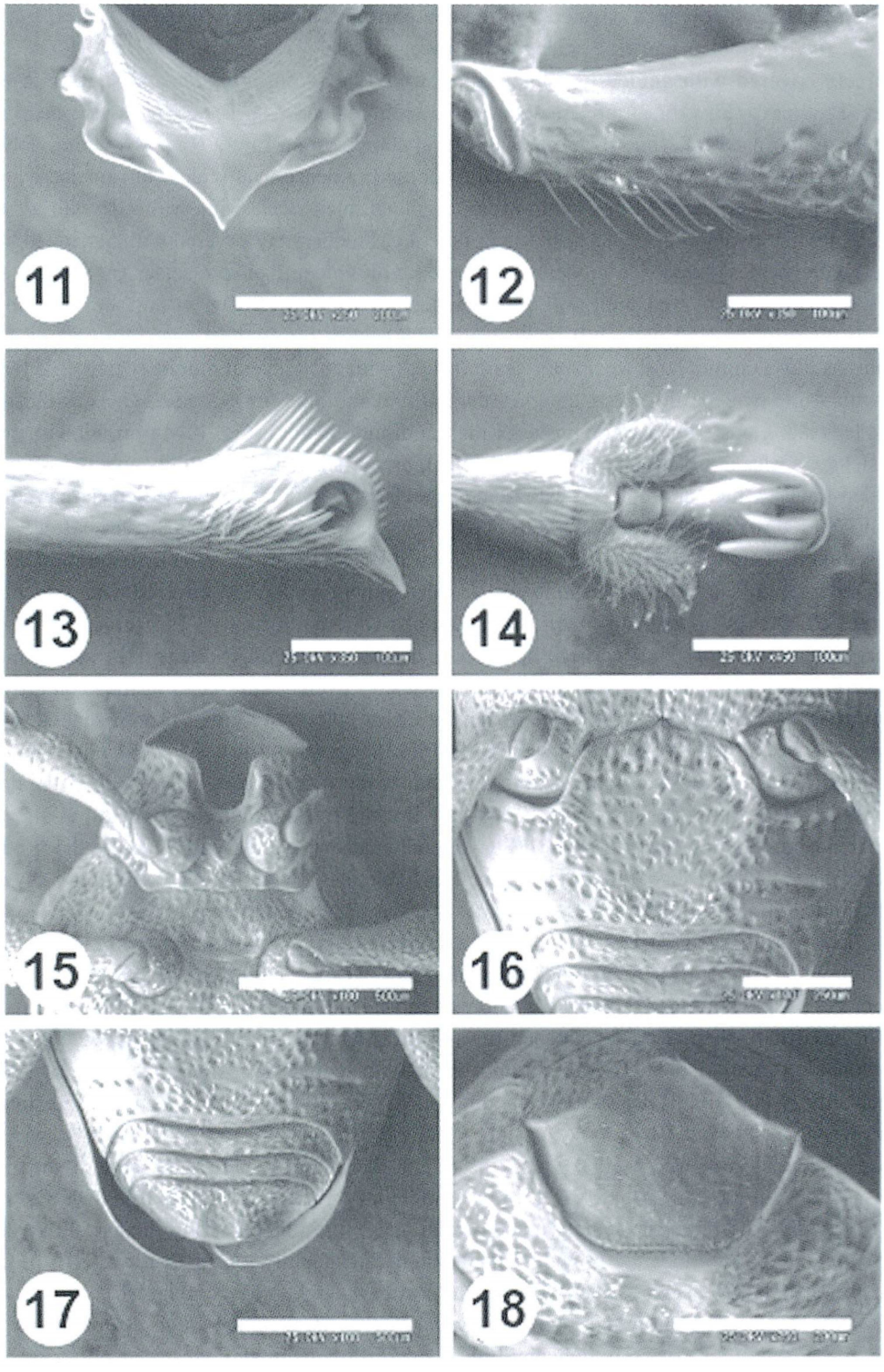


Figs. 3–10. *Xenysmoderodes sasajii* sp. nov. — 3, Dorsal view of head, male; 4, lateral view of head, male; 5, antennal scape; 6, dorsal view of prothorax; 7, lateral view of prothorax; 8, dorsal view of pronotal process; 9, ventral view of pronotal process; 10, right elytron. Scale: 500 μm for 3, 4; 100 μm for 5; 250 μm for 8, 9.

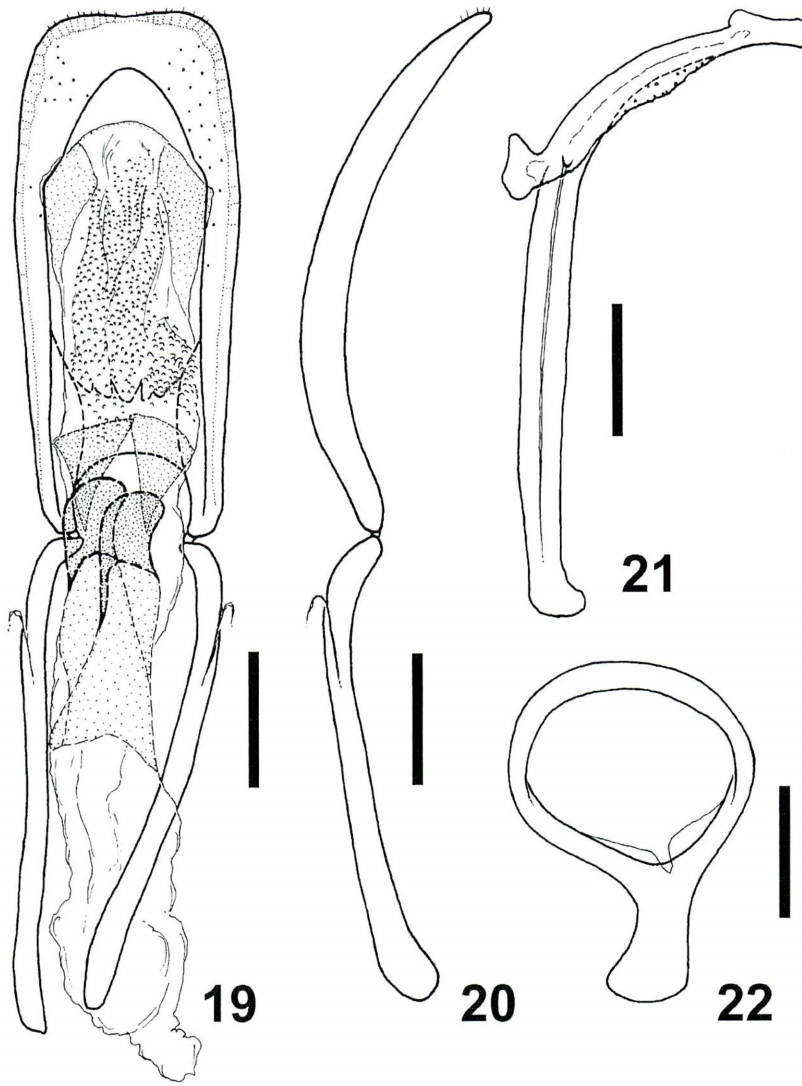
white oval scales; forehead covered with golden narrow scales and white oval scales, fringed with a row of golden hair-like scales along inner margin of each eye. Rostrum (Figs. 3, 4) sparsely covered with golden hair-like scales, which becoming minuter and sparser toward apex. Prothorax (Figs. 6, 7) moderately covered with golden linear scales; each side bearing a small circular patch of white oval scales in lateral compression. Elytra (Fig. 10) with a velvety black postscutellar patch in basal 1/4; patch composed of dense oval scales, surrounded by yellow elliptic scales; each interval with a row of golden linear scales; interval VIII with a small patch of white oval to lanceolate scales at middle. Legs moderately covered with narrow to hair-like golden scales; forecoxae moderately covered with golden hair-like scales on anterior surface and densely covered with dull white lanceolate scales on posterior surface; mid coxae rather densely covered with dull white lanceolate scales; hind coxae sparsely covered with scales as those on mid legs; trochanter nearly naked, with only several minute scales; fore femora with white ovate scales along anterior margin; mid and hind femora with scales as those on fore legs along posterior margin; posterior margin of hind femora (Fig. 12) furnished with golden slender scales in basal 1/3; slender scales erect, broom-shaped; tibiae thinly covered with fine golden scales, which are replaced with golden slender setae in apical 1/4. Mesepisterna moderately covered with dull white oval scales in upper 2/3 and with golden linear scales in lower 1/3. Mesepimera densely covered with white oval to lanceolate scales in upper 1/3 and moderately covered with golden linear scales in lower 2/3. Metepimera moderately covered with golden linear scales, except upper margin fringed with dull white ovate scales. Prosternum (Fig. 15) sparsely covered with dull white elliptic to lanceolate scales on anterior half; scales much denser on posterior half. Meso- and metasterna densely covered with scales as those on prosternum; disc of metasternum with golden slender scales, which are erect, broom-shaped; sides sparsely covered with golden linear scales. Ventrite I (Fig. 16) furnished with slender scales as those on metasternum on disc, in addition to dull white ovate scales, nearly naked on sides. Ventrite II (Figs. 16, 17) densely covered with dull white ovate to lanceolate scales on disc and nearly naked on sides. Ventrites III-V (Fig. 17) moderately covered with scales as those on II, except disc of V furnished with golden erect hair-like scales. Pygidium (Fig. 18) thinly covered with golden minute hair-like scales, which become sparser toward center.

Rostrum (Figs. 3, 4) 1.21–1.24 times as long as prothorax, abruptly curved in apical 1/3; dorsum with shiny portion along midline in basal half, weakly shiny in basal 2/3 due to shallow punctures whose bottoms are opaque, glabrous in apical 1/3; sides constricted at base, subparallel in basal half, then strongly widened toward apex; apex nearly 1.3 times as wide as base. Antennae inserted at apical 1/3 of rostrum; funicle with segment I nearly twice as long as II, II much shorter than III, III nearly twice as long as IV, IV as long as V, V as long as and slightly narrower than VI, and VI as long as wide. Prothorax (Figs. 6, 7) 1.35–1.38 times as wide as long; sides widest at base, subparallel in basal 2/3, then rapidly convergent toward subapical constriction. Elytra (Fig. 10) 1.08–1.13 times as long as wide, 1.49–1.53 times as wide as prothorax. Mid tibiae (Fig. 13) acutely mucronate at apex; fore tibiae slightly dilated outwards at apex; tarsi (Fig. 14) moderate in width, with tarsomere II slightly longer than wide, III moderately bilobed, nearly as wide as length of V, and V robust, slightly longer than III.

Pro- and mesosterna finely and densely punctured. Metasternum rugosely punctured on disc and coarsely and sparsely punctured on sides; disc moderately concave in posterior half. Ventrites I and II (Fig. 16) widely concave, moderately punctured, and strongly shiny on disc; sides nearly glabrous, weakly shiny. Ventrites III–V (Fig. 17) opaque; ventrite V widely and

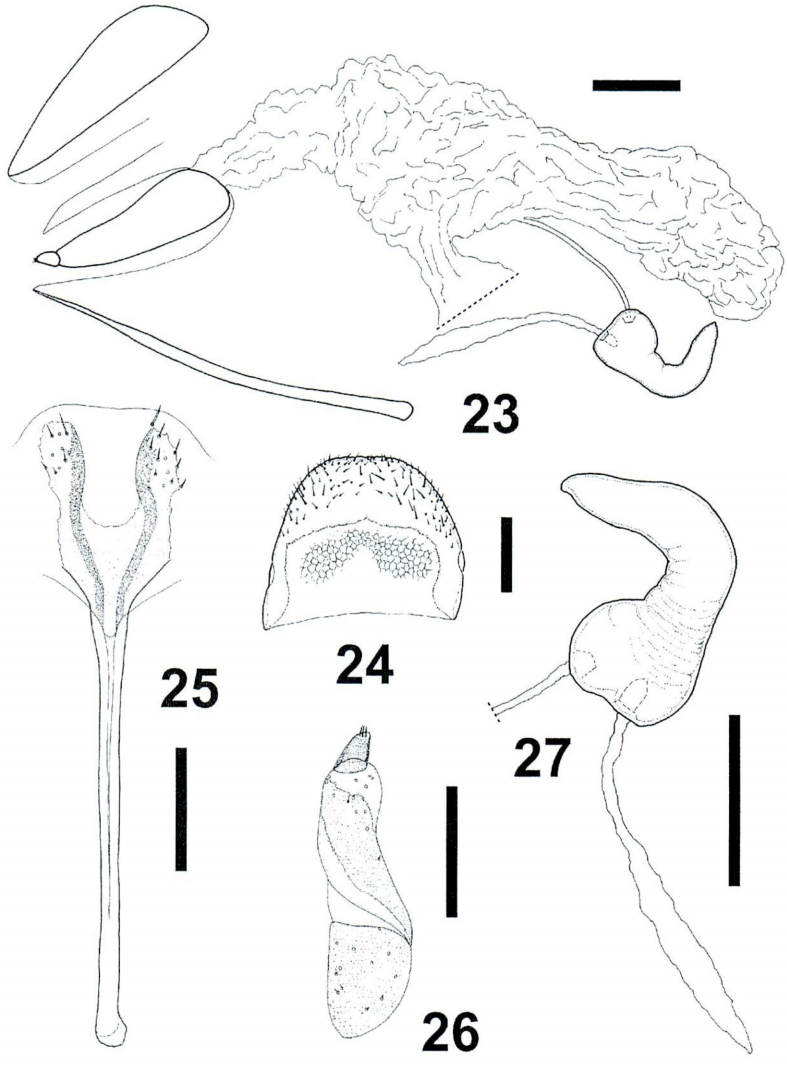


Figs. 11–18. *Xenysmoderodes sasajii* sp. nov. — 11, Mesoscutellum; 12, base of hind femora, male; 13, apex of mid tibia, male; 14, tarsal claws; 15, prosternum, male; 16, ventrites I–IV, male; 17, ventrites II–V, male; 18, pygidium, male.



Figs. 19–22. *Xenysmoderodes sasajii* sp. nov. — 19, Dorsal view of aedeagus; 20, lateral view of aedeagus; 21, sternite IX; 22, tegmen. Scale: 0.10 mm.

shallowly concave on disc. Pygidium (Fig. 18) transverse-pentagonal, slightly convex, opaque, lacking distinct punctures. Sternite IX (Fig. 21) short, nearly as long as aedeagal body. Tegmen (Fig. 22) ringed, without parameres; apodeme stout, as half as long as tegminal ring; aedeagal body (Figs. 19, 20) relatively wide, shallowly concave at apex, with a row of minute setae along apical margin; apodeme slightly shorter than body. Endophallus (Fig. 19) nearly as long as aedeagal body and its apodeme taken together, with a pair of plate-like sclerites at base, rather densely covered with minute spicules in basal 1/3, with pairs of triangular and longitudinal plate-like sclerites in the middle; longitudinal sclerites rounded and well pigmented in basal part, widened anteriorly.



Figs. 23–27. *Xenysmoderodes sasajii* sp. nov. — 23, Female terminalia; 24, tergite VIII; 25, sternite VIII; 26, coxite and stylus; 27, spermatheca. Scale: 0.10 mm.

Female. Body length: 1.63–1.70 mm. Rostrum length: 0.70–0.73 mm. Maximum width of pronotum: 0.75–0.76 mm. Pronotum length: 0.53–0.58 mm. Maximum width of elytra: 1.10–1.14 mm. Elytra length: 1.21–1.25 mm. N = 3 for all measurements.

Rostrum slenderer, 1.26–1.33 times as long as prothorax, nearly glabrous in entire length. Antennae inserted before middle of rostrum. Prothorax 1.33–1.43 times as wide as long. Elytra 1.10–1.11 times as long as wide, 1.47–1.52 times as wide as prothorax. Posterior margin of hind femora without golden slender scales. All tibiae simple, not mucronate at apex. Ventrites I and II faintly depressed on disc, lacking golden slender scales. Ventrite V simple, neither with concavity nor erect hair-like scales on disc. Pygidium subrhomboidal, smaller, flattened, more strongly shiny. Terminalia as in Fig. 23. Tergite VIII (Fig. 24) widely setiferous in apical part.

trum much shorter and stouter (Figs. 3, 4); antennal scrobes clearly visible from above in basal part (Fig. 4); antennal scapes lacking definite apical projection (Fig. 5); lateral compression of prothorax weaker (Figs. 6, 7); anterior margin of pronotum emarginate medially (Fig. 6); ocular lobes less develoved (Figs. 7, 15); all elytral intervals slightly wider than striae (Fig. 10).

Consequently, the Mecysmoderini are classified into the following eight genera including the new genus established in this study: *Mecysmoderes* SCHOENHERR, *Coeliosomus* MOTSCHULSKY, *Coelioderes* KOROTYAEV, *Cysmemoderes* COLONNELLI, *Watanabesaruzo* YOSHITAKE et YAMAUCHI, *Belonnotus* SCHULTZE, *Xenysmoderes* COLONNELLI, *Xenysmoderodes* YOSHITAKE. However, the present system must be provisional yet and a more detailed result will be published in a systematic revision of the Japanese Mecysmoderini (YOSHITAKE *et al.*, in preparing).

Acknowledgments

We dedicate this paper to the late Dr. Hiroyuki SASAJI, who greatly contributed to coleopterology as a keen specialist on the superfamily Cucujoidea. We thank Professor Emeritus K. MORIMOTO and Professor O. TADAUCHI (ELKU) for their various help in the course of this study. Thanks also to Mr. I. KAWASHIMA (Yokosuka), Dr. Y. SAWADA (MNHA), Dr. N. TAKAHASHI (Fukuoka), and Mr. M. YOSHIDA (Tokushima) for the loan or donation of specimens.

要　　約

吉武　啓・伊藤 元己：トゲムネサルゾウムシ族の１新属新種の記載とクロトゲムネサルゾウムシ亜属に関する分類ノート（ゾウムシ科: サルゾウムシ亜科）．――― 日本（本州および伊豆諸島）から発見された新種ササジクチブトトゲムネサルゾウムシ *Xenysmoderodes sasajii* YOSHITAKE を模式種としてトゲムネサルゾウムシ族に新属を設立した．本属は主に下記の形態的特徴により同族他属から識別できる．１）口吻は短く，頑強．２）触角溝基部は背面から可視．３）前頭は幅広く，浅く凹む．４）複眼は前方で接近しない．５）前胸は側面先半分で圧せられる．６）前胸背板の中央隆起条は完全．７）上翅間室は点刻列とほぼ同幅．８）脚は細長く，腿節に歯状突起を欠き，第５跗節の爪に外方へ湾曲する大きな内歯を有する．９）吻溝は前胸腹板でのみ明瞭．また，本論文では，現行のサルゾウムシ亜科における属分類の基準に従い，トゲムネサルゾウムシ属 *Mecysmoderes* SCHOENHERR のクロトゲムネサルゾウムシ亜属 *Coelioderes* KOROTYAEV を属に昇格した．この処置によって以下の種の所属がトゲムネサルゾウムシ属からクロトゲムネサルゾウムシ属（新称）に変更された：クロトゲムネサルゾウムシ *C. nigrinus* (HONG et WOO)，ツツジトゲムネサルゾウムシ *C. fulvus* (ROELOFS)，クァトゥントゲムネサルゾウムシ（和名新称）*C. kuatunensis* (VOSS)，クロオビトゲムネサルゾウムシ *C. lesnei* (HUSTACHE)，ジュウジトゲムネサルゾウムシ *C. kerzhneri* (KOROTYAEV)，チョウセントゲムネサルゾウムシ（和名新称）*C. koreanus* (KOROTYAEV et HONG)，ニッポントゲムネサルゾウムシ（和名新称）*C. nipponicus* (KOROTYAEV).

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Ent. Rev. Japan, **62** (1): 87–90, June 30, 2007

A New Species Allied to *Lobrathium cribricolle* (Coleoptera: Staphylinidae) from Kii-Peninsula, Kinki District, Honshu in Japan

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Abstract A new species of the genus *Lobrathium* is described from Japan under the name *Lobrathium sasajii*.

I am going to add a new interesting mountainous species of *Lobrathium* to the Japanese fauna in this paper, and the present species is allied to *L. cribricolle* (SHARP) from Kwanto District and also to *L. ishizuchiense* T. ITO from Shikoku District.

Before going into further details, I would like to express my cordial thanks to Mr. T. SHIBATA for his continuous kind help in studying on Staphylinidae, and to Messrs. K. MIZUNO, I. MATOBA, T. MATSUMOTO and Y. OKUDA for their kindly offering materials examined in this study.

This paper is dedicated to the memory of the late Dr. H. SASAJI, the ex-president of our Society, in honor of his leadership in the study of many families of Cucujoidea, especially of Coccinellidae in Japan.

Lobrathium sasajii T. ITO, sp. nov.

(Figs.1–3)

Body subcylindrical and robust, a little shiny, black; elytra with a small yellow spot in each latero-apical corner; mandibles, antennae and legs reddish brown; labrum, profemora and all coxae darkened, apical antennal segments and tarsi slightly lightened; pubescence on body dark brownish black to black, those on appendices yellowish brown to dark brown. Length: 6.2–6.6 mm.

Head subquadrate, hardly longer than wide, coarsely, closely and deeply punctate except that frons is apparently sparsely so and clypeus is impunctate, the punctures umbilicate and seemingly reticulate in arrangement, considerably coarser and sparser on vertex than on postgenae; eyes rather large, the longitudinal diameter longer than a half length of postgena, postgenae subparallel-sided and widely rounded toward neck; antennae moniliform, robust, slightly incrassate distad, rather long and passing over the middle of pronotum, all segments distinctly longer than wide, 1st segment largest, very robust and more than 1.5 times as long as 2nd, which is a little shorter than 3rd, each segment of 4th to 6th scarcely shortened distad, 7th to 10th subequal in length to each other, 11th conical and distinctly longer than 10th. Ventral surface of head coarsely and rather sparsely punctate, the punctures not reticulately arranged and becom-

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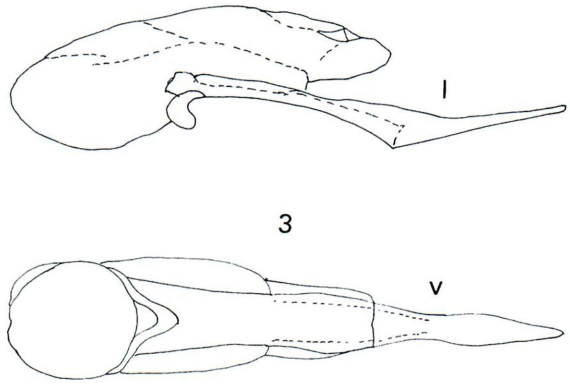

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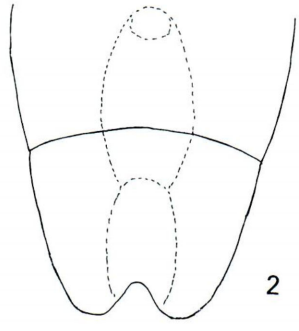

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Figs. 1–3. *Lobrathium sasajii* T. Ito sp. nov. — 1, habitus; 2, outlines of depressions on 7th and 8th abdominal sternites of male; 3, aedeagus (l= lateral view, v= ventral view).

ing sparser laterad, mentum clearly depressed on both sides, submentum coarsened, gular plate rather smooth, gular sutures fairly separated and subparallel to each other.

Pronotum ovate (length/width = 1.15), widest at apical third, longer (1.11 : 1) than and as wide as head, subparallel-sided, feebly narrowed basad, coarsely, closely and somewhat irregularly punctate in arrangement, the punctures evidently coarser and a little sparser than on head; median line vestigial, short, placed near base (sometimes running to the middle) and slightly depressed on sides and in front, lateral margins invisible when viewed from above, but thick throughout as well as both apical and basal margins.

Elytra longitudinally oblong, subparallel at sides, hardly widened apicad, wider (1.14 : 1) and longer (1.36 : 1) than pronotum, ratio of length at shoulders to width at the widest point near apex about 1.36; surface with punctures much coarser than on pronotum, arranged in somewhat irregular rows, disarranged by rugosities especially near suture and becoming a little finer in size laterad; pleural margins fairly thick, pleural keels moderately observable except both extremities, each elytral spot small, scarcely or not transversely oval in shape, located at apicolateral area of elytron, not touching at both apical and lateral margins, the shorter diameter of spot about one-sixth to one-fifth as long as humeral length. Wings well developed and functional. Scutellum distinctly and rather finely punctate. Prosternum wholly uneven, mesosternum also coarsened and metasternum finely and sparsely punctate.

Abdomen slightly expanded laterad, increasing in width gently toward 7th segment, then narrowed rather rapidly toward the apicalmost segment; all segments scarcely microsculptured; each base of tergites with punctures coarse, obsolete and becoming finer and sparser posteriad, those on each sternite a little coarser than on the opposite tergite. In male, 4th to 8th sternites

depressed along the middle respectively as follows: 4th sternal depression very feeble, 5th one weak, 6th one moderate, the bottoms of 4th to 6th ones impunctate and transversely rugulose, 7th one (Fig. 2) deep, wide, U-shaped and with two different parts in depth, basal smaller part deeper and impunctate, apical part with fine black granules, apical margin of 7th sternite faintly sinuate in middle, 8th sternal depression (Fig. 2) constricted in middle, partitioned into two parts by the constriction, in which the basal one is wide and almost impunctate, the apical one is relatively narrower, bears fine black granules except for median space narrow and smooth, the excision very deep in middle.

Legs with profemora very robust and protarsi usually dilated in both sexes.

Aedeagus (Fig. 3) moderately sclerotized except dorsal side, with a ventral projection heavily sclerotized, lanceolate in shape, narrowed at apical third, widest near middle, subparallel-sided in basal part, slightly depressed along the middle, not pointed at the tip.

Holotype: ♂, Mt. Wasamata, Nara Pref., 3, VI. 2003, K. MIZUNO leg. (coll. to be eventually deposited in the Osaka Museum of Natural History). Paratypes: 1♀, Mt. Gomadan, Wakayama Pref., 20–21, VII. 2000, T. MATSUMOTO leg.; 1♂, Mt. Misen, Nara Pref., 16, VI, 1996, Y. OKUDA leg.; 1♀, Mt. Koyasan, Wakayama Pref., 28, V, 1995, I. MATOBA leg.

Although the present species is closely related to *Lobrathium cribricolle* (SHARP) and *Lobrathium ishizuchiense* T. ITO in having the body subcylindrical, the pronotum without a distinct smooth line along middle and the elytra each with a spot apically. It is steadily separable from the above two known allied species in the shape of aedeagus and in the manner of the secondary sexual features of male sternites; so that, from the both of *L. cribricolle* and *L. ishizuchiense* in the ventral projection of aedeagus much more slender and quite differently shaped, in the apical margin of male 8th sternite not oblongly excised, but rather trapezoidally so.

要　　約

伊藤 建夫：日本産キモンナガハネカクシ群の一新種．——紀伊山地から記載した本種，キイキモンナガハネカクシ *Lobrathium sasajii* は，キモンナガハネカクシ *L. cribricolle* 及び *L. ishizuchiense* に外見上よく似ているが，頭部，前胸背板上の点刻の状態，雄二次性徴，雄交尾器の形態などによって容易に区別できる．種名は，昨年亡くなられた故佐々治寛之博士に献名した．

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Ent. Rev. Japan, **62** (1): 91–101, June 30, 2007

Notes on the Coprophagous Scarab-beetles (Coleoptera: Scarabaeidae) from Southeast Asia (XIV)

—A New Subgenus and Four New Species of *Onthophagus* from Borneo—

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Abstract A new subgenus of the genus *Onthophagus*, *Pseudophanaeomorphus* (type species: *Onthophagus quasijohkii* OCHI et KON) is proposed for some Asian species, and the following six *Onthophagus* species from Borneo and the Philippines are assigned to the present new subgenus: *O.* (*P.*) *bangueyensis* BOUCOMONT, *O.* (*P.*) *maryatiae* OCHI et KON, *O.* (*P.*) *mentaveiensis* BOUCOMONT, *O.* (*P.*) *johkii* OCHI et KON, *O.* (*P.*) *quasitagal* OCHI et KON, *O.* (*P.*) *tagal* BOUCOMONT. Further, four new species of the present new subgenus are described from Borneo under the names of *O.* (*P.*) *chandrai* sp, nov., *O.* (*P.*) *sugihartoi* sp, nov., *O.* (*P.*) *koni* sp, nov. and *O.* (*P.*) *hiroyukii* sp, nov.

Phanaeomorphus, a subgenus of *Onthophagus*, was established by BALTHASAR (1963) for *O. sycophanta* (FAIRMAIR) from China as the type species. This subgenus is characterized by the following characteristics: in the male, the pronotum with roof-shaped triangular disc and the head mostly without a transverse carina on the clypeo-frontal suture; in the female, the pronotum simply formed and mostly the head with two transverse carinae. Twenty species or so from the Palearctic and Oriental regions have been assigned to the subgenus (KABAKOV, 1979). Recently, however, the present author has found seven species of this subgenus from Borneo and the Philippines, (*O.* (*P.*) *bangueyensis* BOUCOMONT, *O.* (*P.*) *johkii* OCHI et KON, *O.* (*P.*) *maryatiae* OCHI et KON, *O.* (*P.*) *mentaveiensis* BOUCOMONT, *O.* (*P.*) *quasijohkii* OCHI et KON, *O.* (*P.*) *quasitagal* OCHI et KON, *O.* (*P.*) *tagal* BOUCOMONT) to be distinct from the other members of *Phanaeomorphus* including the type species, *O.* (*P.*) *sycophanta* by the following characteristics: the prothorax with sharp anterior angles shallowly but distinctly excavated on the ventral side and the excavation clearly defined by a strong carina on the posterior portion. Thus, the present author establishes a new subgenus of *Onthophagus* for *O. quasijohkii* OCHI et KON from Borneo, one of the above listed seven species from Borneo and the Philippines, as the type species and also assigns the remaining six species to the present new subgenus. In addition, the author describes four new species of the present new subgenus from Borneo, one of which is dedicated to the late Prof. Hiroyuki SASAJI, the former president of the Japan Coleopterological Society, Osaka.

Pseudophanaeomorphus subgen. nov.

(Figs. 5, 10–23)

Type species: *Onthophagus quasijohkii* OCHI et KON, 2005

Body very small to moderate-sized (about 3.4–9.0 mm), oval to oblong-oval, moderately to strongly convex; dorsal side shining to opaque, entirely glabrous to partly or wholly hairy. Color usually black or brown to reddish brown, frequently tinged with weak metallic luster on head and pronotum.

Head mostly simple in male and also often in female, subpentagonal or subhexagonal in outline, with clypeus more or less produced forward, mostly subtriangular or subtrapezoidal, frequently strongly upturned as an elongate process at the middle in male of some species, or widely emarginate in the middle with the median portion strongly produced as a reflexed short forked process distally in female of some species and smaller male; clypeo-frontal suture mostly effaced or more or less carinate in male, mostly carinate in female; clypeo-genal sutures distinct though not carinate; vertex simple or obtusely and transversely raised at the middle; surface covered with simple punctures or annular to ocellate ones, often rugosely punctate on clypeus, especially in female.

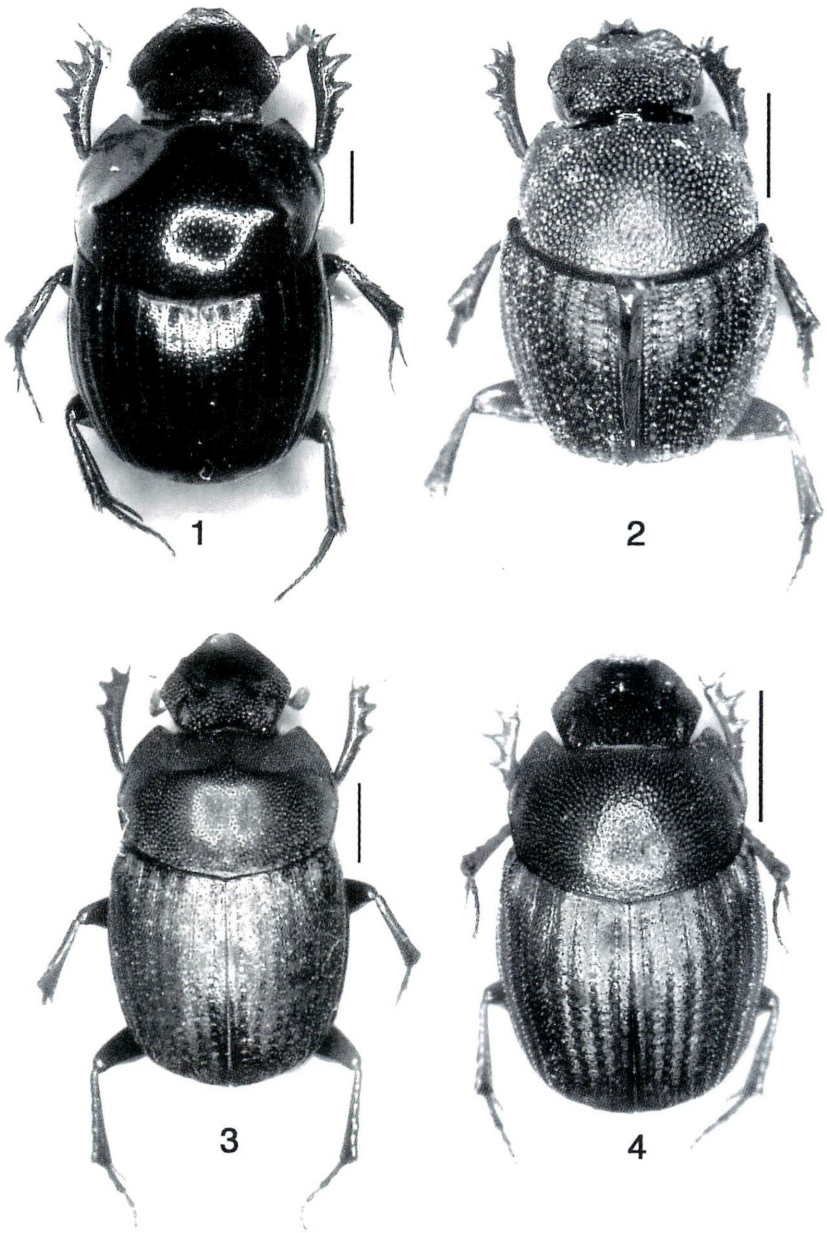
Pronotum transverse, moderately to strongly convex; anterior margin mostly more or less thickly bordered; lateral margins distinctly rounded in the middle, mostly clearly sinuate behind, frequently not clearly behind, finely bordered; anterior angles strongly or sharply produced forward, with each apex rounded or angulate, and always a little but clearly expanded at outside near the tip; base rounded or obtusely angulate at the middle, mostly finely bordered; disc sometimes declivous toward both anterior angles in front, leaving the posterior portion more or less triangularly elevated in male and frequently a little so in female, or transversely declivous in front, or entirely simple, especially in female; surface covered with simple punctures or annular to ocellate ones, though not becoming granular.

Elytra well convex; striae distinctly to strongly impressed, moderately wide to fairly wide, with fine ridges throughout; strial punctures usually distinct and transverse, often each puncture separated into two small round bottoms on either side and strongly notching both margins of intervals; intervals flat to weakly convex, shining to micro-granulose, simply punctate or granulate.

Pygidium always carinate at base. Prothorax with anterior angles shallowly but clearly excavated inward on the ventral side as well as *Indachorius* or *Micronthophagus*, and upper edge of the excavation distinctly defined by a strong carina on the posterior portion, but the excavation is slightly expanded outward at lateral margin near the tip of anterior angle. Protibiae always with four external teeth; terminal spur ordinary, neither spatulate nor lanceolate.

Aedeagus slender to rather robust. In dorsal view, parameres gradually narrowing from base to apices, usually with a pair of subquadrate or subtriangular lateral lobes near apices, rarely without a pair of lateral lobes. Internal sac with copulatory lamella composed of one piece which is more or less round in outline, mostly simply formed especially in smaller species, and often with a small projection at the middle of apical margin.

Epipharynx narrow to not so very transverse: anterior margin clearly to rather narrow, with lateral corners rounded, and then obliquely subtruncate to postero-lateral corners which is distinct; chaetopariae arranged with rather short bristles, which are gradually shortened posteri-



Figs. 1–4. *Onthophagus* (*Pseudophanaeomorphus*) spp., males, dorsal views. —— 1, *O.* (*P.*) *chandrai* sp. nov.; 2, *O.* (*P.*) *sugihartoi* sp. nov.; 3, *O.* (*P.*) *koni* sp. nov.; 4, *O.* (*P.*) *hiroyukii* sp. nov. All scales 1 mm.

ad; corhpha clothed with several setae at apex.

Notes. This subgenus is clearly distinguishable from the subgenus *Phanaeomorphus* by the following characteristics: the prothorax with each anterior angle shallowly but distinctly excavated on the ventral side, and the posterior portion of the excavation clearly defined by an acute edge; male genitalia with internal sac bearing a copulatory lamella usually consisting of

only one piece, which is mostly simply formed and more or less circular in outline, especially in smaller species; epipharynx rather narrow, not so very transverse, with lateral margins obliquely subtruncate.

The two characters, the anterior angle of prothorax with shallow excavation on the ventral side and with acute edge on the posterior portion, are also shared by the members of the subgenera *Micronthophagus* and *Indachorius*. However, *Pseudophanaeomorphus* can be easily distinguished from the two subgenera by the following characters: prothorax with each anterior angle shallowly excavated on the ventral side as well as the two subgenera, but the excavation is slightly expanded outward at lateral margin (owing to this character, the anterior angle of pronotum is seemingly slightly but distinctly expanded outward a little before the tip); protibiae with distinct four external teeth; in some species males and often also females, pronotum with roof-shaped triangular disc, or also pronotum transversely declivous forward just behind anterior margin, and simply formed copuratory lamella in the male genitalia.

This subgenus includes the following species: *Onthophagus tagal* BOUCOMONT, 1924, *O. bangueyensis* BOUCOMONT, 1914, *O. mentaveiensis* BOUCOMONT, 1914, *O. johkii* OCHI et KON, 1994, *O. quasijohkii* OCHI et KON, 2005, *O. maryatiae* OCHI et KON, 2005, *O. quasitagal* OCHI et KON, 2005, *O. chandrai* sp. nov., *O. sugihartoi* sp. nov., *O. koni* sp. nov. and *O. hiroyukii* sp. nov.

Etymology. The new subgeneric name means the similarity to the subgenus *Phanaeomorphus*, and gender of the new name is masculine.

Onthophagus* (*Pseudophanaeomorphus*) *chandrai sp. nov.

(Figs. 1, 6, 16)

Length: 4.8–6.4 mm; width: 2.7–3.6 mm (n=125).

Male. Body moderate-sized, rather broadly oval, strongly convex above; dorsal side strongly shining, almost glabrous; pygidium sparsely clothed with very short hairs; ventral side also shining, partly clothed with reddish-brown hairs. Color uniformly black to reddish-brown, usually with very slight purplish to greenish tinge; mouth organs, palpi, legs more less reddish; antennae reddish brown, with club segments dark brown.

Head subpentagonal in outline; clypeus strongly and subtriangularly produced anteriad, with apex strongly reflexed as a small lobe at the middle, the lobe emarginate at the middle in large males; in small males, the lobe reduced to a short bi-dentate teeth; genae strongly produced laterad, with genal corner obtusely angulate at the middle, rounded at tip; clypeo-frontal suture completely effaced though obtusely and very slightly raised at the middle; clypeo-genal sutures finely defined, not carinate; vertex with a short transverse carina at the middle in the posteriormost part, the carina clearly raised at the middle; surface shining, weakly and transversely wrinkled on clypeus, a little closely covered with small punctures at the middle, which are becoming denser towards all margins.

Pronotum strongly convex, about 1.4–1.5 times as wide as long (n=3); median longitudinal impression not distinct; anterior margin bi-sinuate, rather thickly bordered; lateral margins strongly rounded at the middle, gently rounded or almost straight in front, clearly sinuate behind, and thinly bordered; anterior angles strongly produced forward, subrectangular, with tip rounded and a little expanded outside; posterior angles obtuse; basal margin obtusely angulate

in the middle, thinly bordered; disc declivous towards both anterior angles in front, leaving the posterior part widely and triangularly elevated; the upper edge of the declivities briefly carinate on either side, the carina becoming gradually obtuse toward the middle; median angle of the triangular disc very obtuse, in small males, the disc almost simple; surface strongly shining on triangular posterior portion, weakly micro-granulose at anterior declivities, rather sparsely covered with shallow annular punctures, the interspaces between punctures bearing fine and sparse punctures, both punctures becoming denser and stronger towards sides.

Elytra slightly longer than pronotum, about 1.1 times as long as the pronotal length (n=3), strongly convex, about 1.2–1.3 times as wide as long (n=3); disc with eight striae, of which one is along epipleural margin, each stria rather strongly and a little widely impressed, with fine ridge on either side throughout; strial punctures transverse, slightly notching both margins of intervals; each puncture separated into tow round bottoms which are close to each other; 7th stria almost parallel to 6th or slightly curved near base; intervals almost flat, strongly shining, fairly sparsely covered with fine to very small punctures.

Pygidium gently convex near apex, carinate at base, a little uneven, weakly shining, sparsely and a little irregularly covered with transverse ocellate punctures. Meso- and metafemora with each ventral side shining, smooth, sparsely and finely punctate. Protibiae elongate, with four external sharp teeth; terminal spur ordinarily sharp, well decurved.

Aedeagus rather robust. Phallobase about 0.9–1.0 mm in length (n=3), about 0.4–0.5 mm in apical width (n=3). Parameres about 0.5–0.6 mm (n=3), each with ventral small quadrate lobe near apex in lateral view; in dorsal view, each apex weakly produced outward as a quadrate lobe, not so well visible.

Female. Head with clypeal margin rather broadly truncate or slightly emarginate at the middle, the truncation less reflexed than in male; clypeo-frontal suture often slightly and briefly carinate at the middle; vertex with a fine short transverse carina at the middle a little before posterior margin; punctures and transverse wrinkles stronger on clypeus than in male. Pronotum simply formed. Protibia with four external teeth stronger; terminal spur slenderer and more pointed.

Type series. Holotype: ♂, Sungai Wain, near Balikpapan, E. Kalimantan, Indonesia, 3. I. 2006, A. UEDA leg. Paratypes: 61 ♂♂, 64 ♀♀, the same data as for the holotype.

Type depository. The holotype is deposited in the collection of the Zoological Museum, Bogor, Indonesia.

Distribution. East Kalimantan, Indonesia (Southern Borneo).

Etymology. This specific name is dedicated to Dr. Chandradewana BOER, Tropical Research Centre, Mulawarman University.

Notes. The present new species is closely related to *O.* (*Pseudophanaeomorphus*) *quasitagal* OCHI et KON, 2005 described from Sabah, Borneo, but can be distinguished from the latter by the following characters: 1) body is clearly smaller; 2) elytra are distinctly short, and slightly longer than pronotum, about 1.1 times as long as the pronotal length (n=3), whereas in *O. quasitagal*, they are not clearly short, and fairly longer than pronotum, about 1.3 times as long as the pronotal length (n=3); 3) punctures and transverse wrinkles on clypeus are sparser and weaker, whereas in *O. quasitagal*, they are denser and more strongly wrinkled; 4) in female, head with clypeo-frontal suture is often weakly and briefly carinate at the middle, whereas in *O. quasitagal*, it is entirely effaced; 5) in the female, vertex of head has a fine but distinct short transverse carina at the middle; 6) in the male, aedeagus is distinctly smaller, with parameres also shorter, fairly differently shaped in lateral view.

Onthophagus (*Pseudophanaeomorphus*) *sugihartoi* sp. nov.

(Figs. 2, 9, 17)

Length: 4.6 mm; width: 2.7 mm (n=1).

Male. Body small-sized, broadly oval, strongly convex; dorsal side mat, a little densely clothed with short suberect yellowish-white hairs, except for glabrous head; ventral side opaque to weakly shining, partly clothed with yellowish white hairs. Color blackish brown to grayish black, without metallic tinge; mouth organs, palpi, antennal foot-stalks, and legs somewhat reddish; club segments of antenna dark reddish brown.

Head almost simple, polygonal in outline; clypeus well produced forward as a reflexed tooth at the middle, the lobe distinctly emarginate at the middle, about 0.2 mm in length; clypeo-frontal suture completely effaced, clypeo-genal suture fine and not carinate; genae a little produced laterad, with genal corner obtusely angulate at the middle, rounded at tip; vertex simple, without ornaments; surface slightly micro-granulose except for the base of shining clypeal median tooth, and very closely covered with coarse punctures, the punctures becoming coarser towards vertex.

Pronotum simple, moderately convex, about 1.5 times as wide as long (n=1), without a median longitudinal impression along midline; anterior margin weakly bi-sinuate, finely bordered; lateral margins gently rounded in front, distinctly sinuate behind, finely bordered; anterior angles well produced forward, with apices rounded, slightly expanded outside; posterior angles obtuse; basal margin gently rounded, finely bordered; surface weakly micro-granulose, very densely covered with rather coarse ocellate shallow punctures.

Elytra about 1.1 times as wide as long (n=1), with eight striae, of which one is along epipleural margin, each stria fairly widely, a little shallowly but strongly impressed, with fine ridge on either side throughout, and the stria also becoming deep at 6th to 8th; strial punctures obviously transverse and clearly notching both margins of intervals, each puncture separated into two round bottoms; 7th stria a little curved near base; intervals almost flat, strongly micro-granulose, and somewhat sparsely covered with small setiferous granules.

Pygidium strongly convex near apex, carinate at base, weakly micro-granulose, densely covered with coarse ocellate round punctures. Meso- and metafemora sparsely covered with transverse punctures throughout on each ventral side. Protibiae rather elongate, with four external teeth; 1st and 2nd teeth contiguous, 3rd a little separated from 2nd; 4th a little smaller; terminal spur finger-like, slightly decurved, pointed at apex.

Aedeagus rather slender. Phallobase about 0.8 mm in length (n=1), about 0.3 mm in apical width (n=1). Parameres about 0.5 mm in length (n=1), gradually narrowed toward apices in dorsal view; each apex simple, not lobed laterally.

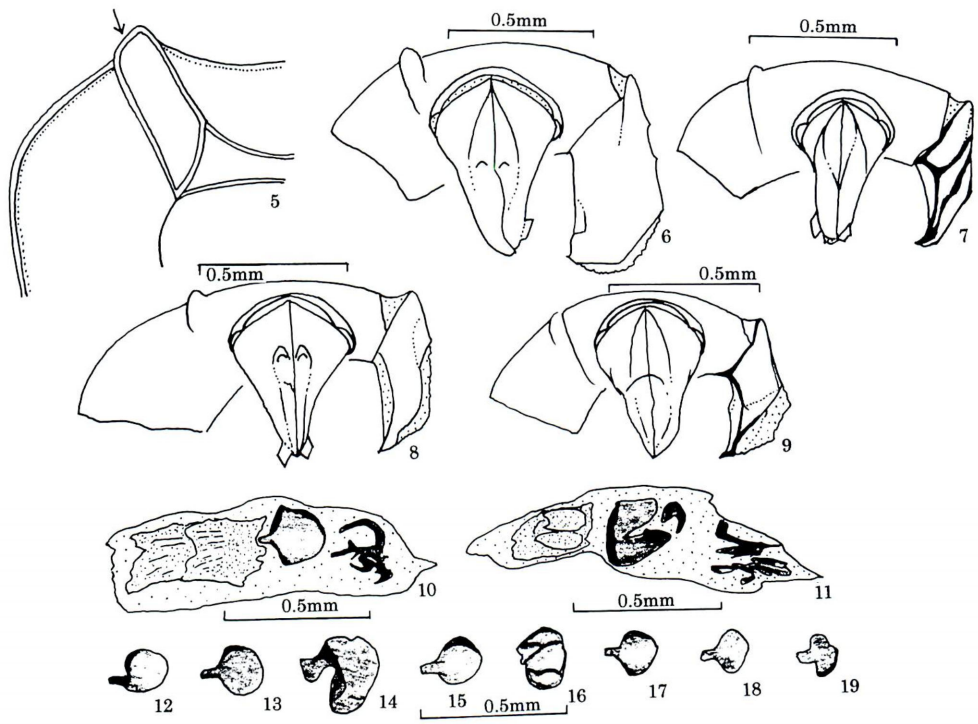
Type series. Holotype: ♂, Sungai Wain, near Balikpapan, E. Kalimantan, Indonesia, 3. I. 2006, A. UEDA leg.

Type depository. The holotype is deposited in the collection of the Zoological Museum, Bogor, Indonesia.

Distribution. East Kalimantan, Indonesia (Southern Borneo).

Etymology. The specific name is dedicated to Dr. SUGIHARTO, Tropical Research Centre, Mulawarman University.

Notes. The present new species is closely related to *O.* (*Pseudophanaeomorphus*) *johkii* OCHI et KON, 1994 described from Sabah, Borneo, but can be distinguished from the latter by



Figs. 5–19. *Onthophagus* (*Pseudophanaeomorphus*) spp. —— 5, *O.* (*P.*) *quasijohkii* OCHI et KON, anterior angle of prothorax, ventral view; 6, *O.* (*P.*) *chandrai* sp. nov., aedeagus, dorsal and lateral views; 7, *O.* (*P.*) *hiroyukii* sp. nov., aedeagus, dorsal and lateral views; 8, *O.* (*P.*) *koni* sp. nov., aedeagus, dorsal and lateral views; 9, *O.* (*P.*) *sugihartoi* sp. nov., aedeagus, dorsal and lateral views; 10, *O.* (*P.*) *quasijohkii* OCHI et KON, internal sac, lateral view; 11, *O.* (*P.*) *sycophanta* FAIRMAIRE, internal sac, lateral view; 12, *O.* (*P.*) *bangueyensis* BOUCOMONT, copulatory lamella, lateral view; 13, *O.* (*P.*) *johkii* OCHI et KON, ditto; 14, *O.* (*P.*) *maryatiae* OCHI et KON, ditto; 15, *O.* (*P.*) *tagal* BOUCOMONT, ditto; 16, *O.* (*P.*) *chandrai* sp. nov., ditto; 17, *O.* (*P.*) *sugihartoi* sp. nov., ditto; 18, *O.* (*P.*) *koni* sp. nov., ditto; 19, *O.* (*P.*) *hiroyukii* sp. nov., ditto.

the following characters: 1) body is much smaller; 2) head is very closely covered with coarse punctures, whereas in *O. johkii*, it is closely covered with coarse punctures; 3) pygidium is strongly convex near apex instead of being not strongly convex; 4) aedeagus is much smaller, with parameres simply formed in dorsal view, whereas in *O. johkii*, it is larger, with parameres clearly expanded at apices.

Onthophagus (*Pseudophanaeomorphus*) ***koni*** sp. nov.

(Figs. 3, 8, 18)

Length: 4.4–5.9 mm; width: 2.3–3.0 mm (n=34).

Body rather small-sized, broadly oval, strongly convex; dorsal side mat, a little sparsely clothed with fairly short, suberect, and yellowish white hairs, except for glabrous head; pygidium sparsely covered with fairly short hairs; ventral side weakly shining, partly clothed with red-

dish brown hairs. Color uniformly blackish brown to grayish black, with slight metallic tinge on ventral side and pygidium; mouth organs, palpi, antennal foot-stalks, and legs a little reddish; club segments of antenna dark reddish brown.

Male. Head simply formed, subpentagonal in outline; clypeus strongly produced forward as a reflexed lobe at the middle, the lobe distinctly emarginate in the middle; clypeo-frontal suture completely effaced, though very slightly raised at the middle; clypeo-genal suture fine, not carinate; genae well produced laterad, with genal corner obtusely angulate at the middle, rounded at tip; vertex simple, without ornaments; surface slightly micro-granulose except for the base of shining clypeal median lobe, and a little closely covered with rather coarse annular punctures on basal half, the punctures becoming smaller and simple toward apex.

Pronotum distinctly short, fairly transverse, and strongly convex, about 1.6 times as wide as long (n=3), with a groove along midline in basal half fairly broad and distinct; anterior margin weakly bi-sinuate, distinctly bordered; lateral margins gently rounded in front, clearly sinuate behind, finely bordered; anterior angles well produced forward, rectangular, rounded at tip, very slightly expanded outside; posterior angles obtuse; basal margin gently rounded, finely bordered; disc steeply, transversely, and straightly declivous in anterior third, with the declivity depressed into two flat face, upper edge of the declivity obtusely ridged, the ridge transverse, slightly interrupted by median longitudinal groove; surface weakly micro-granulose, fairly densely covered with coarse ocellate shallow punctures, the punctures separated by within half times their diameters at the middle and becoming smaller near the anterior ridge of the declivity.

Elytra 1.1 to 1.2 times as wide as long (n=3), each with eight striae, of which one is along epipleural margin; each stria widely, a little shallowly but strongly impressed, with fine ridge on either side throughout, the stria also becoming deep at 6th to 7th; strial punctures very obviously transverse and fairly strongly notching both margins of intervals, each puncture separated into two round bottoms; 7th stria almost parallel to 6th near base; intervals flat or at most very slightly convex, strongly micro-granulose, and a little sparsely covered with small setiferous granules.

Pygidium distinctly convex near apex, strongly carinate at base, a little micro-granulose, densely covered with coarse ocellate round punctures. Meso- and metatibiae with each ventral side scattered with transverse strong punctures throughout. Protibiae rather elongate, with four external teeth; 1st and 2nd teeth contiguous, 3rd a little separated from 2nd; 4th fairly smaller, barely perceptible; terminal spur elongate, a little decurved, pointed at apex.

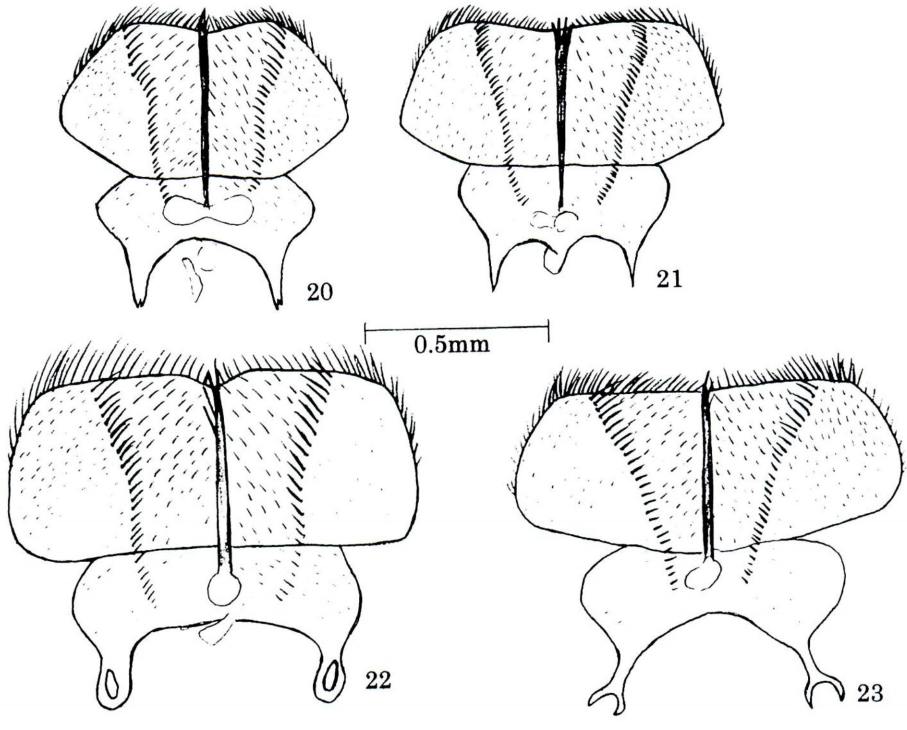
Aedeagus slender. Phallobase about 1.0 to 1.1 mm in length (n=3) from lateral view, about 0.3 mm in apical width (n=3) from dorsal view. Parameres about 0.5 to 0.6 mm in length (n=3) from lateral view, gradually narrowed toward apices in dorsal view; each apex with ventral small quadrate lobe which is well visible in dorsal view.

Female. Head with a short transverse carina at the middle; clypeal margin with apex less reflexed, not distinctly emarginate at the middle, and a little broader than in the male. Pronotum less convex, nearly simply formed though one or two small shallow concavities perceptible along midline near the middle. Protibiae stouter, with four external teeth stronger than in the male.

Type series. Holotype: ♂, Head Quarter, Kinabalu Park, 1,800 m alt., Sabah State, Malaysia, 12. II. 1995, T. KIKUTA leg. Paratypes: 14♂♂, 18♀♀, the same data as the holotype.

Type depository. The holotype is deposited in the collection of the Institute for Tropical Biology and Conservation, University Malaysia Sabah.

Distribution. Sabah State, Malaysia (Northern Borneo).



Figs. 20–23. *Onthophagus* (*Pseudophanaeomorphus*) spp., epipharynx. —— 20, *O.* (*P.*) *quasijohkii* OCHI et KON; 21, *O.* (*P.*) *bangueyensis* BOUCOMONT; 22, *O.* (*Phanaeomorphus*) *sycophanta* FAIRMAIRE; 23, *O.* (*P.*) *ater* WATERHOUSE.

Etymology. The present species is dedicated to Prof. M. KON, University of Shiga Prefecture.

Notes. The present new species is closely related to *O.* (*Pseudophanaeomorphus*) *quasijohkii* OCHI et KON from Borneo, but can be distinguished from the latter by the following characters: 1) body is clearly smaller; 2) pronotum is very densely punctate at the middle, with the punctures mostly separated by within half times their diameters, whereas in *O.* (*P.*) *quasijohkii*, it is somewhat densely punctate, with the punctures mostly separated by about 0.5 to 1.5 times their diameters; 3) protibia has four external teeth, of which the fourth tooth is very small, barely perceptible, whereas in *O.* (*P.*) *quasijohkii*, it is relatively large, well perceptible; 4) terminal spur of protibia is elongate and a little decurved, whereas in *O.* (*P.*) *quasijohkii*, it is short and robust, clearly decurved; 5) in the male, pronotum is transversely, straightly and steeply declivous towards apex in front, leaving the posterior part transversely elevated, whereas in *O.* (*P.*) *quasijohkii*, it is declivous towards both anterior angles in front, leaving the posterior part triangularly elevated; 6) in the female, anterior margin of head is briefly truncate at apex, whereas in *O.* (*P.*) *quasijohkii*, it is strongly produced as a reflexed forked process there; 7) male genitalia are distinctly smaller and different in shape.

Onthophagus (*Pseudophanaeomorphus*) *hiroyukii* sp. nov.

(Figs. 4, 7, 19)

Length: 3.4–4.3 mm; width: 2.0–2.1 mm (n=15).

Body small-sized, broadly oval, strongly convex; dorsal side opaque except for a little shining anterior portion of head, sparsely clothed with inconspicuously short and yellowish-white hairs, except for glabrous head; pygidium sparsely covered with fairly short hairs; ventral side opaque to a little shining, partly clothed with reddish brown hairs. Color uniformly blackish brown to reddish brown, elytra sometimes fairly reddish; mouth organs, palpi, antennal footstalks, and legs a little reddish; club segments of antenna dark reddish brown.

Male. Head simply formed, subpentagonal in outline; clypeus well produced forward as a slightly reflexed lobe at the middle, the lobe weakly emarginate in the middle; clypeo-frontal suture completely effaced; clypeo-genal suture fine, not carinate; genae well produced laterad, with genal corner obtusely angulate at the middle, rounded at tip; vertex simple, without ornaments; surface slightly micro-granulose on basal half, a little shining on apical half, closely covered with small annular punctures on basal half, the punctures becoming smaller and simple towards apex; in small males, head becoming more distinctly shining.

Pronotum simply formed, strongly convex, about 1.5 times as wide as long (n=3), with a weak groove along midline in basal third fine and somewhat indistinct; anterior margin weakly bi-sinuate, distinctly bordered; lateral margins gently rounded in front, clearly sinuate behind, finely bordered; anterior angles well produced forward, rectangular, rounded at tip, very slightly expanded outside; posterior angles obtuse; basal margin gently rounded, finely bordered; disc strongly convex, slightly depressed just behind anterior margin in large males; surface weakly micro-granulose, very densely covered with a little coarse ocellate shallow punctures, which are separated by within half times their diameters at the middle.

Elytra about 1.1 to 1.2 times as wide as long (n=3), each with eight striae, of which one is along epipleural margin; each stria widely, a little shallowly but strongly impressed, with fine ridge on either side throughout, the striae also becoming deep at 6th to 8th; strial punctures obviously transverse, clearly but not so strongly notching both margins of intervals, each puncture separated into two round bottoms; 7th stria almost parallel to 6th near base; intervals slightly convex, strongly micro-granulose, and a little sparsely covered with small setiferous granules.

Pygidium well convex near apex, strongly carinate at base, a little micro-granulose, fairly densely covered with coarse ocellate round punctures. Meso- and metatibiae a little shining; each ventral side scattered with uneven punctures throughout. Protibiae rather elongate, with four external teeth; the 1st teeth sharp, 2nd slightly larger than the 1st, 3rd a little smaller than 2nd; the 4th fairly small, barely perceptible; terminal spur elongate, a little strongly decurved, pointed at apex.

Female. Head with clypeal margin weakly but distinctly emarginate at the middle; surface more strongly shining. Pronotum less strongly convex than in the male. Protibiae with four external teeth stronger; terminal spur slenderer.

Type series. Holotype: ♂ Tahubang, 1,200 m alt., Sabah State, Malaysia, 20. IV. 1995, T. KIKUTA leg. Paratypes: 3♂♂, 10♀♀, the same data as the holotype; 1♂, ditto, 24. I. 1995, T. KIKUTA leg.

Type depository. The holotype is deposited in the collection of the Institute for Tropical Biology and Conservation, University Malaysia Sabah.

Distribution. Sabah State, Malaysia (Northern Borneo).

Etymology. The specific name is dedicated to the late Dr. Hiroyuki SASAJI, the former president of the Japan Coleopterological Society, Osaka.

Notes. The present new species is closely related to *O*. (*Pseudophanaeomorphus*) *koni* sp. nov., but can be distinguished from the latter by the following characters: 1) body is clearly smaller; 2) strial punctures of elytral striae are obviously transverse, clearly but not so strongly notched both margins of intervals, whereas in *O*. (*P*.) *koni*, they are very obviously transverse and fairly strongly notched both margins of intervals; 3) pronotum has a fine median longitudinal groove along midline in basal third, whereas in *O*. (*P*.) *koni*, pronotum has a distinct and fairly broad median longitudinal groove along midline in basal half; 4) in the male, pronotum is simply formed, whereas in *O*. (*P*.) *koni*, it is not simply formed, steeply, transversely, and straightly declivous in anterior third; 5) in the female, clypeus of head is weakly but distinctly emarginate at the middle instead of being not distinctly mearginate at the middle; 6) male genitalia is much smaller, differently shaped.

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The author wishes to express his cordial thanks to Dr. Masahiro KON, the professor of the University of Shiga Prefecture for reading manuscript. He also wishes to express his deep appreciation to Drs. Tohru KIKUTA and Akira UEDA for their kind help in materials.

要　　約

越智 輝雄：東南アジア産コガネムシ科甲虫（第 14 報）ボルネオ産エンマコガネ属の 4 新種を含む新亜属の記載. ——— エンマコガネ属に，新亜属 *Pseudophanaeomorphus* を *O*. *quasijohkii* OCHI et KON, 2005 を模式種として創設し，併せて *Onthophagus* (*Pseudophanaeomorphus*) *chandrai* sp. nov., *O*. (*P*.) *sugihartoi* sp. nov., *O*. (*P*.) *koni* sp. nov., *O*. (*P*.) *hiroyukii* sp. nov. を記載した.

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A New Species of the Genus *Eusphalerum* from Japan (Coleoptera: Staphylinidae: Omalinae)

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Abstract A new species of the genus *Eusphalerum* is described from Japan under the name *Eusphalerum sasajii*.

Eusphalerum KRAATZ is a large genus, consisting of two subgenera and about 230 species (HERMAN, 2001) distributing in the Holearctic region, and 45 species are known from Japan.

Eusphalerum comprises well similar species, and they are not so easy to identify them into species. They are often collected 3 or more species from one locality. For example, I collected four species at Mt. Amaishi-yama, Sasayama, Hyôgo, those are *Eusphalerum japonicum* (BERNHAUER), *E. tsukushiense* WATANABE, *E. yukiguni* WATANABE and *Eusphalerum* sp. The last species is closely allied to *E. kaoru* WATANABE (the *michinoku*-group, WATANABE 1990), and after close examination, it became clear that the species is new to science. In this paper, I am going to describe this species under the name *E. sasajii*.

Before going into further details, I wish to express my cordial thanks to Dr. Katsura MORIMOTO, Emeritus Professor of the Kyushu University, Fukuoka, for his kindly reading the manuscript of this paper.

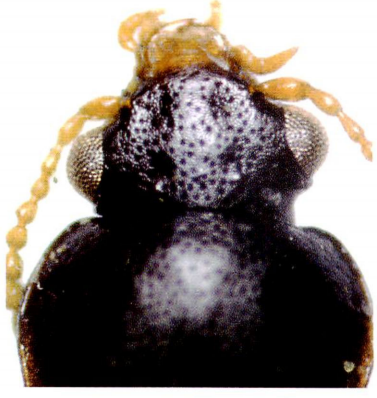
Eusphalerum sasajii sp. nov.

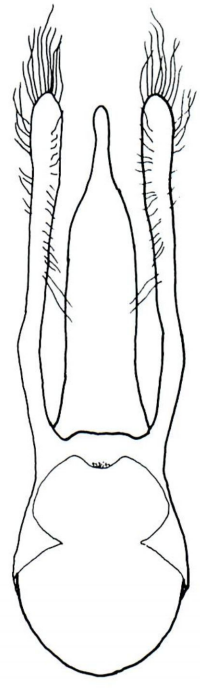
(Figs. 1–4)

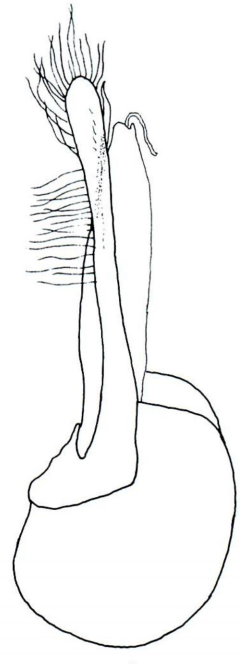
Body suboval, weakly convex above and weakly shiny; head nearly black, pronotum blackish brown, with lateral sides a little paler, elytra yellowish pale brown, with base somewhat darkened, mouth organs, legs and antennae pale yellow, with distal 3 to 5 antennomeres darkened, abdomen blackish brown, and genital segments yellowish brown.

Length: 2.5–3.4 mm; width: 1.1–1.3 mm.

Head transversely subpentagonal, a little wider than long (50 : 37), a little narrower and shorter than pronotum (50 : 70 and 37 : 43); upper surface nearly flattened above but weakly convex medially, rather coarsely and sparsely punctured, with strong and reticulate microsculpture, and shallowly foveate just before ocelli; ocelli located anteriorly to the level of posterior angles of eyes, and the distance between ocelli three-tenths as wide as head; genae rectangulsrly prominent behind eyes and three-eighths as long as eye. Antennae moderately slender and long, reaching posterior angles of pronotum; 1st to 5th and 11th segments more or less longer than wide, 6th







Figs. 1–4. *Eusphalerum sasajii* sp. nov. — 1, habitus; 2, head; 3–4, male genitalia: 3, ventral view; 4, lateral view.

nearly as long as wide, 7th to 10th more or less wider than long, each apical half of 5th segment to 10th glabrous, and has the following relative length (width) (from 1st to 11th): 10.0 (5.5) : 7.0 (4.0) : 7.0 (3.5) : 4.5 (4.0) : 5.0 (4.5) : 5.5 (5.5) : 5.5 (6.0) : 6.0 (7.0) : 6.0 (7.0) : 6.0 (7.0) : 11.0 (7.0).

Pronotum suboblong, much wider than long (70 : 43), widest at about the middle, a little narrower and much shorter than elytra (70 : 98 and 43 : 103); anterior margin weakly emarginate, and posterior margin weakly arcuate; lateral margins gently arcuate in anterior two-thirds, somewhat curved inwards in posterior third, and more strongly narrowed anteriad than posteriad; anterior angles widely rounded, and posterior ones obtuse and narrowly rounded at the tips; all margins finely but ditinctly bordered; disc gently convex, shallowly depressed along basal halves of lateral sides, rather coarsely and sparsely punctured, with distinct reticulate microsculpture as well as on head.

Scutellum subtriangular, impunctate, with ditinct reticulate microsculpture.

Elytra subtrapezoidal, slightly longer than wide (103 : 98), straight at sides, weakly dilated

posteriad, widest near apex, widely rounded at postlateral angles, narrowly sulcate along lateral margins from shoulders to posterior fourth; disc considerably convex, coarsely and densely punctured, with coarse but oblesolete reticulo-striate microsculpture.

Abdomen very sparsely punctured, with reticulate microsculpture, and the punctures and the microsculpture much coarser on sternite; 4th tergite with a pair of transversely elliptical large patches; 5th bearing a pair of small round spots; in male, 7th weakly emarginate and with whity seam of palisade fringe at apical margin, 8th emarginate at apical margin, 10th rounded at apical margin; 7th sternite widely emarginate at apical margin and rather widely depressed medially in T-shaped, 8th widely, deeply and subtriangularly emarginate at apical margin, 9th a little prominent in apical portion and rounded at the tip; in female, 8th tergite gently arcuate, 7th sternite weakly emarginate at apical margin, and 8th semi ovally protuberant.

Legs moderately slender and long; protibiae weakly thickened apically, very weakly curved in male, nearly straight in female; protarsi subcylindrical, bearing modified long hairs in basal 4 segments and somewhat thicker in male than in female; mesotibiae weakly curved, somewhat more stronly curved in male than in female; metatibiae strongly curved in male, weakly so in female, and 5th tarsomere a little more than 1.5 times as long as the preceding 4 segmens combined together.

Male genitalia symmetrical and nearly straight in lateral view; penis strongly bulbous in basal third, rather slender and steeple-shaped in apical two-thirds, weakly curved ventrad in lateral view of apical portion and membranous near basal portion of the steeple in dorsum of basal swelling; parameres slender, feebly sinuate in ventral view, somewhat dilated in apical portion, which clothed dense long pubescence.

Holotype: ♂, Mt. Amaishi-yama, Sasayama, Hyôgo, Japan, 28. IV. 1990, Y. HAYASHI leg. (The holotype is deposited in the collection of the Osaka Museum of Natural History, Osaka). Paratype: 10♂♂, 3♀♀, same data as the holotype; 8♂♂, 3♀♀, same locality of the holotype, 2. V. 1990, Y. HAYASHI leg.; 3♂♂, 2♀♀, same locality of the holotype, 8. V. 1993, Y. HAYASHI leg.; 1♀, same locality of the holotype, 5. V. 1996, Y. HAYASHI leg.

Remarks. The present new species belongs to the *michinoku*-group (WATANABE, 1990), and it is closely allied to *E. kaoru* WATANABE in general appearance and punctures on head and pronotum, but easily distinguishable from the latter in the secondary sexual features as the followings: in the present new species the 7th sternite modified as mentioned above, and the 8th sternite subtriagularly emarginate at apical margin, the penis subparallel-sided in middle, and the parameres bearing numerous, remarkably long pubescence as Figs. 2 and 3, while in *kaoru* the 7th abdominal sternite is not modified, the 8th is semicircularly emarginate at posterior margin, the penis distinctly attenuate in middle, and the parameres bearing rather sparse pubescence.

Etymology. The specific name is dedicated to the late Dr. Hiroyuki SASAJI, Emeritus professor of Fukui University, Fukui. He was the President of the Japan Coleopterological Society, who was a great Coleopterologist specializing in Clavicornia, most of all, Cucujoidea and Coccinelidae.

要　　約

林 靖彦：*Eusphalerum* ハナムグリハネカクシ属の１新種．――日本産ハナムグリハネカク

シ属は45種が記録され，小型で，雄交尾器を含めて，互いによく似ていることもあり，同定に難渋することが多い．同一地点においても複数の種（３～４種）の得られることが多い．筆者の調査した雨石山においては，本新種を含め，既に４種を得ている．新種 *E. sasajii* ササジハナムグリハネカクシ（新称）は *E. kaoru* WATANABE に非常によく似ているが，雄の二次性徴や雄交尾器の形態によって容易に区別できる．この新種を，昨夏逝去された，前日本甲虫学会会長であり，長年に亘り日本の甲虫分類学に大きな足跡を残された故佐々治寛之博士に捧げてご冥福をお祈りしたい．

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A New Species and A New Subspecies of Elaterid Beetles (Coleoptera: Elateridae) from Japan

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Abstract A new species and a new subspecies of elaterid beetles are described from Japan under the names of *Oedostethus* (*Menoko*) *ohdai* from the Kii Peninsula, Honshu, and *Melanoxanthus doriae ryukyuensis* from the Ishigaki-jima Is., Ryukyus.

In this study I am going to describe a new species, *Oedostethus* (*Menoko*) *ohdai*, and a new subspecies, *Melanoxanthus doriae ryukyuensis*, of elaterid beetles from Japan. The former is closely allied *O.* (*M.*) *nitidus* (FLEUTIAUX, 1902) and the latter is similar to *M. doriae* CANDÈZE, 1878 in general characters.

Befor going further, I wish to express my sincere gratitude to Dr. Hitoo ÔHIRA (Okazaki), for his constant guidance, and Dr. Wataru SUZUKI (Tokyo), for his kind help and advice on this study. I am also indebted to Dr. Hisashi ASHIDA (Kyoto) for his critically reading the manuscript. Thanks are also due to Messrs. Kouji AZUMA (Toyonaka), Hiroyoshi HIRAMATSU (Wakayama), Hiroshi NOZAKI (Sakai) and Takanobu TAKAHASHI (Saga) for their kindly offering the specimens used in this study.

The holotypes of the new taxa to be described in this paper are deposited in the collection of the Osaka Museum of Natural History.

Oedostethus (*Menoko*) *ohdai* sp. nov.

[Japanese name: Ohdai-tsuya-mizugiwakometuki]

(Figs. 1–4)

Male (Fig. 1). Length 3.5–4.0 mm and width 1.4–1.5 mm. Body shining, oblong-ovate and moderately convex above; black to blackish brown, with apical margin of seventh sternite more or less yellowish brown; antennae blackish brown except for each apical portion of basal segment and second segment pale yellowish brown; legs pale yellowish brown, with femora and apical two segments of tarsi blackish brown to brown. Dorsal surface clothed with recumbent and golden yellow pubescence; ventral surface with recumbent whitish pubescence.

Head gently convex between eyes, coarsely and densely punctate; clypeal margin well ridged and rounded at the middle. Antennae (Fig. 2) rather short, almost attaining to tip of posterior angles of pronotum; basal segment robust and subovate; the second short, subclavate and about twice as long as wide; the third subcylindrical and about 1.2 times as long as the second; the fourth subtrianglar and about 1.1 times as long as the third; the fourth to tenth weakly serrate; terminal segment subovate and about twice as long as wide.

Fig. 1. Habitus of *Oedostethus* (*Menoko*) *ohdai* sp. nov., holotype.

Pronotum subquadrate, widest at the middle, slightly wider than long, with sides slightly sinuate just before posterior angles, and rounded in the middle, then clearly convergent towards anterior angles; disc noticeably convex, with rather dense punctures, which are sparser than those of head, interspace between punctures smooth; median longitudinal line smooth, feebly seen in the middle; posterior angles projecting posteriad, each with a distinct carina above, which extends anteriorly along lateral margin to almost basal one-third of pronotal length. Scutellum lingulate and rounded apicad, surface coarsely punctate and bearing a median longitudinal ridge in the middle.

Elytra about 1.8 times as long as its median width; sides almost parallel in basal two-thirds, then rounded and gradually convergent towards apices which are broadly rounded; striae well defined; intervals rather flattened, coarsely, rather densely punctate and obscurely and irregularly rugose.

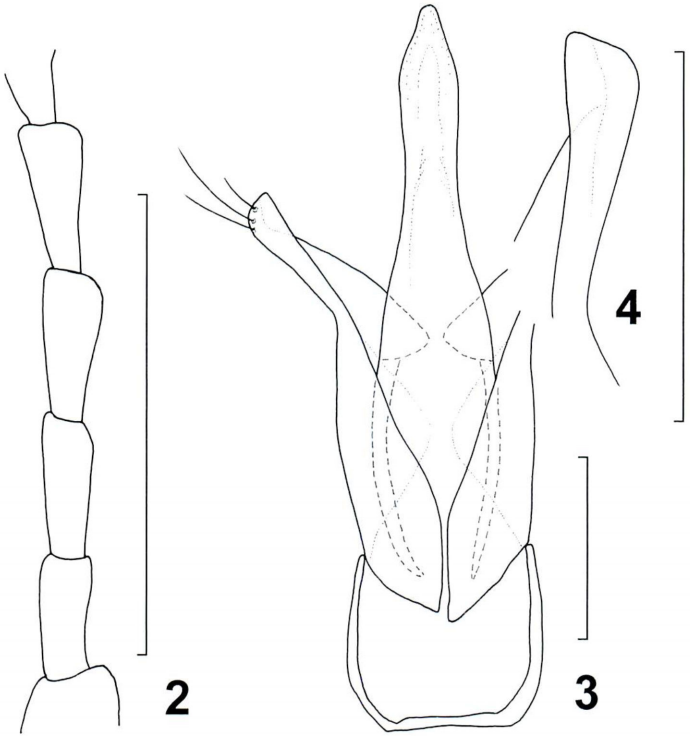
Legs slender; tarsi simple; claws membraneously lobed at each inner base.

Prosternal process elongate, apically projecting straight, with obtusely pointed apex.

Genitalia as illustrated in dorsal view (Figs. 3–4); median lobe obtusely pointed at apex; lateral lobes obliquely truncate at apex and furnished with a few long setae along outer margin.

Female. Length about 4.8 mm and width about 1.8 mm. Very similar to male in general structures, but the body is robuster and the antennae are shorter and barely reaching posterior angles of pronotum.

Type series. Holotype: 1♂, Ohdaigahara, Kamikitayama-mura, Yoshino-gun, Nara Pref., 29. VI. 1981, H. ARIMOTO leg. Paratypes: 1♂, 1♀, ditto, 30. VI. 1983, H. ARIMOTO leg.; 2♂♂, ditto, 3. VII. 1983, H. ARIMOTO leg.; 1♂, ditto, 8. VII. 1984, H. ARIMOTO leg.; 1♀, ditto, 19. VII. 1984, H. ARIMOTO leg.; 1♂, ditto, 14. VII. 1985, H. ARIMOTO leg.; 1♂, Mt. Obagamine,



Figs. 2–4. *Oedostethus* (*Menoko*) *ohdai* sp. nov., holotype. —— 2, Right antenna, 2nd to 5th segments; 3–4, aedeagus, dorsal views. Scales: 0.5 mm for 2; 0.2 mm for 3 and 4.

1,200 m in alt., Kawakami-mura, Yoshino-gun, Nara Pref., 1. VII. 2001, H. ARIMOTO leg.; 1♂, ditto, 12. VI. 2005, H. ARIMOTO leg.; 2♂♂, 2♀♀, ditto, 25. VI. 2005, H. ARIMOTO leg.; 2♂♂, ditto, 12. VII. 2004, H. NOZAKI leg.; 2♂♂, ditto, 19. VI. 2005, H. NOZAKI leg.; 2♂♂, 3♀♀, ditto, 26. VI. 2005, H. NOZAKI leg.

Etymology. The specific name is derived from the type locality, Ohdaigahara.

Notes. This new species is similar to *O*. (*M*.) *nitidus* (FLEUTIOUX, 1902) from central Honshu, but the punctures of pronotal disc are sparser, and the male genital apparatus are different in structures. The type specimens were obtained from leaves of tall *Alnus*-trees.

Melanoxanthus doriae ryukyuensis subsp. nov.

[Japanese name: Ryukyu-hime-tuyakeshikometuki]

(Figs. 5–8)

Male (Fig. 5). Length 8.5 mm and width 2.0 mm. Body shining, elongate, subparallel-sided and convex above. Head and antennae black, except for basal three segments of antennae dark reddish brown; prothorax orange, except for apical portions of posterior angles of pronotum and prosternal process black, and with a pair of black and oval spots being apical third of

Fig. 5. Habitus of *Melanoxanthus doriae ryukyuensis* subsp. nov., holotype.

pronotum; scutellum and elytra reddish black; mesosternum and sternites of abdomen blackish brown to reddish black; legs brown with trochanters, tarsi and claws paler. Dorsal surface clothed with black setae, though orange areas of pronotum with orange setae; ventral surface with golden yellow and recumbent setae.

Female. Length 8.5–9.1 mm and 2.1–2.4 mm. Very similar to male in general structures, but the body is robuster and more parallel-sided.

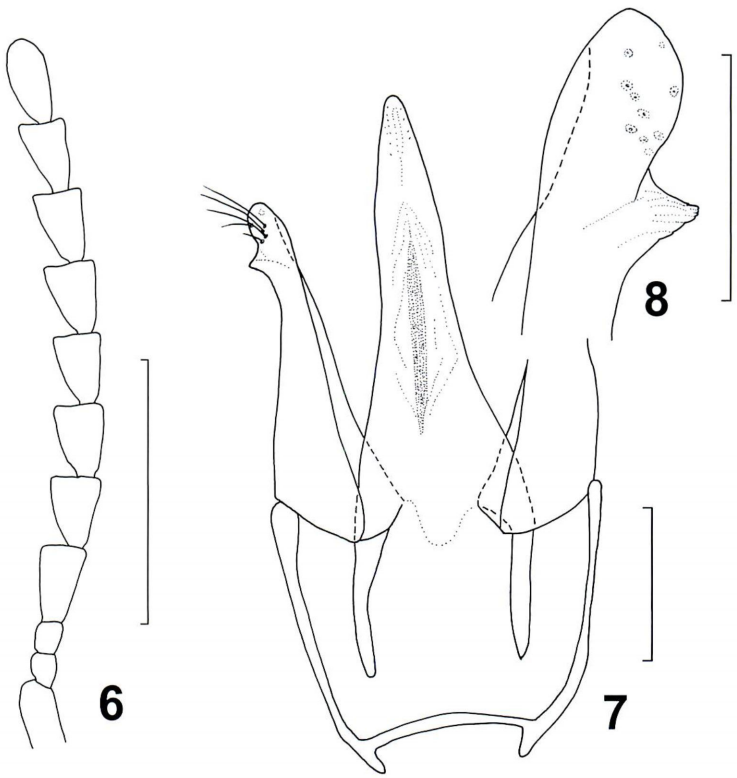
Type series. Holotype: ♂, Mt. Omoto-dake, Ishigaki-jima Is., Okinawa Pref., 30. IV. 1985, K. AZUMA leg. Paratypes: 1♀, Arakawa, Ishigaki-jima Is., Okinawa Pref., 28. V. 1974, T. IWAHASHI leg.; 1♀, Mt. Banna-dake. Ishigaki-jima Is., Okinawa Pref., 19. VI. 1976, T. TAKAHASHI leg.

Etymology. The specific name is derived from the Ryukyu Islands, where the type locality of the present species is located.

Notes. This new subspecies can be distinguished from nominotypical subspecies from Borneo, Thailand and Laos in Southeast Asia region by the following points: 1) body is a little smaller; 2) scutellum and elytra are reddish black whereas those of nominotypical subspecies are usually black; 3) median lobe of male genitalia is robuster and the apical expansion of each lateral lobe is distinctly shorter (Figs. 7–8).

要　　約

有本 久之：日本産コメツキムシ科の１新種および１新亜種．――― 奈良県の大台ヶ原およびその周辺地域から採集された *Oedostethus*属の１新種をオオダイツヤミズギワコメツキ *Oedostethus* (*Menoko*) *ohdai* と命名して記載した．本種の成虫はヤシャブシなど広葉樹の高所



Figs. 6–8. *Melanoxanthus doriae ryukyuensis* subsp. nov., holotype. —— 6, Right antenna; 7–8, aedeagus, dorsal views. Scales: 0.1 mm for 6 and 8; 0.2 mm for 7.

葉上から採集された．また，石垣島から採集された *Melanoxanthus*属の１新亜種をリュキュウヒメツヤケシコメツキ *Melanoxathus doriae ryukyueisis* と命名して記載した．この新亜種は東南アジアに広く分布する原名亜種 *M. d. doriae* CANDÈZE, 1878 とは雄交尾器の形態，小楯板および鞘翅の色彩の相違によって区別することができる．

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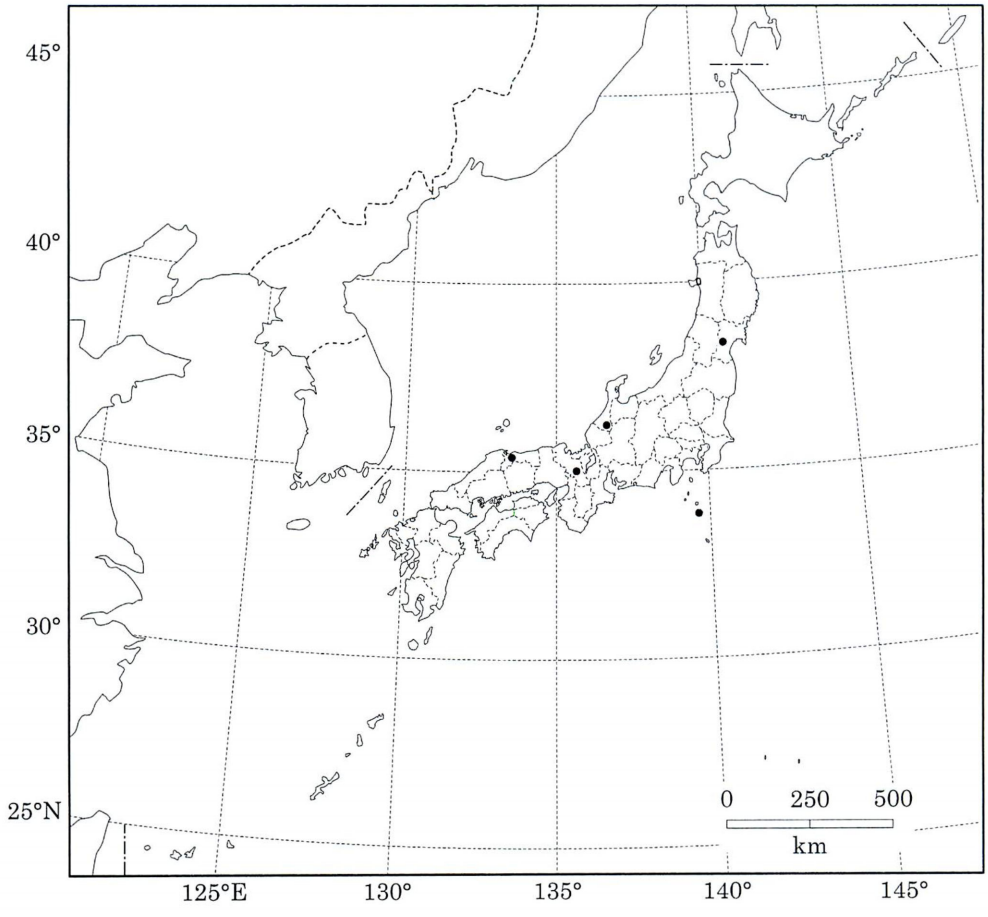

Fig. 28. Geographical distribution of *Xenysmoderodes sasajii* sp. nov.

Sternite VIII (Fig. 25) with apical patches of slender setae; arms stout, nearly half as long as apodemes, much shorter than coxite and stylus taken together, widely separated from each other, but fused in basal half; apodemes moderate in length, weakly divergent near apex. Ovipositor (Fig. 23) with slender coxites (Fig. 26) subdivided into two parts, nearly 5.0 times as long as styli; styli (Fig. 26) subconical, short, nearly as long as wide. Spermatheca (Fig. 27) with cornu attenuate; collum moderately convex; ramus weakly convex; insertions of duct and gland close to each other. Otherwise practically as in male.

Type material. Holotype ♂ (Type No. 3247, ELKU), Mt. Daisen, Tottori, Honshu, Japan, 1♂, 27. X. 1998, M. YOSHIDA, from leaf-litter. Paratypes. JAPAN: HONSHU. 1♂, 1♀, Futakuchikeikoku, Miyagi, 12. VII. 1985, S. NOMURA (ELKU). 1♀, Shakashindou, Mt. Hakusan, Ishikawa, 31. VII. 2002, N. TAKAHASHI (PCHY). 1♂, Sofudani, Kyoto, 8. VI. 1954, T. KISHII (MNHA). Mt. Daisen, Tottori: 1♂, 2♀♀, 24. V. 1985, S. NOMURA (ELKU); 1♀, 1. VII. 1984 (ELKU); 1♂, 24. V. 1985, S. NOMURA (ELKU). IZU ISLANDS. 1♀, Sato, Mikurajima I., 27. IV. 1990, H. KOJIMA (PCHY).

Distribution. Japan (Honshu, Izu Islands).

Etymology. This species is named after the late Dr. Hiroyuki SASAJI.

Discussion

With regard to the higher classification of Mecysmoderini, KOROTYAEV and HONG (2004) claimed that this tribe should be treated as a monotypic tribe represented by the comprehensive genus *Mecysmoderes* instead of the generic classification proposed by COLONNELLI (1992). However, it is quite evident that the Mecysmoderini are too diverse to be considered a single genus in light of the modern generic classification system of Ceutorhynchinae (EGOROV *et al.*, 1996; COLONNELLI, 2004; YOSHITAKE and COLONNELLI, 2005). There are more than 500 undescribed species of Mecysmoderini, mainly from the Oriental region, including a number of species that cannot be assigned to any of the genus-group taxa recognized presently in the tribe (YOSHITAKE and COLONNELLI, unpublished). In addition, the concept of COLONNELLI (1992) to treat major species groups in Mecysmoderini as genera has been followed by YOSHITAKE and YAMAUCHI (2002) and by the other subsequent authors who study this tribe taxonomically (YOSHITAKE and NOERJITO, 2004; YOSHITAKE, 2005; HUANG *et al.*, 2005). The generic classification system based on COLONNELLI (1992) and YOSHITAKE and YAMAUCHI (2002) was published in a world catalog of Ceutorhynchinae (COLONNELLI, 2004) and has been widely accepted afterward.

Coelioderes KOROTYAEV is a subgenus of *Mecysmoderes* sensu KOROTYAEV in KOROTYAEV and HONG (2004) and clearly differs from any mecysmoderind genera recognized in COLONNELLI (2004) by the combination of the following features: forehead wider, shallowly depressed; eyes smaller, not approximated anteiorly; rostrum slender; antennal scrobes entirely invisible from above; pronotum bearing a short median carina, which is limited at base, shallowly depressed in the middle of subapical part, moderately compressed on sides; pronotal process short; elytral intevals slightly wider than striae, subequal in width to each other, evenly convex; femora unarmed; hind femora less swollen; claws appendiculate; sternal canal long, extending to metasternum, but less defined on it. Therefore, here we follow the system of COLONNELLI (2004) and change the rank of *Coelioderes* to a full genus of Mecysmoderini. The taxonomic changes declared here are:

Coelioderes KOROTYAEV, 2004, **stat. nov.** [from subgenus of *Mecysmoderes*]
C. nigrinus (HONG et WOO, 1999), **comb. nov.** [from *Mecysmoderes*]
C. fulvus (ROELOFS, 1875), **comb. nov.** [from *Mecysmoderes*]
C. kuatunensis (VOSS, 1958), **comb. nov.** [from *Mecysmoderes*]
C. lesnei (HUSTACHE, 1916), **comb. nov.** [from *Mecysmoderes*]
C. kerzhneri (KOROTYAEV, 1994), **comb. nov.** [from *Mecysmoderes*]
C. koreanus (KOROTYAEV et HONG, 2004), **comb. nov.** [from *Mecysmoderes*]
C. nipponicus (KOROTYAEV, 2004), **comb. nov.** [from *Mecysmoderes*]

In this study, we established a new genus, *Xenysmoderodes*, based on detailed examinations of structures of generic importance in Mecysmoderini. *Xenysmoderodes* shows some resemblance to *Xenysmoderes* in having the laterally compressed pronotum in the anterior half (Figs. 6, 7), a complete pronotal carina running from the tip of the pronotal process to the anterior margin of the pronotum (Fig. 6), the tarsal claws that are widely separated from each other by large internal teeth, and the sternal canal being evident only on the prosternum (Fig. 15). However, this new genus clearly differs from *Xenysmoderes* in the following points: forehead wider, shallowly depressed (Fig. 3); eyes smaller, not approximated anteriorly (Figs. 3, 4); ros-

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A Revision of the Genus *Phyllotreta* CHEVROLAT in Japan (Chrysomelidae: Alticinae)

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Abstract Five species of the genus *Phyllotreta* CHEVROLAT in Japan are keyed, and their habitus and male aedeagus are figured. *Phyllotreta brevistriata* KIMOTO, 1964 was synonymized with *P. chujoe* MADAR, 1959.

The members of the genus *Phyllotreta* CHEVROLAT are specialized in Brassicaeae-feeders and its related groups, and are known as crop pests. In Japan, also, *Phyllotreta striolata* is a notorious pest of Japanese radish. Therefore, HARUKAWA and TOKUNAGA published its detailed morphology and biology in 1938. In this genus adults are found feeding on host leaves nearby herbaceous and crop fields throughout from early spring to late autumn. They hibernate in the adult stage around leaf litters. They are supposed to be uni- to multivoltine, whose larvae are generally root feeders. The pupation takes place in the soil. KIMOTO (1994) recognized 6 species in Japan. Because of a wide range of variation in the dorsal color pattern, it is sometimes difficult to determine species with his key. As a result of a detailed study, I concluded that *P. brevistriolata* KIMOTO is a junior synonym of *P. chujoe* MADAR. In addition, key to five Japanese species is given with figures of habitus, male aedeagus and dorsal patterns.

Before going further, I wish to acknowledge to Dr. H. KOJIMA of Kyushu University Museum, Fukuoka (KU) and to Dr. K. UEDA of Kitakyushu Museum for Natural History and Human Science, Kitakyushu (KMNH) for the loan of materials. Also to Messrs. A. ABE in Aomori Pref., K. AITA in Kagawa Pref., and K. TAKAHASHI in Kanagawa Pref. for offering interesting materials.

Genus *Phyllotreta* CHEVROLAT

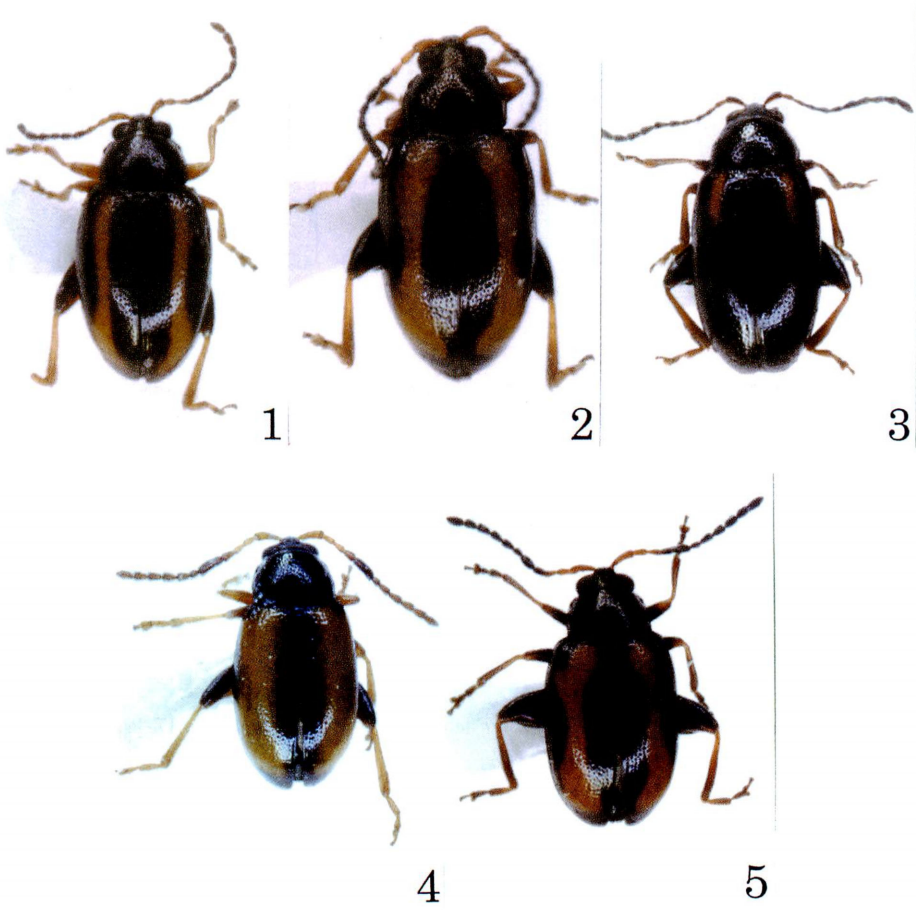
Phyllotreta CHEVROLAT, 1837, in DEJEAN, Cat. Col. Ed. **3**: 391 (type-species: *Chrysomela brassicae* FABRICIUS; designated by CHEVROLAT, in d'ORBIGNY, 1845: 6); — KIMOTO, 1966. J. Fac. Agr., Kyushu Univ. 13: 605–609; — KONSTANTHINOV and VANDERVERG, 1996, Intern. Contr. Entomol., **1** (3): 207.
Orchestris KIRBY, in RICHRDSON, Fauna Bor. –Amer. 4: 217.
Taenygaster BLATCHLEY, 1921, J. New York Ent. Soc., 29: 26–27.

Diagnosis. This genus is distinguished among Japanese alticine genera as: body above almost glabrous; head with frontal tubercles obsolete; inter-antennal space slightly narrower than a transverse diameter of eye; antenna eleven-segmented, with 1st segment distinctly shorter

than 2nd to 4th combined together; pronotum evenly convex, without longitudinal or transverse impressions; anterior coxal cavities open posteriorly, with prosternum widely separating them; elytron confusedly punctuate; posterior femur normal, without long apical spine; posterior tibia without short subapical excavation, with single apical spine inserted medially on apex; posterior tarsus with 1st segment distinctly shorter than half the length of tibia, with 3rd segment bilobed; claw segment not swollen.

Key to Japanese species of the genus

1. Last visible abdominal sternite more or less tri-lobed; sometimes antenna with the 5th segment robust; sometimes fore leg with the first tarsal segment widened. ····· 2 (Male)
— Last visible abdominal sternite simple, sometimes longitudinaly depressed or with a weak fovea sub-apically. ····· 6 (Female)
2. Antenna with the 5th segment distinctly longer than 4th, sometimes robuster. ····· 3
— Antenna with the 5th segment slender. ····· 4
3. Aedeagus broad apically with a small tooth (Fig. 21a); 5th antennal segment depressed and almost as long as the 1st. ····· *P. shirahatai* CHÛJÔ
— Aedeagus gently narrowed to apex (Fig. 21e); 5th antennal segment distinctly shorter than the 4th. ····· *P. striolata* (FABRICIUS)
4. Fifth antennal segment longer than 4th; body rather flat dorsally, and much elongate. ····· 5
— Fifth antennal segment shorter than 4th; body convex dorsally and round in outline; elytron usually with narrow, straight black stripe; sometimes largely yellowish brown margined with black; aedeagus subquadrate at apex (Fig. 21a), with obscure median lobe. ····· *P. chujoe* MADAR
5. Fore leg with the first tarsal segment slender; aedeagus gently narrowed to apex and curved down rectangularly at apex (Fig. 21b). ····· *P. ezoensis* KIMOTO
— Fore leg with the 1st tarsal segment distinctly widened; aedeagus roundly widened at apex with a median notch (Fig. 21c). ····· *P. rectilineata* CHEN
6. Antenna with 4th segment distinctly shorter than 5th. ····· 9
— Fifth antennal segment subequal to or shorter than the 4th. ····· 7
7. Elytron with inner margin of longitudinal stripe nearly straight; legs yellowish brown, except for dark brown hind femur; fronto-clypeus rather flat between antennal sockets. ····· *P. chujoe* MADAR
— Legs largely blackish brown; elytron with yellowish stripe, if present, gently curved on inner margin; fronto-clypeus carinate between antennal sockets. ····· 8
8. Elytron confusedly and densely covered with small punctures; pronotum widest at middle, thence rather linearly narrowed to both ends. ····· *P. ezoensis* KIMOTO
— Elytron subregularly punctuate striate; pronotum evenly narrowed from base to apex. ····· *P. rectilineata* CHEN
9. Fifth antennal segment almost 1 2/3 times as long as 4th; 3rd distinctly shorter than 5th; elytron with yellowish stripe gradually curved on inner margin; last visible abdominal sternite with an oblong fovea. ····· *P. shirahatai* MADAR
— Fifth antennal segment 1 1/2 times as long as 4th; 3rd as long as 5th; elytron with yellowish stripe suddenly curved inwardly at both ends; last visible abdominal sternite simple. ····· *P. striolata* (FABRICIUS)



Figs. 1–5. Habitus of *Phyllotreta* spp. — 1, *Phyllotreta chujoe* (Ogino, Kanagawa); 2, *P. ezoensis* (Yomogita, Aomori); 3, *P. rectilineata* (Toride, Ibaraki); 4, *P. shirahatai* (Ashorobuto, Hokkaido); 5, *P. striolata* (Koremasa, Tokyo).

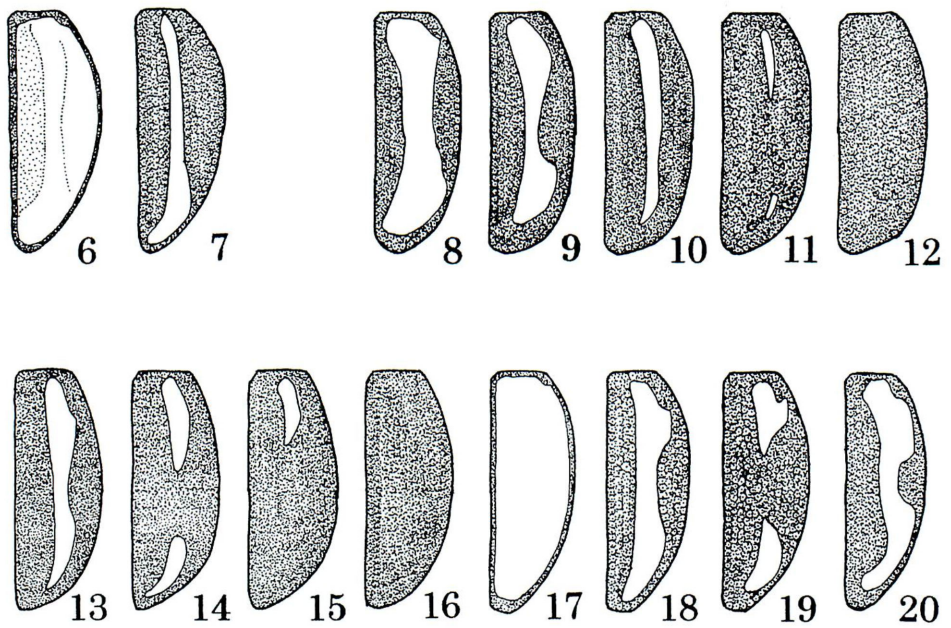
Phyllotreta chujoe MADAR

(Figs. 1, 6, 7 and 21a)

Phyllotreta chujoe MADAR, 1959, Niponius, ed. M. CHÛJÔ, 1 (2): 3, fig. 12 (Japan: Kurokawa in Niigata Pref.); — KIMOTO, 1994, Leaf beetles of Japan, vol. Adult: 184–185, 255, 335.

Phyllotreta brevistriolata KIMOTO, 1966, Jour. Fac. Agr., Kyushu Univ., **13** (4): 606–607, fig. 1 (Hokkaido: Higashikawa in Kamikawa, holotype in KU); — KIMOTO, 1994, Leaf beetles of Japan, vol. Adult: 185, 255, 335. **Syn. nov.**

Diagnosis. Black with antenna on 4 basal segments and legs yellowish brown; sometimes hind femur infuscate; elytron with a yellowish stripe, which is narrower and weakly curved inwardly on inner margin; sometimes elytron largely yellowish brown, narrowly margined with black (Figs. 6, 7); head with fronto-clypeus rather flat between antennal sockets; male with 4th antennal segment subequal to, or slightly longer than 5th; both segments weakly dilated; pronotum and elytron densely and confusedly punctate, with prothoracic interspaces shagreened; male



Figs. 6–20. Dorsal pattern. — 6–7, *P. chujoe*; 8–12, *P. ezoensis*; 13–16, *P. rectilineata*; 17–19, *P. shirahatai*; 20, *P. striolata*.

with 1st tarsal segment of fore leg slender; aedeagus rather subquadrate apically with the apex broadly curved down ventrally (Fig. 21a); female with the last visible abdominal sternite simple.

Host. Unknown.

Distribution. Japan (Hokkaido, Honshu, Shikoku, Kyushu). Specimens from the following Prefectures were examined: Hokkaido, Honshu (Tochigi, Ibaraki, Saitama, Kanagawa, Shizuoka, Aichi), Shikoku (Kochi), Kyushu (Fukuoka, Oita).

Remarks. This species is usually well characterized by the shape of a narrow stripe on elytron and by almost wholly yellowish brown legs. This is found in Kanagawa Pref. from March to September nearby paddy rice fields. This is recorded from Shikoku Is. for the first time here (1 ex., Hirooka, Iburi, Tosa-Shimizu, Kochi, 18–20. VII. 2000, K. AITA leg.).

KIMOTO described *P. brevistriolata* based on two male specimens. The holotype lacks aedeagus, of which figure was given by KIMOTO (1964, fig. 2b), and with paler longitudinal stripe on elytron as shown in Fig. 6. Main characters, such as the shape of antennal segments, dorsal pattern, tarsal segment and aedeagus well agree with those of *P. chujoe*. I have no doubt that *brevistriolata* is identical with *chujoe*, of which the holotype I had no chance to examine. While the single paratype in KMNH is identical with *P. shirahatai* MADAR.

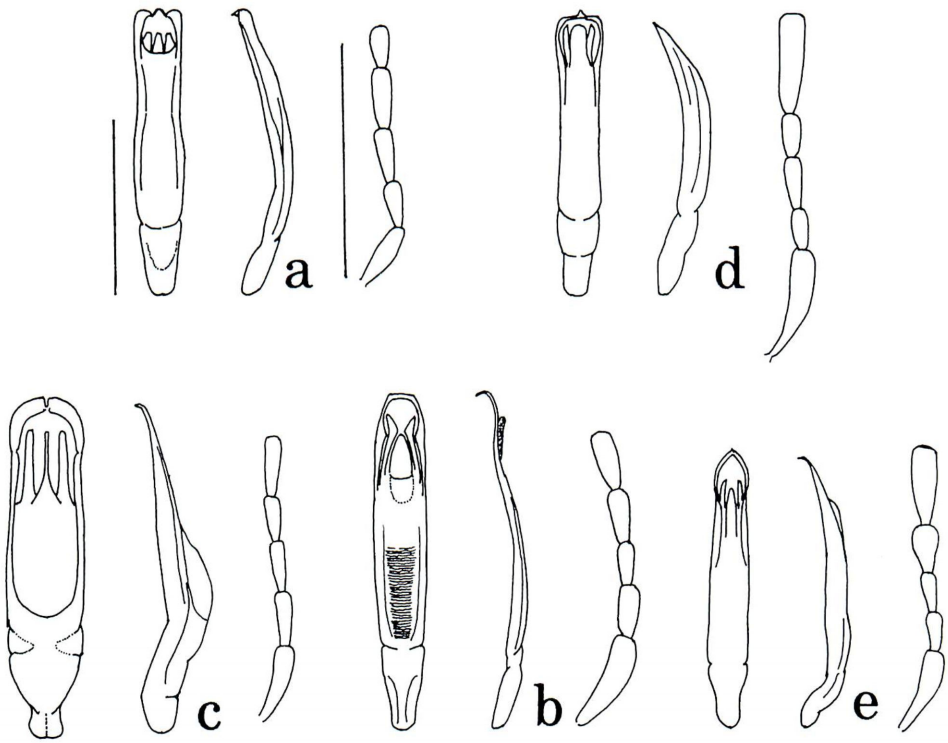


Fig. 21. Male aedeagus (left: dorsal view, right: lateral view) and five basal segments of male antennae. — a, *P. chujoe*; b, *P. ezoensis*; c, *P. rectilineata*; d, *P. shirahatai*; e, *P. striolata* (scale: 1 mm).

Phyllotreta ezoensis KIMOTO

(Figs. 2, 8–12 and 21b)

Phyllotreta ezoensis KIMOTO 1993, Ent. Rev. Japan, **48** (2): 97 (Hokkaido: Engaru, holotype in KU); — KIMOTO 1994, Leaf beetles of Japan, vol. Adult: 185, 255, 335.
Phyllotreta atra: KIMOTO, 1966, J. Fac. Agr., Kyushu Univ., **13** (4): 606.

Diagnosis. Black with antenna on 3 basal segments, tibiae and tarsi more or less tinged with yellowish brown, or largely yellowish brown; elytron variable in coloration from black with yellowish stripe, largely yellowish brown margined with black, to wholly black (Figs. 8–12); antenna with 3rd to 4th segments each shorter than 5th; 4th and 5th slightly robust in male; male with 1st tarsal segment weakly dilated on fore leg; aedeagus narrowed acutely and strongly curved down ventrally at apex (Fig. 21b); female with the last visible abdominal sternite simple.

Host. Cardamine leucantha.

Distribution. Japan (Hokkaido, Honshu). Specimens from the following prefectures were examined: Hokkaido, Honshu (Aomori, Kanagawa).

Remarks. KIMOTO (1966) first recorded this species as *P. atra* (FABRICIUS) from Hokkaido, and later described as a new species (1993). This is well characterized by the shape of aedeagus

which is sharply curved down ventrally at apex. Adults are found feeding on leaves and flowers of *Cardamine leucantha* along hilly roadside from May to July. This is recorded from Honshu Is. for the first time (Aomori Pref.: 2 exs., Sanyoshi, Miumaya, 17. V. 1975, A. ABE leg.; 3 exs., Yomogita-machi, 29–31. V. 2006, H. TAKIZAWA leg. Kanagawa Pref: 1 ex., Hatano, 28. V. 1970, H. TAKIZAWA leg.)

Phyllotreta rectilineata CHEN

(Figs. 3, 13–16 and 21c)

Phyllotreta rectilineata CHEN, 1939, Sinensia, 10 (1–6): 50 (China), —KIMOTO, 1994, Leaf beetles of Japan, vol. Adult: 185, 255, 335.

Phyllotreta chinensis HEIKERTINGER, 1941, Kol. Rundsch. 27: 28 (Kiangsi, Tonkin); —HEIKERTINGER, 1950, ditto, 31 (4–6): 140 (synonymized).

Diagnosis. Black with antenna on 3 basal segments, tibiae and tarsi yellowish brown; elytron variable in coloration; from black with narrow yellowish stripe to wholly black (Figs. 13–16); pronotum and elytra densely covered with smaller punctures so that their tendency to arrange in longitudinal rows is clearer with interspaces smooth; inter-antennal carina weak and short; 5th antennal segment more or less subequal to 4th in length, but the ratio of antennal segments somewhat variable; male with first tarsal segment of fore leg distinctly widened; aedeagus widely rounded with a minute notch medially (Fig. 21c); last visible abdominal sternite simple in female.

Host. Unknown.

Distribution. Japan (Hokkaido, Honshu, Kyushu, Tushima), S. China, Vietnam. Specimens from the following prefectures were examined: Hokkaido, Honshu (Tochigi, Ibaraki, Saitama, Tokyo, Nagano), Kyushu (Oita).

Remarks. This species is well characterized by the elytra subregularly punctate, and by the shape of aedeagus. This is found in somewhat moist grass field nearby rivers and swamps from May to September.

Phyllotreta shirahatai Madar

(Figs. 4, 17–19 and 21d)

Phyllotreta chinensis f. *shirahatai* MADAR, 1959, Niponius, ed. M. CHÛJÔ, 1 (2): 5, figs. (Japan: Odaijima-mura in Yamagata Pref.).

Phyllotreta shirahatai: KIMOTO, 1993, Ent. Rev. Japan, **48**: 97; —KIMOTO, 1994, Leaf beetles of Japan, vol. Adult: 185, 255, 335.

Phyllotreta brevistriolata: KIMOTO, 1966, J. Fac. Agr., Kyushu Univ., **13** (4): 606–607 (in part).

Phyllotreta ochripes: KIMOTO, 1966, J. Fac. Agr., Kyushu Univ., **13** (4): 607; — KIMOTO, 1994, Leaf beetles of Japan, vol. Adult: 336.

Diagnosis. Black with antenna largely and legs except for hind femur yellowish brown; 5th antennal segment more or less infuscate; dorsum variable in coloration (Figs. 17–19); elytron largely yellowish brown, narrowly margined with black; or largely black with a yellow-

ish stripe, or with 2 yellowish brown patches both anteriorly and posteriorly; frontal tubercle impunctate; 5th antennal segment distinctly longer than 4th; male with the 5th robust and flattened, almost 1 2/3 times as long as 4th; pronotum and elytron densely and confusedly punctate; aedeagus broad apically with a small triangular process medially (Fig. 21d); last visible abdominal sternite with a long oval fovea medially in female.

Host. Cardamine leucantha, *Barbarea orthoceras*.

Distribution. Japan (Hokkaido, Honshu). Specimens from the following prefectures were examined: Hokkaido, Honshu (Aomori, Fukushima, Gunma, Tochigi, Ibaraki, Saitama, Kanagawa, Nagano, Shiga).

Remarks. MADAR (1959) described this species as a form of *P. chinensis* based on specimens with 2 pairs of yellowish patches on the elytron. Later KIMOTO (1993) elevated this to species rank. This is characterized by the shape of 5th antennal segment which is distinctly long and stout, shape of aedeagus with a median triangular process, and by the last visible abdominal sternite in female with a long oval fovea. This is also found feeding of leaves of *Barbarea orthoceras* or *Cardamine leucantha* nearby crop fields or hilly roadside from March to September in Kanagawa Pref. The single paratype of *P. brevilineata* KIMOTO (1 ex., Ashorobuto, Ashoro-gun, Hokkaido, 23. V. 1957, M. TAKAHASHI leg.: KMNH) undoubtedly belongs to this species.

Phyllotreta striolata (FABRICIUS)

(Figs. 5, 20 and 21e)

Crioceris vittata FABRICIUS, 1801, Syst. El., 1: 469 (Carolinae: nec *Crioceris vittata* FABRICIUS, 1775, Syst. Ent., p. 122 from Carolina: present name *Acalymma vittata* (FABRICIUS), Galerucinae).

Crioceris striolata FABRICIUS, 1803, Index Syst. Eleuth., p.38 (new name for *Crioceris vittata* FABRICIUS, 1801: Europe, nec 1775).

Phyllotreta striolata: KIMOTO, 1966, J. Fac. Agr., Kyushu Univ., **13** (4): 601–633.

Phyllotreta vittata: CHÛJÔ, 1937, Trans. Nat. Hist. Soc. Formosa, **27**: 116, 117.

Diagnosis. Coloration stable; black with antenna on 3 basal segments, tibiae and tarsi dark brown; elytron with a broad yellowish stripe, which is strongly curved inwardly at both ends on inner margin (Fig. 20); pronotum and elytron densely and confusedly punctate; antenna with 5th segment distinctly longer than 4th; male with the 4th and 5th robust, each dilated to apex; male with 1st tarsal segment of fore leg weakly dilated; aedeagus gently narrowed to apex (Fig. 21e); female with last visible abdominal sternite simple.

Host. Many species of cultivated Brassicaceae; *Rorippa indica*, *R. islandica*.

Distribution. Japan (Hokkaido, Rishiri Is., Honshu, Hachijo Is., Miyake Is., Shikoku, Okinoshima Is., Kyushu, Iki Is., Tushima Is., Goto Is., Hirado Is., Koshikijima Is.), Ryukyu Is. (Tokara Is., Amami-oshima Is., Kikaijima Is., Okinoerabu Is., Okinawa Is., Kumejima Is., Miyako Is., Ishigaki Is., Iriomote Is., Yonaguni Is., Minami-Daito Is., Kita-Daito Is.); Korea, China, Taiwan, N. Vietnam, Thailand, Sumatra, Europe, Siberia, N. America. Specimens from the following prefectures were examined: Hokkaido, Honshu (Iwate, Yamagata, Miyagi, Gunma, Tochigi, Ibaraki, Chiba, Saitama, Tokyo, Kanagawa, Yamanashi, Nagano, Siga, Hyogo, Okayama), Kyushu (Fukuoka, Oita, Kagoshima), Ryukyu Ils. (Amami-oshima Is., Yoron Is., Okinawa, Is., Ishigaki Is., Kita-daito Is.: 1 ex., Nagahagu, Kita-daito Is., 26. III. 2006,

K. TAKAHASHI leg., Minami-daito Is.).

Remarks. This species is mainly distinguished by the broad and strongly curved stripe on elytron. This notorious pest of Japanese radish are found on crop fields from March to November in Kanagawa Pref.

要　　約

滝沢 春雄：日本産キスジノミハムシ属の再検討．――日本産のキスジノミハムシ属 *Phyllotreta* CHEVROLAT の種を検討し，*P. chujoe* MADAR, *P. ezoensis* KIMOTO, *P. rectilineata* CHEN, *P. shirahatai* MADAR および *P. strioalta* (FABRICIUS) の５種を認めた．この５種について，背面図，雄交尾器，触角および上翅斑紋の変異を図示し，検索表を付した．*P. brevistriolata* KIMOTO は *P. chujoe* のシノニムとした．

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Ent. Rev. Japan, **62** (1): 121–126, June 30, 2007

Donaciine Beetles Collected in Primorsky and Sakhalin, Russia, 2005, with a Note on the Seasonal Occurrence of Donaciine Beetles in Primorsky

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Abstract Collection data of 14 donaciine species from Primorsky in late June and early August, 2005 and 6 donaciine species from southern Sakhalin in late July, 2005, are reported, and also described the seasonal occurrence of docaniine species in Primorsky is compiled based on the present and previously published data.

Key words: biogeography, Chrysomelidae, *Donacia*, East Asia, *Plateumaris*

Donaciine beetles are one of the suitable materials for phylogeographical study of Japanese insects because their fossils are relatively abundant in the late Pliocene and the Pleistocene deposits (e.g., HAYASHI, 2004). In addition, recent advance in molecular phylogenetic studies enables detailed analyses of historical biogeography of donaciine beetles (SOTA and HAYASHI, 2004, 2007). Since the phylogenetic relationships of Japanese donaciine species with conspecifics and sister species in the East Asian mainland are important to understand the origin of Japanese fauna, recent effort on field research has been devoted to the Russian and Korean region adjacent to the Japanese archipelago. One of the unresolved questions was the immigration route of *Plateumaris sericea* to Japan, and DNA samples from adjacent regions were needed to resolve it based on molecular phylogenetic analysis. However, despite previous records of *P. sericea* in Korea and Primorsky (LEE and AN 2001; MEDEVEDEV, 1992), this species has not been obtained recently from these regions. Moreover, the record from South Korea must be a result of misidentification of *P. shirahatai* (SOTA *et al.*, 2006). In 2005, we conducted field collection trips to obtain *P. sericea* in Primorsky and Sakhalin, June–August, as a part of collaborative work with Dr. V. N. KUZNETZOV, Institute of Biology and Soil Science, Far Eastern Branch, Russian Academy of Science (Fig. 1 A, B). Here, we report the results of these trips. In addition, we review the seasonal occurrence of donaciine beetles in Primorsky based on the present data and previously published data by HAYASHI (2001, 2002) and HAYASHI and TOMINAGA (2005).

1. Collection in Primorsky

In Primorsky, field study was made at the following 13 localities by T. SOTA (TS) and V. N. KUZNETZOV (VK) on June 22–27 and by TS, VK, and S. SHIYAKE (SS) on August 10–13.

(1) Okeanskaya, Primorsky District (roadside marsh near Sputonik Station)
(2) Artyom, Primorsky District (large pond)
(3) Shkotobo, Primorsky District (open marsh)
(4) Rechitsa, Primorsky District (pond)
(5) Romanovka, Primorsky District (marsh in the forest; roadside pond; roadside creek/marsh)
(6) Lazurnaya, Primorsky District (roadside marsh)
(7) East of Lazurnaya, Primorsky District (roadside marsh)
(8) North of Selinsky, Primorsky District (roadside marsh)
(9) Novorussia, Primorsky District (marsh along the forest margin)
(10) Kaimanovka, Ussuriysky District (ditch along a mountain road)
(11) Zarechnoye, Ussuriysky District (small pond in a pasture)
(12) Gankelevsky Valley, North of Primorskaya, Khasan District (pond; Fig. 1 B)
(13) Lake Chekhunyenko, Lazovsky District (lakeside; Fig. 1 C, D)

1. *Plateumaris amurensis* WEISE

Specimen examined: 1 ex., Shkotobo (open marsh), 26. VI. 2005, VK leg.

2. *Plateumaris weisei* (DUVIVIER)

Specimens examined: 126 exs., Gankelevsky Valley, 24. VI. 2005, TS and VK leg.; 1 ex., Shkotobo (open marsh), VK leg.; 3 exs., East of Lazurnaya, 27. VI. 2005, TS and VK leg.; 3 exs., North of Selinsky, 27. VI. 2005, TS and VK leg.; 1 ex., Lake Chekhunyenko, 3. VIII. 2005, TS leg.

3. *Plateumaris shirahatai* KIMOTO

Specimens examined: 8 exs., Gankelevsky Valley, 24. VI. 2005, TS and VK leg.; 2 exs., Kaimanovka, 25. VI. 2005 TS and VK leg.; 12 exs., Romanovka (roadside pond), 26. VI. 2005, TS and VK leg.; 14 exs., Romanovka (roadside creek/marsh), 26. VI. 2005, TS and VK leg.; 1 ex., North of Selinsky, 27. VI. 2005, TS and VK leg.

4. *Plateumaris roscida* WEISE

Specimens examined: 33 exs., Okeanskaya, 22. VI. 2005, TS and VK leg.; 42 exs., Artyom, 22. VI. 2005, TS and VK leg.; 8 exs., Gankelevsky Valley, 24. VI. 2005, TS and VK leg.; 3 exs., Zarechnoye, 25. VI. 2005 TS and VK leg.; 151 exs., Rechitsa, 26. VI. 2005, TS and VK leg.; 8 exs., Romanovka (roadside pond), 26. VI. 2005, TS and VK leg.; 2 exs., Romanovka (roadside creek/marsh), 26. VI. 2005, TS and VK leg.

5. *Donacia* (*Donaciomima*) *aquatica* (LINNAEUS)

Specimens examined: 3 exs., Okeanskaya, 22. VI. 2005, TS and VK leg.; 16 exs., Gankelevsky Valley, 24. VI. 2005, TS and VK leg.; 1 ex., Romanovka (marsh in the forest), 26. VI. 2005, TS and VK leg.; 12 exs., Romanovka (roadside creek/marsh), 26. VI. 2005, TS and VK leg.; 2 exs., Lazurnaya, 27. VI. 2005, TS and VK leg.; 3 exs., East of Lazurnaya, 27. VI. 2005, TS and VK leg.; 4 exs., North of Selinsky, 27. VI. 2005, TS and VK leg.; 12 exs., Novorussia, 27. VI. 2005, TS and VK leg.

6. *Donacia* (*Donaciomima*) *clavareaui* JACOBSON

Specimens examined: 11 exs., Artyom, 22. VI. 2005, TS and VK leg.; 10 exs., Zarechnoye, 25. VI. 2005 TS and VK leg.

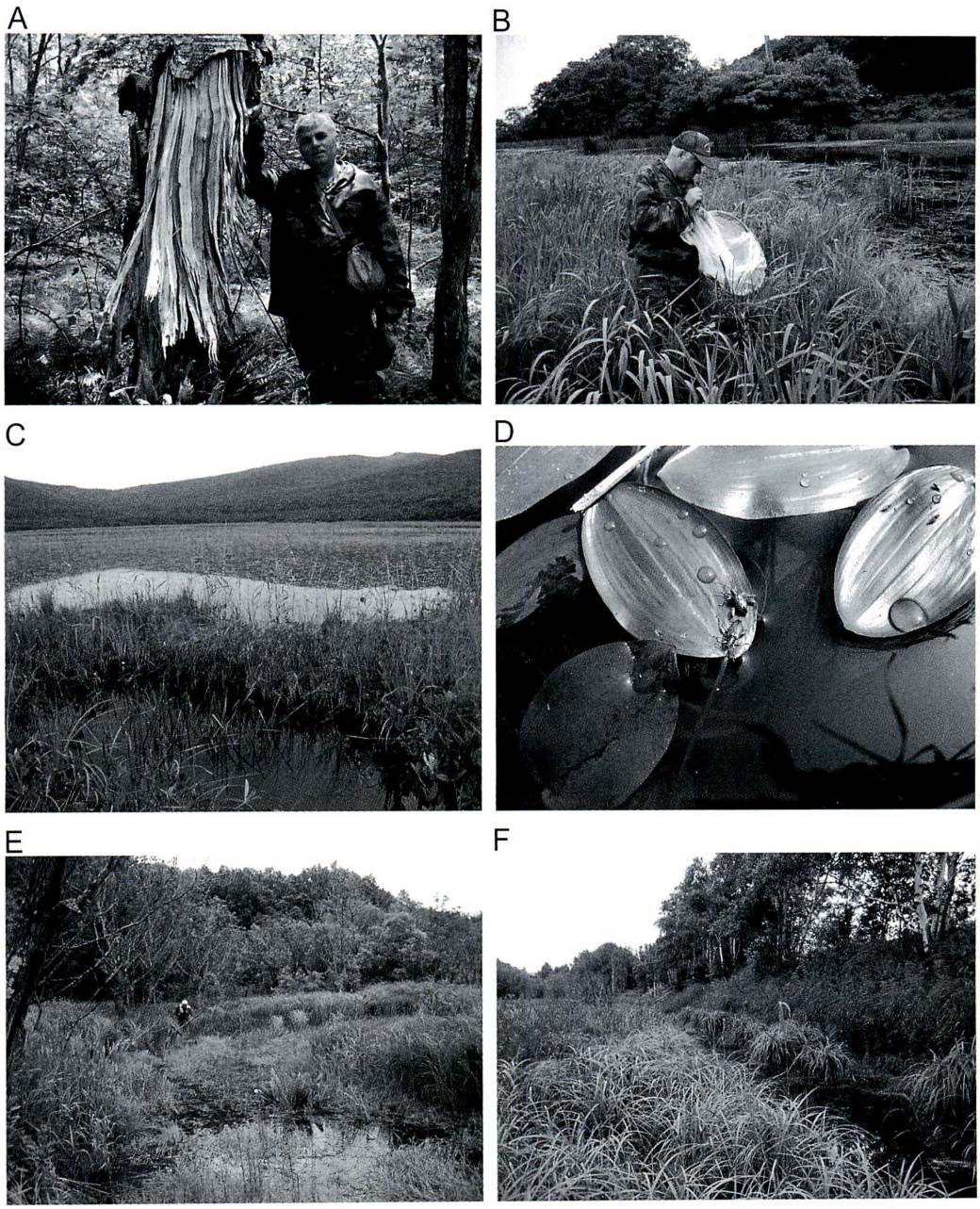

Fig. 1. A, Dr. KUZNETSOV showing a tree destroyed by bears at Kedrovaya Pad. B, Dr. KUZNETSOV collecting at Gankelevsky Valley. C, D, Lake Chekhunyenko, Lazovsky District (C), and *Donacia versicolorea* on the floating leaf of *Potamogeton* sp. (D). E, F, collection site at Takoye, Sakhalin.

7. ***Donacia* (*Donaciomima*) *bicoloricornis*** CHEN

Specimens examined: 5 exs., Artyom, 22. VI. 2005, TS and VK leg.

8. ***Donacia* (*Donaciomima*) *flemora*** GOECKE

Specimens examined: 55 exs., Gankelevsky Valley, 24. VI. 2005, TS and VK leg.; 23 exs.,

Kaimanovka, 25. VI. 2005 TS and VK leg.; 37 exs., Romanovka (roadside creek/marsh), 26. VI. 2005, TS and VK leg.; 3 exs., North of Selinsky, 27. VI. 2005, TS and VK leg.; 39 exs., Novorussia, 27. VI. 2005, TS and VK leg.

9. ***Donacia* (*Donaciomima*) *ochroleuca*** WEISE

Specimens examined: 9 exs., Okeanskaya, 22. VI. 2005, TS and VK leg.; 9 exs., Artyom, 22. VI. 2005, TS and VK leg.; 63 exs., Rechitsa, 26. VI. 2005, TS and VK leg.

10. ***Donacia* (*Donaciomima*) *sparganii gracilipes*** JACOBY

Specimens examined: 12 exs., Romanovka (roadside ditch), 4. VIII. 2005, TS, SS and VK leg.

11. ***Donacia* (*Donaciomima*) *vulgaris*** ZSCHACH

Specimens examined: 3 exs., Okeanskaya, 22. VI. 2005, TS and VK leg.; 1 ex., Artyom, 22. VI. 2005, TS and VK leg.; 1 ex., Novorussia, 27. VI. 2005, TS and VK leg.

12. ***Donacia* (*Donaciomima*) *versicolorea*** (BRAHM)

Specimens examined: 24 exs., Lake Chekhunyenko, 3. VIII. 2005, TS, SS and VK leg. (on the floating leaves of Potamogeton)

13. ***Donacia* (*Donaciomima*)** sp. (HAYASHI and TOMINAGA, 2005)

Specimens examined: 2 exs., Artyom, 22. VI. 2005, TS and VK leg.; 1 ex., Kaimanovka, 25. VI. 2005 TS and VK leg.; 46 exs., Romanovka (roadside creek/marsh), 26. VI. 2005, TS and VK leg.

14. ***Donacia* (*Cyphogaster*) *lenzi*** SCHÖNFELDT

Specimens examined: 11 exs., Lake Chekhunyenko, 3. VIII. 2005, TS, SS and VK leg. (on the floating leaves of Nymphaea; Fig. 1 D)

2. Collection in Sakhalin

In Sakhalin, field study was conducted by TS, VK and SS on July 28–30. All collection sites locate in the southern part, within 36 km from Yuzhno-Sakhalinsk.

(1) Dolinsk; Starodubka R., 3km N. of Dolinsk (riverside marsh)
(2) Takoye, near Sokol (roadside marsh; see Fig. 1 E, F)
(3) 2 km SE of Uspenskoye (roadside ditch)
(4) Rybatskoye; near Aniva (lakeside)

1. ***Plateumaris sericea*** (LINNAEUS)

Specimens examined: 3 exs., Dolinsk, 28. VII. 2005, TS, SS and VK leg.; 37 exs., Takoye, 30. VII. 2005, TS, SS and VK leg.

2. ***Plateumaris shirahatai*** KIMOTO

Specimens examined: 79 exs., Takoye, 30. VII. 2005, TS, SS and VK leg.

3. ***Donacia* (*Donaciomima*) *aquatica*** (LINNAEUS)

Specimens examined: 5 exs., Takoye, 30. VII. 2005, TS, SS and VK leg.

4. ***Donacia* (*Donaciomima*) *sparganii gracilipes*** JACOBY

Specimens examined: 16 exs,, Dolinsk, 28. VII. 2005, TS, SS and VK leg.; 13 exs., Takoye, 30. VII.

2005, TS, SS and VK leg.; 8 exs., 2 km SE of Uspenskoye, 30. VII. 2005, TS and SS leg.; 1 ex., Rybatskoye, 30. VII. 2005, SS leg.

5. ***Donacia* (*Donaciomima*) *vulgaris*** ZSCHACH

Specimens examined: 1 ex., Dolinsk, 28 VII 2005, TS, SS and VK leg.; 24 exs., Takoye, 30. VII. 2005, TS, SS and VK leg.

6. ***Donacia* (*Donaciomima*) *splendens*** JACOBSON

Specimens examined: 2 exs., Takoye, 30. VII. 2005, TS, SS and VK leg.

Table 1. Seasonal occurrence of adult donaciine beetles in Primorsky.

	Species	Month/ May[a]	June[b]	July[c]	August[d]
1.	*Plateumaris amurensis*	–	+	+	–
2.	*P. roscida*	+	+	–	–
3.	*P. shirahatai*	+	+	–	–
4.	*P. weisei*	+	+	+	+
5.	*Donacia aquatica*	+	+	+	+
6.	*D. clavareaui*	–	+	–	–
7.	*D. bicoloricornis*	–	+	+	+
8.	*D. flemora*	+	+	+	–
9.	*D. knipowitschi*	–	–	+	–
10.	*D. ochroleuca*	+	+	–	–
11.	*D. sparganii*	–	–	+	+
12.	*D. vulgaris*	+	+	+	–
13.	*D. versicolorea*	–	–	–	+
14.	*D.* (*Donaciomima*) sp.	+	+	–	–
15.	*D. lenzi*	–	–	+	+
16.	*D. provostii*	–	–	–	+
No. of species		8	11	9	7

Source: [a] May: 14–17, 2004 (HAYASHI and TOMINAGA, 2005)
[b] June: 22–27, 2005 (present study)
[c] July: 11–14, 2002 (HAYASHI, 2002)
[d] August: 10–13, 2001 (HAYASHI, 2001); August: 3–4, 2005 (present study)
+: collected; –: not collected

3. Seasonal occurrence of donaciine species in Primorsky

Based on the present and previous studies (HAYASHI, 2001, 2002; HAYASHI and TOMINAGA, 2005), we compiled the seasonal occurrence of adult beetles for 16 species in Primorsky (Table 1). Species are most abundant (11) in June, followed by 9 in July and 8 in May.

Acknowledgements

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要　　約

曽田 貞滋・初宿 成彦・林　成多：ロシア沿海州およびサハリンにおいて2005年に採集したネクイハムシ亜科，および沿海州におけるネクイハムシ亜科成虫の季節消長について．――ロシア沿海州においてネクイハムシ亜科の調査を2005年６月下旬と８月上旬に行ない14種を採集・記録した．また2005年７月下旬にサハリン南部において調査を行ない，６種の本亜科甲虫を記録した．さらに，これまでの５月から８月にかけての採集記録に基づき，沿海州における本亜科成虫の季節消長をまとめた．

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Weight of the Climbing Larva of the Firefly *Luciola cruciata* (Coleoptera: Lampyridae) and its Relationship to Size, Weight, and Sex of the Adult

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Abstract In 2006, climbing larvae of the Genji firefly *Luciola cruciata* were captured in fields near Kure City in Hiroshima Prefecture, and their weights were measured. The larvae were subsequently incubated until pupation and adult emergence. Several months later, we determined the sexes of newly emerged adults and measured their weights and body lengths. Female adults developed from larvae weighing more than 0.250 g, whereas male adults developed from larvae weighing less than 0.150 g. Therefore, the sexes of climbing larvae can be determined solely on the basis of larval weight. The proportion of lighter climbing larvae increased as the season progressed. There is a positive correlation between larval and adult weights. During pupation, weight decreased to less than half the original larval weight. The adult female is 1.2 times as long as the adult male in average.

Key words: *Luciola cruciata*, adult, body lengths, climbing larvae, seasonal changes, weight.

Introduction

The Genji firefly, *Luciola cruciata* MOTSCHULSKY, is indigenous to Japan and is widely distributed throughout most areas of the country, except on Hokkaido and Okinawa. The species is familiar to many people as a result of its beautiful luminescence at night.

The life cycle of the Genji firefly begins when females lay eggs on moss near riverbank in June. The larvae hatch in about 30 days and immediately move into the running water. The mature larvae climb onto the riverbank on rainy nights from April to May in the following year. These climbing larvae dig into the ground to pupate, and adults emerge 40~50 days later. The ecology of this species has been described by many researchers, including KANDA (1935) and MINAMI (1961).

However, little detailed knowledge exists about the larval stage because most larvae climb out of their aquatic habitats on rainy nights, when it is difficult to investigate the larvae and their behavior (MINAMI, 1961; YUMA, 1981; MORIYA *et al.*, 2006). YUMA (1981) reported that the size of the climbing larvae decreases as the season progresses. Furthermore, IGUCHI (2001) reported that the length of adult males decreases as the season goes on. These reports suggest that the larger male larvae emerge from the water earlier than the smaller ones for pupation, and that larger male adults appear earlier in the season. However, the relationship between the character-

istics of the climbing larvae and those of the resulting adults, and the seasonal changes in these characteristics, remain unclear.

To clarify the effects of seasonal changes and of the relationship between the weight of the climbing larvae and the characteristics of the adults, we captured climbing larvae of the Genji firefly during the climbing season and studied adults in the laboratory.

Here, we present the results of this research and new knowledge gained about the relationships between the weight and size of climbing larvae and the characteristics of the resulting adults.

Materials and Methods

1. Study area

We captured climbing larvae on the banks of the Kamagahara River, a branch of the Niko River that extends for 21 km and runs through Kure City, in Hiroshima Prefecture (Fig. 1). The study site is alt 220 m. The river at this location is 2 m wide, with a 2 m concrete retaining wall, and many large and small stones on the bottom. At this location, the Genji firefly takes flight every year.

2. Methods

Climbing larvae of the Genji firefly were randomly sampled seven times on rainy nights between 4 April and 6 May 2006 (Table 1); we used their luminescence to help locate them. Captured larvae were blotted dry with paper towels and their fresh weights were measured to

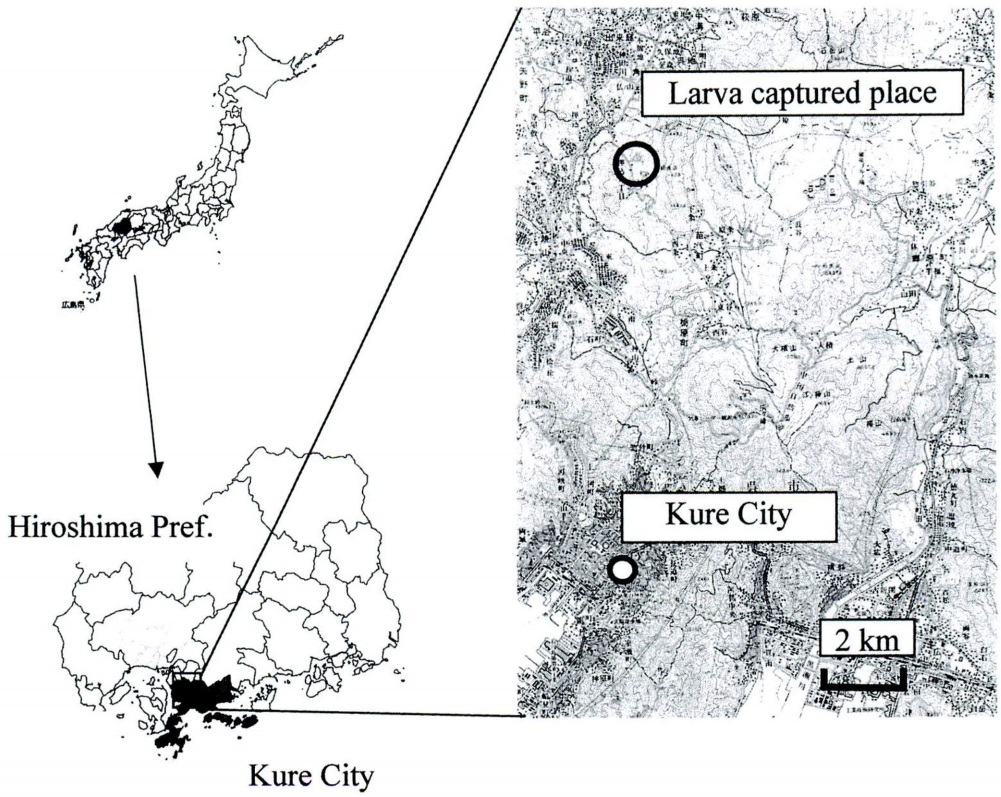

Fig. 1. Map of the study area.

Table 1. Sampling dates and numbers of climbing larvae used in the rearing experiments.

	Number of individuals at each incubation temperature (°C)			
Date	17	20	23	Total
Apr. 4	25	25	24	74
Apr. 10	25	26	26	77
Apr. 15	27	26	26	79
Apr. 19	27	28	28	83
Apr. 22	28	28	28	84
Apr. 26	22	22	23	67
May 6	26	26	27	79
				543

the nearest 0.001 g. The larvae were then placed individually in cylindrical incubation containers, as described by YUMA (1981). The captured larvae were divided into three groups on the basis of their total weights and were incubated at three different temperatures (17, 20, or 23C°) in the dark. Incubation at three different temperatures produced no significant difference in the results (adult survival rates, sex ratios, sizes, and weights), so the results for all three temperatures were pooled for use in all subsequent analyses.

Adults that emerged from pupae in the incubation containers were captured and then marked to distinguish between individuals. Every morning, adults that had emerged from pupae were measured to the nearest 0.001 g. Thereafter, they were retained together in another incubation container for adult until they died.

The body length of each adult was measured after the adult's death. Body length was defined as the length from the front margin of the pronotum to the apex of the elytron (Fig. 2) because the adult's head is concealed beneath the pronotum. To measure body length, digital photographs were taken under a stereomicroscope (at 10× with a scale on the image stage). The images were displayed on a computer screen and the lengths of the body and of the microscope scale were measured on the screen with a vernier micrometer. The length was then calculated to actual size by multiplying the measured body length by the ratio of this length to the actual length of the microscope scale.

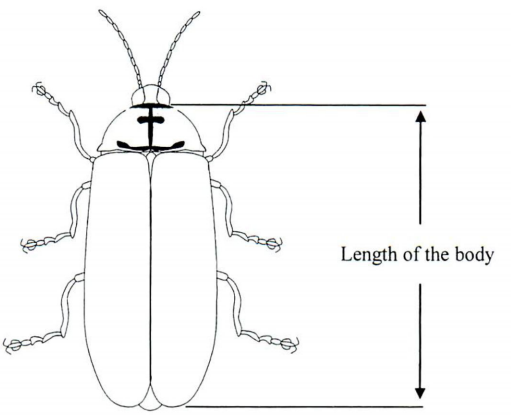

Fig. 2. Region measured to determine adult body length.

We used the body length to represent the size of the adult.

Results

1. Weight of climbing larvae

The weights of the climbing larvae ranged from 0.063 to 0.564 g; this represents a range of nearly 900% between the minimum and maximum values. Although the frequency distri-

bution of the weights of the climbing larvae was clearly divided into a light group and a heavy group early in the climbing season, this division became less clear later in the season (Fig. 3A). The results revealed that male adults developed from the light group and female adults developed from the heavy group (Fig. 3B). However, many light female larvae were sampled later in the climbing season.

The average weights of both the climbing male and female larvae tended to decrease as the season progressed (Fig. 4).

2. Length of the adult's body

The length of the adult's body ranged from 10.37 to 15.46 mm (males) and from 13.03 to 18.30 mm (females). The average length of female adults (16.19 mm) was 1.2 times as great as that of the males (13.28 mm; Table 2). This difference was significant (t-test, $P < 0.05$). Later during the climbing period, a greater proportion of small adults of both sexes developed (Fig. 5).

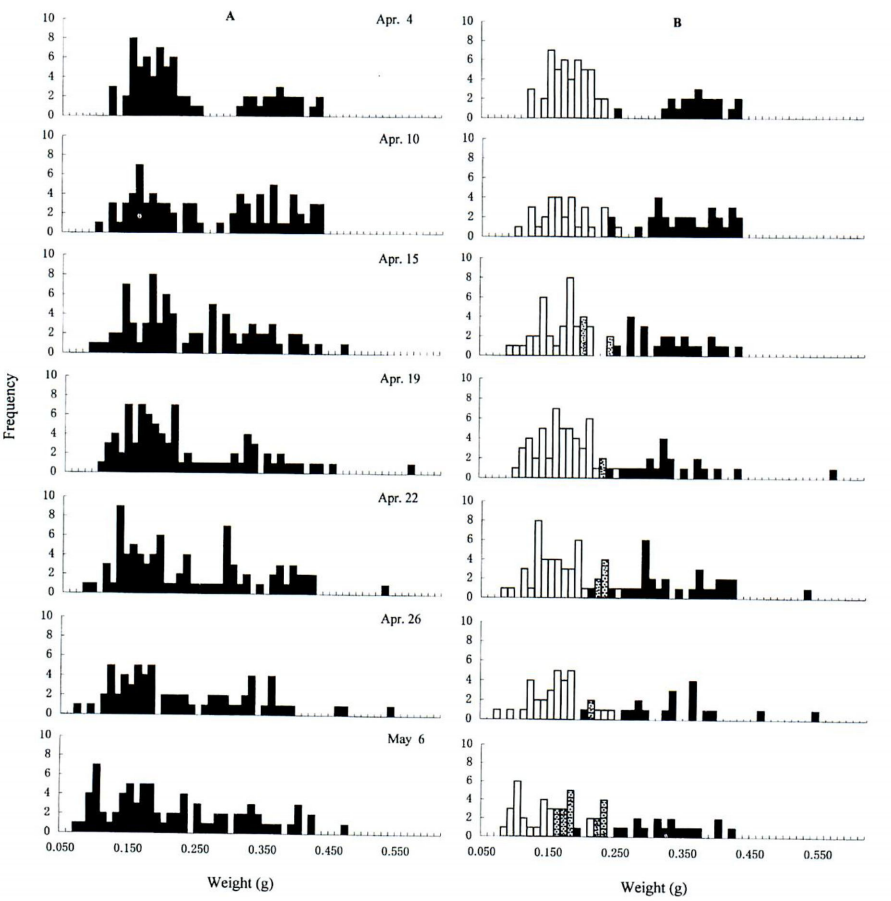

Fig. 3. Frequency distribution of weights of the climbing larvae. A. Weights of the larvae before classification as male or female. B. Weights of the male and female larvae (i.e., color-coding of the data in A after adult emergence). White bars show males. Dotted bars show male and female mixtures. Black bars show females.

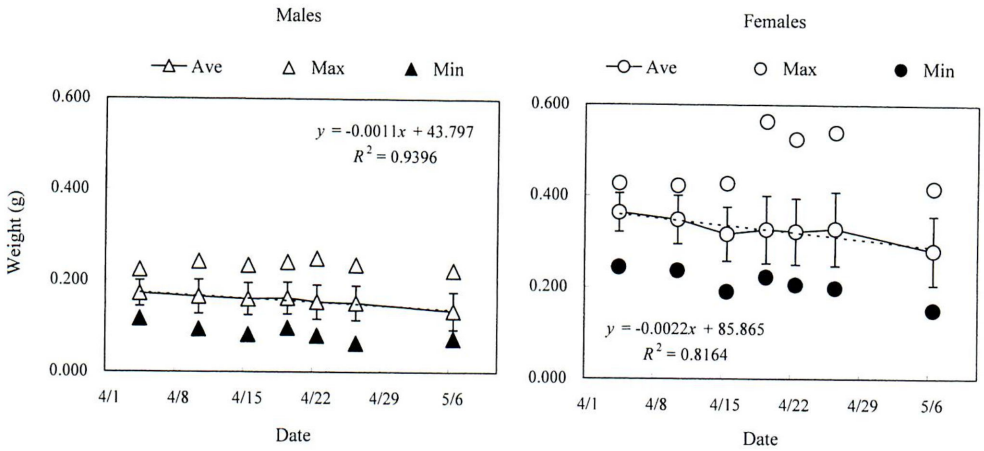

Fig. 4. Seasonal changes in weights of climbing larvae. Vertical bars indicate standard deviations. Dotted lines show the regressions.

3. Relationship between characteristics of the climbing larvae and those of the adults

There was a close positive correlation between the weight of the climbing larva and the weight of the adult in both males and females (R^2 = 0.80 to 0.83, respectively; Fig. 6A). During the pupal stage, the weight of the adult decreased to 42% of the larval weight for males, and to 46% of the larval weight for females. There was also a positive correlation between the weight

Table 2. Measured lengths of adult body.

	Body length (mm)			
2006	Male	Female	Both sexes combined	Female/male
	n = 260	n = 176	n = 436	
Max	15.46	18.3	18.3	
Min	10.37	13.03	10.37	
Ave	13.28	16.19	14.45	1.22
S.D.	1	0.96	1.73	

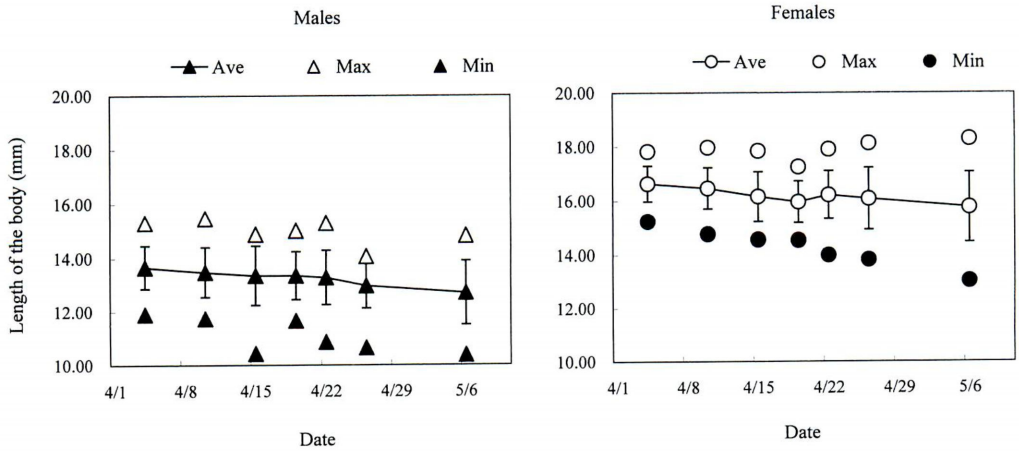

Fig. 5. Seasonal changes in length of the adult body. Vertical bars indicate standard deviations.

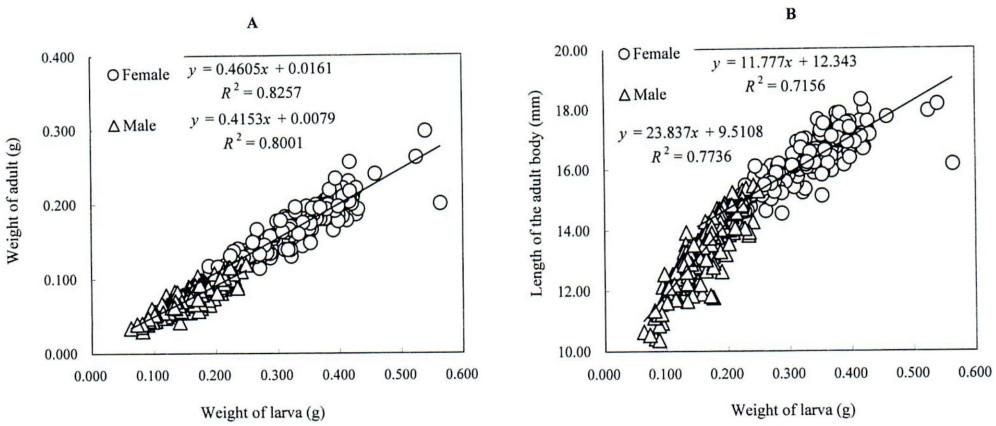

Fig. 6. Relationship between weights of climbing larvae and weights and sizes of adults. A. Relationship between weights of climbing larvae and adults. B. Relationship between weights of climbing larvae and adult size (body length).

of the climbing larva and the length of the adult's body (R^2 = 0.72 to 0.77, respectively, for males and females; Fig. 6B).

Discussion

1. Weight of the climbing larva

YUMA (1981) reported that the frequency distribution of the weights of the climbing larvae exhibited two modes, that those two modes corresponded to the two sexes, and that the two sexes could be identified by using the "fatness degree", which represents the relationship between fresh weight to the length of the prothorax's cuticle plate. Our results confirm these findings.

The frequency distribution for weights revealed two distinct groups of larvae, but this difference became unclear in the latter half of the climbing season. The presence of an increasing proportion of light females in the latter half of the climbing season was a major cause of this change. In general, female adults developed from larvae whose weights were more than 0.250 g, whereas male adults developed from larvae whose weights were less than 0.150 g. These data suggest that larval weight, which is easy to determine, is a simple and nondestructive standard parameter for distinguishing between the two sexes in climbing larvae.

There was a significant tendency for heavy larvae to climb early in the season and light ones late in the season. YUMA (1981) reported the presence of many light male climbing larvae as the season progressed, but did not provide clear data about females. YUMA concluded that climbing larvae with different sizes had different abilities that were regulated by temperature. The reason why many lighter larvae climbed later in the climbing season may be that the smallest mature larvae climbed either. This may explain why many smaller female larvae were found climbing at the end of the climbing season. Larvae that cannot climb out of the water remain in the water until the following year (OHBA, 1988).

2. The adult's body length

Although there were wide differences between the body lengths of the adults, more small individuals of both sexes appeared later in the season. Similar results were reported by IGUCHI

(2001) for the adults in a field study. IGUCHI showed that the body lengths of the male adults decreased linearly during the season, whereas the females showed a parabolic decrease in size over the same time period. IGUCHI also showed that the number of the female large individuals increased once in the middle of the season, and the number of small individuals increased later in the season.

Our results differ slightly from those of IGUCHI (2001), since we observed a linear (rather than a parabolic decrease) decrease of the number of the females. Thus, the relationship between the body length of the adult female and the seasonal changes in this parameter require further investigation.

The average body length of the adult female was 1.2 times that of the male, and the difference was significant (t-test, $P < 0.01$).

3. Relationships between weights of climbing larvae and those of the adults

The weights of the climbing larvae and of the adults were strongly and positively correlated, with heavy adults developing from heavy larvae. The weight of the adult could be estimated from that of the climbing larvae by using two linear regression equations: $y = 0.4605\ x + 0.0161$ for females, and $y = 0.4153\ x + 0.0079$ for males, where y is the weight of the adult and x is the weight of the larva.

The weight of the adult decreased to less than half the weight of the larva immediately after eclosion. This decrease resulted from metamorphosis in the mud cocoon. The decrease in weight from larva to adult is considered to be required for the development of wings and the ability to fly as an adult.

There was a positive correlation between the weight of the climbing larva and the body length of the adult; this confirmed that larger adults developed from heavier larvae. In addition, the seasonal change in adult body length paralleled the seasonal change in the weight of the larva.

Summary

Climbing larvae of the Genji firefly *Luciola cruciata* captured in Kure City, Hiroshima Prefecture, were measured to determine their fresh weights. The relationship between the sex, weight, and length of the adult and the larval weight were analyzed, with the following results:

- Female adults developed from larvae with fresh weights greater than 0.250 g, whereas male adults developed from larvae with fresh weights less than 0.150 g. The sexes of the climbing larvae could thus be determined solely from their weights. However, this relationship was most distinct early in the climbing season, and became less distinct towards the end of the season; as a result, the frequency of identification error would increase later in the season.
- Many lighter climbing larvae (both male and female) appeared as the season advanced.
- The average length of the adult female was 1.2 times that of the adult male.
- There was a positive correlation between the weight of the climbing larva and that of the adult. During pupation, the weight of the larva decreased to half the original weight. These results reveal a seasonal change in larval weights in both sexes and a corresponding change in the length and weight of the adult. They suggest that the differences tend to decrease as the climbing season progresses.

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要　　約

守屋 節男・山内 健生・中越 信和：ゲンジボタル上陸幼虫の重量と体サイズ及び成虫の雌雄との関連について.———

1．2006年，広島県呉市において，ゲンジボタルの上陸幼虫を野外で捕獲し，その重量を測定した．これらの幼虫を飼育して，羽化した成虫の性別・重量・体長等を測定した．
2．上陸幼虫の重量が0.250g以上の幼虫からは雌成虫が羽化し，0.150g以下の幼虫からは雄成虫が羽化した．これらの重量によって上陸幼虫の雌雄を区別することができた．
3．上陸幼虫の重量は雌雄ともに，季節が進むにつれてより軽くなる傾向があった．
4．上陸幼虫の重量と羽化成虫の重量の間には強い正の相関関係がみられ，この過程で重量は約1/2に減少した．
5．雌成虫の平均体長は，雄成虫の平均体長の約1.2倍であった．
6．成虫の体長の季節変化は上陸幼虫の重量の季節変化を反映して，季節の経過とともに次第に小さくなる傾向があった．

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New Record of the Genus *Decuria* (Coleoptera: Leiodidae) from Japan

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Abstract. *Decuria smetanai* (ANGELINI et De MARZO, 1995) is recorded for the first time from Japan.

The genus *Decuria* was established in the tribe Agathidiini of the subfamily Leiodidae by MILLER and WHEELER (2004) based on single species, *D. newtoni* MILLER et WHEELER, 2002. Later, PARK *et al.* (2006) transferred a Korean and Taiwanese species, *Anisotoma smetanai* ANGELINI et De MARZO, to *Decuria*. As a result, two species of *Decuria* have been known to occur. *Decuria* can be easily distinguished from the other genera of Agathidiini by having antennae with ten segments. Recently, we found five specimens of *D. smetanai* collected from Hokkaido, Japan, and record this species for the first time from Japan in this report.

Before going further, we owe thanks to Dr. Ivan LÖBL (Muséum d'histoire naturelle, Genéve) who kindly lend us the holotype. We are deeply indebted to Mr. Shigehisa HORI (Historical Museum of Hokkaido, Sapporo) and Dr. Masahiro ÔHARA (The Hokkaido University Museum, Hokkaido University, Sapporo) who kindly provided us with the opportunity to examine the valuable specimens.

Genus ***Decuria*** MILLER et WHEELER, 2004

[Japanese name: Nise-kushihige-tamakinokomushi zoku]

Decuria smetanai (ANGELINI et De MARZO, 1995)

[Japanese name: Tôa-nise-kushihige-tamakinokomushi]

Anisotoma smetanai ANGELINI et De MARZO, 1995: 181 (type locality: Taiwan). — PARK *et al.*, 2002, 196; PERREAU, 2004: 192.
Decuria smetanai: PARK *et al.*, 2006: 252.

Specimens examined. Holotype, ♂, Hualien Hsien, Taroko N. P., Nanhushi Hut, 2,220 m, 12. V.

1990, A. SMETANA leg. (preserved in the collection of Muséum d'histoire naturelle, Genéve.); 4 exs., Nopporo, Ebetsu City, Hokkaido, 10. VI. 1988, M. ÔHARA leg.; 1 ex., same locality, 17–24. VII. 2002, S. HORI leg. (collected by the flight intercept traps.); 1♂, Namcyeon valley, Mt. Sobaeksan, Namcheon-ri, Youngchun-myeon, Danyang-gun, Chungbuk Prov., Korea, 6–28. VII. 2002, J.-C. JEONG leg. (collected by the Malaise trap.)

Distribution. Japan (Hokkaido), Korea, and Taiwan.

要　　約

保科 英人・Sun-Jae PARK：ニセクシヒゲタマキノコムシ属の日本からの新記録．――鞘翅目タマキノコムシ科 *Decuria* 属（和名新称：ニセクシヒゲタマキノコムシ属）の *D. smetanai* (ANGELINI et De MARZO, 1995)（和名新称：トウアニセクシヒゲタマキノコムシ）は，従来韓国と台湾から記録があった種であるが，本稿にて，北海道産標本を基に日本より初記録された．

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Three New Species of the Genus *Copris* (Coleoptera: Scarabaeidae) from China

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Abstract Three new species of the genus *Copris* are described from China under the names of *Copris* (*Copris*) *cheni* sp. nov., *C.* (*C.*) *yangi* sp. nov. and *C.* (*C.*) *quasilaevigatus* sp. nov.

When we examined a series of *Copris* specimens from China preserved in the first author's collection, we found three species that appeared different from all the known congeners. Two of these forms resemble *C.* (*C.*) *obenbergeri* BALTHASAR, 1933 and the another one *C.* (*C.*) *laevigatus* GILLET, 1927. However, after close examinations and comparisons, we concluded that all the three forms are new to science. Thus, we describe three new species of *Copris* (*Copris*) from China.

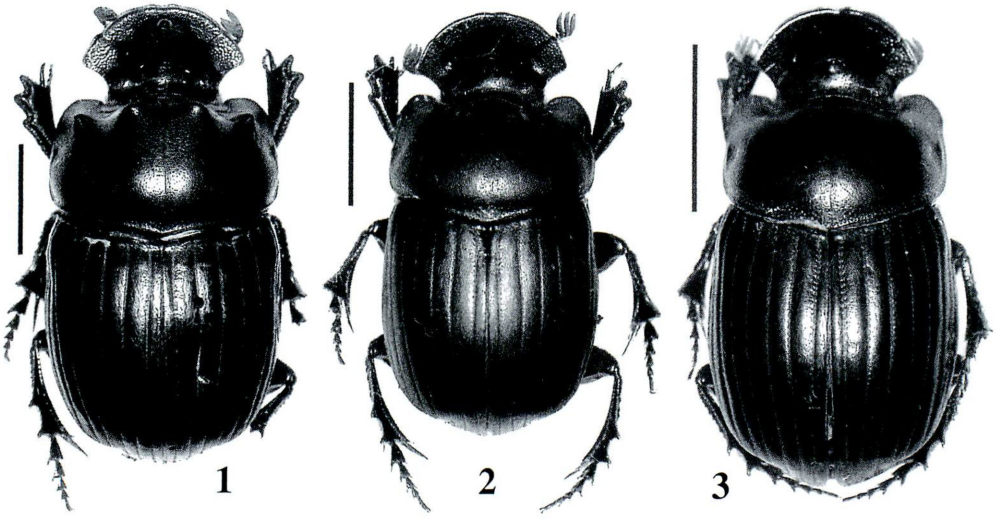
Copris (*Copris*) *cheni* sp. nov.

(Figs. 1, 4–6)

Length: 19.0–21.5 mm; width: 10.0–11.6 mm (n=5).

Body moderate-sized, oval, fairly strongly convex above; dorsal side weakly shining, entirely glabrous; ventral side shining; prosternum sparsely clothed with short to very long erect reddish brown hairs; mesosternum sparsely clothed with short recumbent reddish brown hairs; metasternum rather sparsely clothed with long erect reddish brown hairs except for the glabrous metasternal shield; abdominal sternites sparsely clothed with short recumbent reddish brown hairs in basal portion along margin. Colour uniformly black; mouth organs, palpi, antennae, and legs a little reddish

Male. Head transverse, semicircular anteriad in outline; clypeal margin shallowly and broadly incised at the middle, with either side of the incision very slightly lobed and reflexed, the remaining margin gently rounded, broadly bordered and a little reflexed; genae more strong-

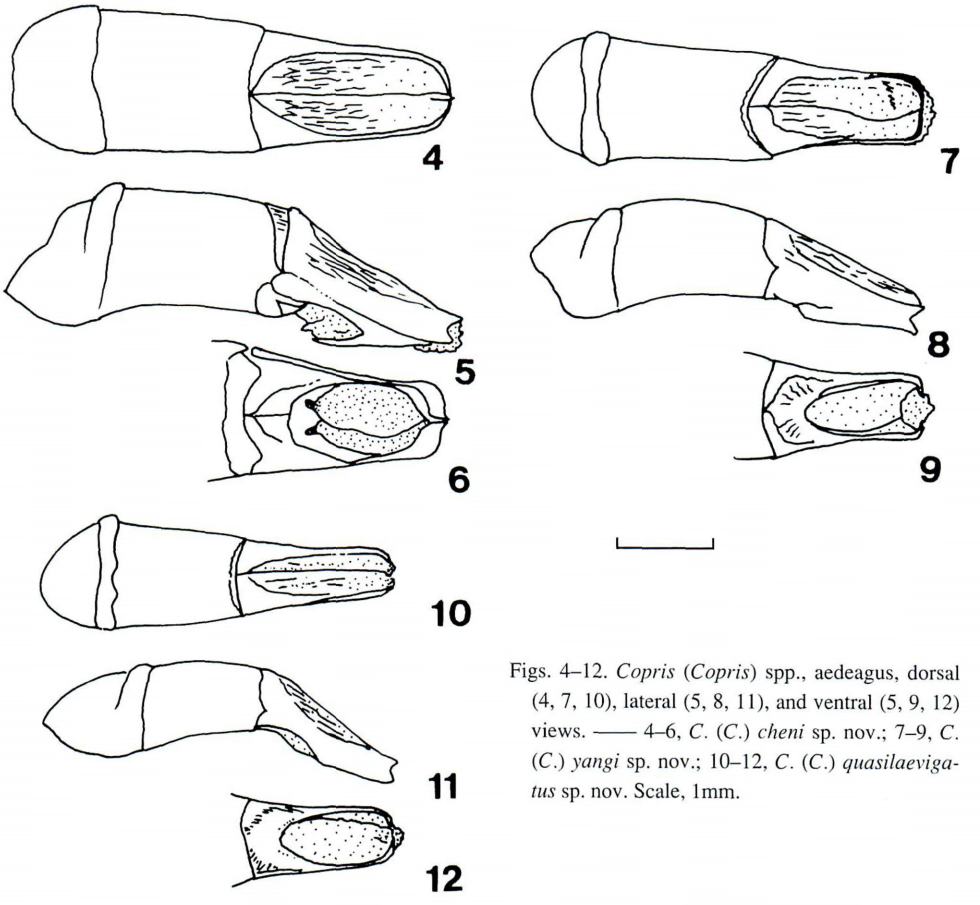


Figs. 1–3. *Copris* (*Copris*) spp., holotypes, males, habitus, dorsal views. —— 1, *C.* (*C.*) *cheni* sp. nov.; 2, *C.* (*C.*) *yangi* sp. nov.; 3, *C.* (*C.*) *quasilaevigatus* sp. nov. Scales, 5 mm.

ly produced laterad than in *C. obenbergeri*, with each genal corner a little narrower than a right angle, marginal border broad in front and narrow behind; clypeo-genal sutures clearly and somewhat deeply notched at each margin; cephalic horn located in the middle a little before the level of eyes, slender, about 2.3 to 3.5 mm in length (n=2), almost straight, sub-conical in cross-section at base, and a little tumid near apex which is rounded distally, without a pair of distinct teeth on posterior portion of base; surface weakly shining, densely and transversely rugose or sculptured or vaguely punctate on clypeus, irregularly sculptured around the horn, densely and strongly punctate on genae, the punctures becoming sparser and smaller towards vertex whose median portion is impunctate and smooth.

Pronotum strongly convex, about 1.5 times as wide as long (n=2), with a distinct median longitudinal groove along midline in basal two-thirds; anterior margin bi-sinuate, fairly broadly bordered, especially on either sinuation; lateral margins finely bordered, gently rounded though weakly sinuate before the middle; anterior angles broadly and entirely rounded, without a distinct corner; posterior angles obtuse; base transversely grooved along margin; basal margin clearly bordered throughout, obtusely angulate at the middle; disc steeply declivous just behind anterior margin, with the upper edge of the declivity bearing four transversely and equidistantly arranged obtuse prominences; the inner two prominences separated from outer two ones by a shallow vertical longitudinal groove on either side of the declivity; anterior face of the declivity weakly and longitudinally depressed in the middle, and slightly convex laterally just beneath the median two prominences; surface weakly shining, a little densely covered with strong punctures in the middle, finely and rather vaguely punctate on the declivity, the punctures becoming clearly denser and coarser towards sides and at base along margin.

Elytra strongly convex especially in the middle, about 1.2 times as wide as long (n=2), with ten striae on each elytron, the 9th and 10th almost confluent in basal third, 8th interrupted or missing halfway near apex, 1st and 10th, 2nd and 9th, 3rd and 8th joined at apex, 4th, 5th, 6th and 7th isolated or not distinctly joined mutually; all the striae strongly and rather widely



Figs. 4–12. *Copris* (*Copris*) spp., aedeagus, dorsal (4, 7, 10), lateral (5, 8, 11), and ventral (5, 9, 12) views. —— 4–6, *C.* (*C.*) *cheni* sp. nov.; 7–9, *C.* (*C.*) *yangi* sp. nov.; 10–12, *C.* (*C.*) *quasilaevigatus* sp. nov. Scale, 1mm.

grooved; strial punctures distinct, slightly notching both margins of intervals; intervals weakly convex, slightly shining except for lightly micro-granulose base, rather sparsely covered with small but distinct punctures, the punctures becoming larger and shallower towards base.

Prothorax with anterior angles distinctly excavated on the ventral side. Meta-sternum with a distinct median longitudinal fine groove along midline in basal three-fourths; metasternal shield glabrous, shining, sparsely and very finely punctate, with a small excavation a little before apex; lateral portions a little shining, densely covered with strong setiferous punctures. Pygidium transverse, weakly convex near apex, shining, a little densely covered with strong punctures. Protibia broad, with three external teeth; terminal spur strong, a little spatulate, incurved near apices.

Aedeagus robust, about 4.7–5.0 mm (n=2) in total length. Phallobase about 2.5–3.0 mm (n=2) in length from lateral view, about 1.3 mm (n=2) in apical width from dorsal view. Parameres fairly broad in dorsal view, about 2.0–2.2 mm (n=2) in length from lateral view; both dorsal lobes fairly fine, gently curved near apices from dorsal view, dorsal membranes well developed, very broad; ventral side with marginal portions sub-elliptically raised and looped in apical three-fourths, the sub-elliptical loop with two fully developed membranes, which are wholly and distinctly sub-granulate on the surfaces and has a small lobe on either basal end.

Female. Head with a somewhat elevated transverse lamina on frons, which is slightly emarginated at the summit; surface more closely and more strongly punctate or more strongly rugose. Pronotum less convex dorsally, briefly declivous in front, with the upper edge of the declivity rather obtusely and transversely carinate, the carina a little curved anteriorly; surface more strongly punctate than in male.

Type series. Holotype: ♂, Xizang (Tibet), China, VII. 1985. Paratypes: 1♂, 3♀♀, the same data as the holotype.

Type depository. The holotype will be deposited in the collection of the Institute of Zoology, Chinese Academy of Sciences, People's Republic of China.

Distribution. Xizang (Tibet), Western China.

Etymology. This species is named in honor of Prof. Sicien CHEN (Shikiang Cheng), the former leader of Group of Morphology and Evolution of Coleoptera, Institute of Zoology, Chinese Academy of Scieces, Beijing, China. Prof. CHEN was the founder and the former director of Institute of Zoology, Chinese Academy of Sciences, and he had made a great contribution on the research of insect from China.

Notes. The present new species is closely related to *Copris* (*Copris*) *obenbergeri* BALTHASAR from China, but can be distinguished from the latter by the following characteristics: 1) body is clearly larger; 2) each ventral side of meso- and metatibiae, especially in the male, is sparsely covered with fine transverse punctures on whole surface or at least on basal half, whereas in *C. obenbergeri*, it is rather sparsely to densely covered with distinct to strong punctures, at most only sparsely and finely punctate near bae; 3) elytral intervals are rather sparsely covered with small but distinct punctures instead of fine and rather indistinct punctate; 4) genae are more strongly produced laterad, with genal corners a little narrower than a right angle, whereas in *C. obenbergeri*, they are less produced laterad, with genal corners just right angle or a little wider; 5) male genitalia is clearly larger (4.7–5.0 mm in total length) and broader, with dorsal lobes of parameres gently curved near apices from dorsal view, whereas in *C. obenbergeri*, it is smaller (4.1–4.7 mm in total length), with dorsal lobes of parameres not gently curved near apices.

Copris* (*Copris*) *yang sp. nov.

(Figs. 2, 7–9)

Length: 15.2–18.3 mm; width: 7.7–9.6 mm (n=9).

Very similar to *C. obenbergeri*, though a little smaller. Body rather small-sized, oval, strongly convex above; dorsal side moderately shining, entirely glabrous at a glance though partly clothed with very fine inconspicuous hairs on head and pronotum; ventral side shining; prosternum sparsely clothed with short to very long erect reddish brown hairs; mesosternum sparsely clothed with short recumbent reddish brown hairs; metasternum rather sparsely clothed with long erect reddish brown hairs except for the glabrous metasternal shield; abdomen with sternites sparsely clothed with short recumbent reddish brown hairs in each basal portion along margin. Colour uniformly black; mouth organs, palpi, antennae, and legs a little reddish.

Male. Head transverse, semicircular anteriad in outline; clypeal margin shallowly and broadly incised at the middle, with either side of the incision slightly lobed and reflexed, the

remaining margin gently rounded, broadly bordered and a little reflexed; genae strongly produced laterd as well as *C. obenbergeri*, with each genal corner almost right angled, marginal border broad in front and narrow behind; clypeo-genal sutures clearly notched at each margin; cephalic horn located in the middle a little before the level of eyes, slender, about 1.8 mm in length in maximum-sized individual, a little curved backward, sub-conical in cross-section at base, and a little tumid near apex which is rounded distally, without a pair of distinct teeth on posterior portion of base; surface somewhat shining, densely and transversely rugose or vaguely punctate on clypeus, irregularly sculptured around the horn, densely and very strongly punctate on genae, the punctures becoming smaller towards vertex whose median portion is impunctate and smooth.

Pronotum strongly convex, about 1.5 to 1.6 times as wide as long (n=3), with an obtuse median longitudinal impression along midline in basal two-thirds; anterior margin bi-sinuate, very broadly bordered, especially on either sinuation; lateral margins finely bordered, gently rounded though slightly sinuate before the middle; anterior angles well produced forward, obtusely angulate; posterior angles obtuse; base transversely grooved along margin; basal margin clearly bordered throughout, obtusely angulate at the middle; disc briefly and a little steeply declivous just behind anterior margin, with the upper edge of the declivity bearing four transversely and equidistantly arranged obtuse prominences; the inner two prominences separated from outer two ones by a longitudinal groove on either side of the declivity; anterior face of the declivity weakly depressed in the middle; surface weakly shining, a little densely and somewhat evenly covered with strong punctures in the middle, rather sparsely punctate on the declivity, and the punctures becoming fairly denser and coarser towards sides and base, of which the former is also strongly rugose or distinctly sculptured.

Elytra strongly convex, about 1.0 to 1.1 times as wide as long (n=3), with ten striae on each elytron, the 9th and 10th almost confluent in basal third, 8th interrupted or missing halfway near apex, the 1st and 10th not distinctly joined at apex, 6th and 7th isolated; all the striae strongly and a little widely grooved; strial punctures distinct, slightly notching both margins of intervals; intervals weakly convex, a little shining except for lightly micro-granulose base, rather sparsely covered with small but distinct punctures, the punctures becoming larger and shallower towards base.

Prothorax with anterior angles distinctly excavated on the ventral side. Metasternum with a distinct median longitudinal fine groove along midline in basal three-fourths; metasternal shield glabrous, shining, sparsely and very finely punctate, with a small excavation a little before apex; lateral portions a little shining, densely covered with strong setiferous punctures. Pygidium transverse, weakly and evenly convex, shining, densely covered with strong and rather transverse punctures. Protibia broad, with three external teeth; terminal spur strong, a little spatulate, incurved near apices.

Aedeagus robust, about 4.0–4.5 mm (n=3) in total length. Phallobase about 2.6–2.9 mm (n=3) in length from lateral view, about 1.0–1.1 mm (n=3) in apical width from dorsal view. Parameres fairly broad in dorsal view, about 1.8–1.9 mm (n=3) in length from lateral view; both dorsal lobes fairly fine, strongly curved near apices from dorsal view, dorsal membranes well developed and very broad; ventral side with marginal portions sub-pentagonally raised and looped in apical two-thirds, the sub-pentagonal loop with two fully developed membranes, which are almost smooth except for narrow micro-reticulate portions on the surfaces.

Female. Head with a not so strongly elevated transverse lamina on frons, whose summit is

slightly emarginated dorsally in the middle and bi-tuberculate laterally; surface fairly strongly punctate or transversely rugose. Pronotum less convex dorsally, briefly and gently declivous in front, with the upper edge of the declivity obtusely and transversely carinate, the carina a little curved anteriorly; anterior angles rounded; surface more strongly punctate than in the male. Elytra with intervals a little strongly convex.

Type series. Holotype: ♂, Southeast Quinghai, China, VII. 1985. Paratypes: 5♂♂, 3♀♀, the same data as the holotype.

Type depository. The holotype will be deposited in the collection of the Institute of Zoology, Chinese Academy of Sciences, People's Republic of China.

Distribution. Sichuan, Southwestern China.

Etymology. This species is named in honor of Prof. Xing-Ke YANG, the leader of Morphology and Evolution of Coleoptera, the Institute of Zoology, Chinese Academy of Sciences, Beijing, China, who is the supervisor of the last author. As the successor of Prof. Sicien Chen, Prof., Yang has completed many significant projects and made a great contribution on reseach of Coleoptera from China.

Notes. The present new species is closely related to *Copris* (*Copris*) *obenbergeri* BALTHASAR from China, but can be distinguished from the latter by the following characteristics: 1) body is obviously smaller; 2) head is wholly densely and strongly punctate or sculptured except for impunctate vertexal median portion, whereas in *C. obenbergeri*, it is not wholly densely and strongly punctate or sculptured, especially with almost impunctate and smooth areas on antero-inner portions near eyes; 3) elytral intervals are slightly convex and rather sparsely covered with small but distinct punctures, whereas in *C. obenbergeri*, they are almost flat and very sparsely covered with distinctly fine punctures; 4) pronotum is a little densely and somewhat evenly covered with strong punctures a little behind the middle, whereas in *C. obenbergeri*, it is sparsely covered with distinctly fine punctures there; 5) male genitalia is clearly smaller (4.0–4.5 mm in total length) but relatively broader, with dorsal lobes of parameres strongly curved near apices from dorsal view, whereas in *C. obenbergeri*, it is a little larger (4.1–4.7 mm in total length), with dorsal lobes of parameres not rect-angularly curved near apices.

Copris* (*Copris*) *quasilaevigatus sp. nov.

(Figs. 3, 10–12)

Length: 15.1–19.4 mm; width: 7.7–10.8 mm (n=3).

Body moderate sized, oval, strongly convex above; dorsal side strongly shining, entirely glabrous at a glance though partly clothed with very fine inconspicuous hairs on head and pronotum; ventral side shining; prosternum sparsely clothed with short to very long erect reddish brown hairs; mesosternum sparsely clothed with short recumbent reddish brown hairs; metasternum rather sparsely clothed with long erect reddish brown hairs except for the glabrous metasternal shield; abdomen with sternites sparsely clothed with short recumbent reddish brown hairs in each basal portion along margin. Colour uniformly black; mouth organs, palpi, antennae, and legs a little reddish.

Male. Head transverse, semicircular anteriad in outline; clypeal margin shallowly and broadly incised at the middle, with either side of the incision distinctly lobed and reflexed, the remaining margin rather strongly rounded, broadly bordered and clearly reflexed; genae not so

strongly produced laterad, with each genal corner almost right angled, marginal border broad in front and narrow behind; clypeo-genal sutures clearly notched at each margin; cephalic horn located in the middle a little before the level of eyes, slender, about 2.5 mm in length in rather small-sized individual, a little curved backward, sub-conical in cross-section at base, and almost parallel-sided towards apex which is rounded distally, without a pair of distinct teeth on posterior portion of base; lateral and posterior faces of the horn compressed; surface shining and smooth, with clypeus very slightly wrinkled and almost impunctate, genae rather densely and strongly punctate, horn irregularly sculptured or granulate, a little sparsely covered with coarse to fine transverse punctures except for impunctate shining and smooth area.

Pronotum strongly convex, about 1.6 times as wide as long (n=2), with a very obtuse median longitudinal impression along midline in basal two-thirds; anterior margin strongly bisinuate, fairly broadly bordered, especially on either sinuation; lateral margins finely bordered, gently rounded though slightly sinuate before the middle; anterior angles well produced forward, distinctly rounded; posterior angles obtuse; base transversely grooved along margin; basal margin clearly bordered throughout, obtusely angulate at the middle; disc steeply declivous just behind anterior margin, with the upper edge of the declivity bearing four transversely and almost equidistantly arranged obtuse prominences; the inner two prominences separated from outer two ones by a well developed large groove on either side of the declivity; anterior face of the declivity weakly depressed in the middle; surface fairly shining and rather smooth, sparsely covered with faint punctures in the middle, the punctures becoming denser and clearly coarser towards sides and also at base along margin.

Elytra strongly convex, about 1.0 to 1.1 times as wide as long (n=2), with ten striae on each elytron, the 9th and 10th almost confluent in basal third, 8th interrupted or missing halfway near apex, the 1st and 10th, the 3rd and 8th distinctly, the 2nd and 9th not distinctly joined at apex, 4th, 5th, 6th and 7th isolated; all the striae strongly and a little widely grooved; strial punctures distinct, slightly notching both margins of intervals; intervals weakly convex, rather shining except for lightly micro-granulose base, sparsely covered with fine punctures, the punctures becoming larger towards base.

Prothorax with anterior angles distinctly excavated on the ventral side. Meta-sternum with a distinct median longitudinal fine groove along midline in basal two-thirds; meta-sternal shield glabrous, shining, sparsely and very finely punctate in the middle, coarsely but indefinitely on either side of anterior portion, with a small excavation a little before apex; lateral portions a little shining, densely covered with strong setiferous punctures. Pygidium transverse, gently and evenly convex, shining, densely covered with strong and round punctures. Protibia broad, with three external sharp teeth; terminal spur strong, a little spatulate, incurved near apices. Meso- and metatibiae with each ventral side a little densely covered with strong transverse punctures except for sparsely and finely punctate basal narrow portion.

Aedeagus robust, about 3.8–3.9 mm (n=2) in total length. Phallobase about 2.2–2.3 mm (n=2) in length from lateral view, about 1.0–1.1 mm (n=2) in apical width from dorsal view. Parameres slender and clearly narrow in dorsal view, about 1.6 mm (n=2) in length from lateral view; both dorsal lobes distinct and not narrow in apical portions in dorsal view, dorsal membranes not so broadly developed than the preceding two species; ventral side with marginal portions ovally raised and looped in apical three-fourths, the oval loop with two fully developed membranes.

Female. Head with a not so strongly elevated transverse lamina on frons, whose summit is

slightly emarginated dorsally in the middle and bi-tuberculate laterally; surface fairly strongly punctate or transversely rugose. Pronotum less convex dorsally, briefly declivous in front, with the upper edge of the declivity very obtusely and transversely carinate; anterior angles rounded; surface more strongly and more densely punctate than in the male except for sparsely and finely punctate on posterior half portion in the middle. Elytral intervals a little strongly convex.

Type series. Holotype: ♂, Sichuan, China, 1985. Paratypes: 1♂, 1♀, Xizang (Tibet), China, 1983.

Type depository. The holotype will be deposited in the collection of the Institute of Zoology, Chinese Academy of Sciences, People's Republic of China.

Distribution. Sichuan, Xizang (Tibet), Southwestern China.

Etymology. This species means that the present new species is similar to *Copris laevigatus* GILLET.

Notes. The present new species is closely related to *Copris* (*Copris*) *laevigatus* GILLET from Assam, but can be distinguished from the latter by the following characteristics: 1) pronotum with anterior angles are more strongly produced forward, whereas in *C. laevigatus*, they are less produced forward; 2) elytra with intervals are weakly convex, whereas in *C. laevigatus*, they are more strongly convex; 3) in the male, head is shining and smooth, with clypeus very slightly wrinkled and almost impunctate, whereas in *C. laevigatus*, it is distinctly punctate, rugose and sculptured, with clypeus strongly rugose or sculptured all over; 4) in the female, head has a not so strongly elevated transverse lamina on frons at the middle, whereas in *C. laevigatus*, it has a fairly strongly elevated transverse lamina there; 5) in the male genitalia, aedeagus is clearly smaller and shorter, with parameres clearly narrower from dorsal view.

Acknowledgments

We wish to express our cordial thanks to M. KAWAHARA for compared specimens. This study was supported in part by a Grant-in-Aid from the Japan Society for the Promotion of Science (No. 17405011).

要　　約

越智 輝雄・近　雅博・Ming BAI：中国のダイコクコガネ属の３新種．――中国からダイコクコガネ属の３新種を，*Copris* (*Copris*) *cheni* sp. nov., *C.* (*C.*) *yangi* sp. nov., *C.* (*C.*) *quasilaevigatus* sp. nov. とそれぞれ名付け記載した．

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GILLET J. J. E., 1927. Descriptions de Lamellicornes Coprophages nouveaux. *Annales de la Société Entomologique de Belgique*, **67**: 251–257.

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Contributions to the Knowledge of the Genus *Bolitogyrus* (Coleoptera: Staphylinidae) of China

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Abstract Three new species of the genus *Bolitogyrus* are described from China under the names of *Bolitogyrus flavus*, *B. elegantulus* and *B. nigerrimus*, with description of male specimen of *B. pictus*.

The genus *Bolitogyrus* of Quediina (Staphlininae) was established by CHEVROLAT in 1842 for a Neotropical species, *Quedius buphthalmus* ERICHSON. Up to the present, thirty species have been known from the world, and eight of them from China. Six species of the latter are known from Mainland of China and two from Taiwan.

Recently we were able to study some *Bolitogyrus* specimens from various localities of China and found a male of *B. pictus* SMETANA et ZHENG and three unknown species among them. Therefore, we are going to note some characters of the former species and to describe the latter three as new species under the names *Bolitogyrus flavus*, *B. elegantulus* and *B. nigerrimus*. All the type specimens are deposited in the Insect Collection of Department of Biology, Shanghai Normal University, Shanghai, China.

Terminology. Main terminology followed SMETANA, 1971 and SMETANA et ZHENG, 2000 except a part: fore body = from front margin of head to apices of elytra.

Bolitogyrus pictus SMETANA et ZHENG

(Figs. 1, 5–11)

Bolitogyrus pictus SMETANA et ZHENG, 2000. Elytra, 28: 62.

The original description of this species was based on the female. Therefore, we are going to describe the male of this species.

Specimen examined: 1 ♂, Menla Conv. (alt. 600–700 m), Xishuangbanna, Yunnan Prov., 9. VII. 2003, Jiao-Yao HU and Liang TANG leg.

Male. Body medium in size, length: 8.2 mm (length of fore body: 4.3 mm); head black, palpi and antennae pale yellowish; pronotum entirely reddish brown; elytra black, reddish yellow to reddish brown in posterolateral angles and posterior half of sutural area, with a large sub-

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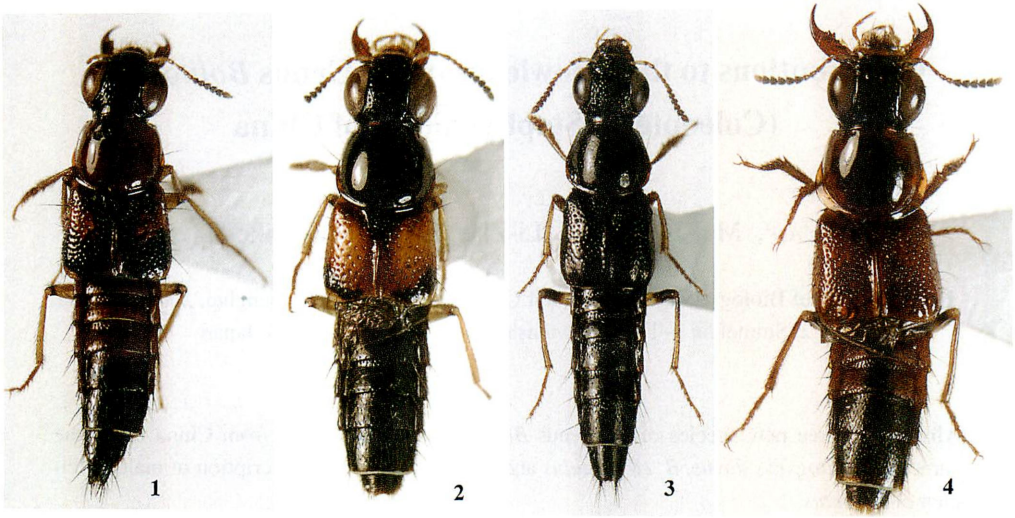


Figs. 1–4. Habitus of *Bolitogyrus* spp. — 1, *B. pictus*; 2, *B. flavus* sp. nov.; 3, *B. nigerrimus* sp. nov.; 4, *B. elegantulus* sp. nov.

triangular reddish macula in each basal half, which does not extend suture and parascutellar area; abdomen reddish brown in 3rd to basal area of 6th segments and black in the rest; legs reddish yellow, with apices of metafemora brownish.

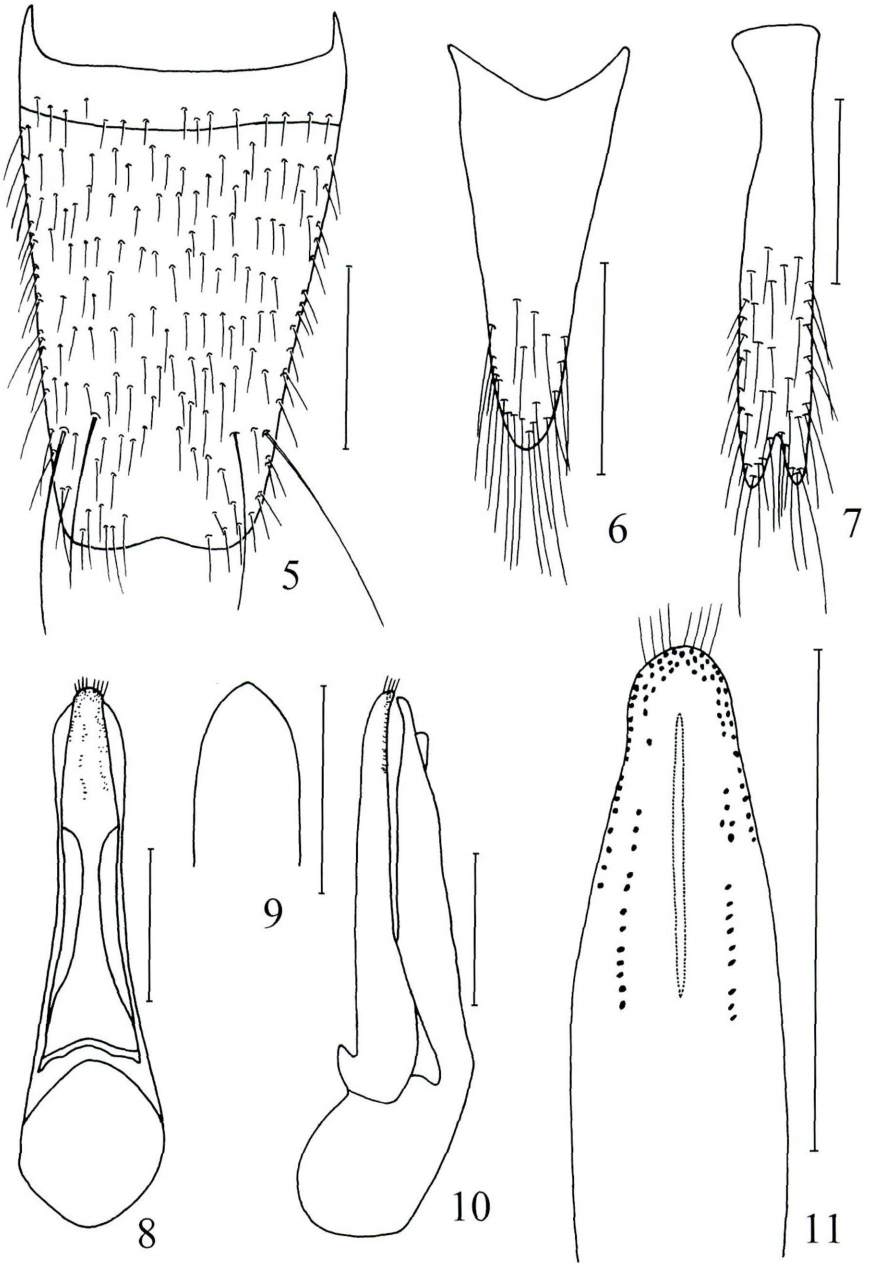
Head rounded, eyes very large and convex, temple very short, 0.13 times as long as eye in dorsal view; upper surface uneven, sparsely and finely punctured, without microsculpture, and with a Y-shaped impression on frons. Antennae short, barely reaching behind anterior angles of pronotum, and with the following relative length (width) of each segment from base to apex: 22.0 (6.0) : 10.0 (4.5) : 14.0 (4.5) : 7.0 (5.0) : 6.5 (5.5) : 7.0 (7.0) : 7.0 (7.5) : 7.0 (7.5) : 7.0 (8.0) : 7.0 (8.0) : 11.0 (7.5).

Pronotum 1.07 times as wide as and 1.11 times as long as head, strongly convex, broadly rounded off posteriorly and moderately narrowed anteriad; posterolateral and posterior margins abruptly and narrowly explanate; dorsal rows each with one puncture situated close to anterior margin, and large lateral one almost touching lateral margin; anterolateral corners sparsely, finely and superficially punctured; disc neither punctured nor microsculptured. Scutellum moderately large, with moderately large several punctures in middle portion.

Elytra (in sutural length) 0.67 times as long as pronotum, 0.48 times as long as wide; surface vaguely convex just before middle of each elytron, coarsely, moderately densely and irregularly punctured, without microsculpture.

Abdomen gradually narrowed posteriad, with exceedingly vague and fine, transversely striate microsculpture on all surface; 3rd to 5th tergites markedly and transversely depressed at each base and moderately coarsely punctured there ; 6th to 8th ones sparsely and finely punctured; 7th tergite with whitish apical seam of pallisade fringe; 10th (Fig. 6) elongate, rounded at apex, with numerous long setae in apical portion; 7th sternite concave medio-apically; 8th weakly and broadly emarginate at middle of apical margin, with a flattened, smooth triangular area before the emargination; 9th (Fig. 7) long and narrow, deeply and triangularly incised at apical margin.

Aedeagus (Figs. 8–11) symmetrical, elongate; median lobe (Figs. 8–10) subparallel-sided,



Figs. 5–11. *Bolitogyrus pictus*. — 5, Male sternite 8; 6, male tergite 10; 7, male sternite 9; 8, aedeagus in ventral view; 9, apical portion of aedeagus median lobe; 10, aedeagus in lateral view; 11, apical portion on underside of paramere. Scales = 0.5 mm.

abruptly convergent from near apex to the obtuse tip; parameres (Figs. 8, 10, 11) unilobed, elongate, slightly narrower than median lobe, slightly beyond apex of median lobe, with 8 long setae at the apicalmost portion; inner face of parameres (Fig. 11) bearing two paired rows of numerous sensory peg-setae in about apical third, one of them situated marginally and joined to each

other at apex, and the other situated beside median line; internal sac without sclerotized structure.

Distribution: China (Yunnan).

Remarks. The type locality of *Bolitogyrus pictus* described by SMETANA and ZHENG, 2000 is Puwen of Yunnan, near Menla where the present male specimen was collected. *B. pictus* can be easily recognized by its unique coloration.

Bolitogyrus flavus sp. nov.

(Figs. 2, 12–18)

Male. Body medium in size, length: 8.3 mm (length of fore body: 4.8 mm); head black, antennae and mouth organs reddish brown to yellowish brown; pronotum and scutellum dark brown; elytra reddish yellow, darkened in parascutellar area and sutural area, with a dark brown sublunate fascia just before each apical margin, which is not reaching suture and the margin; abdomen dark brown, reddish brown at apical margin of each tergite; legs testaceous.

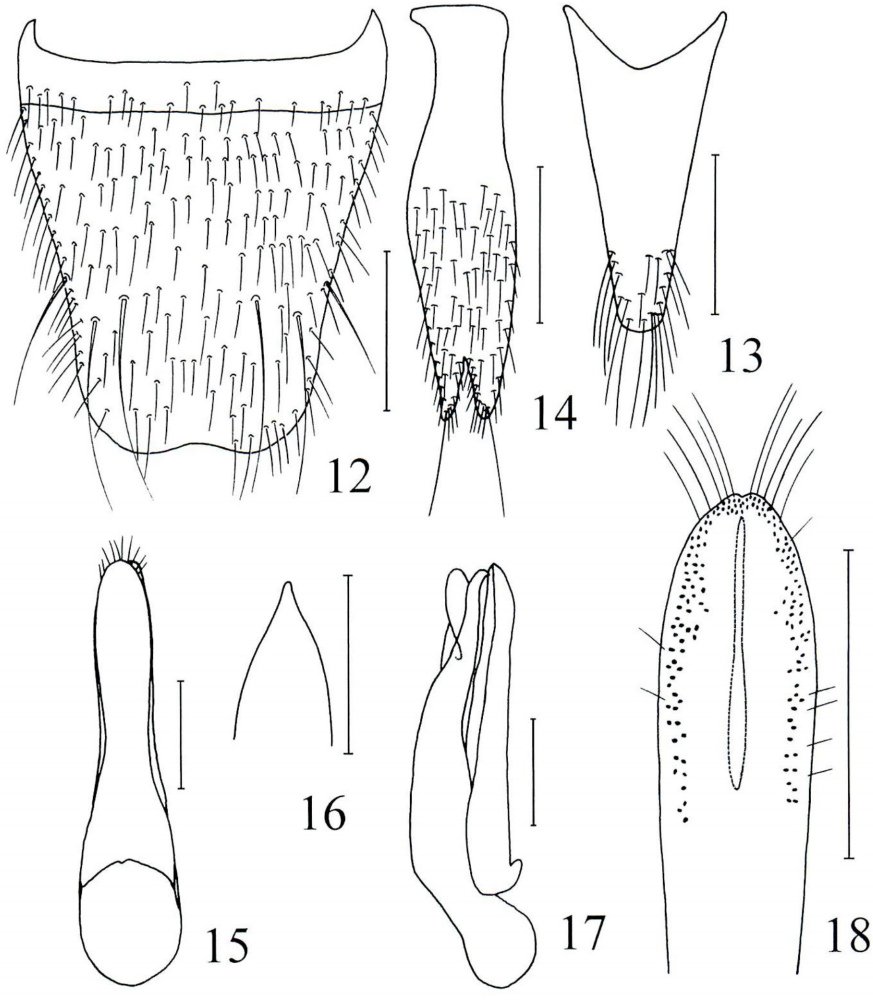
Head rounded, with very large and convex eyes; temple very short, 0.11 times as long as eye in dorsal view; upper surface very finely punctured, without microsculpture, with V-shaped impression on frons, and bearing 3 or 4 setiferous punctures along supraorbital margin between anterior and posterior frontal punctures; each posterior frontal puncture separated from inner posterior margin of eye in a distance of diameter of the puncture, and one additional setiferous puncture contiguous with that; temporal puncture situated very closely to posterior margin of eye, rather contact with margin. Antennae short, barely reaching anterior angles of pronotum, and with the following relative length (width) of each segment from base to apex: 23.0 (6.0) : 10.0 (5.0) : 13.5 (5.0) : 7.5 (5.0) : 7.0 (5.5) : 7.5 (7.5) : 7.5 (8.0) : 7.5 (8.5) : 7.5 (9.0) : 7.5 (9.0) : 12.0 (8.5).

Pronotum 1.04 times as wide as and 1.13 times as long as head, strongly convex, broadly rounded off basally and moderately narrowed anteriad; posterolateral and basal margins abruptly and narrowly explanate; disc almost impunctate, strongly polished, without microsculpture; dorsal rows each with one puncture situated close to anterior margin, and large lateral one almost touching lateral margin. Scutellum moderately large, with several coarse punctures in middle.

Elytra (in sutural length) 0.65 times as long as pronotum, 0.48 times as long as wide; surface vaguely convex just before the middle of each elytron, coarsely, sparsely and irregularly punctured, without microsculpture. Hind wings fully developed.

Abdomen gradually narrowed posteriad, with very dense and fine, transversely striate microsculpture on all surface; 3rd to 5th tergites transversely depressed at each base and coarsely and sparsely punctured in the depressions but sparsely punctured in the rest; 6th to 8th sparsely and finely punctured; 7th tergite with whitish apical seam of pallisade fringe; 10th (Fig. 13) elongate, rounded at apex, with numerous long setae in apical portion; 7th sternite slightly concave medio-apically; 8th weakly and broadly emarginate at apical margin, with a flattened, smooth triangular area before the emargination; 9th (Fig. 14) one elongate, with a deep and triangular incision at apical margin.

Aedeagus (Figs. 15–18) symmetrical, elongate; median lobe tapering apicad, with subacute apex; parameres unilobed, elongate, gently emarginate in middle portion of lateral sides,



Figs. 12–18. *Bolitogyrus flavus* sp. nov. — 12, Male sternite 8; 13, male tergite 10; 14, male sternite 9; 15, aedeagus in ventral view; 16, apical portion of aedeagus median lobe; 17, aedeagus in lateral view; 18, apical portion on underside of paramere. Scales = 0.5 mm.

carinate in apical third of dorsal sides, slightly broader than median lobe in apical half, slightly exceeding beyond apex of median lobe, with 5 long setae of various length at both sides of apex; inner face of parameres (Fig. 11) with very numerous sensory peg-setae arranged along apical third of marginal area; internal sac without sclerotized structure.

Female. Unknown.

Holotype: ♂, Manfei, Nabanhe Nature Reserve, Jinghong City, Yunnan Prov., 9. I. 2004, Li-Zhen LI and Liang TANG leg.

Distribution: China (Yunnan).

Remarks. The new species is well similar in general appearance to *Bolitogyrus vulneratus* (FAUVEL, 1878) from India, Nepal and Vietnam, but can be easily distinguished from the latter in the following characters: elytral reddish marking larger, not separated into flecks instead of

the separating into some flecks as in the latter; 1st antennomere almost as long as the following two segments combined together, 2nd a little shorter than the 3rd, and 11th apparently shorter than the preceding two segments combined together, while in the latter the 1st antennomere is shorter than the following two segments combined together, the 2nd is nearly as long as the 3rd, and the 11th is nearly as long as the preceding two segments combined together; 9th sternite of male very deeply and sharply incised at apex, but it is shallowly and arcuately emarginate in *vulneratus*.

Etymology. The specific name is derived from the coloration of elytra.

Bolitogyrus nigerrimus sp. nov.

(Figs. 3, 19–26)

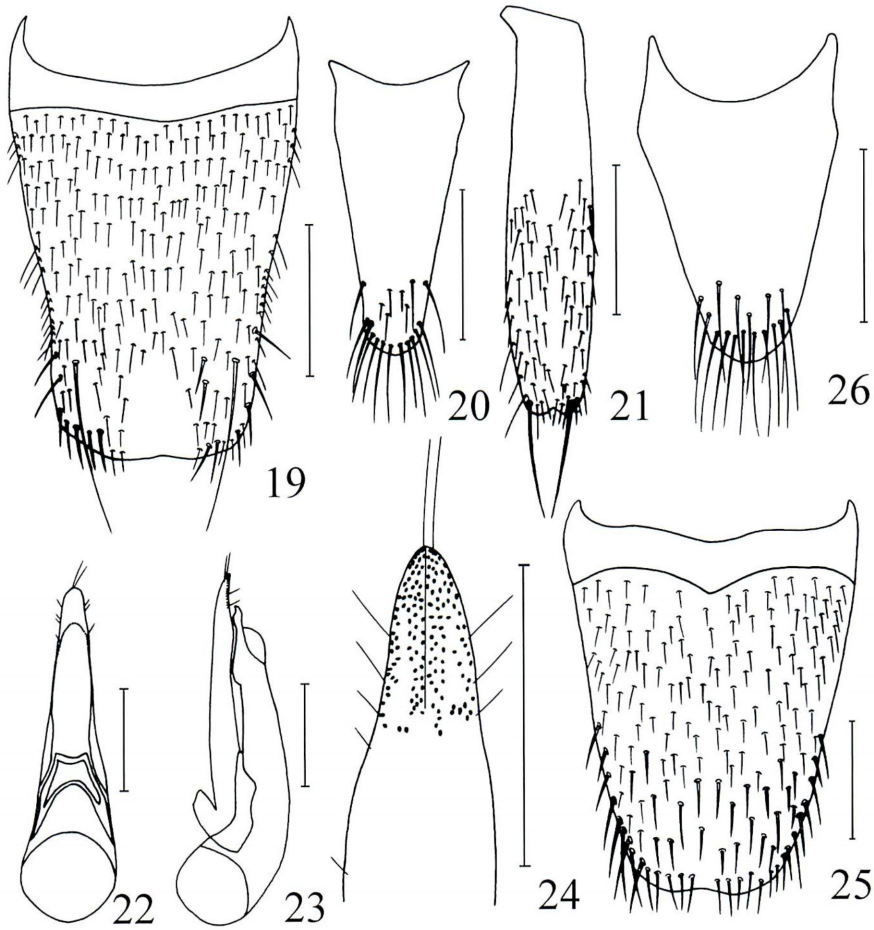
Male. Body medium-sized, length: 8.3–9.8 mm (length of fore body: 4.2–4.7 mm); colour black to piceous; antennae and mouth organs yellowish brown to reddish brown; abdomen dark brown, with posterior margin of each tergite reddish brown; legs yellowish brown to reddish brown, with apical third of femora and basal halves of tibiae dark brown.

Head rounded, with very large and convex eyes, temple considerably short, 0.17 times as long as eye in dorsal view; upper surface uneven and impressed in V-shape on frons, without microsculpture, coarsely and rather densely punctured, and bearing 3 or 4 setiferous punctures along supraorbital margin between anterior and posterior frontal punctures; each posterior frontal puncture separated from inner posterior margin of eye in a distance of diameter of the puncture, and one additional setiferous puncture contiguous with that puncture; temporal puncture situated very closely to posterior margin of eye, almost contact with margin. Antennae short, barely reaching anterior angles of pronotum, and with the following relative length (width) of each segment from base to apex: 26.0 (6.0) : 12.0 (5.5) : 15.0 (5.5) : 7.5 (5.5) : 7.5 (5.5) : 7.0 (8.0) : 7.0 (8.5) : 7.5 (8.5) : 7.5 (9.0) : 7.5 (9.0) : 13.0 (9.5).

Pronotum 1.13 times as wide as head and 1.18 times as wide as long, strongly transversely convex, broadly rounded off basally and moderately narrowed anteriad; posterolateral and basal margins abruptly and narrowly explanate; disc strongly polished, without microsculpture, with punctures very fine and sparse, mingled with somewhat coarse punctures; dorsal rows each with one puncture situated close to anterior margin, and large lateral one almost touching lateral margin; anterolateral corners and posterolateral ones rather densely and moderately coarsely punctured, but a little more sparsely so in the latter. Scutellum moderately large, with several coarse punctures in middle.

Elytra (in sutural length) 0.83 times as long as pronotum, 0.63 times as long as wide; surface convex just before the middle of each elytron, devoid of microsculpture, coarsely and moderately densely punctured, and the punctures becoming finer towards suture. Hind wings fully developed.

Abdomen narrowed posteriad, with very fine, dense and transversely striate microsculpture on all surface; 3rd to 6th tergites transversely depressed at each base, almost impunctate except for the moderately coarsely and densely punctured depressed areas; 7th and 8th ones sparsely and finely punctured; 7th tergite with whitish apical seam of pallisade fringe; 10th (Fig. 20) elongate, narrowed towards arcuate apex, with numerous long setae in apical portion; 7th sternite slightly concave medio-apically; 8th (Fig. 19) weakly and broadly emarginate at apical



Figs. 19–26. *Bolitogyrus nigerrimus* sp. nov. — 19, Male sternite 8; 20, male tergite 10; 21, male sternite 9; 22, aedeagus in ventral view; 23, aedeagus in lateral view; 24, apical portion on underside of paramere; 25, female tergite 8; 26, female tergite 10. Scales = 0.5 mm.

margin, with a large flattened and smooth triangular area before the emargination; 9th (Fig. 21) elongate, with somewhat emarginate at apical margin.

Legs moderately long and slender; basal 4 protarsomeres distinctly dilated, somewhat bilobate in dorsal view, with modified pale setae ventrally.

Aedeagus (Figs. 22–25) symmetrical, elongate; median lobe narrowed apicad, obtuse at apex; parameres unilobed, markedly extending beyond apex of median lobe, gently emarginate in basal half of lateral sides, carinate in apical third of dorsal sides, slightly broader than median lobe in apical half, with 2 long setae and 3 to 5 setae of various length at apex; inner face of parameres (Fig. 24) with very numerous sensory peg-setae scattered in the apical third; internal sac without sclerotized structure.

Female. Legs a little more slender, basal 4 protarsomeres less dilated, 8th tergite only weakly emarginate at the middle of apical margin, and 10th tergite simply rounded at apex.

Holotype: ♂, Lianhuaping (alt. 1,450–1,500 m), Mt. Leigong, Guizhou Prov., 9. I. 2004, Li-Long ZHU leg. Paratype: 5♂♂, 2♀♀, same data as the holotype.

Distribution: China (Guizhou).

Remarks. The new species is well similar in general appearance to *Bolitogyrus kitawakii* SMETANA et ZHENG, 2000 from Sichuan, China, but can be easily distinguished from the latter by the following characters: in the present new species body is almost black, without metallic lustre in elytra, the 9th sternite of abdomen is narrow, nearly parallel-sided and parameres are as wide as median lobe in the apical portion, while in the latter species at least the elytra is with strong metallic blue lustre, the 9th sternite is wide, distinctly dilated in middle and parameres are much wider than median lobe in the apical portion.

Etymology. The specific name is derived from the coloration of body.

Bolitogyrus elegantulus sp. nov.

(Figs. 4, 27–35)

Male. Body large in size, length: 11.2–12.8 mm (length of fore body: 6.5–7.7 mm); head black, mouth organs reddish brown, antennae reddish brown, with 6th to 10th segments darkened and 11th yellowish; pronotum reddish brown, with a large blackish spot in middle; elytra reddish brown; abdomen reddish brown in 3rd to 5th segments, with a wide black median stripe on each tergite; 6th to terminal segments black to dark brown; legs yellowish brown to reddish brown, each femur with a dark brown spot at the outside just before apex.

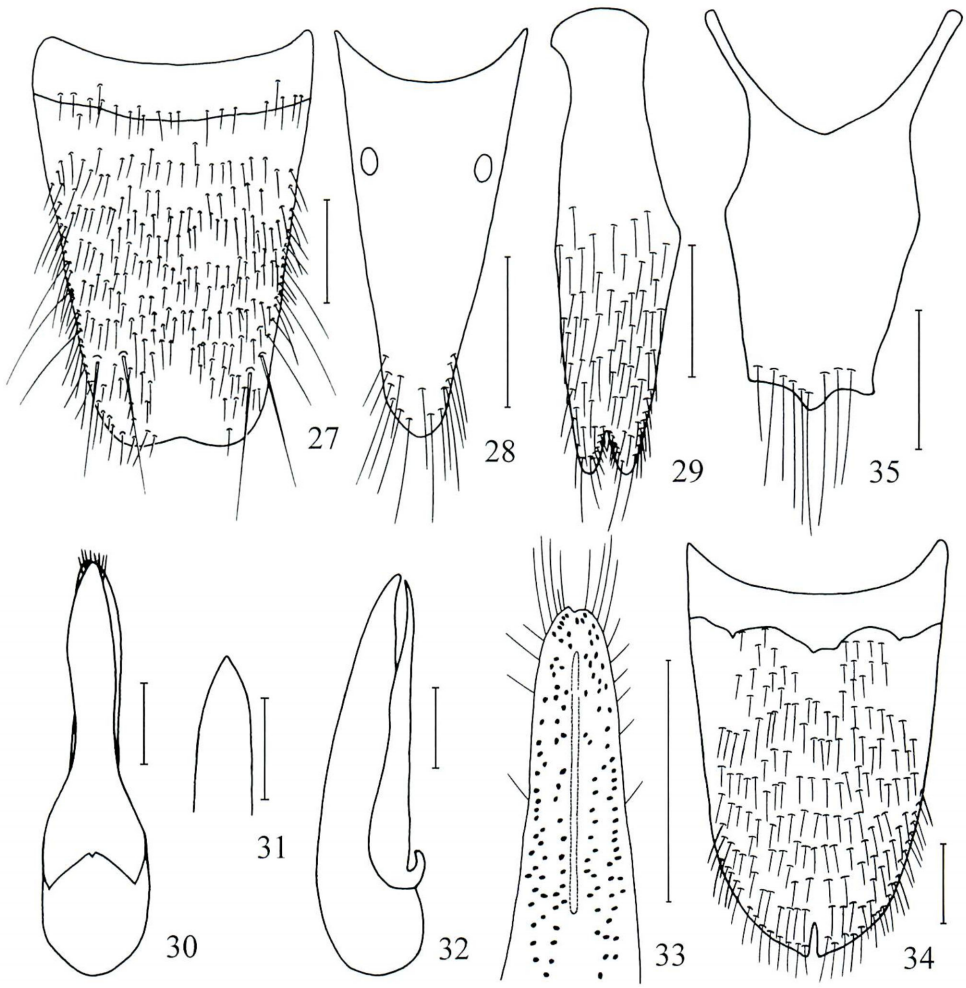
Head rounded, with very large and convex eyes, temple considerably short, 0.15 times as long as eye in dorsal view; upper surface superficially and coarsely punctured, without microsculpture, slightly uneven and impressed in Y-shape on frons, bearing 3 or 4 setiferous punctures along supraorbital margin between anterior and posterior frontal punctures; each posterior frontal puncture separated from inner posterior margin of eye in a distance of diameter of the puncture, and one additional setiferous puncture placed just behind that; temporal puncture situated very closely to posterior margin of eye, almost contact with margin. Antennae short, barely reaching anterior angles of pronotum, and with the following relative length (width) of each segment from base to apex: 30.0 (8.0) : 13.0 (7.0) : 17.0 (7.0) : 11.5 (7.5) : 10.0 (8.0) : 10.5 (11.0) : 10.0 (11.0) : 10.0 (11.5) : 10.5 (12.0) : 10.5 (12.0) : 13.0 (11.0).

Pronotum 1.06 times as wide as head and 1.16 times as wide as long, markedly transversely convex, broadly rounded off basally and moderately narrowed anteriad; posterolateral and basal margins abruptly and narrowly explanate; disc strongly polished, neither punctured nor microsculptured; dorsal rows each with one puncture situated close to anterior margin, and large lateral one almost touching lateral margin; anterolateral corners almost impunctate.

Scutellum moderately large, with several moderately coarse punctures in middle.

Elytra (in sutural length) 0.70 times as long as pronotum, 0.51 times as long as wide; surface convex just before the middle of each elytron, without microsculpture, moderately coarsely, and densely punctured, and the punctures becoming finer towards suture. Hind wings fully developed.

Abdomen narrowed apicad, with very fine and transversely striate microsculpture on all surface; 3rd to 5th tergites finely and sparsely punctured, transversely depressed at each base, where the punctures are moderately coarse and dense; 6th to 8th rather densely and finely punctured, 7th with whitish apical seam of pallisade fringe; 10th (Fig. 28) elongate, narrowed towards arcuate apex, with numerous long setae in apical portion; 7th sternite slightly concave



Figs. 27–35. *Bolitogyrus elegantulus* sp. nov. — 27, Male sternite 8; 28, male tergite 10; 29, male sternite 9; 30, aedeagus in ventral view; 31, apical portion of aedeagus median lobe; 32, aedeagus in lateral view; 33, apical portion on underside of paramere; 34, female tergite 8; 35, female sternite 10. Scales = 0.5 mm.

medio-apically; 8th (Fig. 27) very weakly emarginate at apical margin, with a large, flattened, and smooth triangular area before the emargination; 9th (Fig. 29) elongate, deeply and subtriangularly emarginate at apical margin.

Legs moderately long and slender; basal 4 protarsomeres distinctly dilated, somewhat bilobate in dorsal view, with modified pale setae ventrally.

Aedeagus (Figs. 30–33) symmetrical, elongate; median lobe tapering apicad, with obtuse apex; parameres unilobed, barely reaching beyond apex of median lobe, gently emarginate in median third of lateral sides, carinate in apical fourth of dorsal sides, as wide as median lobe in apical third, with 4 or 5 long setae of various length on each side of apex and 3 to 5 setae of various length at apex; inner face of parameres (Fig. 33) with very numerous sensory peg-setae scattered in the apical third, the setae somewhat arranged into four longitudinal rows; internal sac without sclerotized structure.

Female. Legs a little more slender, basal 4 protarsomeres less dilated, 8th tergite (Fig. 34) with narrow deep emargination at the middle of apical margin, and 10th tergite (Fig. 35) bi-emarginate at apical margin, a little protuberant at the middle, with several long setae before the margin.

Holotype: ♂, Manfei, Nabanhe Nature Reserve, Jinghong City, Yunnan Prov., 10. I. 2004, Li-Zhen LI and Liang TANG leg. Paratype: 1♀, same locality and collector as the holotype, 9. I. 2004.

Distribution: China (Yunnan).

Remarks. The new species is a little similar in general appearance to *Bolitogyrus rufomaculatus* (SHIBATA, 1979) from Taiwan, China, but can be easily distinguished from the latter by the following characters: pronotum bi-colorous, elytra and basal three segments of abdomen reddish brown, 10th tergite of female bi-emarginate at the apical margin, while in the latter species pronotum unicolorous, black, elytra black with reddish maculations, and abdomen black.

Etymology. The specific name is derived from the beautiful coloration of the new species.

Discussion

SMETANA et ZHENG (2000) divided *Bolitogyrus* species of China into two groups according to the structure of pronotum: one group is strongly coarsely punctured in each anterior corner of pronotum, and the other finely so or almost impunctate there. The former group includes *elegans*, *nigropolitus*, *cyanipennis* and *kitawakii*, and the latter includes *fukienensis*, *pictus*, *rufomaculatus* and *taiwanensis*. Among the new species, *nigerrimus* sp. nov. belongs in the former group, and *flavus* sp. nov. and *elegantulus* sp. nov. in the latter.

But, as a result of our careful examination of known and unknown species of Chinese *Bolitogyrus*, we concluded that the species are divided into two natural groups by the combination of the characters mentioned in the following key:

1. Prosternum markedly carinate medially; pronotum distinctly coarsely punctured in anterolateral corners; female 8th sternite of abdomen simple, without incision. .... *B. nigerrimus* sp. nov., *B. kitawakii*

— Prosternum not carinate; pronotum at most finely and sparsely punctured in anterolateral corners; female 8th sternite of abdomen with a round incision at apical margin. .... *B. flavus* sp. nov., *B. elegantulus* sp. nov., *B. pictus*, *B. rufomaculatus*, *B. taiwanensis* (We were unable to examine the other species.)

Acknowledgements

We would like to express our hearty thanks to Dr. Kiyoshi ANDO, Faculty of Agriculture, Ehime University, Matsuyama for critically reading the manuscript, and to Messrs. Jia-Yao HU, Liang TANG and Li-Long ZHU for offering us some materials used in the present study.

要　　約

袁　鑫，李　利珍，趙　梅君，林　靖彦：中国産 *Bolitogyrus* オオメツヤムネハネカクシ属（新称）覚え書き.——— 中国産本属の種は，既に 8 種報告されているが，今回 3 新種，*B. flavus, B. eleganturus, B. nigriceps* を記載するとともに，雌のみで記載された *B. pictus* の雄の記載を行った．また，併せて種群の検討を行い，2 つの自然群に分れることを明らかにした．

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New Species of the Genus *Onthophagus* (Coleoptera: Scarabaeidae) from Thailand

Part 1. Ten New *Onthophagus* from Various Areas of Thailand

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Abstract As the first part of the present study on the Thai species of the scarabaeid genus *Onthophagus*, ten new species from various areas of Thailand are dealt with. The new species are described under the following names: *Onthophagus* (*Indachorius*) *baenzigeri* sp. nov.; *O.* (s. str.) *iumienus* sp. nov.; *O.* (s. str.) *akhaus* sp. nov.; *O.* (*Parascatonomus*) *utsunomiyae* sp. nov.; *O.* (s. str.) *tungkamangesis* sp. nov.; *O.* (*Parascatonomus*) *chiangraiensis* sp. nov.; *O.* (*Indachorius*) *maephaluangus* sp. nov.; *O.* (s. str.) *apunneeae* sp. nov.; *O.* (s. str.) *phukhieoensis* sp. nov.; *O.* (*Indachorius*) *jingping* sp. nov.

The genus *Onthophagus* is one of large groups in the family Scarabaeidae. Diversity of the species is seen particularly in the tropical areas including Southeast Asia. In spite of its richness in the *Onthophagus* fauna of Thailand, only a few species have been recorded and described until now. SHARP (1875) was the first author who described the species of this genus from Thailand as *Onthophagus rudis* from "Siam". BOUCOMONT (1923) described *O. siamensis*, but it is regarded at present as a junior synonym of *O. dayacus* BOUCOMONT. ARROW (1931) mentioned Siam as a distributional area of less than ten species. PAULIAN (1945) recorded four *Onthophagus* (*O. discedens* SHARP, *O. bonasus* FABRICIUS, *O. pacificus* LANSBERGE and *O. taurinus* WHITE) from this area. BALTHASAR (1963) described *O. aerumonosus*, and ZUNINO (1976) described *O. bonarae*.

In his detailed survey concerning the coprophagous beetles from North Thailand, MASUMOTO (1987–1996) described more than 30 new species. KABAKOV (1994) described *O. thai* from Thailand, and he and NAPOLOV (1999) recorded 43 *Onthophagus* species as the fauna of Thailand. HANBOONSONG *et al.* (1999) listed 42 named and 60 undetermined species from Northeast Thailand. MASUMOTO, HANBOONSONG and OCHI (2002 a) and MASUMOTO, OCHI and HANBOONSONG (2002 b) described 23 new species in total from various areas of Thailand, but still a large number of unknown species remain in the collections of the National Science Museum (Nat. Hist.), Tokyo and the Entomological Museum in the Faculty of Entomology, Khon Kaen University.

The present authors have decided to re-start in a more detailed study of Thai *Onthophagus*. As the first step of the present study, they are dealing with ten new species of the genus *Onthophagus* from various areas of Thailand.

Acknowledgements

Deep thanks should be expressed to the TRF/BIOTEC Special Programme for Bio-diversity Research and Training Grant of Thailand: BRT 142012 for their financial support and to Dr. Hans BÄNZIGER, National Chiang Mai University, who offered materials of his collections from North and South Thailand. The authors also thank Dr. Makoto KIUCHI, Tsukuba City, for taking clear photographs of the type specimens inserted in this paper.

Depositories of the holotypes of the new species to be described are given in the text with the following abbreviations: NSMT (=National Science Museum (Nat. Hist.), Tokyo, Japan), EMKKU (=Entomology Department Museum, Faculty of Agriculture, National Khon Kaen University, Khon Kaen, Thailand). EACU (=Entomology Department Museum, Faculty of Agriculture, National Chiang Mai University, Chiang Mai, Thailand).

Description of New Species

Onthophagus (*Indachorius*) *baenzigeri* sp. nov.

(Figs. 1, 11 and 12)

Brownish black, head and pronotum with feeble coppery tinge, each elytron almost black with a reddish yellow patch at humeral part and often also with small one near apex; outer margin of head and legs dark reddish brown, hairs on surfaces brownish yellow; head weakly, sericeously shining, pronotum rather strongly, viterously so, elytra weakly shining, ventral surface alutaceously shining; each surface covered with long, suberect hairs. Body subovate, rather strongly convex, though the elytra are weakly depressed in medial parts.

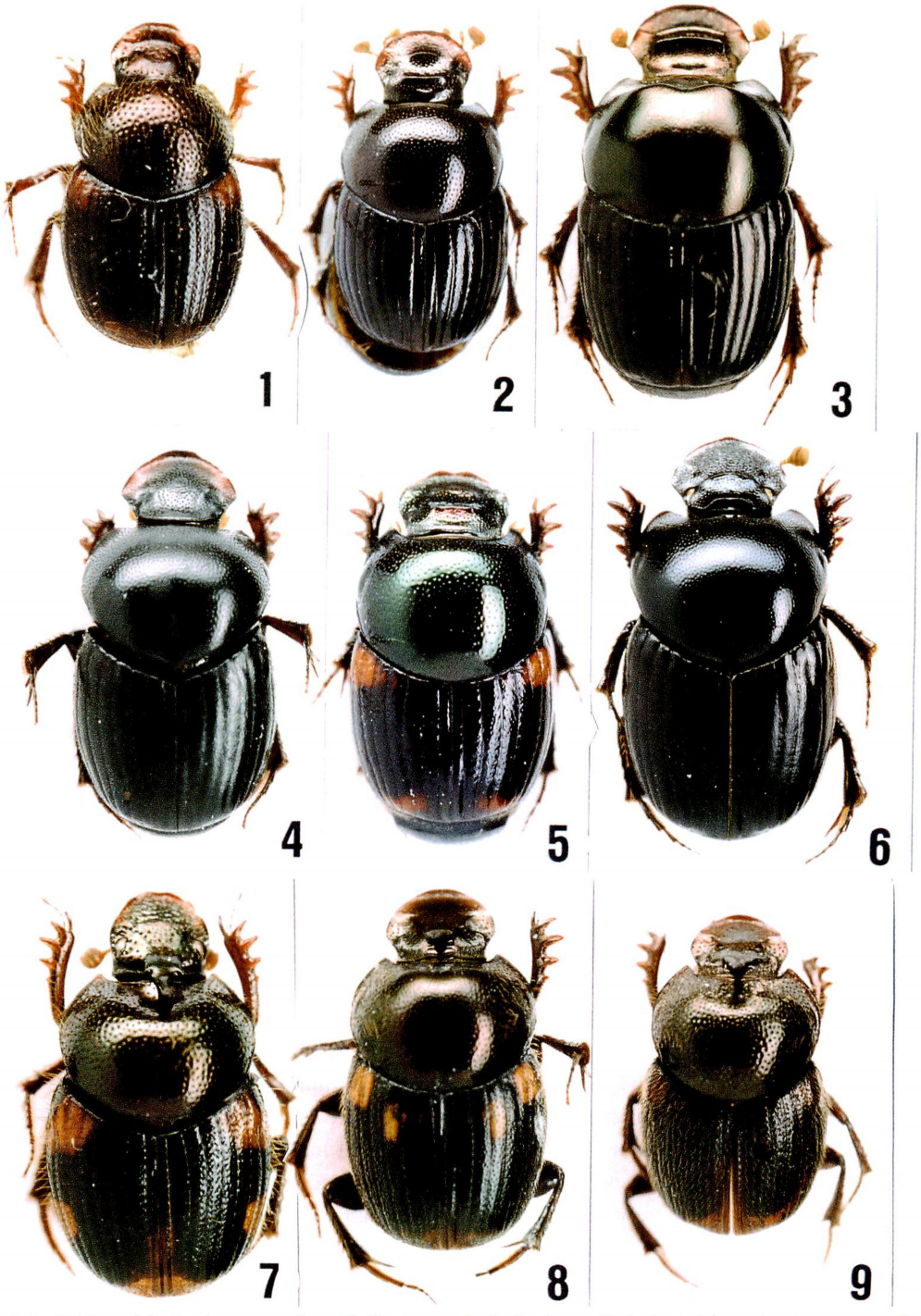
Male. Head subhexagonal, gently raised posteriad, covered with isodiametric microsculpture, sparsely and irregularly scattered with punctures; clypeus transverse, gently inclined apicad, with apical margin roundly produced and feebly reflexed; fronto-clypeal border curved anteriad and ridged, clypeo-genal borders ridged, and connected with fronto-clypeal ridge; genae (ocular lobes) feebly depressed, with outer margins roundly produced and rimmed; frons feebly narrowed posteriad, not tuberculate but weakly swollen in posterior parts, with fronto-genal margins weakly ridged in anterior parts; vertex gently inclined posteriad. Eyes crescent-shaped, slightly larger than in the members of *Onthophagus* (but not so large like those in the subgenus *Micronthophagus*).

Pronotum 1.33 times as wide as long; apex emarginate, feebly produced anteriad in middle; front angles acutely angulate, hind angles rounded; base roundly produced; lateral margins roundly produced; disc strongly convex, rather closely, deeply punctate, each puncture with a long suberect hair, with an impunctate area along midline anteriorly.

Elytra shallowly punctato-striate, the punctures in striae notching intervals; intervals feebly convex, with rows of haired punctures along the striae.

Pygidium gently convex in middle, vitreously shining, rather closely punctate, each puncture with a fine, rather long hair. Male genitalia 1.30 mm in length in lateral view, 0.60 mm in width in dorsal view.

Legs medium-sized in the members of *Onthophagus*; protibia with three outer teeth, and



Figs. 1–9. Habitus of *Onthophagus* spp. from Thailand. —— 1, *Onthophagus* (*Indachorius*) *baenzigeri* sp. nov., male, holotype; 2, *O.* (s. str.) *iumienus* sp. nov., male, holotype; 3, *O.* (s. str.) *akhaus* sp. nov., male, holotype; 4, *O.* (*Parascatonomus*) *utsunomiyae* sp. nov., male, holotype; 5, *O.* (s. str.) *tungkamangensis* sp. nov., male, holotype; 6, *O.* (*Parascatonomus*) *chiangraiensis* sp. nov., female, holotype; 7, *O.* (*Indachorius*) *maephaluangus* sp. nov., male, holotype; 8, *O.* (s. str.) *apunneeae* sp. nov., male, holotype; 9, *O.* (s. str.) *phukhieoensis* sp. nov., male, holotype.

often with a very small fourth tooth behind the third, terminal spur rather bold, curved ventrad; ratios of the lengths of spur of metatibia and metatarsal segments: 0.61; 1.00, 0.29, 0.15, 0.12, 0.31.

Female. Head more coarsely punctate; clypeus transversely rugulose; genae more strongly produced laterad; frons with a pair of low oblique ridges in posterior part, which are often connected with the fronto-genal ridges, thus form an obpentagonal space.

Body length: 3.5mm.

Holotype: ♂, Phato, Chumphon, Prov., Thailand, 2. III. 2006, H. BÄNZIGER leg. (EACU). Paratypes: 1 ex., same data as the holotype; 2 exs., same locality and collector, 3. III. 2006.

Notes. The present new species resembles *Onthophagus* (*Indachorius*) *phetchabunensis* MASUMOTO, OCHI et HANBOONSONG, 2002, from North Thailand, but can be distinguished from the latter by the head without a pair of small tubercles at the mid-eye level in both sexes, the clypeal margin rounded at the apex (truncate in *O. phetchabunensis*), the posterior part of head noticeably micro-shagreened (only weakly so in *O. phetchabunensis*), and the protibia with four external teeth (three in *O. phetchabunensis*).

The specific name is given in honor of Dr. Hans BÄNZIGER, National Chiang Mai University, who collected the type specimens.

Onthophagus (s. str.) ***iumienus*** sp. nov.

(Figs. 2, 13 and 14)

Piceous, major part of head and pronotum with coppery tinge, anterior margin of head, scape and legs dark reddish brown, funicles, mouth parts and gula yellowish brown; each surface rather strongly shining and almost glabrous, antennal club covered with pale short hairs. Body compact, convex dorsad though the posterior part is flattened.

Male. Head transversely subelliptical, rather closely covered with small punctures; clypeus transverse, raised medio-posteriad, with apical margin rounded, reflexed, and very slightly truncate in front, feebly, transversely rugulose in some specimens; fronto-clypeal border ridged in medial half; ocular lobes somewhat rhombic, gently inclined laterad, with outer margins obtusely produced; frons rather obtrapezoidal, transversely concave, with a straight ridge along the border of vertex at the level of the midst of eyes; vertex rather steeply inclined posteriad. Eyes crescent-shaped and rimmed.

Pronotum 1.43 times as wider as long; apex finely rimmed, weakly produced in middle, feebly sinuous in lateral parts; front angles slightly acute but not distinctly project in dorsal view, hind angles feebly obtuse (nearly rounded); lateral margins clearly bordered and finely rimmed, rounded in dorsal view, weakly sinuous before hind angles in lateral view; base finely rimmed, almost rounded, very slightly angled at the centre; disc convex, smooth, rather closely punctate, the punctures slightly larger than those on head, with a pair of obsolete impressions and also of weak swells at the middle on each side.

Elytra shallowly punctato-striate, the punctures in striae weakly notching intervals; intervals slightly convex, scattered with minute punctures, irregularly and weakly wrinkled.

Pygidium gently convex, rather closely and irrregularly punctate, each puncture with suberect seta. Male genitalia 1.30 mm in length in lateral view, 0.44 mm in width in dorsal view.

Legs ordinary for a member of the genus; protibia with four outer teeth; ratios of the

Figs. 10–28. *Onthophagus* spp. from Thailand. —— 10, Habitus of *O.* (*Indachorius*) *jingping* sp. nov., male, holotype; 11–28, male genitalia; 11–12, *O.* (*Indachorius*) *baenzigeri* sp. nov., 11, lateral view, 12, frontal view; 13–14, *O.* (s. str.) *iumienus* sp. nov., 13, lateral view, 14, frontal view; 15–16, *O.* (s. str.) *akhaus* sp. nov., 15, lateral view, 16, frontal view; 17–18, *O.* (*Parascatonomus*) *utsunomiyae* sp. nov., 17, lateral view, 18, frontal view; 19–20, *O.* (s. str.) *tungkamangensis* sp. nov., 19, lateral view, 20, frontal view; 21–22, *O.* (*Indachorius*) *maephaluangus* sp. nov., 21, lateral view, 22, frontal view; 23–24, *O.* (s. str.) *apunneeae* sp. nov., 23, lateral view, 24, frontal view; 25–26, *O.* (s. str.) *phukhieoensis* sp. nov., 25, lateral view, 26, frontal view; 27–28, *O.* (*Indachorius*) *jingping* sp. nov., 27, lateral view, 28, frontal view.

lengths of spur of metatibia and metatarsal segments: 0.93; 1.0, 0.39, 0.28, 0.21, 0.38.

Female. Frontal ridge along the border of vertex obviously shorter; punctures on pronotum stronger; terminal spurs of tibiae slenderer.

Body length: 4.3–4.6 mm.

Holotype: ♂, Mae Sa Vill., Chiang Mai Prov., N. Thailand, 18. VIII. 1995, K. MASUMOTO leg. (NSMT). Paratypes: 10 exs., Mae Sa Vill., Chiang Mai Prov., N. Thailand, 11. V. 1996, K. MASUMOTO leg.; 2 exs., Maesa Valley, Chiang Mai Prov., N. Thailand, 3–6. V. 1994, K. MASUMOTO leg.; 2 exs., Mae Sa Vill., Chiang Mai Prov., N. Thailand, 28. V. 1995, MANIT Y. leg.; 1 ex., Mae Sa Vill., Chiang Mai Prov., N. Thailand, 22. VII. 1986, K. MASUMOTO leg.; 1 ex., Mae Sa Vill., Chiang Mai Prov., N. Thailand, 26. VII–1. VIII. 1987, K. MASUMOTO leg.; 5 exs., Nam Nao, Phetchabun Prov., NE. Thailand, 2. XII. 1998, K. MASUMOTO leg.; 3 exs., Nam Nao, 900 m alt., Phetchabun Prov., NE. Thailand, 19. V. 1999, K. MASUMOTO leg.

Notes. The present new species is somewhat similar to *Onthophagus* (s. str.) *lilliputanus* LANSBERGE, 1883, described from Java, but can be easily distinguished from the latter by the dorsal surface almost glabrous (hairy in *O. lilliputanus*), the outer margin of the clypeus smoothly continuous with those of genae (distinctly produced antero-laterad in *O. lilliputanus*), and each elytron finely punctate (fairly strongly punctate in *O. lilliputanus*).

The specific name is given after a native tribe "IuMien" in Thailand.

Onthophagus (s. str.) ***akhaus*** sp. nov.

(Figs. 3, 15 and 16)

Piceous, head and pronotum brownish black with rather strong coppery tinge, elytra black, legs dark brownish black, antennal funicle and mouth parts dark brown, gula grayish yellow; head and pronotum moderately, metallically shining, elytra weakly, rather sericeously shining, ventral surface weakly shining, legs moderately shining; dorsal surface glabrous, ventral surface covered with bent hairs, antennal club covered with fine grayish yellow hairs. Body oval and compact, rather strongly convex dorsad, gently flattened in posterior portion.

Male. Head semicircular in anterior part, gently inclined apicad, feebly covered with isodiametric microsculpture; clypeus wide, rugoso-punctate, rounded and noticeably reflexed in front, widely ridged slightly behind the middle, separated from genae by fine ridges, which are connected with the ends of the widely curved ridge; genae subrhombic, weakly depressed laterad, closely punctate, with outer margins angulate laterad; frons finely punctate, with a strong, transverse, slightly curved ridge at the level of front ends of eyes; vertex widely, gently concave, closely and finely punctate, with an impunctate area in the middle, edges of the area weakly raised. Eyes somewhat crescent-shaped in dorsal view.

Pronotum wider than long (3 : 2), weakly covered with isodiametric microsculpture, closely and finely punctate, the punctures about twice the diameter of those on head; front angles slightly acute and directed anteriad, hind angles obtuse; lateral margin roundly produced laterad, gently sinuate before hind angles; base widely rounded; disc rather densely, minutely punctate, strongly convex anteriad, steeply declivous in front, with a concavity in the middle of the declivity, each side of the concavity weakly produced, ridged and almost impunctate .

Elytra shallowly but clearly punctato-striate, the striae finely margined, the punctures in striae round and slightly notching intervals; intervals moderately convex, weakly covered with

isodiametric microsculpture, rather closely scattered with minute punctures, which are often connected with one another by minute aciculation.

Pygidium gently convex, weakly raised along the midline in basal 2/5, weakly covered with isodiametric microsculpture, rather closely, coarsely punctate, each puncture with a minute bent seta. Male genitalia 1.68 mm in length in lateral view, 0.78 mm in width in dorsal view.

Legs rather stout; protibia strongly quadridentate along outer margin, with a terminal spur, whose apical part is acutely pointed and curved ventrad; ratios of the lengths of spur of metatibia and metatarsal segments: 0.97; 1.0, 0.35, 0.21, 0.17, 0.36.

Female. Hind ridge on head narrower, lower and almost straight; declivity in anterior part of pronotum indistinct: protibial outer teeth more blunt.

Body length: 10.3–10.5 mm.

Holotype: ♂, "Dry Evergreen Forest, Thungsalaengluang NP., Pitsanulok, Thailand, elephant dung, 8. VII. 2000, Y. HANBOONSONG leg." (EMKKU). Paratypes: 1 ex., "Replantation, Sakaerat Biosphere, Nakhon Ratchasima, Thailand, 18. IV. 2000, Y. HANBOONSONG leg."; 1 ex., "O. Eeag/4. 01/06, Site I Ea, 29. IV. 2001"; 1 ex., "Ban Phrom Song, Chaiyaphum Prov., NE Thailand, 2. XII. 1998, K. MASUMOTO leg."; 1 ex., "Ban Phrom Song, nr. Chulaphom Dam, Chaiyaphum Prov., Thailand, 18–19. VIII. 1999, K. MASUMOTO leg."; 1 ex., "Ban Ang Khai, Samoeng Dist., Chiang Mai Prov., N. Thailand, 26–31. X. 1997, K. MASUMOTO leg."

Notes. The present new species is somewhat similar to *Onthophagus* (s. str.) *rutilans* SHARP, 1875, described from Singapore, but can be easily distinguished from the latter by the smaller body with the clypeus produced anteriad and obviously longer than the distance between two transverse ridges, since the former is only slightly longer than the latter in *O. rutilans*, and in the male, the pronotum more distinctly declivous in front and well concave at the middle.

The specific name is given after a native tribe "Akha" in Thailand.

Onthophagus* (*Parascatonomus*) *utsunomiyae sp. nov.

(Figs. 4, 17 and 18)

Piceous, with anterior margin of head, antennal funicle, mouth parts and gula dark reddish brown, antennal clubs pale orange-colored, legs brownish black; head and pronotum rather strongly shining, elytra weakly, sericeously shining, ventral surface moderately shining; head and pronotum almost glabrous, elytra covered with minute suberect hairs, ventral surface densely covered with rather long bent hairs. Body ovate, rather strongly convex dorsad, gently flattened in posterior part, and rather remarkably constricted between pronotum and elytra.

Male. Head subelliptical, closely punctate, almost flat, with area in middle weakly raised; clypeus dilated and produced anteriad, slightly rugoso-punctate in lateral parts, with outer margin gently reflexed, and feebly truncate at the middle; fronto-clypeal border curved and gently ridged; geno-clypeal border partly impressed and partly weakly ridged; ocular lobes somewhat subrhombic, slightly depressed, rugoso-punctate, with ourter margins obtusely angulate; frons narrow, weakly concave, finely punctate; vertex rather steeply raised, weakly punctate, punctures becoming minute on the hind ridge. Eyes somewhat crescent-shaped, slightly larger than in other members of the subgenus, distant between them about 4 times the width of the own diameter. Antenna short and compact; scape short, invisible from dorsal view; club segments

compact, with sizes successively diminishing distad.

Pronotum wider than long (4 : 3), gently convex anteriad, with a feeble longitudinal groove along median line in basal half; anterior margin gently, widely emarginate, finely rimmed in lateral parts; front angles obtuse with rounded corners, hind angles very obtuse; lateral margins roundly produced laterad in anterior parts, rather noticeably sinuate in posterior parts, finely bordered and rimmed; base rather widely triangular, bluntly prominent at the middle, with marginal borders effaced throughout; disc feebly covered with isodiametric microsculpture, closely scattered with small ocellate punctures, each with a minute bent hair.

Elytra slightly wider than long, shallowly punctato-striae, the punctures in striae very slightly notching intervals; intervals feebly convex, covered with isodiametric microsculpture, very weakly wrinkled, scattered with very small punctures, each with a microscopic hair.

Pygidium gently convex, weakly raised in basal 1/3 at the middle, covered with isodiametric microsculpture, rather densely scattered with shallow elliptic punctures, each with a minute bent hair. Male genitalia 1.30 mm in length in lateral view, 0.65 mm in width in dorsal view.

Protibia rather strongly quadridentate in antero-lateral part, with terminal spur gently curved ventrad in apical part; ratios of the lengths of spur of metatibia and metatarsal segments: 1.24; 1.00, 0.41, 0.29, 0.16, 0.31.

Female. Unknown.

Body length: 7.2 mm.

Holotype: ♂, Wang Nam Kieo, Nakhon Ratchasima Prov., Thailand, 29–30. VIII. 2000, Y. UTSUNOMIYA leg. (NSMT).

Notes. This new species somewhat resembles *Onthophagus* (*Parascatonomus*) *funebris* BOUCOMONT, 1919, described from "Haut-Mékong", but can be easily distinguished from the latter by the head wider and simply punctate (or very slightly wrinkled in anterior part of the clypeus) with a curved ridge on clypeo-frontal border (without carina there in *O. funebris*), and the pronotum wider with the front angles not produced anteriad.

The specific name is given after Dr. Yuka UTSUNOMIYA, Otsuma Women's University, who collected the type specimen.

Onthophagus (s. str.) ***tungkamangensis*** sp. nov.

(Figs. 5, 19 and 20)

Piceous, anterior part of head and pronotum with dark greenish lustre, central and posterior parts of head with coppery lustre, elytron black, with a larger orange patch lying from 4th to 8th intervals close to base, and also with a smaller orange patch lying from 3rd to 6th intervals in distal part, mouth parts and antennal funicles reddish brown, clubs yellowish brown, legs dark reddish brown; head and pronotum metallically shining, elytra and pygidium gently, somewhat vitreously shining, metasternal shield rather sericeously shining, abdomen and ventral sides of legs moderately shining; dorsal surface almost glabrous, interior margins of profemora densely haired, anterior and lateral parts of metasternal shield moderately haired, basal parts of abdominal sternites sparsely haired. Body ovate, convex dorsad, though gently flattened in posterior part.

Head subelliptic, inclined anteriad, with two transverse ridges; clypeus rather widely rounded, rugoso-punctate, reflexed along anterior margin, which is incised medially, with each

side of the incision lobed; fronto-clypeal border curved and ridged (the anterior ridge); gena-clypeal borders finely impressed; genae (ocular lobes) dilated laterad, weakly depressed in antero-lateral parts of eyes, rather closely, irregularly punctate, with outer margins rounded, and smoothly continuous with apical margins of clypeus; frons transversely and straightly ridged (the posterior ridge) at the anterior level of the eyes, whose width is slightly wider than 1/3 times the width of head, concave and punctate in area between two ridges; vertex inclined basad, sparsely punctate. Eyes narrowly crescent-shaped, margined by fine rims.

Pronotum wider than long (5 : 4); apex gently emarginate, feebly produced anteriad in middle, finely rimmed; front angles slightly acute, directed in front, hind angles obtuse; lateral margins rather strongly, roundly produced laterad, weakly sinuous before hind angles, bordered and rimmed; base rounded, finely rimmed, very slightly angulate at the middle; disc moderately convex, rather closely punctate, slightly steeply declined to apex with a faint impression at the middle of the upper edge of the front declivity.

Elytra moderately punctato-striate, the punctures in striae rather noticeably notching intervals; intervals weakly convex, irregularly punctate, partly with somewhat oblique wrinkles.

Pygidium gently convex, punctate, rather sparsely so in central part and closely so in lateral parts, the punctures slightly umbilicate, sometimes connected with one another, and each with a fine bent hair at the centre. Male genitalia 1.80 mm in length in lateral view, 0.62 mm in width in dorsal view.

Legs rather short; male protibia strongly quadridentate; ratios of the lengths of terminal spur of metatibia and metatarsal segments: 0.99; 1.00, 0.39, 0.28, 0.22, 0.48.

Female. Similar to male in outline, but the pronotum comparatively mildly inclined apicad.

Body length: 5.2 mm.

Holotype: ♂,"12. II. 1998, Tungkamang, Thailand, (*Onthophagus* 27). No collector's name (EMKKU)". Paratypes: 8 exs., "WLS, Phukhieo, Pk 1, BEETLE–5672, 5658, 5553, 5690, 4312, 4680, 5748, & 5697."; 2 exs., "Phukhieo Wildlife Sanctuary, 6. VIII. 1998, S. PIMPASALEE leg."; 2 exs., "Phu Khieo Wildlife Sanctuary, Chaiyaphum Prov., NE. Thailand, Dung trap: Pig dung, 5. VII. 2000, Chris DICKINSON leg., Beetle–4834, & 4898"

Notes. This new species somewhat resembles *Onthophagus* (s. str.) *wangnamkhieoensis* MASUMOTO, HANBOONSONG et OCHI, 2002, described from NE Thailand, but can be distinguished from the latter by the head wider, bilobed in front, ridged along fronto-clypeal border, and straightly ridged at the anterior level of the eyes.

Onthophagus* (*Parascatonomus*) *chaingraiensis sp. nov.

(Fig. 6)

Piceous, with anterior margin of head, scape and funicle of antennae, mouth parts and legs dark reddish brown, antennal clubs densely covered with short pale brownish hairs; head and pronotum rather strongly shining, elytra dully shining with feeble sericeous lustre, ventral surface moderately shining; dorsal surface almost glabrous, ventral surface clothed with rather short hairs. Body ovate, rather strongly convex dorsad, gently flattened in posterior part, rather remarkably constricted between pronotum and elytra.

Female. Head gently produced and inclined apicad; clypeus rugoso-granulate, with apical margin weakly reflexed, obtusely angulate at the middle, and not notched at the borders of

genae; clypeo-frontal border rather strongly curved and obviously ridged; clypeo-genal sutures impressed; ocular lobes weakly depressed, obtusely produced laterad, rugoso-punctate; frons transversely concave, weakly rugoso-punctate and somewhat vitreous; vertex with a distinct transverse ridge in middle, which is smooth and sparsely scattered with minute punctures, and lateral parts are inclined and reaching posterior margins. Eyes medium-sized, rather crescent-shaped. Antennae with club segments compact, successively diminishing in size distad.

Pronotum evenly convex, about 1.5 times as wide as long, with a shallow longitudinal groove in basal half along medline; apex gently, widely emarginate, almost straight in middle, very finely bordered in lateral parts; front angles rounded and feebly produced anteriad; lateral margins evenly and roundly produced laterad, sinuate in posterior parts, wholly finely bordered; base somewhat triangular, wholly bordered, bluntly produced at the middle; disc covered with isodiametric mircosculpture, rather densely scattered with small but deep punctures, which are sparsely intermixed with minute punctures, become coarser laterad, and fused with one another in lateral parts.

Elytra almost as long as wide, shallowly punctato-striae, the striae very finely margined, the punctures in striae rather sparsely set and weakly notching intervals; intervals feebly convex, covered with isodiametric microsculpture, irregularly scattered with very small punctures.

Pygidium gently convex, weakly covered with isodiameteric microsculputure, densely punctate, the punctures ovate and each with a fine bent hair. Prothorax with anterior angles widely hollowed; metasternal shield covered with small punctures, with anterior declivity granulate.

Protibiae weakly incurved on interior faces, with four strong teeth on exterior faces; ratios of the lengths of terminal spur of metatibia and metatarsal segments: 1.12; 1.00, 0.48, 0.22, 0.13, 0.29.

Male. Unknown.

Body length: 8.3 mm.

Holotype: ♂, Doi Tung, Chiang Rai Prov., N. Thailand, 14–15. V. 2000, K. MASUMOTO leg. (NSMT). Paratype: 1 ex., same date as the holotype.

Notes. The present new species is closely related to *Onthophagus* (*Parascatonomus*) *lakyim* MASUMOTO, 1990, from Maesa Vill., North Thailand, but can be distinguished from the latter by the head with the fronto-clypeal border obviously ridged, the clypeus obtusely anglulate at the middle of anterior margin, the pronotum more finely punctate, not distinctly haired, with the base bluntly produced at the middle, and the front angles more rounded, and the elytra not distinctly haired.

The specific name is given after the province, where the type series were collected.

Onthophagus* (*Indachorius*) *maephaluangus sp. nov.

(Figs. 7, 21 and 22)

Brownish black, with dark coppery or dark greenish tinges, outer margins of head and legs lighter in colour, hairs on surfaces brownish yellow, elytron almost black, with reddish brown patches: a somewhat triangular patch across 5th interval to lateral margin close to base, though the humeral part is blackish, the other semicircular one across 7th interval to lateral margin at apical 2/5, and another one in apical-central part; mouth parts reddish brown, gula pale brown; antenna with funicle reddish brown, club covered with short grayish hairs; head sericeously shining, pronotum rather strongly, somewhat vitreously shining, elytra and ventral surface mod-

erately shining; each surface covered with rather long hairs. Body subovate, rather strongly convex dorsad, weakly flattened in posterior part.

Male. Head rather rounded, very weakly covered with isodiametric microsculpture, irregularly punctate, the punctures being a melange of larger and smaller ones; clypeus gently produced anteriad, with outer margin rather noticeably reflexed, truncate and very weakly emarginate in front, rugoso-punctate in anterior part, clypeo-frontal border not so distinct but curved, slightly ridged in lateral parts; ocular lobes elongated ovate, weakly depressed in anterior part of eyes, with outer margins gently roundly produced laterad, clypeo-genal borders finely sulcate; frons somewhat triangular, distance between eyes about five times the width of diameter of an eye in dorsal view; vertex with a suberect, flattened horn, whose basal part is oblong and the upper edge is slightly dilated and pointed at each lateral corners, and armed with an elongated, backwardly curved and finger-shaped horn at the middle. Eyes medium-sized in dorsal view, crescent-shaped.

Pronotum wider than long (3 : 2), rather closely, strongly punctate, each puncture with a long hair; apex feebly but widely emarginate, slightly produced anteriad medially; base evenly rounded, finely but clearly bordered; front angles rather acutely projected anteriad, hind angles inconspicuous, gently rounded; lateral margins roundly produced laterad, widest at anterior 1/3; disc strongly convex, noticeably declivous antero-medially behind the cephalic horn, the declivity feebly microsculptured, scattered with sparser and smaller punctures than in other parts.

Elytra slightly wider than long, shallowly punctato-striate, the punctures in striae rather noticeably notching intervals; intervals feebly convex, each usually with two rows of punctures, which are provided with granules and hairs in anterior parts, thus the intervals seem asperate.

Pygidium weakly convex, rather closely punctate, each puncture somewhat ocellate and with a long hair. Male genitalia 1.32 mm in length in lateral view, 0.56 mm in width in dorsal view.

Legs rather slender; male protibia with three larger and a smaller outer tooth; ratios of the lengths of the metatibial spur of and metatarsal segments: 0.62; 1.00, 0.31, 0.13, 0.10, 0.29.

Female. Unknown.

Body length: 6.3 mm.

Holotype: ♂, Doi Tung, Chiang Rai Prov., 14. V. 1996, K. MASUMOTO leg. (NSMT).

Notes. This new species resembles *Onthophagus* (*Indachorius*) *hsui* MASUMOTO, CHEN et OCHI, 2004, from Taiwan, but can be easily distinguished from the latter by the clypeus more noticeably produced anteriad, the front angles of pronotum more distinctly projected anteriad, the pygidium covered with ocellate punctures, and the elytra with reddish brown patches.

The specific name is given after a word of the hill tribe people called Thailand King's mother. She has her resident at Doi Tung where the type series were collected.

Onthophagus (s. str.) ***apunneeae*** sp. nov.

(Figs. 8, 23 and 24)

Dark brownish black, partly with coppery or dark greenish tinges, anterior part of head, major parts of legs dark reddish brown, gula brownish yellow, elytral patches, mouth parts and antennae except clubs reddish brown, clubs covered with pale orange; head strongly, metallically shining, pronotum moderately, somewhat sericeously shining, elytra weakly, ventral surface rather alutaceous; head almost glabrous, pronotum and elytra rather noticeably haired, ventral surface haired, the hairs longer than those on dorsal surface. Body oval, strongly convex, gently flattened in posterior parts, moderately constricted between pronotum and elytra.

Male. Head semicircular, and nearly flat and rather smooth, weakly covered with isodiametric microsculpture, scattered with microscopic punctures; clypeus feebly rugulose in anterior part, with outer margin weakly reflexed, fronto-clypeal border not defined, clypeo-genal borders finely sulcate or ridged; genae somewhat rhombic, weakly depressed before eyes; frons rather triangular, slightly raised at the centre, armed with a feebly bent posteriad horn in posterior part, wide and about 1/3 of the distance between eyes in basal part, gradually tapering apicad, and acute at apex; vertex almost flat, impunctate in area behind the horn. Eyes medium-sized, crescent-shaped, distant between them about 1/11 the width of their own diameter.

Pronotum wider than long (4 : 3); apex gently emarginate, almost straight widely in middle; front angles acute and directing anteriad; lateral margins rounded laterad, feebly sinuate behind hind angles; base gently, evenly rounded; disc strongly convex, slightly declivous in front with a shallow excavation at the middle behind the cephalic horn, densely punctate, the punctures with bent hairs, and intermixed with minute punctures.

Elytra slightly wider than long; disc with patches: a large one across 6th to 8th intervals near base, a small one on 3rd and 4th intervals at basal 1/4, an ill-shaped small patch on 2nd intervals near base, and a vague small one across 4th and 5th near apex; finely punctato-striate, the punctures in striae shallow, very slightly notching intervals; intervals feebly convex, covered with isodiametric microsculptures, 1st interval with a row of fine setiferous punctures, 2nd intervals to lateral margins with two or three rows of the same, though the rows sometimes become irregular.

Pygidium weakly convex, covered with isodiametric microsculpture, closely punctate, each puncture with a fine long hair. Male genitalia 1.65 mm in length in lateral view, 0.75 mm in width in dorsal view.

Legs rather slender; male protibia with three large and a small outer tooth; ratios of the lengths of the metatibial spur and metatarsal segments: 0.78; 1.00, 0.26, 0.13, 0.09, 0.29.

Female. Unknown.

Body length: 6.7 mm.

Holotype: ♂, "Dry evergreen Forest, Namnao MP, Namnao, Petchaboon Prov., NE. Thailand, 5. VII. 2000, Y. HANBOONSONG leg." (EMKKU).

Notes. This new species rather resembles *Onthophagus* (*Paraphanaeomorphus*) *punneeae* MASUMOTO, 1989, but can be distinguished from the latter by the head smooth and produced apicad, with clypeus and frons not separated by the fronto-clypeal ridge, and the pronotum without oblique, feebly curved carina in the middle on each side.

The specific name is composed of "a" + the related species, *O. punneeae* MASUMOTO, 1989.

Onthophagus (s. str.) ***phukhieoensis*** sp. nov.

(Figs. 9, 25 and 26)

Brownish black with feeble coppery tinge, major anterior part of head and parts of legs dark reddish brown, pronotum with weak dark greenish luster, antennal club covered with short grayish hairs, elytra with obscure dark reddish patches in humeral parts, and also with obscure dark reddish patches in apical parts; head strongly, metallically shining, pronotum moderately, rather vitreously shining, elytra moderately, somewhat vitreously shining, ventral surface moderately shining in major central parts, rather alutaceous in lateral parts; head almost glabrous,

pronotum and elytra rather noticeably haired, ventral surface haired, the hairs longer and coarser than those on dorsal surface. Body oval, strongly convex dorsad, particularly so in pronotum, gently flattened in posterior parts, moderately constricted between pronotum and elytra.

Male. Head semicircular, nearly flat in anterior part, rather closely scattered with microscopic punctures, which are sparsely intermixed with minute punctures; clypeus gently produced anteriad, very weakly rugulose near apex, with outer margin reflexed, fronto-clypeal border not defined, clypeo-genal borders traceable with fine sulci or ridges; genae somewhat elliptical, depressed before eyes, with outer margins rounded; frons rather obtriangular, armed with a slightly backwardly curved horn in posterior part, whose base is about 1/3 of the width of the distance between eyes, the medial part abruptly narrowed, and the apical part is prolonged in finger-shape and acute; vertex almost flat, impunctate in area behind the horn. Eyes medium-sized, crescent-shaped, distant between them about 1/9 the width of their own diameter.

Pronotum wider than long (3 : 2); apex weakly emarginate, nearly straight widely in middle, clearly margined; front angles acute and directing anteriad; lateral margins rather strongly produced laterad, feebly sinuate behind hind angles; base gently rounded, margined by crenulation; disc strongly convex, declivous in front with a shallow wide excavation at the middle behind the cephalic horn, rather strongly and densely punctate except the area along base, the punctures with bent hairs, with a shallow groove in basal 1/5 along medline.

Elytra slightly wider than long; disc finely punctato-striate, the punctures in striae small; intervals feebly convex, 1st interval with a row of fine setiferous punctures, each with a minute granule, 2nd intervals to lateral margins with two or three rows of the same, though the rows sometimes become irregular, thus the intervals seem to be shagreened.

Pygidium feebly convex, rather closely covered with ocellate punctures, each with a fine long hair. Male genitalia 1.29 mm in length in lateral view, 0.66 mm in width in dorsal view.

Legs rather slender; male protibia with three large and a small outer tooth; ratios of the lengths of the metatibial spur of and metatarsal segments: 0.74; 1.00, 0.29, 0.13, 0.10, 0.27.

Female. Head less produced anteriad, with fronto-clypeal border curved and noticeably ridged, clypeo-genal borders also ridged, posterior part of frons transversely ridged, the ridge is located at the middle level of eyes and about 1/3 the width of head, area behind the ridge inclined and sparsely scattered with punctures.

Body length: 5.4–6.1 mm.

Holotype: ♂, "Phu Khieo Wildlife Sanctuary, Chaiyaphum Prov., NE. Thailand, Dung trap: Pig dung, 5. VII. 2000, Chris DICKINSON leg., Beetle–1299" (EMKKU). Paratypes: 2 exs., "Dry evergreen forest, Namnao NP, Namnao, Petchaboon Prov., 5. VII. 2000, Y. HANBOONSONG leg.".

Notes. This new species resembles the previous new species, *Onthophagus* (s. str.) *apunneeae* sp. nov., but can be distinguished from the latter by the head more closely punctate, with the cephalic horn widened in basal part, the pronotoum more strongly punctate, the elytra without distinct patches, with intervals shagreened.

The specific name is taken after the place where the holotype was collected.

Onthophagus (*Indachorius*) *jingping* sp. nov.

(Figs. 10, 27 and 28)

Dark brown, anterior part of head and pronotum with feeble coppery tinge, major basal part of head greenish back, elytron with orange patches across 4th interval to lateral margin close to base, also with obscure ill-shaped patch across 3rd to 7th intervals near apex, mouth parts, gula, epipleuron, and legs reddish brown, antennal scape reddish brown, funicle dusty yellow, club covered with short grayish hairs; head rather weakly, sericeously shining, and almost glabrous, pronotum strongly, rather vitreously shining, clothed with erect hairs, elytra moderately, somewhat vitreously shining, and clothed with suberect hairs, ventral surface moderately shining, and clothed with suberect hairs. Body oval, strongly convex dorsad, gently flattened in posterior part, moderately constricted between pronotum and elytra.

Male. Head somewhat semicircular, though the apex is emarginate and bilobed at the middle, covered with isodiametric microsculpture, rather irregularly scattered with small punctures, which are sparsely intermixed with minute punctures; clypeus slightly produced anteriad, reflexed along outer margin, rugoso-punctate in anterior part, each puncture with a erect hair, fronto-clypeal border widely curved and ridged, clypeo-genal borders finely sulcate; genae rather noticeably depressed before eyes, with outer margins rounded; frons dilated towards fronto-clypeal border, with a pair of small tubercles in posterior part, which are located at the level of the midst of eyes; vertex wide and very slightly convex. Eyes medium-sized, crescent-shaped, distant between them about 1/6 the width of their own diameter.

Pronotum wider than long (4 : 3); apex weakly emarginate, feebly produced widely in middle, finely margined; front angles acute and directing anteriad, hind angles indistinct, simply rounded; lateral margins roundly produced laterad; base gently rounded, finely margined; disc strongly convex, punctate, the punctures set about two to three times the distance of the own diameter, each with a long hair.

Elytra slightly longer than wide; disc finely punctato-striate, the punctures in striae round and notching intervals; intervals feebly convex, somewhat wrinkled, 1st interval with a row of punctures, 2nd interval to lateral margin mostly with two rows of punctures, each with small granule at anterior edge and a bent long hair.

Pygidium moderately convex, rather smooth, scattered with small punctures, each with a fine long hair. Male genitalia 0.74 mm in length in lateral view, 0.29 mm in width in dorsal view.

Legs rather stout; male protibia rather noticeably widened apicad, with three large outer teeth and a rather bold terminal spur; ratios of the lengths of the metatibial spur of and metatarsal segments: 0.80; 1.00, 0.23, 0.16, 0.1, 0.28.

Female. Similar to the male in shape.

Body length: 2.7–3.4 mm.

Holotype: ♂, "Set. 3 Pig dung trap, Dry evergreen forest, Sakaerat, Nakhonratchasima Prov., NE Thailand, 18. III. 2000, Y. HANBOONSONG leg." (EMKKU). Paratypes: 1 ex., same locality and collector as for the holotype, 18. VI. 2000; 1 ex., "Dry dipterocarp, Sakaerat, Nakhonratchasima, 29. IV. 2001," no collector name.

Notes. This new species somewhat resembles *Onthophagus* (*Indachorius*) *mongkhoni* MASUMOTO, HANBOONSONG et OCHI, 2002, but can be distinguished from the latter by the smaller body (3.5 mm in *O. mongkhoni*), and the elytra weakly wrinkled, with rows of punctures, whose anterior edges are granulate and haired.

The specific name is after a E-sarn word (a dialect of North East of Thailand people) meaning "very small".

要　　約

益本 仁雄・越智 輝雄・Yupa HANBOONSONG：タイのエンマコガネ属（*Onthophagus*）の新種について．1，タイ各地のエンマコガネ属の 10 新種．――タイの食糞性コガネムシのエンマコガネ属（*Onthophagus*）についての研究シリーズの第 1 回として，タイ各地から以下のエンマコガネ属の 10 新種を記載した．*Onthophagus* (*Indachorius*) *baenzigeri* sp. nov., *O.* (s. str.) *iumienus* sp. nov., *O.* (s. str.) *akhaus* sp. nov., *O.* (*Parascatonomus*) *utsunomiyae* sp. nov., *O.* (s. str.) *tungkamangensis* sp. nov., *O.* (*Parascatonomus*) *chaingraiensis* sp. nov., *O.* (*Indachorius*) *maephaluangus* sp. nov., *O.* (s. str.) *apunneeae* sp. nov., *O.* (s. str.) *phukhieoensis* sp. nov., *O.* (*Indachorius*) *jingping* sp. nov.

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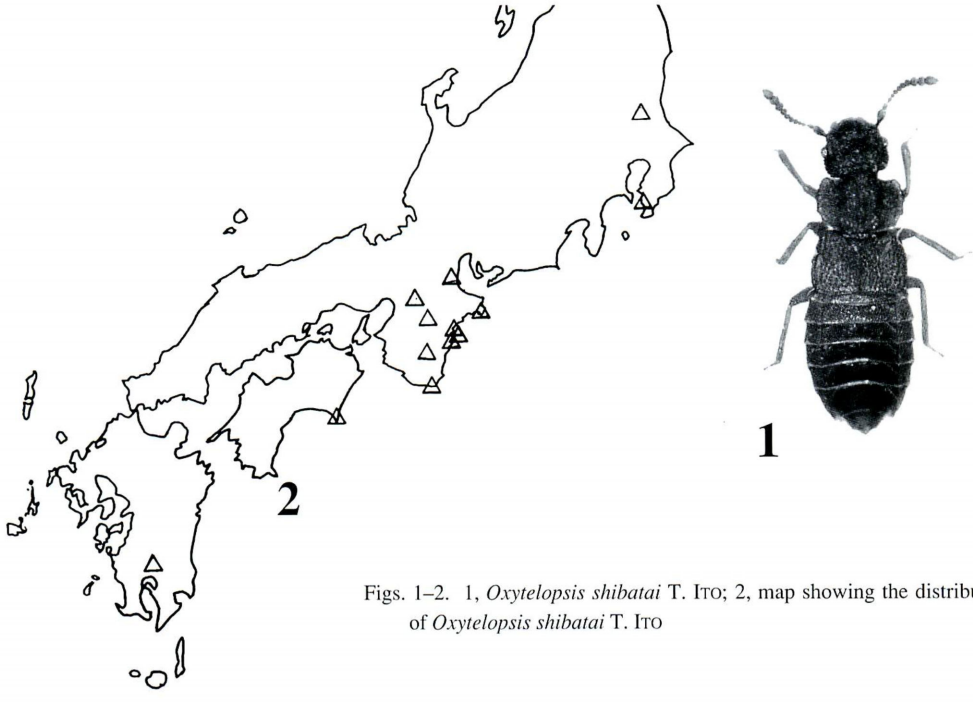
Additional Distribution of *Oxytelopsis shibatai* T. ITO (Coleoptera: Staphylinidae)

Tateo ITO

E12–102, Otokoyama Yutoku 7, Yawata, Kyoto, 614–8371 Japan

Oxytelopsis shibatai was described in 1987 from Imoyama, Yamato-Kamiichi, Nara Prefecture by the present author. Since then, a lot of specimens of the species were found in litter of warm temperate zone Teha forest from several different localities. I am going to summarize and illustrate its distribution in Japan.

I would like to express my cordial thanks to all the persons whose names are printed in the section of specimens examined.



Figs. 1–2. 1, *Oxytelopsis shibatai* T. ITO; 2, map showing the distribution of *Oxytelopsis shibatai* T. ITO

Oxytelopsis shibatai T. ITO

(Figs. 1 and 2)

Oxytelopsis shibatai T. ITO, 1987, Ent. Rev. Japan, 42 (suppl.): 75.

Additional specimens examined and/or reported: 23 exs., Togashima Is., Owase-shi, Mie Pref., 4. X. 1987, H. YOKOZEKI leg.; 7 exs., Kuki-cho, Mie Pref., 13. V. 1988, A. AMAGASU leg.; 2 exs., Nara Park,

Nara-shi, Nara Pref., 16. X. 1988, S. TAKAHASHI leg.; 176 exs.(105 ♂♂, 71 ♀♀), Mt. Tomisan, Tomiyama-machi, Chiba Pref., 30. VI. 1991, T. KISHIMOTO leg.; 1 ex., Myogajima Is., Kushimoto, Wakayama Pref., 10. XII. 1994, I. MATOBA leg.; 12 exes., Goza, Shima-cho, Mie Pref., 5. I. 1994 and 25. XI. 1995, H. YOKOZEKI leg.; 8 exs., Mikizaki, Owase-shi, Mie Pref., 4. XII. 1994, H. YOKOZEKI leg.; 5 exs., ditto, 11. II. 1995; 4 exs., ditto, 3. V. 1995; 2 exs., ditto, 8. VII. 1995; 10 exs, ditto, 25. XI. 1995; 5 exs., ditto, ; 29. IV. 1996; 2 exs., ditto, 4. XII. 1996; 5 exs, ditto, 1. IV. 1995, N. NARUKAWA leg.; 8 exs., Ogouchi-jinjya, Geino-cho, Mie Pref., 23. XII. 1995, H.YOKOZEKI leg.; 158 exs., Togashima Is., Owase-shi, Mie Pref., 4. V. 1996, H. YOKOZEKI leg.; 1ex., Takadateyama, Mashiko-cho, Tochigi Pref., 29. IV. 1997, H. OHKAWA leg.; 2 exs. (1 ♂,1 ♀), Kirishima-jingu (450 m alt.), Makizono-cho, Kagoshima Pref., 27. III. 2001, S. ARAI leg.; 5 exs., Sakiyama, Muroto-shi, Kochi Pref., 8. I. 2006, M. YOSHIDA leg.; 1ex., Takijiri, Kumano, Wakayama Pref., 4. III. 2007, T. ITO leg.

Distribution: Honshu, Kyushu, Shikoku*. * Newly recorded.

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   Blackwelder, R. E., 1936. Morphology of the coleopterous family Staphylinidae. Smithsonian miscellaneous Collections, **94** (13): 1–102

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