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Akinobu HABU in his fifties

In Memoriam Akinobu HABU
(22 June 1920 – 28 June 2008)

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Dr. Akinobu HABU, one of the most eminent Japanese researchers in the ground beetle taxonomy, died of senility on June 28, 2008 at the age of 88.

HABU was born on June 22, 1920, and after finishing a junior high school, he went to Tokyo Imperial College of Agriculture and Forestry. On graduating from the college in March 1941, he was employed by the entomological laboratory at the Central Agricultural Experiment Station of the Ministry of Agriculture and Forestry. At that time, he was already interested in ground beetles, and published his first paper on the subject in that September (cf. No. 1 of the attached bibliography).

In July 1947, he moved to the Ôita Agricultural Improvement Station of the same ministry, then to the Hikosan Biological Laboratory of Kyushu University in May 1948 and studied there until March 1953 under the supervision of Professors Teiso ESAKI and Keizô YASUMATSU. He learned many things in this period, and started to publish the results of his studies.

On March 25, 1953, HABU settled down in his new office at the Laboratory of Insect Identification and Taxonomy of the National Institute of Agricultural Sciences, Tokyo, and steadily worked thereafter on ground beetles until his retirement on June 21, 1981. From this laboratory, he produced more than 200 academic papers including four massive monographs (cf. Nos. 96, 116, 147 and 179 of Bibliography) in about thirty years. Many of them were concerned with ground beetles excluding the members of the tribe Carabini, and formed the most important foundation for younger students who had an intention to follow his lead. He also published some papers dealing with chalcidid flies, which were his second speciality. His works were invariably accompanied by precise illustrations carefully drawn by himself. No other Japanese coleopterologists can compete with him in preparing so many fine habitus sketches.

HABU'S attitude towards classification of carabid beetles was rather conservative, especially for their higher system. This was probably, at least partly, due to his insufficiency of field observation. He seldom went out to remote places for collecting ground beetles even in his home country, and never planned expeditions to foreign countries. Instead, he sat at his desk every day, looking at his favourite insects through his microscope. On the other hand, he willingly granted requests of identification of specimens collected by other parties, not only in Japan but also in many parts of the Asian Continent. Replying to my advice, he once told me that he was so busy for clarifying morphological problems that he could not find time to broaden his studies into the fields of ecology and biogeography. In July, 1960, HABU was given a doctor's degree by Hokkaido University, not for his works on ground beetles but for his revision of chalcidid flies (cf. No. 96 of Bibliography). Twenty years later, on June 21, 1981, HABU retired from the Division of Entomology of the National Institute of Agricultural Sciences, and at the same time, quitted all his studies on ground beetles and other living things.

I first became acquainted with HABU in the 1950's just after the publication of his paper on blind cavernicolous carabids, the first contribution to the cave beetle fauna of Japan (cf. No. 8 of Bibliography). Seeing that I was most deeply interested in the subfamily Trechinae of the Carabidae, he handed over the whole study on the subfamily to me and promoted its progressive development. After I moved from Kyoto to Tokyo in 1962, he sometimes came to see me at my office in the National Science Museum for examining our collection and for talking about ground beetles, though he seldom visited other coleopterologists' offices or laboratories. I miss him heartily and wish if he could continue his studies on carabid beetles for a longer period.

In closing this obituary, I wish to express my hearty thanks to Ms. Isoko HATTORI, former chief of the Laboratory of Insect Taxonomy of the National Institute of Agricultural Sciences, for her kind help in checking up HABU'S background and to Professor Masao OHNO for finding out correct dates of issue of certain old journals.

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Elytra, Tokyo, **37**(2): 201–206, November 14, 2009

Discovery of Blind Trechine Beetles (Coleoptera, Trechinae) in the Amakusa Islands, Southwest Japan

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Abstract Two new species of blind trechine beetles were recently discovered from the upper hypogean zone of Amakusa-shimoshima, the largest one of the Amakusa Islands lying at the western side of central Kyushu, Southwest Japan. One of them is a member of the genus *Stygiotrechus* and is described in this paper under the name *S. miyamai*. The other one seems to belong to the genus *Allotrechiama*, and is doubtless new to science. Its description is, however, postponed, since the single specimen known is a dead body of a female with badly damaged appendages.

No blind trechine beetles have ever been known from the Amakusa Islands lying at the western side of central Kyushu, though there are a limestone and several sandstone caves in their main islands. The limestone cave in particular has been repeatedly investigated by experienced biospeologists including myself, but has yielded only a pselaphid beetle (*Batrisodellus cerberus* TANABE et NAKANE, 1989, p. 739, figs. 20–27) in spite of continuous trappings. It was therefore most surprising that a habitat of blind trechine beetles should have been met with in the central part of the largest island of the Amakusas.

In the spring of this year, Hiroshi MIYAMA made a trip to the Amakusa Islands for finding out blind beetles, particularly trechines. First, he went to re-examine the well known limestone cave (called Gongen-dô or Gongen'yama-dô), but failed in taking any blind beetle excepting a few specimens of the pselaphid. Then, he shifted his target to the upper hypogean zone, and succeeded in locating a seemingly favourable site for excavation at the central part of the largest island of the Amakusas. After two days' hard work, he finally dug out three specimens of blind trechines from small colluvia deposited at the sides of a narrow gully, and promptly submitted his collection to me for taxonomical study. It was soon found out by my close examination that two of the three specimens belong to the genus *Stygiotrechus* and are remotely related to *S. esakii* (UÉNO, 1969, pp. 491, 507, figs. 10, 13) from Mizunashi-dô Cave on the Sefuri Mountains of northern Kyushu, and that the remaining one may be a new species of the genus *Allotrechiama* (UÉNO, 1970 a, p. 93; 1978), which has theretofore been known from several limestone caves at the southwestern part of Kumamoto Prefecture in mainland Kyushu.

Unfortunately, the single available specimen of *Allotrechiama* was found dead sticking to the surface of a muddy stone deeply embedded in the colluvium, so that it was not in a good condition of preservation. Besides, we failed in finding out additional specimens in spite of careful searches made in August by UÉNO, MIYAMA and Shinzaburo SONE. The colluvia inhabited by blind trechines are by no means large, and the unsettled condition caused by excavation cannot be recovered in a short time. For these reasons, formal description of the new *Allotrechiama* is postponed for some time, and only the new *Stygiotrechus* will be dealt with in the present paper. The abbreviations used herein are the same as those explained in previous papers of mine.

Before going further, I wish to express my heartfelt thanks to Mr. Hiroshi MIYAMA and Dr. Shinzaburo SONE for their kind help in pursuing clarification of the trechine fauna of the Amakusa Islands.

Stygiotrechus miyamai S. UÉNO, sp. nov.

(Figs. 1, 2)

Length: 2.025–2.150 mm (from apical margin of clypeus to apices of elytra).

Very small species, smallest of all the congeners and of all the blind trechines of Japan. Probably belonging to the *esakii* group (cf. UÉNO, 1969, p. 506), though different from its type species in many details, above all shorter head and pronotum, slenderer antennae, shallower sculpture in basal area of pronotum, less prominent serration on humeral margins of elytra, lesser modification of protarsomeres in the male, and differently shaped male genitalia.

Colour light reddish brown, evidently more yellowish than in *S. esakii*, shiny; palpi, antennae and legs pale yellowish brown. Microsculpture not sharply impressed on head and pronotum, mostly consisting of mal-defined polygonal meshes on elytra.

Head wider than long, HW/HL 1.46 in the holotype (H), 1.31 in the allotype (A), widest at about basal fourth, and contracted anteriorly; genae tumid in posterior halves and sparsely covered with short hairs; frontal furrows deeply impressed in front, becoming shallower behind, not angulate at middle, and widely divergent towards neck constriction, which is distinct and fairly deep; frons and supraorbital areas gently convex and covered with short hairs; vertex with a pair of short suprafrontal setae; eyes completely absent; labrum transverse, with the apical margin slightly bisinuate; mandibles stout, with the apical parts rather abruptly incurved and acute at the tips; mentum with a small simple tooth in apical emargination; palpi short and stout except for thin apical palpomeres; antennae slender, subfiliform though slightly dilated towards apices, and reaching basal fourth of elytra; scape thick, pedicel seven-tenths as long as scape, pedicel to antennomere 8 equal in length to one another, each ovoidal and four-sevenths as wide as long, terminal antennomere the longest, about twice as long as the preceding antennomere.

Pronotum transverse subcordate, wider than head, evidently wider than long, widest at four-fifths from base, and more gradually contracted towards base than

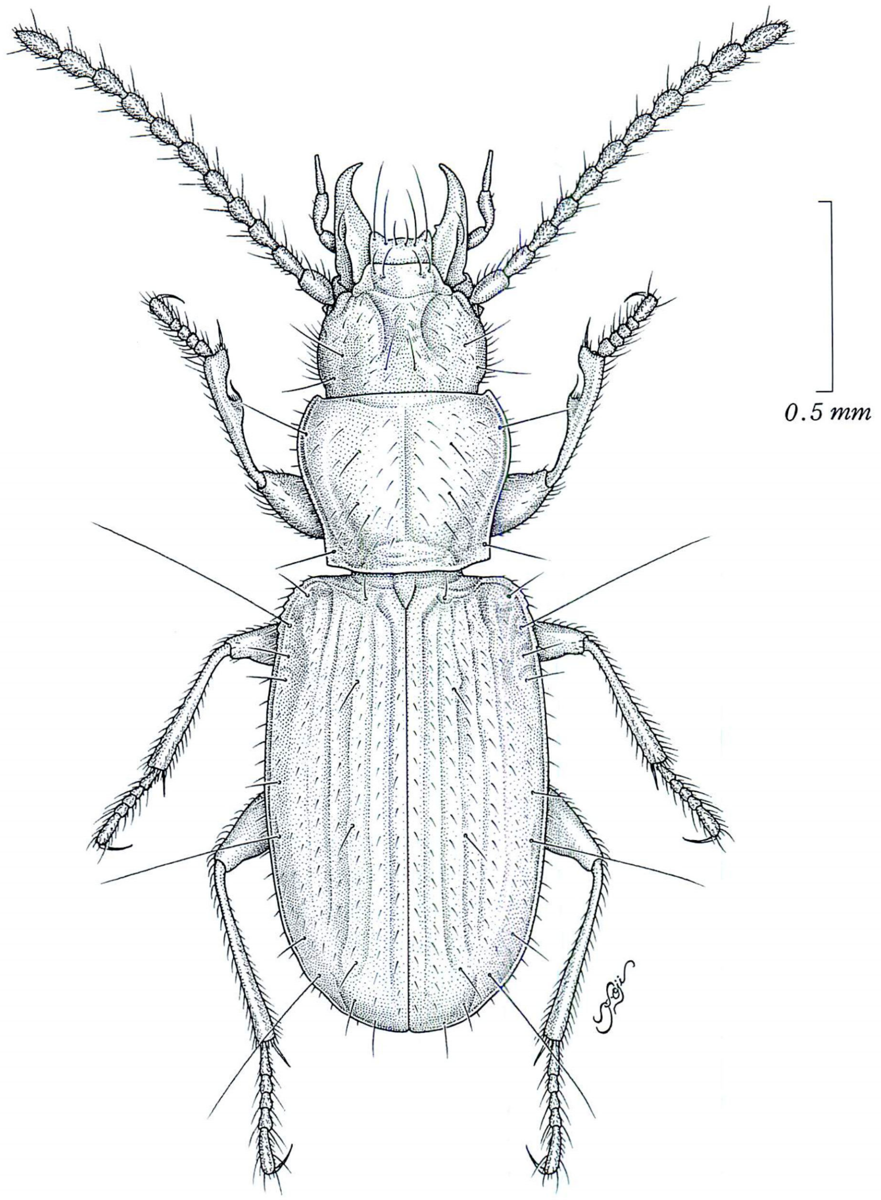

Fig. 1. *Stygiotrechus miyamai* S. UÉNO, sp. nov., ♂, from Horikiri of Haji'uto in the Island of Amakusa-shimoshima.

towards apex; PW/HW 1.26 in H, 1.32 in A, PW/PL 1.21 in H, 1.23 in A, PW/PA 1.24 in H, 1.21 in A, PW/PB 1.31 in H, 1.32 in A; sides moderately bordered and sparsely ciliated except near ante-basal sinuation, where the borders become narrower, widely

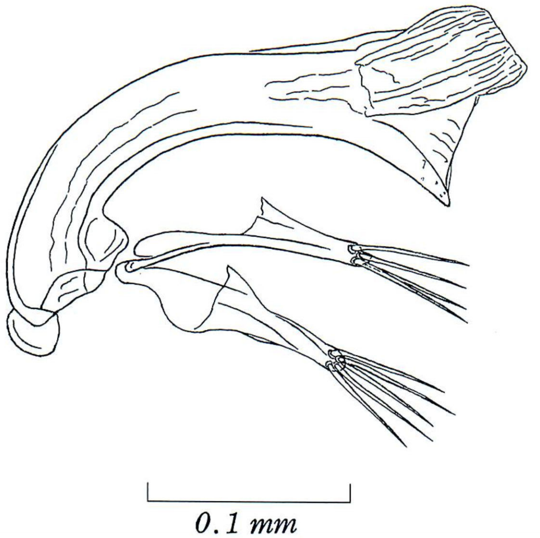

Fig. 2. *Stygiotrechus miyamai* S. UÉNO, sp. nov., from Horikiri of Haji'uto in the Island of Amakusa-shimoshima; male genital organ, left lateral view.

arcuate from front angles to basal fourth, then shallowly sinuate, and then very slightly convergent to hind angles, which are more or less obtuse though very minutely denticulate at the tips; both lateral and postangular setae present; apex slightly wider than base, PA/PB 1.05 in H, 1.09 in A, with front angles obtuse though more or less protrudent forwards; base nearly straight at middle, slightly and obliquely emarginate on each side just inside hind angle; dorsum gently convex, sparsely covered with short suberect hairs, and steeply declivous at antero-lateral parts, with two or three short dorsal setae on each side of median line, which are not readily recognised being mingled in discal hairs covering the dorsal surface; median line fine, apical transverse impression mal-defined; basal transverse impression fairly deep, arcuate, and laterally merging into round basal foveae without forming trifurcate furrows; no postangular carinae.

Elytra subovate, nearly parallel-sided, wider than pronotum, much longer than wide, widest a little before the middle, and widely rounded at apices; EW/PW 1.34 in H, 1.28 in A, EL/PL 2.55 in H, 2.46 in A, EL/EW 1.57 in H, 1.56 in A; shoulders square, with prehumeral borders nearly perpendicular to the mid-line; humeral margins bluntly serrulate, with six or seven minute teeth, of which median two or three are more or less larger than the others; sides narrowly bordered except for widely explanate humeral parts and sparsely ciliated, very slightly arcuate from behind shoulders to the level of apicalmost pore of the marginal umbilicate series, and very slightly emarginate before apices, which are conjointly rounded; dorsum gently convex and widely depressed on the disc; striae impunctate, moderately impressed on the disc but obsolete at the side, 1–4 entire, 5 fine and apically obsolete, 6 and 7 evanescent, 8 only partially visible; scutellar striole vestigial; apical striole mal-defined though directed to the site of stria 5; intervals flat, each bearing an irregular row of short suberect pubescence; stria 3 with two setiferous dorsal pores at 1/6–1/4 from base and about middle; preapical pore located at the apical anastomosis of striae 2 and 3, a little more distant from apex than from suture; arrangement of marginal umbilicate pores as in the other species.

Ventral surface sparsely covered with short pubescence; marginal setae on anal ventrite ordinary. Legs short; protibia widely dilated towards apex, whose apical portion is acuminate at the internal side and furnished with a spine at the tip; comb-organ large; mesotibia straight, about three-tenths as long as elytra, metatibia about two-fifths as long as elytra and almost invisibly outcurved at the apical part; tarsi fairly stout, tarsomere 1 about as long as tarsomeres 2 and 3 combined in both meso- and metatarsi; in ♀, protarsomere 1 fairly large, five-sevenths as wide as long, 2–4 short and wide, each about 1.5 times as wide as long; in ♂, protibia more widely dilated apicad and incurved at the acuminate apical part, protarsomere 1 slightly longer than wide, 2 obviously more transverse, each minutely angulate inwards at the apex but devoid of adhesive appendages on the ventral surface, 3–4 each about as long as wide.

Male genital organ small and lightly sclerotised. Aedeagus two-ninths as long as elytra, tubular, moderately arcuate from base to the base of apical lobe, and then almost straightly produced into narrow apical lobe in lateral view; basal part small, abruptly curved ventrad, with small basal orifice, whose sides are slightly emarginate; sagittal aileron distinct though small; viewed laterally, apical lobe short and gradually tapered to blunt extremity; ventral margin widely arcuate in profile. Inner sac armed with a subspatulate copulatory piece, whose apical part appears to be covered with acicular scales. Styles narrow, particularly at the apical parts, left style a little longer than the right, bearing five apical setae in the holotype, while the right style only bearing four apical setae.

Type series. Holotype: ♂, allotype: ♀, 29–IV–2009, H. MIYAMA leg. Deposited in the collection of the Department of Zoology, National Museum of Nature and Science, Tokyo.

Type locality. Horikiri, 180 m in altitude, at Haji'uto of Amakusa-shi in Amakusa-shimoshima, Kumamoto Prefecture, Southwest Japan.

Notes. The type habitat of *Stygiotrechus miyamai* was found at Horikiri, a cutting for a road on a pass at the central part of the Island of Amakusa-shimoshima. A small narrow gully less than 10 m in length lies in a plantation of cryptomeria with under-growths of bamboo and broadleaved coppice just at the northern side of the cutting. Small colluvia of sandstone detritus mingled with clayey soil are deposited on both sides of the gully, forming a good habitat for upper hypogean inhabitants. The type specimens of *S. miyamai* were found from these colluvia, leisurely crawling on the surfaces of upturned stones dug out from a depth of 30–50 cm.

It was really astonishing that a second species of the *esakii* group of *Stygiotrechus* was discovered in Shimoshima of the Amakusa Islands. Until then, the species-group was considered monotypical and restricted to a limestone cave on the Sefuri Mountains, about 117 km distant to the north by west in a beeline from the type locality of the new species. Besides, the latter is separated from the former by the Tsukushi Plain, the Ariaké Sea, the Unzen Volcanoes on the Shimabara Peninsula, and the Hayasaki Straits. Though four other species of *Stygiotrechus* have been known from Kyushu and an island belonging to it, they are classified into three different species-groups, the *unidentatus* group of the Hirao-dai and Fukuchi Hills, the *kubotai* group of the Nishisonoki Peninsula (cf. UÉNO, 1969, pp. 498–506, 511), and the *pachys* group of the Island of Fukué-jima (cf. UÉNO, 1970 b, pp. 606–610), of which the first two occur in the northernmost parts of mainland Kyushu, and the third one is restricted to the Gotô Islands off the northwestern coast of Kyushu. In the straight-line distance, the type locality of *S. miyamai* in the Island of Amakusa-shimoshima is much nearer to that of *S. kubotai* S. UÉNO (1958, p. 125, figs. 1–5) at the northwestern part of the Nishisonoki Peninsula (75 km to the northwest) than to that of *S. esakii* S. UÉNO on the Sefuri Mountains, but the topography between the former two is much more complicated with many barriers than between the latter two.

要　約

上野俊一: 天草諸島で発見された盲目のチビゴミムシ類. —— 天草諸島の天草下島の中央部で, 地下浅層にすむ盲目のチビゴミムシ類が2種, 見山　博氏によって発見された. そのひとつはノコメメクラチビゴミムシ属の一種で, 九州北部の背振山地の洞窟にすむエサキメクラチビゴミムシ *Stygiotrechus esakii* S. UÉNO に, ある程度の類縁関係をもつ. 他の一種は, 熊本県南西部の洞窟数カ所に局地的な分布をするクマメクラチビゴミムシ属 *Allotrechiama* の新種だろうと判定された. 残念なことに, 後者はただ1点の死体が掘り出されただけなので, 新種記載の材料としては不十分である. それで将来, 完全な標本が得られるまで, 記載命名するのを留保した. いっぽう, ノコメメクラチビゴミムシ属のものには, アマクサメクラチビゴミムシ *Stygiotrechus miyamai* S. UÉNO という新名を与えたが, この極端に微小なチビゴミムシは, 日本産最小の盲目種として記録される.

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Elytra, Tokyo, **37**(2): 207–214, November 14, 2009

Pterostichus (*Rhagadus*) *thorectoides* JEDLIČKA (Coleoptera, Carabidae) and its New Relative from Southwest Japan

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Abstract *Pterostichus* (*Rhagadus*) *thorectoides* JEDLIČKA is redescribed based on the holotype and an additional male collected from Okayama Prefecture, Southwest Japan. A new relative of the species is described from the Island of Awaji-shima, Hyôgo Prefecture, Southwest Japan, under the name of *P.* (*R.*) *ishiii* MORITA, Y. KUROSA et MORI, sp. nov.

This short paper is drawn up to redescribe *Pterostichus* (*Rhagadus*) *thorectoides* JEDLIČKA (1958, p. 240), on the basis of the holotype, since the original description given by JEDLIČKA is of little use for recognizing the species. At this opportunity, we are going to describe a new species related to it from the Island of Awaji-shima, Hyôgo Prefecture, Southwest Japan.

The abbreviations used herein are the same as those explained in previous papers of MORITA's; NW and EB mean the width of the neck in dorsal view and the width of elytral base, respectively.

Before going further, We wish to express our deep gratitude to Dr. Shun-Ichi UÉNO of the National Museum of Nature and Science, Tokyo, for critically reading the original manuscript of this paper. Hearty thanks are also due to Messrs. Takaaki AONO and Masao ISHII for supplying us with important material.

Our thanks are also due to Dr. Svatopluk BÍLÝ for loan of the type specimen of *Pterostichus* (*Rhagadus*) *thorectoides* under his care.

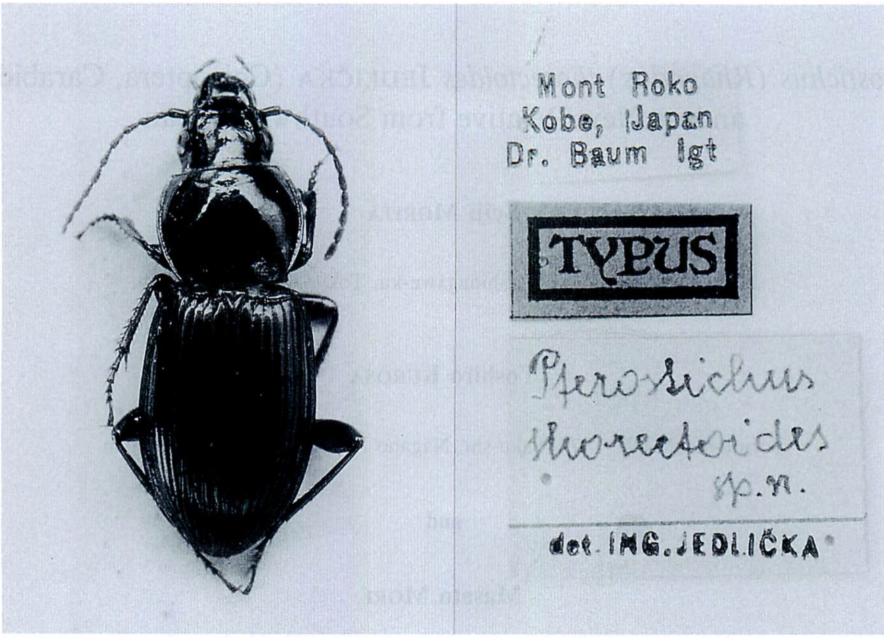


Fig. 1. Holotype of *Pterostichus* (*Rhagadus*) *thorectoides* JEDLIČKA and the labels.

Pterostichus (*Rhagadus*) *thorectoides* JEDLIČKA

[Japanese name: Nise-futokubi-naga-gomimushi]

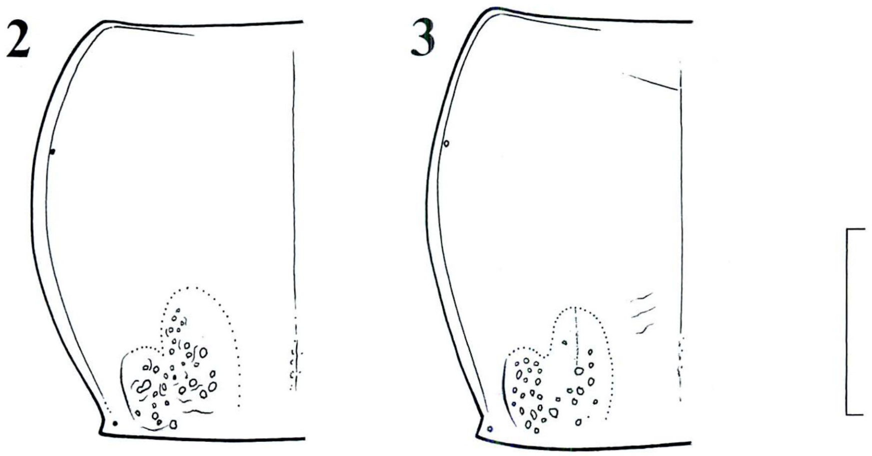
(Figs. 1, 2, 4–6)

Pterostichus thorectoides JEDLIČKA, 1958, Acta ent. Mus. natn. Pragae, **32**: 240; type locality: Kobe, Japan; 1962, Ent. Abh., Dresden, **26**: 208, fig.15-a.
Pterostichus (*Rhagadus*) *thorectoides*: NAKANE, 1979, Nat. & Ins., Tokyo, **14**(4): 15, fig. 3–B–a.

Diagnosis. Body stout, with short elytra; eyes rather flat; neck wide; microsculpture indistinct; pronotum wide (PW/PL 1.24–1.27); reflexed lateral sides of pronotum wide; hind angle of pronotum dentate; elytral shoulders without tooth on each side; aedeagal apical lobe straight in ventral view.

Redescription. L: 8.6–9.7 mm. Body small though stout. Colour black to blackish brown; dorsal surface slightly shiny; ventral side almost black to blackish brown; sides and base of pronotum as well as appendages dark brown to brown; in the holotype, body brown, more or less teneral.

Head moderately convex; eyes rather flat; frontal furrows linear, deep, clearly impressed, becoming shallower towards bases and reaching a little before the anterior supraorbital pore, and with several fine punctures; lateral grooves deep, straight, deeper than the frontal furrows, and reaching beyond the post eye; anterior supraorbital pore situated a little before the mid-eye level; posterior one at the post-eye level; frons sparsely and finely punctate; PW/HW 1.50; genae oblique and a little shorter than eyes;



Figs. 2–3. Pronota of *Pterostichus* (*Rhagadus*) spp.——2, *Pterostichus* (*Rhagadus*) *thorectoides* JEDLIČKA, from Okayama Prefecture; 3, *P.* (*R.*) *ishiii* MORITA, Y. KUROSA et MORI, sp. nov., from Mt. Mikuma-yama. (Scale: 1 mm.)

microsculpture not clearly impressed and consisting of isodiametric meshes; relative lengths of antennal segments as follows:— I : II : III : IV : V : VI : XI ≒ 1 : 0.54 : 1.06 : 0.98 : 0.97 : 0.98 : 1.16.

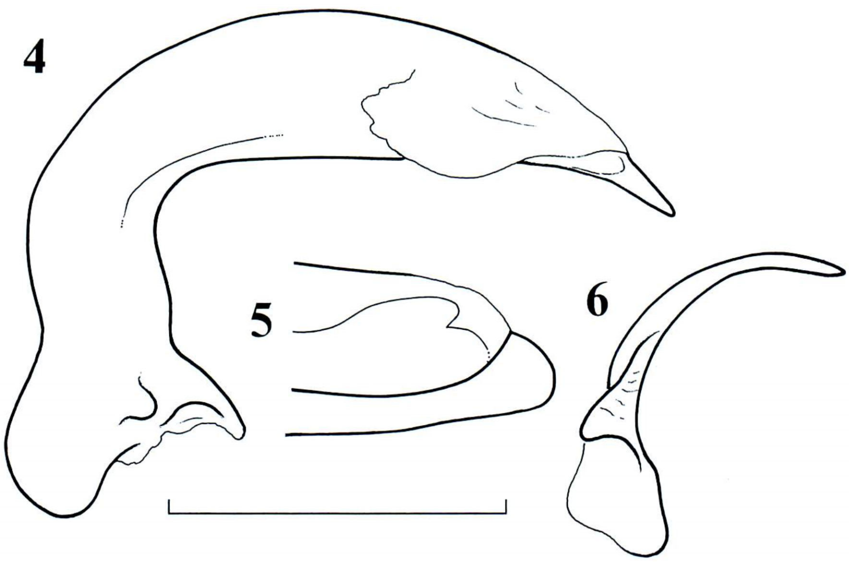
Pronotum transverse and convex; apex almost straight or weakly emarginate, and deeply bordered at the sides; PW/PL 1.27; sides strongly arcuate throughout; base straight; PW/PA 1.40; PW/PB 1.42; PA/PB 1.01; apical angles weakly produced and narrowly rounded at the tips; hind angles dentate; anterior pair of marginal setae inserted at a little before the widest part; anterior transverse impression vanished; median line clearly impressed, reaching neither apex nor base; basal foveae rather deep, wide, and with coarse punctures; microsculpture almost vanished.

Elytra ovate, convex, widest at about the middle, and with wide base; EW/PW 1.20; EL/EW 1.48; shoulders distinct, without tooth on each side; sides moderately arcuate, with very shallow preapical emargination; apices separated from each other and sutural angle rounded; scutellar striole lacking; striae crenulate or moderately punctate; stria 1 adjoining basal border; basal pore situated at the base of stria 2; two dorsal pores situated on interval III and adjoining stria 2; first pore situated at a little before the middle and second one at basal 3/4; intervals weakly convex; microsculpture composed of fine transverse meshes; marginal series composed of 15 pores.

Ventral surface moderately punctate, but the gula, median part of prosternum, metepimera and metacoxae are smooth.

Basal two segments of meso- and metatarsi each with outer sulci on lateral side; TL/HW 0.91.

Aedeagus elongate; viewed dorsally, apical lobe elongate and straight with widely rounded apex; right paramere elongate, with elongate apical part; left one square.



Figs. 4–6. Male genital organ of *Pterostichus* (*Rhagadus*) *thorectoides* JEDLIČKA, from Okayama Prefecture. —— 4, Aedeagus, left lateral view; 5, apical part of aedeagus, ventral view; 6, right paramere, left lateral view. (Scale: 1 mm.)

Specimens examined. 1 ♀, "Mont Roko Kobe, Japan Dr. Baum lgt" / "TYPUS" / "*Pterostichus thorectoides* sp. n. det. ING. JEDLIČKA"; 1 ♂, Kajioka, Tamano, Okayama Pref., 16–VI–1987, T. AONO leg.

Notes. The standard ratios of body parts shown in the descriptive part are those of the holotype.

The specimen from Okayama Prefecture is distinguished from the holotype by the following points: 1) eyes convex, 2) frontal furrows with wrinkles and punctures, 3) carina of pronotum weaker and 4) elytral striae more strongly punctate.

The standard ratios of body parts in the Okayama specimen are as follows: PW/HW 1.47, PW/PL 1.24, PW/PA 1.44, PW/PB 1.37, PA/PB 0.95, EW/PW 1.17, EL/EW 1.52, TL/HW 0.96.

This species is closely allied to *Pterostichus* (*Rhagadus*) *straneoi* HABU (1958, p. 5) from Mt. Hiko-san, Fukuoka Prefecture. It is, however, distinguished from the latter by the following points: 1) eyes less convex, 2) genae less convex, 3) frontal furrows narrower, and 4) hind angles of pronotum dentate. These species are also decisively different in their body form.

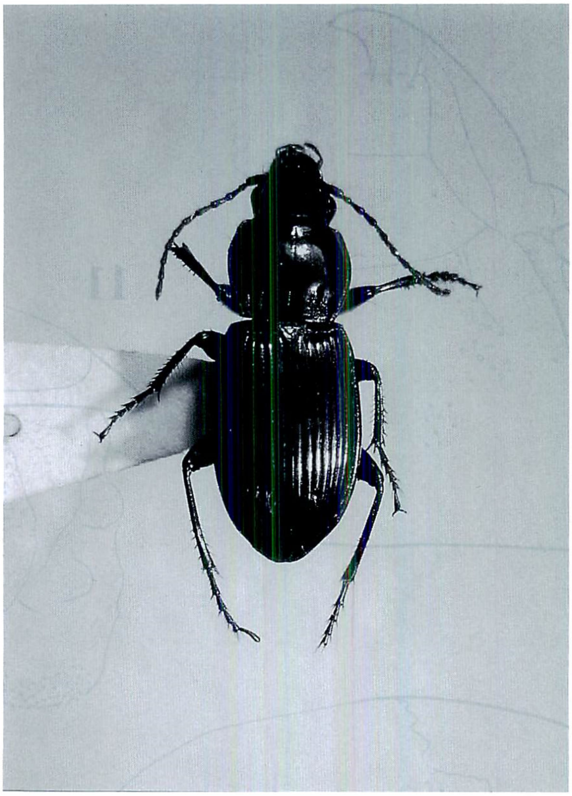


Fig. 7. *Pterostichus* (*Rhagadus*) *ishiii* MORITA, Y. KUROSA et MORI, sp. nov., from Mt. Yuzuruha-san.

Pterostichus (*Rhagadus*) *ishiii*

MORITA, Y. KUROSA et MORI, sp. nov.

[Japanese name: Awaji-hime-naga-gomimushi]

(Figs. 3, 7–12)

Diagnosis. Body stout with large head; eyes flat; neck very wide; pronotum rather narrow; reflexed lateral sides of pronotum very narrow; elytral base wide; elytal shoulder with a weak tooth; scutellar striole usually absent, rarely very short and situated on interval II.

Description. L: 8.6–9.7 mm. Body stout. Colour black; dorsal surface slightly shiny; ventral side almost black to blackish brown; sides and base of pronotum and appendages dark brown to blackish brown.

Head moderately convex; eyes flat; frontal furrows linear, deep, clearly impressed and reaching a little before the level of the anterior supraorbital pore, and with fine punctures; lateral grooves very deep, almost straight, linear throughout and reaching

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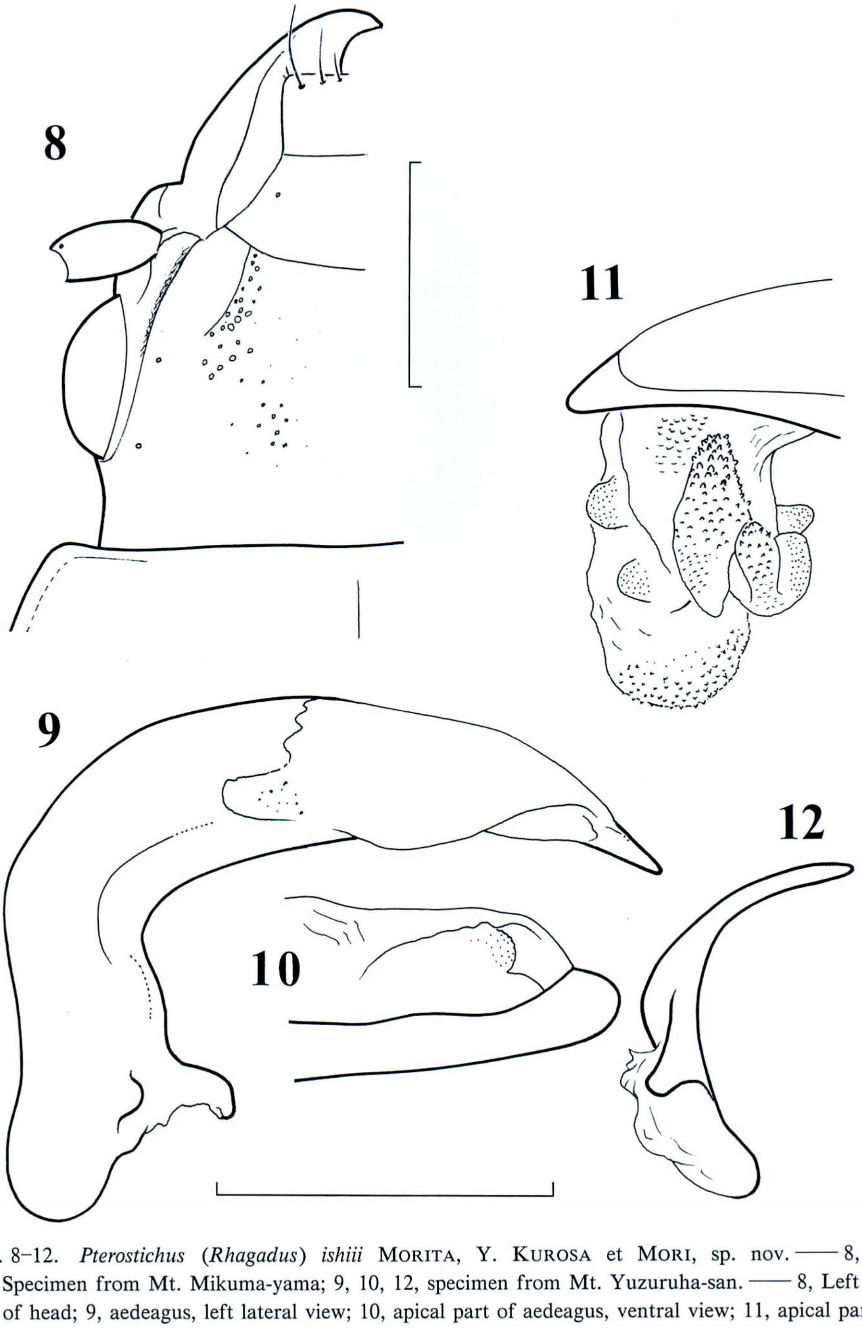

Figs. 8–12. *Pterostichus* (*Rhagadus*) *ishiii* MORITA, Y. KUROSA et MORI, sp. nov. —— 8, 11, Specimen from Mt. Mikuma-yama; 9, 10, 12, specimen from Mt. Yuzuruha-san. —— 8, Left side of head; 9, aedeagus, left lateral view; 10, apical part of aedeagus, ventral view; 11, apical part of aedeagus, right dorso-lateral view, showing everted inner sac; 12, right paramere, left lateral view. (Scale: 1 mm.)

beyond the post eye; anterior supraorbital pore situated at a level of basal 3/5 of eyes; posterior one at a little before the post-eye level; frons sparsely and finely punctate; PW/HW 1.35–1.44 (M 1.40) in ♂, 1.38–1.41 (M 1.40) in ♀; genae oblique and short; microsculpture not clearly impressed and partially consisting of wide meshes; neck very wide; NW/PA 0.80–0.85 (M 0.82) in ♂, 0.83–0.86 (M 0.84) in ♀; relative lengths of antennal segments as follows:— I : II : III : IV : V : VI : XI≒1 : 0.55 : 1.04 : 0.96 : 0.95 : 0.94 : 1.12.

Pronotum rather narrow; apex almost straight to weakly emarginate, and deeply bordered at the sides; PW/PL 1.21–1.23 (M 1.21) in ♂, 1.20–1.24 (M 1.22) in ♀; sides rather weakly arcuate throughout; reflexed lateral sides very narrow; base weakly emarginate at the median part and almost straight at the sides; PW/PA 1.28–1.36 (M 1.33) in ♂, 1.32–1.38 (M 1.35) in ♀; PW/PB 1.30–1.36 (M 1.33) in ♂, 1.30–1.38 (M 1.33) in ♀; PA/PB 0.96–1.05 (M 1.00) in ♂, 0.96–1.00 (M 0.99) in ♀; apical angles very weakly produced and narrowly rounded at the tips; hind angles dentate with strong carina on each side; anterior pair of marginal setae inserted a little before the widest part; anterior transverse impression vanished or very weakly impressed at the median part; median line clearly impressed, reaching neither apex nor base; basal foveae rather deep, with coarse punctures; microsculpture not clearly impressed and partially consisting of fine transverse meshes.

Elytra ovate, convex, widest at about middle, and with wide base; PB/EB 0.80–0.86 (M 0.83) in ♂, 0.79–0.86 (M 0.82) in ♀; EW/PW 1.18–1.23 (M 1.21) in ♂, 1.21–1.26 (M 1.23) in ♀; EL/EW 1.51–1.59 (M 1.54) in ♂, 1.49–1.57 (M 1.53) in ♀; shoulders distinct, with a very weak tooth on each side; sides weakly arcuate from shoulders to the widest part, moderately arcuate behind, and then narrowly produced towards apices, with very shallow preapical emargination; apices weakly separated from each other, and sutural angle obtuse; scutellar striole usually absent, rarely very short and situated on interval II; striae moderately punctate; stria 1 adjoining basal border; basal pore situated at the interval II and close to the stria 2 or base of stria 2; two dorsal pores situated on interval III and adjoining stria 2; first pore situated at basal 2/5–9/20 and second one at basal 13/20–3/4, respectively; intervals weakly convex; microsculpture not clearly impressed and partially consisting of fine transverse lines; marginal series composed of 14–16 pores.

Mentum tooth wide and bifid; prepisternum, mesosternum, sides of metasternum, mesepisternum, sternites 1–5 and sides of sternite 6 (anal sternite) strongly and coarsely punctate; anal sternite elongate and widely bordered throughout.

Basal two or three segments of meso- and metatarsi each with outer sulci on lateral side; TL/HW 0.93–1.03 (M 0.98) in ♂, 0.85–0.93 (M 0.89) in ♀.

Aedeagus elongate with robust basal part; apical lobe elongate and straight in ventral view; viewed dorsally, apex rather widely rounded; inner sac with rolled membraneous part covered with rather strongly sclerotized spinulus; right paramere elongate, arcuate and with elongate apical part; left one square.

Type series. Holotype: ♂, Mt. Yuzuruha-san, 9–X–2000, Y. KUROSA leg. (NSMT).

Paratypes: 1 ♂, Mt. Yuzuruha-san, 9–X–2000, Y. KUROSA leg.; 3 ♂♂, 1 ♀, Mt. Mikuma-yama, 7–XI–2000, M. ISHII leg.; 1 ♂, 2 ♀♀, Mt. Yuzuruha-san, 21–XI–2000, M. Mori leg.; 2 ♀♀, Mt. Yuzuruha-san, 17–VI–2001, M. MORI leg.; 1 ♀, Mt. Kashiwara-yama, 26–V–2001, M. MORI leg.

Localities. Mt. Yuzuruha-san, Mt. Kashiwara-yama and Mt. Mikuma-yama, on the Island of Awaji-shima in Hyôgo Prefecture, Southwest Japan.

Notes. This new species is closely allied to *Pterostichus* (*Rhagadus*) *thorectoides* JEDLIČKA. It is, however, distinguished from the latter by the following points: 1) neck wider and longer, 2) pronotum narrower, PW/PL 1.21–1.23 (M 1.22), 3) reflexed lateral sides of pronotum narrower, 4) tooth of hind angles of pronotum larger, 5) elytra narrower, EL/EW 1.51–1.56 (M 1.53) in ♂, 1.49–1.57 (M 1.53) in ♀, 6) elytral sides more strongly arcuate, 7) aedeagal apex rather widely rounded in ventral view and 8) basal part of right paramere wider.

The basal orifice of the aedeagus is much smaller than the needle for injection, so that it is difficult to insert it into the basal orifice. In order to put the needle into the aedeagus, the aedeagus is cut at the basal part with a surgical knife. The inner sac of the aedeagus of one specimen was everted and inflated. Unfortunately, the inner sac of the aedeagus is slightly reduced and deformed,

Another species of the same subgenus occurs on the same mountain, but we are unable to determine it.

The standard ratios of body parts shown in the descriptive part are those of 5 ♂♂ and 4 ♀♀.

要　　約

森田誠司・黒佐義郎・森　正人：ニセフトクビナガゴミムシ *Pterostichus* (*Rhagadus*) *thorectoides* JEDLIČKA と近縁の 1 新種．―― 神戸を基産地として記載されたニセフトクビナガゴミムシ *Pterostichus* (*Rhagadus*) *thorectoides* JEDLIČKA について，正基準標本および岡山県産の 1 雄をもとに，再記載した．さらに，淡路島から採集された近縁の 1 新種，アワジヒメナガゴミムシ *Pterostichus* (*Rhagadus*) *ishiii* を記載した．

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Elytra, Tokyo, **37**(2): 215–219, November 14, 2009

Notes on the Bembidiinae (Coleoptera, Carabidae) of Japan
XX. A New Species of the Genus *Armatocillenus*

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Abstract A new bembidiine species belonging to the genus *Armatocillenus* is described from the Island of Okinawa-hontô, Southwest Japan, under the name of *A. okinawanus* MORITA, sp. nov.

What will be dealt with in this part is the result of my study on a species of the genus *Armatocillenus*, obtained on the Island of Okinawa-hontô, in Southwest Japan. The specimens were submitted to me for my study through the courtesy of Mr. Hanmei HIRASAWA.

The abbreviations used herein are as follows: L–body length, measured from apical margin of clypeus to apices of elytra; HW–greatest width of head; PW–greatest width of pronotum; PL–length of pronotum, measured along the mid-line; PA–width of pronotal apex; PB–width of pronotal base; EW– greatest width of elytra; EL–greatest length of elytra; FL–length of metafemur; ML–length of metatrochanter; M–arithmetic mean; NSMT–National Museum of Nature and Science, Tokyo.

Before going further, I wish to express my deep gratitude to Dr. Shun-Ichi UÉNO of the National Museum of Nature and Science, Tokyo, for critically reading the original manuscript of this paper. Hearty thanks are also due to Mr. Hanmei HIRASAWA for his supplying me important material for this study, and to Messrs. Ichiro OSHIO and Yuichi OTA for their kind help.

Armatocillenus (*Desarmatocillenus*) *okinawanus* MORITA, sp. nov.

[Japanese name: Okinawa-kibanaga-mizugiwa-gomimushi]

(Figs. 1–3, 5)

Diagnosis. Body small; elytra with a pair of spots at basal fourth of elytra; apical part of left mandible without tooth; hind wings developed; metatrochanter normal (ML/FL 0.39–0.48); aedeagal apical lobe rather wide in lateral view.

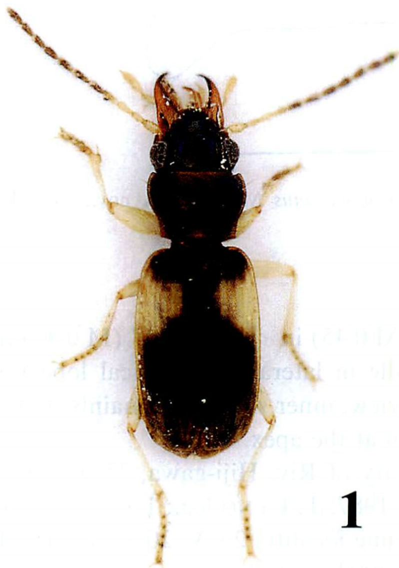
Description. L: 3.07–3.71 mm (M 3.29 mm). Body small. Head, pronotum and clypeus black with greenish lustre on dorsal sides and not polished; elytra black with greenish lustre, but the sides and spots are pale yellowish brown; apical parts of elytra rarely pale yellowish brown and vaguely defined; a pair of spots situated at about basal fourth of elytra and usually occupying interval V and side margin on each side, rarely interval III and side margin, or almost lacking; ventral side dark brown; mouth parts, antennal segments I–III, and basal half of segment IV, legs and trochanters pale yellowish brown; mandibles brown; labrum darker than mandibles.

Head weakly convex; eyes moderately convex; PW/HW 1.06–1.10 (M 1.09) in ♂, 1.06–1.12 (M 1.10) in ♀; frontal furrows very wide, shallow, parallel to each other and reaching the mid-eye level or a little before the post-eye level; anterior supraorbital pore variable in position, usually situated at the mid-eye level or a little before that level, rarely a little behind that level; posterior ones situated at the post-eye level; microsculpture strongly impressed, composed of isodiametric meshes; neck wide; genae invisible; apical part of left mandible without tooth; relative lengths of antennal segments as follows:— I : II : III : IV : V : VI : XI ≒ 1 : 0.71 : 0.87 : 0.79 : 0.89 : 0.87 : 1.10.

Pronotum transverse and moderately convex; PW/PL 1.31–1.40 (M 1.35) in ♂, 1.30–1.37 (M 1.33) in ♀; apex almost straight or very weakly emarginate; PW/PA 1.11–1.15 (M 1.13) in ♂, 1.12–1.16 (M 1.14) in ♀; sides weakly and widely arcuate in front, weakly sinuate at about 1/4 from base, and then almost parallel to each other or very weakly convergent towards hind angles; marginal gutters shallow; anterior marginal seta situated at apical 1/7; PW/PB 1.32–1.40 (M 1.36) in ♂, 1.31–1.40 (M 1.37) in ♀; PA/PB 1.18–1.31 (M 1.22) in ♂, 1.16–1.25 (M 1.20) in ♀; median line weakly impressed between anterior and posterior transverse impressions; base weakly arcuate at median part, rarely with short and transverse line at median part (briefly bordered), and oblique at the sides; apical angles rather strongly produced and rather obtuse at the tips; hind angles obtuse and with a seta near the tip on each side; basal foveae rather shallow and narrow; anterior transverse impression vanished; posterior transverse impression deep, transverse and laterally merging into basal foveae; microsculpture composed of isodiametric meshes, but very weakly impressed on apical part of median area, or rarely vanished.

Elytra elongate with rounded shoulders; EW/PW 1.27–1.32 (M 1.30) in ♂, 1.26–1.37 (M 1.30) in ♀; EL/EW 1.65–1.74 (M 1.68) in ♂, 1.66–1.78 (M 1.72) in ♀; sides very weakly arcuate; preapical emargination shallow; apical parts rather narrowly separated from each other with rounded apices; intervals very weakly convex and impunctate; striae rather deep and impunctate; striae 6 and 7 disappearing at basal 3/4 of elytra; two dorsal pores situated on interval III, and usually very close to stria 3 or on the interval; anterior dorsal pore situated between basal 1/3–2/5 of elytra and posterior one at 3/4–4/5, respectively; microsculpture coarsely impressed, consisting of isodiametric meshes. Hind wings developed.

Figs. 1–4. *Armatocillenus* (*Desarmatocillenus*) spp. —— 1–3, *A.* (*D.*) *okinawanus* MORITA, sp. nov., from Riv. Hiji-gawa, showing variation of elytral spots; 4, *A.* (*D.*) *yokohamae* (BATES) from Numazu-shi, Shizuoka Prefecture.



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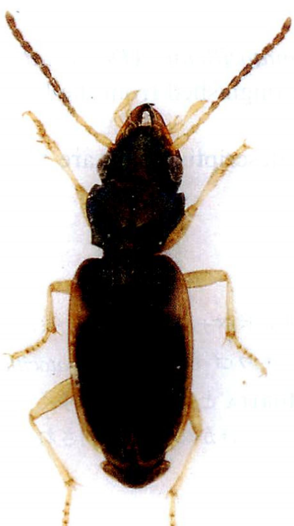

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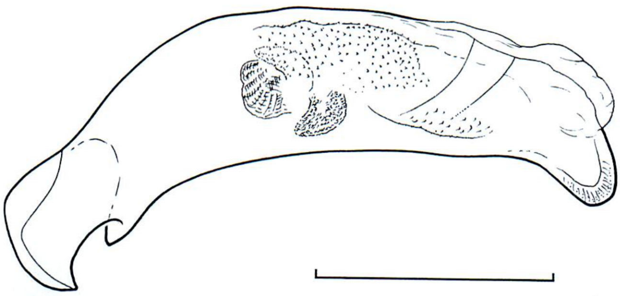

Fig. 5. Aedeagus of *Armatocillenus* (*Desarmatocillenus*) *okinawanus* MORITA, sp. nov., from Riv. Hiji-gawa, left lateral view. Scale: 0.3 mm.

Metatrochanter normal; ML/FL 0.39–0.48 (M 0.45) in ♂, 0.39–0.47 (M 0.43) in ♀.

Aedeagus elongate, hardly arcuate at middle in lateral view; apical lobe rather elongate and simply rounded at the tip in lateral view; inner sac armed mainly with two patches of scales. Styles each bearing a long seta at the apex.

Type series. Holotype: ♂, allotype: ♀, estuary of Riv. Hiji-gawa, 25–V–2009, Y. OTA leg. (NSMT). Paratypes: 1 ♂, Aha, 18–X–1987, T. UENO leg.; 1 ♂, 3 ♀♀, Yona, Riv. Yona-gawa, 2–V–2009, Y. OTA leg.; 1 ♀, same locality, 25–V–2009, Y. OTA leg.; 15 ♂♂, 31 ♀♀, estuary of Riv. Hiji-gawa, 25–V–2009, Y. OTA leg.

Localities. Estuary of Riv. Hiji-gawa (type Locality!); Yona, Riv. Yona-gawa; Aha, Kunigami-son, the Island of Okinawa-hontô, Okinawa Prefecture, Southwest Japan.

Notes. This new species is closely allied to *Armatocillenus* (*Desarmatocillenus*) *yokohamae* (BATES) (1883, p. 268). It is, however, distinguished from the latter by the body size and coloration of dorsal surface.

The standard ratios of body parts shown in the descriptive part are those of six males and eleven females.

要　約

森田誠司：日本産ミズギワゴミムシ類の知見. XX. 沖縄産キバナガミズギワゴミムシ *Armatocillenus* の1新種. —— 沖縄から発見されたキバナガミズギワゴミムシ属 *Armatocillenus* の1新種を記載し，これに *A.* (*Desarmatocillenus*) *okinawanus* MORITA という新名を与えた．この種は，小型で，通常，上翅に明瞭な紋を有することにより，容易にほかの種と識別される．

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Elytra, Tokyo, **37**(2): 219–220, November 14, 2009

Notes on the Bembidiinae (Coleoptera, Carabidae) of Japan
XXI. New Records of *Bembidion kamikochii* JEDLIČKA from Shikoku and Kyushu

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Up to present, *Bembidion kamikochii* JEDLIČKA (1965, p.143) has been known from Hokkaido and Honshu, Japan. I collected this species from Kagoshima Prefecture, Southwest Japan. Besides, I had an opportunity to examine the following specimen of this species from Shikoku through the courtesy of Mr. YOSHIDA. I would like to record them as below.

Bembidion kamikochii JEDLIČKA

[Japanese name: Kamikôchi-mizugiwa-gomimushi]

Specimens examined. 1 ♂, Kamiakui, Riv. Akui-gawa, Tokushima Pref., Shikoku, 20–XII–1964, M. YOSHIDA leg.; 1 ♂, Maruo, Kirishima Mts., Kagoshima Pref., Kyushu, 10–VI–1993, S. MORITA leg.; 1 ♂, 2 ♀♀, same locality, 18–IV–2008, S. MORITA leg.

I thank Mr. Masataka YOSHIDA who kindly submitted the specimen to me for my study.

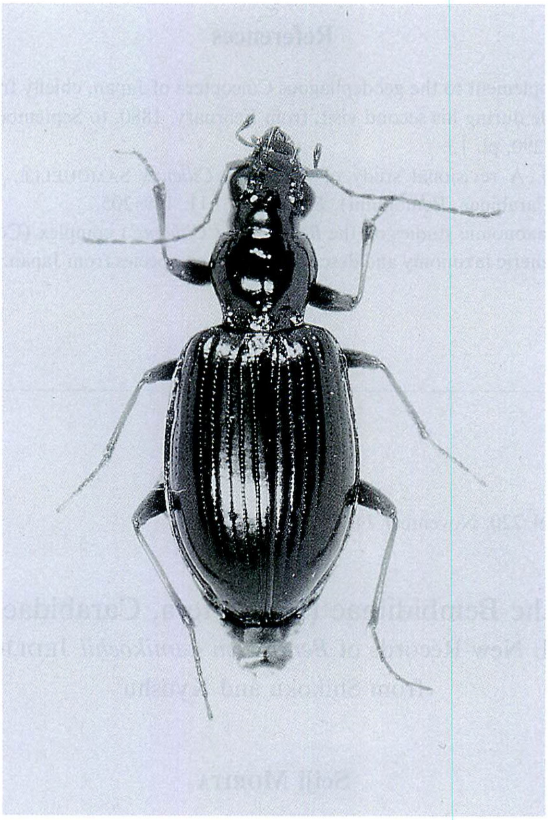

Fig. 1. *Bembidion kamikochii* JEDLIČKA from Maruo.

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Elytra, *Tokyo*, **37**(2): 221–226, November 14, 2009

On *Synuchus* (*Synuchus*) *patroboides* LINDROTH (Coleoptera, Carabidae)

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and

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Abstract The synuchine carabid beetle, *Synuchus* (*Synuchus*) *patroboides* LINDROTH is redescribed based on the holotype and additional materials from Yamanashi and Shizuoka Prefectures, Central Japan.

In 1956, LINDROTH briefly described a new species, *Synuchus patroboides* (1956, p. 531) based on one male collected at Shôji, Yamanashi Prefecture, Central Japan. Since the original description, little information has been added to the species.

In his monograph of Japanese platynine carabids, HABU (1978) was unable to study this species, so that he only transferred the original description to his monograph. Through the courtesy of Dr. Alexey SOLODOVNIKOV where SUENSON's collection is housed, we had the opportunity to study the type specimen of this species. In this paper, we will redescribe the species because the original description by LINDROTH is not snfficient for recognizing the species.

The abbreviations used herein are the same as those explained in previous papers of MORITA's.

Before going further, we wish to express our deep gratitude to Dr. Shun-Ichi UÉNO of the National Museum of Nature and Science, Tokyo, for his critically reading the original manuscript of this paper. Hearty thanks are also due to Mrs. Mutsumi ONDA for supplying us with important material.

Our thanks are also due to Dr. Alexey SOLODOVNIKOV of the Zoological Museum of Copenhagen, Denmark for the loan of the type material of *Synuchus patroboides* LINDROTH under his care. Similar prompt aid was given by Mr. Erich KIRSCHENHOFER.

Synuchus (Synuchus) patroboides LINDROTH

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

(Figs. 1–13)

Synuchus patroboides LINDROTH, 1956, Trans. r. ent. Soc. London, **108**: 531, figs. 18–C, 19–B, 21–E, 22–I; type locality: Shoji. —— HABU, 1978, Fn. Japon., Carab. Platyn., pp. 320, 388, 389, fig. 787.

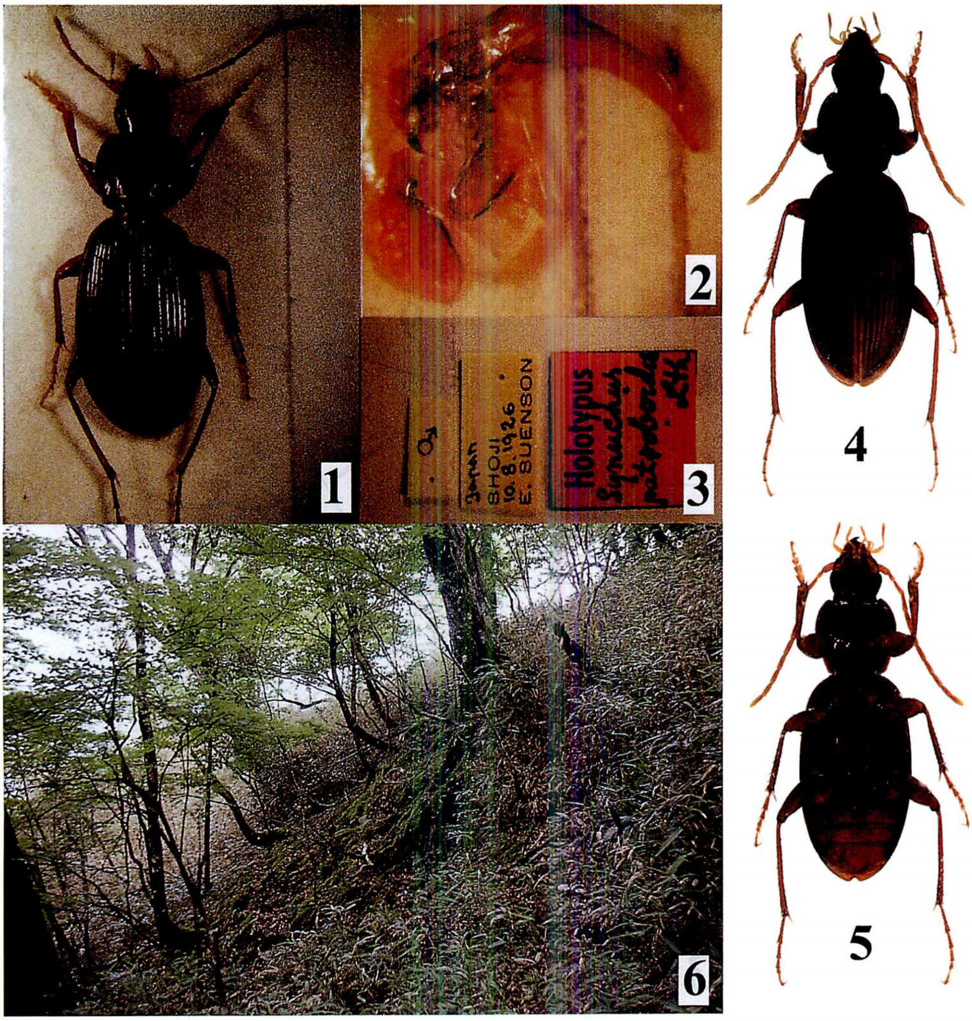
Diagnosis. Body rather small and elongate; terminal segments of palpi not dilated; antennal segment 2 with three or four setae on each side; sides of pronotum weakly sinuate just before hind angles; elytral apices not obliquely truncate; elytral stria 7 usually vestigial at apex, approaching to the apex of stria 1; claw with several teeth; anal sternite (VI) deeply emarginate at apex in ♂; viewed dorsally, aedeagus sigmoidally curved with ridges at about basal third of aedeagus; right paramere weakly bent at about middle.

Redescription. L: 7.07–8.57 mm. Body rather small and elongate. Body blackish brown to brown; appendages slightly lighter than dorsum.

Head moderately convex; eyes weakly convex; frontal furrows shallow, wide, almost parallel or slightly divergent posteriad, and reaching the level of anterior supraorbital pore; lateral grooves linear, deep, straight and reaching the post-eye level; anterior supraorbital pore situated at a level of basal 2/3 of eyes; posterior supraorbital pore situated at a level of the neck constriction; microsculpture sharply impressed, consisting of polygonal meshes; genae weakly convex and 3/5–7/10 as long as eyes; mentum tooth wide and bifid at the tip; apex of labrum weakly arcuate; terminal segment of labial palpus cylindrical and widest at about middle (not dilated); terminal segment of maxillary palpus widest at about middle and truncated at the tip; antennae filiform, reaching the basal 1/3 of elytra; antennal segment 2 with three or four setae on each side; relative lengths of antennal segments as follows:— I : II : III : IV : V : VI : XI ≒ 1 : 0.55 : 1.02 : 1.21 : 1.18 : 1.14 : 1.22.

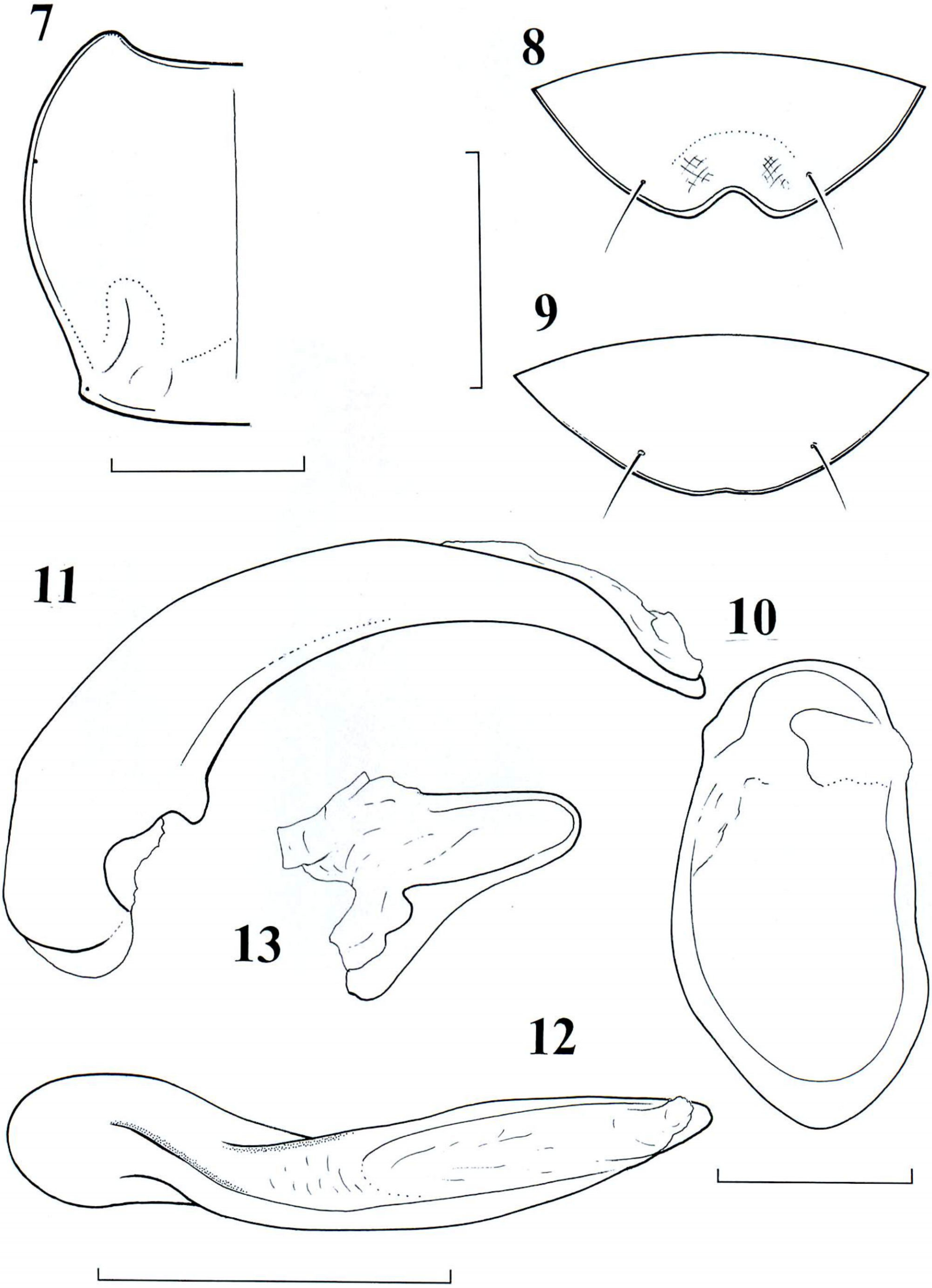
Pronotum rather narrow, weakly convex and widest at about apical third; PW/HW 1.53–1.58 (M 1.54) in ♂, 1.56, 1.52 in ♀; PW/PL 1.19–1.25 (M 1.21) in ♂, 1.18, 1.17 in ♀; PW/PA 1.46–1.60 (M 1.53) in ♂, 1.45, 1.49 in ♀; PW/PB 1.36–1.44 (M 1.37) in ♂, 1.39, 1.40 in ♀; PA/PB 0.87–0.96 (M 0.91) in ♂, 0.89, 0.94 in ♀; sides widely arcuate in front and then usually very weakly sinuate just before hind angles; apical angles moderately produced and simply rounded at the tips; apex almost straight at middle and moderately emarginate at the sides or moderately emarginate throughout; median line finely impressed and not reaching apex nor base; anterior marginal setae situated at the widest part or a little before that level; anterior transverse impression obliterated; basal foveae rather shallow, wide and almost smooth; hind angles obtuse; basal part usually smooth, rarely with longitudinal wrinkles at the median part: microsculpture clearly impressed and consisting of transverse meshes.

Elytra elongate and moderately convex; EW/PW 1.93–2.03 (M 1.99) in ♂, 1.91–2.10 (M 2.01) in ♀; EL/EW 1.57–1.71 (M 1.65) in ♂, 1.55–1.74 (M 1.65) in ♀; sides



Figs. 1–6. *Synuchus* (*Synuchus*) *patroboides* LINDROTH. —— 1, Holotype; 2, extracted male genital organ of the holotype; 3, labels attached to the holotype; 4, additional male specimen from the Abe Pass, dorsal view; 5, same specimen, ventral view; 6, habitat (at the Abe Pass, Shizuoka Prefecture).

moderately arcuate throughout, with no preapical emargination; apices obtuse or rather rounded (not obliquely truncate); striae deep and impunctate; scutellar striole short and situated on interval I; basal pore usually situated on the meeting point of striae 1 and 2; microsculpture rather strongly impressed and composed of fine transverse lines; intervals weakly convex and impunctate; marginal series of umbilicate pores 14–15 in number; two dorsal pores situated on interval III and adjoining stria 2; the first pore situated at about basal 3/10–2/5 of elytra, the second one at a little behind the middle to basal 3/5;



Figs. 7–13. *Synuchus* (*Synuchus*) *patroboides* LINDROTH. —— 7, Pronotum; 8, anal sternite in ♂; 9, same in ♀; 10, genital segment, ventral view; 11, aedeagus, left lateral view; 12, aedeagus, dorsal view; 13, left paramere, left lateral view. (Scale: 1 mm.)

stria 1 clearly impressed throughout; stria 2 similar to stria 1, but the apex is vestigial at basal 7/8–9/10 of elytron; apices of striae 1 and 2 rarely anastomosed at a little before the elytral apices; apices of striae 3–6 usually free; stria 7 usually very shallow at apex, approaching to the apex of stria 1; elytral epipleuron gradually narrowed apicad; inner plica distinct.

Ventral surface smooth; sternites I and II usually with short and longitudinal wrinkles; anal sternite (VI) deeply emarginate at apex in ♂, very weakly emarginate in ♀.

Legs long and slender; metatrochanter very short, with rounded apex; metafemora each with two setae in ventral view; dorsal sides of meso- and metatarsi not sulcate; segment 4 of metatarsi with a pair of minute setae in apical part; claw segments of meso- and metatarsi with several setae on ventral side; claw with several teeth.

Genital segment elongated ovate and without handle.

Aedeagus elongate and moderately arcuate in lateral view; viewed dorsally, aedeagus sigmoidally curved; basal part large with large basal orifice; viewed dorsally, basal parts of lateral walls strongly sclerotized and forming a ridge on each side at about basal third of aedeagus; apical part weakly arcuate dorsad or almost straight in lateral view; viewed dorsally, apical lobe short, with simply rounded apex; right paramere weakly bent at about middle, with widely rounded apex.

Specimens examined. 1 ♂, "Japan SHOJI 10. 8. 1926 E. SUENSON" / "♂" / "Holotypus *Synuchus patroboides* Lth"; 1 ♂, Abe Pass, 17–XI–1996, S. MORITA leg.; 1 ♀, Abe Pass, 4〜11–X–1997, S. MORITA leg.; 1 ♂, Abe Pass, 2–VIII–2008, I. OSHIO leg.; 4 ♂♂, 2 ♀♀, Abe Pass, 11〜12–X–2008, S. MORITA leg.; 1 ♂, 1 ♀, Mt. Yanbushi-dake, 25–VIII–2002, K. ONDA leg.

Localities. Shoji, Yamanashi Prefecture; Abe Pass and Mt.Yanbushi-dake, Shizuoka-shi, Shizuoka Prefecture, Central Japan.

Range. Central Japan (Yamanashi and Shizuoka Prefectures).

Notes. This species is similar in body form and coloration to *Synuchus* (*Synuchus*) *tanzawanus* (HABU) (1955, p. 180), but differs from it mainly in the shape of anal sternite in the male and the peculiar shape of aedeagus.

The standard ratios of body parts shown in the descriptive part are those of 5 ♂♂ and 2 ♀♀ including the holotype.

要　約

森田誠司・大塩一郎：*Synuchus* (*Synuchus*) *patroboides* LINDROTH について．―― ヤマナシツヤヒラタゴミムシ *Synuchus* (*Synuchus*) *patroboides* LINDROTH を，正基準標本ならびに，静岡県安倍峠，山伏岳で採集された標本を基に再記載した．

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——— 1978. Carabidae: Platynini (Insecta: Coleoptera). *Fauna Japonica.* viii+447 pp., 36 pls. Keigaku Publ., Tokyo.

LINDROTH, C. H., 1956. A revision of the genus *Synuchus* GYLLENHAL (Coleoptera: Carabidae) in the widest sense, with notes of *Pristosia* MOTSCHULSKY (*Eucalathus* BATES) and *Calathus* BONELLI. *Trans. r. ent. Soc. London*, **108**: 485–585.

Elytra, Tokyo, **37**(2): 226, November 14, 2009

Notes on the Bembidiinae (Coleoptera, Carabidae) of Japan
XXII. Systematic Position of *Bembidion yoshidai*

Seiji MORITA

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Bembidion* (*Ocydromus*) *yoshidai MORITA, 2009

In one of the foregoing papers published in this volume, I described *Bembidion yoshidai* (2009, p. 23) from the Island of Amami-Ôshima, Southwest Japan, but I did not decide the systematic position of this species.

Very recently, I studied the structure of the male genital organ of *B.* (*Ocydromus*) *echigonum* HABU et BABA (1957, p. 31) and its related species, and noticed that *B. yoshidai* shares the same component of aedeagus. Though the reduced punctation occurs on the head, I place this species in the subgenus *Ocydromus*.

References

HABU, A., & K. BABA, 1957. One new species of *Bembidion* from Niigata Prefecture and its adjacent districts. *Akitu, Kyoto*, **6**: 31–34.

MORITA, S., 2009. Notes on the Bembidiinae (Coleoptera, Carabidae) of Japan. XVIII. Two new species of the genus *Bembidion* from Southwest Japan. *Elytra, Tokyo*, **37**: 21–26.

Elytra, Tokyo, **37**(2): 227–243, November 14, 2009

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

Part 33. Genus *Quedius* STEPHENS, 1829. Subgenus *Microsaurus* DEJEAN, 1833. Section 18

Aleš SMETANA

Agriculture and Agri-Food Canada, Biodiversity, Central Experimental Farm, K. W. Neatby Bldg., Ottawa, Ontario K1A 0C6, Canada

Abstract Six species of the genus *Quedius* are described as new: *Q. ana* (Gansu), *Q. nian* (Gansu), *Q. liukuensis* (Yunnan), *Q. songpanoides* (Sichuan), *Q. cephalus* (Gansu), and *Q. jaangoides* (Yunnan). Tergite 10 of the female genital segment of *Q. lanugo* SMETANA, 2006 is described and illustrated for the first time.

Key words: Coleoptera, Staphylinidae, Staphylininae, *Quedius,* Palaearctic, mainland China, taxonomy, new species, distribution.

Introduction

This is the thirty-third of a series of papers dealing with the Quediina of the People's Republic of China. It presents the descriptions of further six new species of the subgenus *Microsaurus* DEJEAN, 1833. They are all members of the *Euryalus* Group. Tergite 10 of the female genital segment of *Q. lanugo* SMETANA, 2006 is described and illustrated for the first time.

Quedius lanugo SMETANA

(Fig. 1)

Quedius lanugo SMETANA, 2006, 91.

New record. [Yunnan]: Yunnan [CHO 7–24], Nujiang Lisu Aut. Pref., Gaoligong Shan, 3020 m, 27°47′54″N 98°30′13″E, mixed forest, litter, moss, wood sifted, 7.VI.2007, M. SCHÜLKE, 1 ♀, in the SCHÜLKE collection, Berlin, Germany.

Comments. The specimen was taken in a mixed forest by sifting litter, moss and decaying wood. The habitat is very close to the habitat the male holotype of this species was taken two years ago (coordinates for holotype 27°47′90″N 98°30′19″E).

Only male holotype of this species was known until now. The female specimen agrees in all external characters perfectly with the male holotype. There is hardly any doubt that the specimen represents the female of *Q. lanugo*. The female sexual characters are described below.

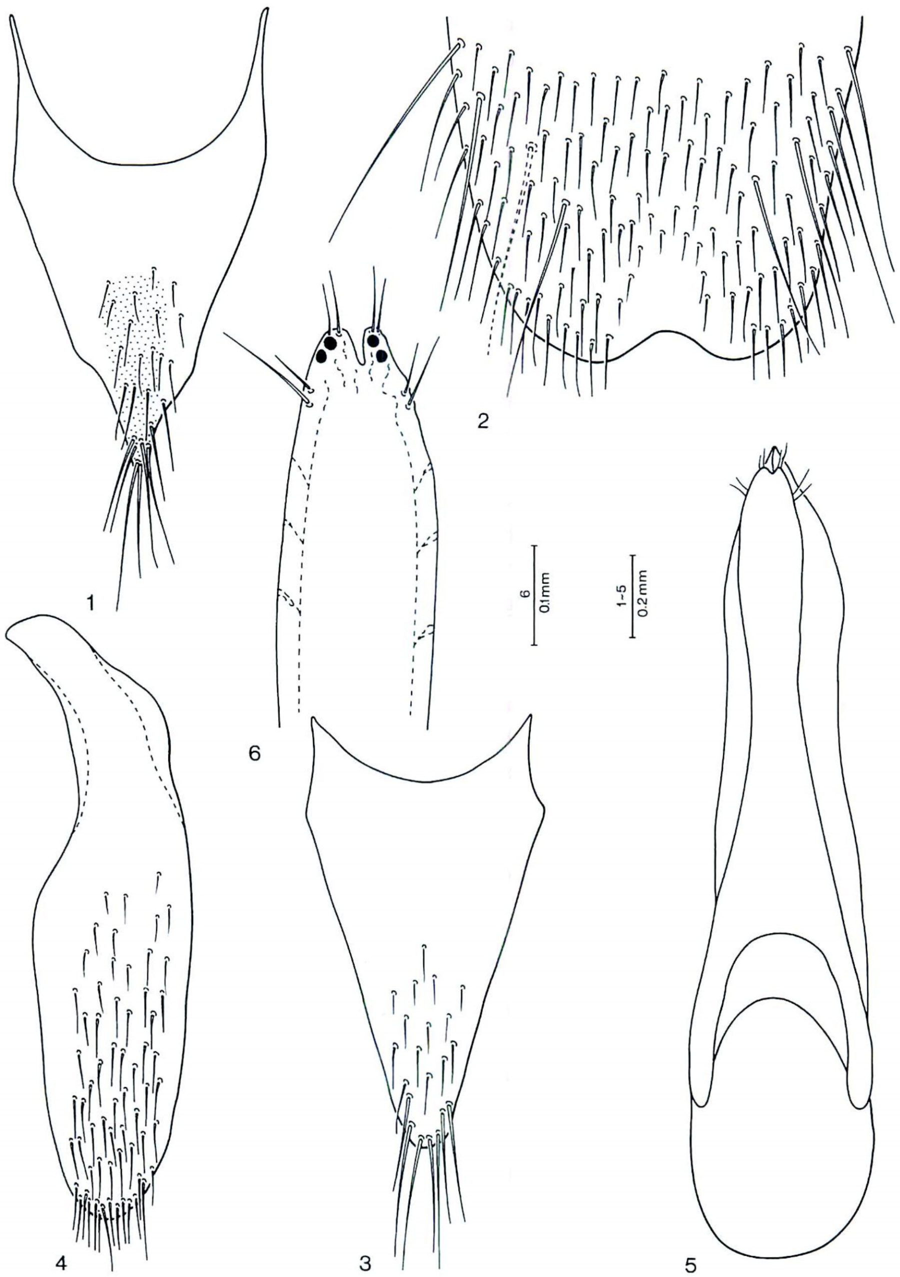
F e m a l e. First four segments of front tarsus similar to those of male, but less dilated, segment 2 about as wide as apex of tibia. Genital segment with tergite 10 markedly narrowed anteriad, pigmented medioapically, apical portion slightly differentiated, with acute apex, setation as in Fig. 1.

Quedius (*Microsaurus*) *ana* sp. nov.

(Figs. 2–7)

Description. Piceous-black to black, elytra with slight metallic lustre, abdomen slightly iridescent; maxillary and labial palpi brunneous, antennae brunneo-piceous to piceous, legs piceous to piceous-black with tarsi more or less paler. Head rounded, about as long as wide; posterior angles entirely rounded; eyes relatively large, only moderately convex, tempora shorter than eyes seen from above (ratio 0.65); no additional setiferous punctures between anterior frontal punctures; posterior frontal puncture situated close to posteriomedial margin of eye, separated from it by distance slightly longer than diameter of puncture, two punctures beween it and posterior margin of head, one additional puncture between posterior frontal puncture and temporal puncture, situated at posterior margin of head; temporal puncture situated about midway between posterior margin of eye and posterior margin of head; tempora with some fine punctures; surface of head with fine, dense microsculpture of transverse waves, with sparse micropunctulation. Antenna moderately long, moderately widened toward apex, segment 3 longer than segment 2 (ratio 1.38), segments 4 and 5 longer than wide, following segments becoming gradually shorter, outer segments as long as wide, last segment about as long as two preceding segments combined. Pronotum slightly wider than long, widest at about posterior third, more narrowed anteriad than posteriad, with lateral margins continuously arcuate with broadly rounded base, transversely convex, lateral portions not explanate; dorsal rows each with three punctures; sublateral rows each with two punctures, posterior puncture situated behind level of large lateral puncture; microsculpture similar to that on head but finer and denser. Scutellum impunctate, surface with very fine microsculpture of transverse waves. Elytra relatively long, at base narrower than pronotum at widest point, slightly widened posteriad, at suture as long as, at sides slightly longer than pronotum at midline (ratio 1.16); punctation and pubescence fine and moderately dense, transverse interspaces betweren punctures mostly slightly larger than diameters of punctures; pubescence pale brownish; surface between punctures without microsculpture. Wings probably functional. Abdomen with tergite 7 (fifth visible) with fine whitish apical seam of palisade fringe; punctation and pubescence of abdominal tergites finer and slightly denser than that on elytra, becoming slightly sparser toward apex of each tergite, and in general toward apex of abdomen; pubescence dark brown; surface between punctures with exceedingly dense and fine microsculpture of transverse striae.

M a l e. First four segments of front tarsus markedly dilated, sub-bilobed, each densely covered with modified pale setae ventrally; segment 2 slightly wider than apex of



Figs. 1–6. —— 1. *Quedius lanugo*: tergite 10 of female genital segment. —— 2–6: *Quedius ana*: 2, apical portion of male sternite 8; 3, tergite 10 of male genital segment; 4, sternite 9 of male genital segment; 5, aedoeagus, ventral view; 6, apical portion of underside of paramere.

tibia; segment 4 narrower than preceding segments. Sternite 8 with four or five long setae on each side, with shallow, moderately wide, subarcuate medioapical emargination, small triangular area before emargination flattened and smooth (Fig. 2). Genital segment with tergite 10 narrow, long, with narrowly rounded apex, with several long setae at and near apex, otherwise with only sparse, fine setae (Fig. 3); sternite 9 with moderately long basal portion, arcuate apically, without differentiated setae, finely setose as in Fig. 4. Aedoeagus (Figs. 5, 6) relatively large; median lobe slightly, widely constricted in middle portion, then gradually widened into rather long apical portion with acute apex, with distinct apicomedial carina on face adjacent to paramere; paramere very long, shaped as in Figs. 5, 6, with narrowly emarginate apex not reaching apex of median lobe; two fine setae at each side of apical emargination and two unequally long setae at each lateral margin below apex; underside of paramere with two sensory peg setae situated at apex on each side of medial emargination; internal sac without larger sclerotized structures.

Female. First four segments of front tarsus similar to those of male, but markedly less dilated, segment 2 slightly narrower than apex of tibia. Tergite 10 of genital segment pigmented medioapically, with markedly differentiated, narrow, subacute apical portion, with several long setae at apex and with shorter setae in front of them (Fig. 7).

Length 8.0–9.5 mm.

Type material. Holotype (male) and allotype (female): China: "CHINA: S.-Gansu Minshan Mts., 60 km NW Wudu, 2,000 m, 10.–20.VI.2005, V. Patrikeev". Holotype in the SCHÜLKE collection, Berlin, Germany; allotype in the SMETANA collection, Ottawa, Canada.

Paratypes: same data as holotype, 2 ♂♂ in the SCHÜLKE and SMETANA collections.

Geographical distribution. *Quedius ana* is at present known only from the type locality in southern Gansu.

Bionomics. The specimens of the original series were apparently taken from pitfall traps, but nothing is known about the habitat the traps were set in.

Recognition and comments. *Quedius ana* is a member of the *Euryalus* Group (see SMETANA, 2001, 208). It is distinctive by the dark coloration, and the rather large eyes, in combination with the characteristically shaped aedoeagus and tergite 10 of the female genital segment.

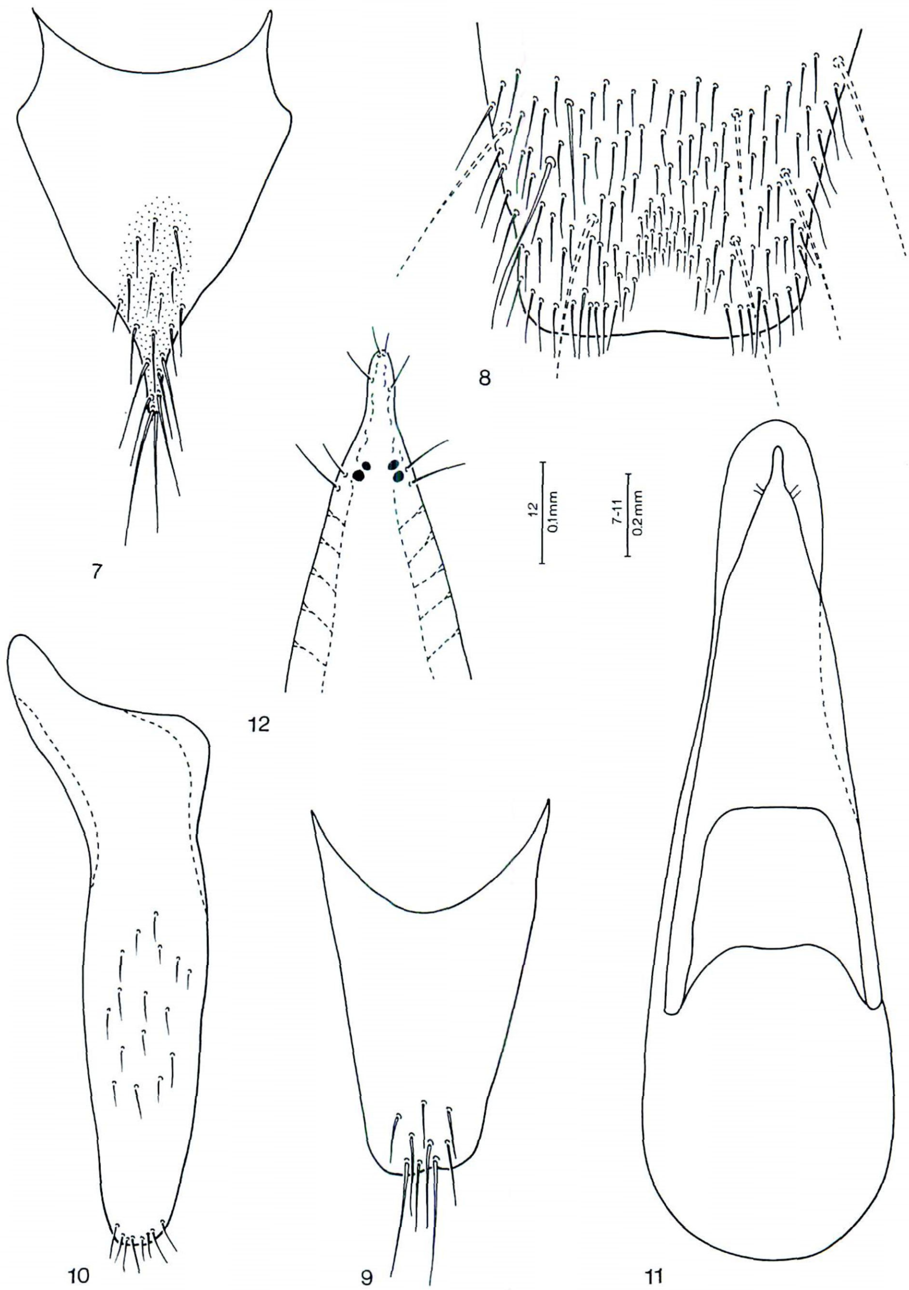
One of the paratypes is missing the last segment of both front tarsi, the entire middle leg, the tarsus of the right middle leg, and four segments of the right hind tarsus.

Etymology. The specific epithet is the Chinese word "ana", which means "dark", in apposition. It refers to the coloration of the species.

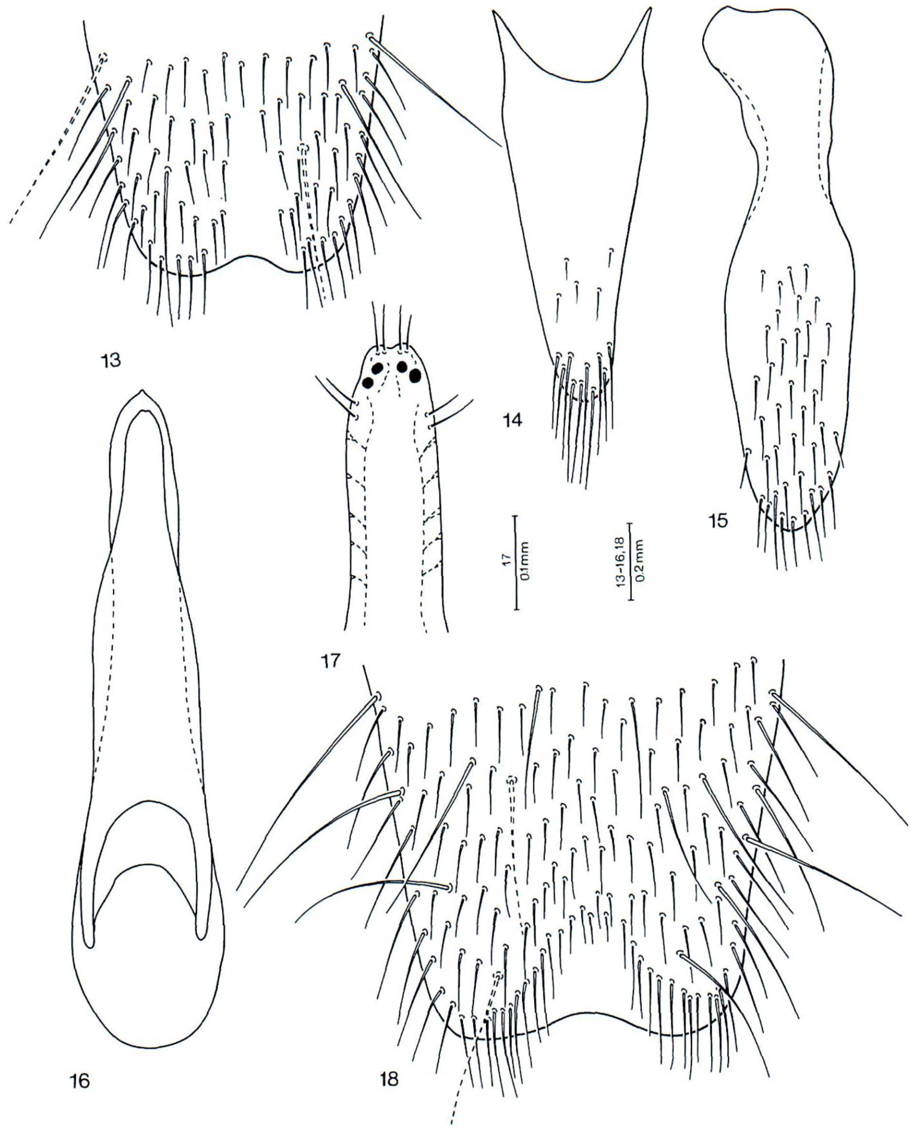
Quedius (*Microsaurus*) *nian* sp. nov.

(Figs. 8–12)

Description. Head black, pronotum piceous-black, elytra brunneous, abdomen

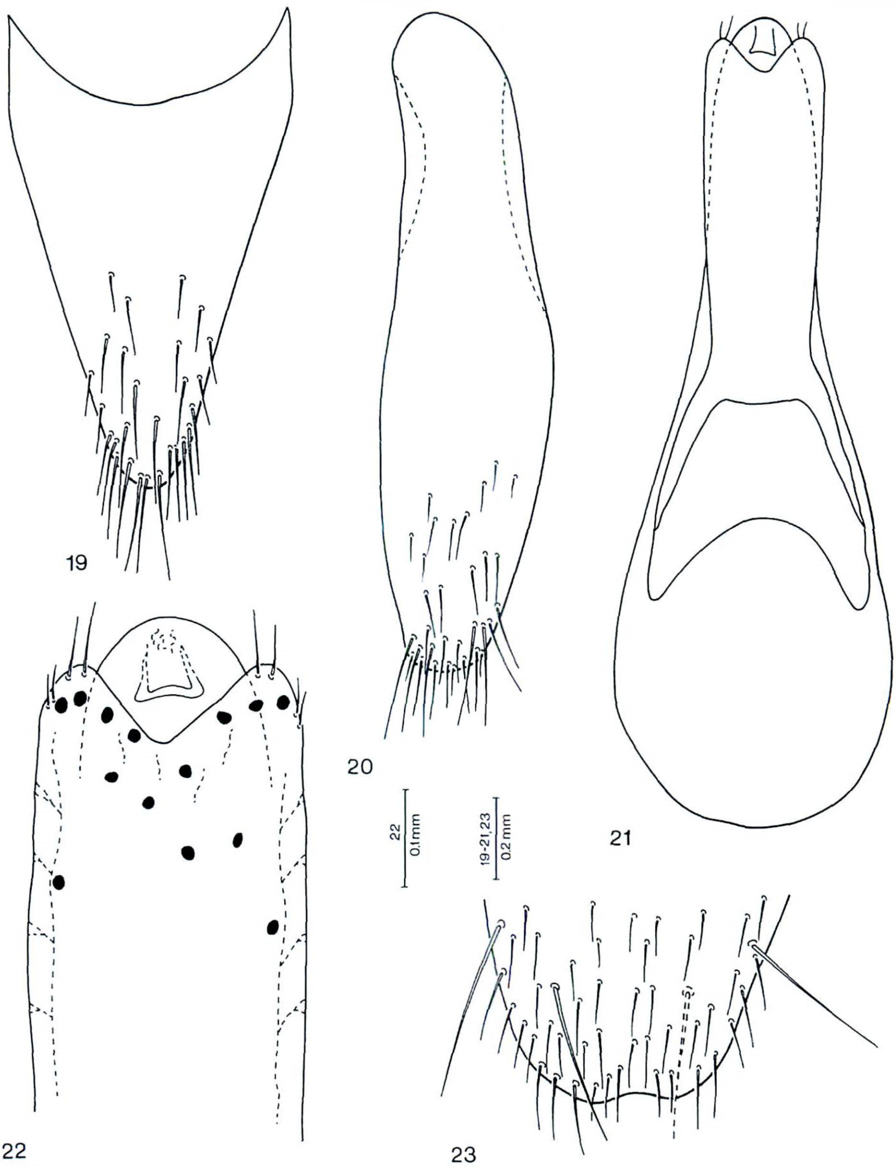


Figs. 7–12. —— 7. *Quedius ana*: tergite 10 of female genital segment. —— 8–12. *Quedius nian*: 8, apical portion of male sternite 8; 9, tergite 10 of male genital segment; 10, sternite 9 of male genital segment; 11, aedoeagus, ventral view; 12, apical portion of ventral side of paramere.



Figs. 13–18. —— 13–17. *Quedius liukuensis*: 13, apical portion of male sternite 8; 14, tergite 10 of male genital segment; 15, sternite 9 of male genital segment; 16, aedoeagus, ventral view; 17, apical portion of underside of paramere. —— 18. *Q. songpanoides*: apical portion of male sternite 8.

slightly iridescent, piceous with apical margins of tergites slightly, narrowly paler; maxillary and labial palpi testaceous, antennae testaceous, legs brunneous with paler tarsi, inner faces of middle and hind tibiae, and hind femora darkened. Head rounded, slightly wider than long (ratio 1.20), markedly narrowed posteriad behind eyes, posterior angles entirely obsolete; eyes large and convex, tempora markedly shorter than eyes



Figs. 19–23. —— 19–22. *Quedius songpanoides*: 19, tergite 10 of male genital segment; 20, sternite 9 of male genital segment; 21, aedoeagus, ventral view; 22, apical portion of underside of paramere. —— 23. *Q. cephalus*: apical portion of male sternite 8.

seen from above (ratio 0.36); no additional setiferous punctures between anterior frontal punctures; posterior frontal puncture touching posteriomedial margin of eye, two punctures between it and posterior margin of head, one additional puncture between posterior frontal puncture and temporal puncture, situated at posterior margin of eye;

temporal puncture situated close to posterior margin of eye, almost touching it; tempora with some fine punctures; surface of head with very fine, very dense microsculpture of transverse waves, with sparse micropunctulation. Antenna relatively long, moderately widened toward apex, segment 3 longer than segment 2 (ratio 1.33), following segments longer than wide, becoming gradually shorter, outer segments 9 and 10 only vaguely longer than wide, last segment somewhat shorter than two preceding segments combined. Pronotum about as long as wide, widest at about posterior third, more narrowed anteriad than posteriad, with lateral margins continuously arcuate with broadly rounded base, transversely convex, lateral portions not explanate; dorsal rows each with three punctures; sublateral rows each with two punctures, posterior puncture situated behind level of large lateral puncture; microsculpture similar to that on head but somewhat denser. Scutellum impunctate, surface with very fine microsculpture of transverse waves. Elytra moderately long, at base narrower than pronotum at widest point, slightly widened posteriad, at suture somewhat shorter (ratio 0.78), at sides about as long as pronotum at midline; punctation and pubescence fine and moderately dense, transverse interspaces betweren punctures mostly slightly larger than diameters of punctures; pubescence pale brownish; surface between punctures without microsculpture. Wings probably not functional. Abdomen with tergite 7 (fifth visible) with very fine whitish apical seam of palisade fringe; punctation and pubescence of abdominal tergites finer and slightly denser than that on elytra, becoming slightly sparser toward apex of each tergite, and in general toward apex of abdomen; pubescence pale brownish; surface between punctures with exceedingly dense and fine microsculpture of transverse striae.

M a l e. First four segments of front tarsus markedly dilated, sub-bilobed, each densely covered with modified pale setae ventrally; segment 2 wider than apex of tibia (ratio 1.25); segment 4 narrower than preceding segments. Sternite 8 with four long setae on each side, with apical margin almost imperceptibly, arcuately subemarginate in middle, small triangular area before emargination flattened and smooth (Fig. 8). Genital segment with tergite 10 with obtusely subtruncate apex, with two long setae at apex and only a few shorter setae around them, otherwise asetose (Fig. 9); sternite 9 (Fig. 10) elongate, with robust basal portion, arcuate apically, with very fine setae at apex, without differentiated setae, apparently finely setose (see comments). Aedoeagus (Figs. 11, 12) of characteristic shape; median lobe widely constricted in middle portion, then gradually widened into apical portion with broadly rounded apex; paramere long, wide basally, covering most of middle portion of median lobe, gradually narrowed into narrow apical portion with rod-like apex, not quite reaching apex of median lobe; two minute setae at apex, one equally minute seta at each lateral margin of rod-like portion, and two unequally long setae at each lateral margin way below apex; underside of paramere with two fine sensory peg setae situated at each side below rod-like apex; internal sac without larger sclerotized structures.

F e m a l e unknown.

Length 8.0 mm (abdomen somewhat extended).

Type material. Holotype (male): China: "CHINA: S.-Gansu Minshan Mts., 60 km

NW Wudu, 2,000 m, 10.–20.VI.2005, V. Patrikeev". Holotype in the SMETANA collection, Ottawa, Canada.

Geographical distribution. *Quedius nian* is at present known only from the type locality in southern Gansu.

Bionomics. The holotype was apparently taken from a pitfall trap, but nothing is known about the habitat the trap was set in.

Recognition and comments. *Quedius nian* is a member of the *Euryalus* Group (see SMETANA, 2001, 208). It is distinctive by the rather large eyes, in combination with the inconspicuous medioapical emargination of male sternite 8 (see the description), and the characteristically shaped aedoeagus. *Quedius faang* SMETANA, 1999 shows a similarly inconspicuous medioapical emargination of male sternite 8 (see fig. 7 in SMETANA, 1999, 539), but it is markedly larger with entirely differently shaped aedoeagus (see fig. 10 in SMETANA, 1999, 539).

The setation of sternite 9 of the male genital segment is largely destroyed. Figure 10 shows therefore only the setae that are present.

Quedius nian occurs apparently together with *Q. ana* in the same habitat in the Minshan Mts.

Etymology. The specific epithet is the Chinese word "nian", which in one of its meanings means "to attach to". It refers to the attachment of this species to the *Euryalus* Group.

Quedius (*Microsaurus*) *liukuensis* sp. nov.

(Figs. 13–17)

Description. Head piceous, gradually becoming brunneous toward clypeus, pronotum, elytra and abdomen brunneous, abdomen conspicuously iridescent; maxillary and labial palpi testaceous, antennae testaceous, legs testaceo-brunneous with paler tarsi, inner faces of middle and hind tibiae darkened. Head rounded, slightly wider than long (ratio 1.15), markedly narrowed posteriad behind eyes, posterior angles entirely obsolete; eyes large and convex, tempora markedly shorter than eyes seen from above (ratio 0.33); no additional setiferous punctures between anterior frontal punctures; posterior frontal puncture touching posteriomedial margin of eye, two punctures between it and posterior margin of head, one additional puncture between posterior frontal puncture and temporal puncture, situated at posterior margin of eye; temporal puncture situated close to posterior margin of eye, separated from it by distance about equal to diameter of puncture; tempora with some fine punctures; surface of head with very dense, extremely fine microsculpture of transverse waves, with very sparse micropunctulation. Antenna long, moderately widened toward apex, segment 3 longer than segment 2 (ratio 1.29), following segments longer than wide, becoming gradually shorter, with outer segments 9 and 10 still appreciably longer than wide, last segment markedly shorter than two preceding segments combined. Pronotum somewhat wider than long (ratio 1.15), widest at about posterior third, more narrowed anteriad than posteriad, with lateral margins continuously arcuate with broadly rounded base, transversely convex, lateral portions not explanate; dorsal rows each with three punctures; sublateral rows each with two punctures, posterior puncture situated behind level of large lateral puncture; microsculpture similar to that on head but still finer and denser. Scutellum impunctate, surface with microsculpture similar to that on pronotum. Elytra relatively short, at base narrower than pronotum at widest point, slightly widened posteriad, at suture somewhat shorter (ratio 0.80), at sides vaguely shorter than pronotum at midline (ratio 0.95); punctation slightly asperate, fine and moderately dense, transverse interspaces between punctures mostly slightly larger than diameters of punctures; pubescence pale brownish; surface between punctures without microsculpture. Wings reduced, not functional. Abdomen with tergite 7 (fifth visible) without fine whitish apical seam of palisade fringe; punctation of abdominal tergites simple, finer and about equally dense as that on elytra, becoming slightly sparser toward apex of each tergite, and in general toward apex of abdomen; pubescence pale brownish; surface between punctures with exceedingly dense and fine microsculpture of transverse striae.

M a l e. First four segments of front tarsus markedly dilated, sub-bilobed, each densely covered with modified pale setae ventrally; segment 2 wider than apex of tibia (ratio 1.20); segment 4 narrower than preceding segments. Sternite 8 with three long setae on each side, apical margin with moderately wide, shallow arcuate medioapical emargination, narrow triangular area before emargination flattened and smooth (Fig. 13). Genital segment with tergite 10 very narrow, elongate, with narrowly arcuate apex, setose at and around apex, otherwise asetose except for a few minute setae (Fig. 14); sternite 9 with robust basal portion, arcuate apically, with very fine setae at apex, without differentiated setae, finely setose, as in Fig. 15. Aedoeagus (Figs. 16, 17) rather large, elongate, of characteristic shape (Fig. 16); paramere long, wide basally, covering most of median lobe, gradually narrowed into rather narrow, subparallel-sided apical portion with rounded apex, not reaching apex of median lobe; four fine setae at apex and two unequally long setae at each lateral margin below apex; underside of paramere with four sensory peg setae situated as in Fig. 17; internal sac without larger sclerotized structures.

F e m a l e unknown.

Length 8.5 mm.

Type material. Holotype (male): China: "CHINA: Yunnan [CH 0–21], Nujiang Lisu Aut. Pref., Gaoligong Shan, creek valley 20 km NW Liuku, 25°58′49″N, 98°41′48″E 3,000 m, bamboo, shrubs, litter sifted, 9.VI.2007, M. Schülke." In the SMETANA collection, Ottawa, Canada.

Geographical distribution. *Quedius liukuensis* is at present known only from the type locality in the Gaoligong Shan, a mountain range west of the Salween river near the Myanmar border.

Bionomics. The holotype was taken by sifting litter under bamboo and shrubs, at the elevation of 3,000 m.

Recognition and comments. *Quedius liukuensis* is another member of the *Euryalus*

Group. It is distinctive by the rather pale coloration, the long antennae, the extremely fine and dense microsculpture on the head and pronotum, and the markedly iridescent abdomen, in combination with the characteristically shaped aedoeagus.

Etymology. The specific epithet is the Latinized adjective derived from the name of the type locality (Liuku).

Quedius (*Microsaurus*) *songpanoides* sp. nov

(Figs. 18–22)

Description. In all characters very similar to *Q. songpan* SMETANA, 1999 and different only by the male sexual characters.

M a l e. First four segments of front tarsus markedly dilated, sub-bilobed, each densely covered with modified pale setae ventrally, segment 2 somewhat wider than apex of tibia (ratio 1.15), segment 4 narrower than preceding segments. Sternite 8 with seven long setae on each side, with wide, rather shallow, subarcuate medioapical emargination, triangular area before emargination flattened and smooth, sides of emargination each bordered by a row of more densely set setae (Fig. 18). Genital segment with tergite 10 markedly narrowed toward narrowly arcuate apex, about equally setose to that of *Q. songpan* (Fig. 19); sternite 9 similar in shape to that of *Q. songpan*, but less setose (Fig. 20). Aedoeagus (Figs. 21, 22) similar to that of *Q. songpan*, but median lobe with sclerotized structure below apex in front of the apical emargination of paramere, and without brief bilateral dilatation in front of basal bulbus (Figs. 21, 22); paramere with sensory peg setae on underside more numerous, some of them located far below apex of paramere (Fig. 22). Internal sac without larger sclerotized structures.

F e m a l e. Not known.

Length 8.2 mm.

Type material. Holotype (male): China: "CHINA: Sichuan Monggo-gou 53 km NW Lixian, 2,800 m, 9.–10.VI.2002 leg. S. Murzin & I. Shokhin". In the SMETANA collection, Ottawa, Canada.

Geographical distribution. Quedius songpanoides is at present known only from the type locality in central Sichuan.

Bionomics. Nothing is known about the collection circumstances of the holotype.

Recognition and comments. Quedius songpanoides is indeed quite similar to *Q. songpan*, but there is no doubt that it represents a different species. This is based mainly on the different development of the apical portion of the male sternite 8 (in *Q. songpan* the male sternite 8 bears four to six long setae on each side, and is quite characteristic by the wide and moderately deep, subarcuate emargination margined by membranous seam, without flattened and asetose medioapical area; see Fig. 27 in SMETANA, 1999, 549, Fig. 27), and on the different aedoeagus (see the description).

Etymology. The specific epithet is a noun in apposition, expressing the similarity of the new species to *Q. songpan*.

Quedius (*Microsaurus*) *cephalus* sp. nov.

(Figs. 23–27)

Description. Head black, pronotum piceous-black, elytra dark brunneous, abdomen slightly iridescent, piceous-black with apical margins of tergites markedly, narrowly paler, paler portion on fifth visible tergite ditinctly wider than that on previous tergites; maxillary and labial palpi piceous, antennae piceous, with first segment and base of second segment pale brunneous; legs brunneous with paler tarsi, inner faces of all tibiae and most of hind femora darkened. Head large, rounded, wider than long (ratio 1.50), markedly narrowed posteriad behind eyes, posterior angles entirely obsolete; eyes moderately large, convex, tempora slightly longer than eyes seen from above (ratio 1.10); no additional setiferous punctures between anterior frontal punctures; posterior frontal puncture situated close to posteriomedial margin of eye, separated from it by distance somewhat larger than diameter of puncture, two punctures between it and posterior margin of head, one additional puncture between posterior frontal puncture and temporal puncture, situated at posterior margin of eye; temporal puncture situated closer to posterior margin of eye than to posterior margin of head; two or three fine punctures along medial margin of eye between anterior and posterior frontal punctures; temporal area with numerous rather coarse punctures, some of which come close to two regular punctures at posterior margin of head; surface of head with dense, very fine microsculpture of transverse waves, with sparse micropunctulation, micropunctulae becoming denser and somewhat coarser on areas mediad and posteromediad of eyes. Antenna rather short, moderately widened toward apex, segment 3 slightly longer than segment 2 (ratio 1.17), segments 4 to 6 about as long as wide, following segments becoming gradually wider than long, segment 10 markedly wider than long, last segment about as long as two preceding segments combined. Pronotum about as long as wide, widest at about middle, equally narrowed anteriad and posteriad, with lateral margins continuously arcuate with broadly rounded base, transversely convex, lateral portions not explanate; dorsal rows each with three punctures; sublateral rows each with three punctures, with posterior puncture situated behind level of large lateral puncture (left side), or with two punctures with posterior puncture situated at about level of large lateral puncture (right); microsculpture similar to that on head but somewhat finer and denser. Scutellum impunctate, surface with extremely fine and dense microsculpture of transverse waves. Elytra rather long, at base narrower than pronotum at widest point, slightly widened posteriad, at suture somewhat (ratio 1.17), at sides distinctly longer than pronotum at midline; punctation fairly coarse and dense, transverse interspaces between punctures mostly smaller than diameters of punctures; pubescence pale brownish; surface between punctures without microsculpture. Wings probably functional. Abdomen with tergite 7 (fifth visible) with distinct whitish apical seam of palisade fringe; punctation and pubescence of abdominal tergites finer and sparser than that on elytra, evenly covering each tergite, in general becoming gradually sparser toward apex of abdomen; pubescence pale brownish; surface between punctures with exceedingly dense and fine microsculpture of transverse striae.

M a l e. First four segments of front tarsus only slightly dilated, sub-bilobed, each densely covered with modified pale setae ventrally; segment 2 about as wide as apex of tibia; segment 4 narrower than preceding segments. Sternite 8 markedly sparingly setose, with two long setae on each side, with apical margin vaguely, arcuately sub-emarginate in middle; impunctate, flattened area before subemargination not present (Fig. 23). Genital segment with tergite 10 moderately long, with arcuate apex, with four long setae at apex and only a few shorter setae around them, otherwise asetose (Fig. 24); sternite 9 with short, wide basal portion, subtruncate apically, setose as in Fig. 25. Aedoeagus (Figs. 26, 27) small and relatively wide; median lobe markedly constricted before anterior third, apical portion with narrowly arcuate apex; paramere as in Figs. 26, 27, with subacute apex not quite reaching apex of median lobe; four minute setae at apex and two similar setae at each lateral margin below apex; underside of paramere with fine sensory peg setae situated at each side below apex, two on right side, four on left side; internal sac without larger sclerotized structures.

F e m a l e unknown.

Length 5.2 mm.

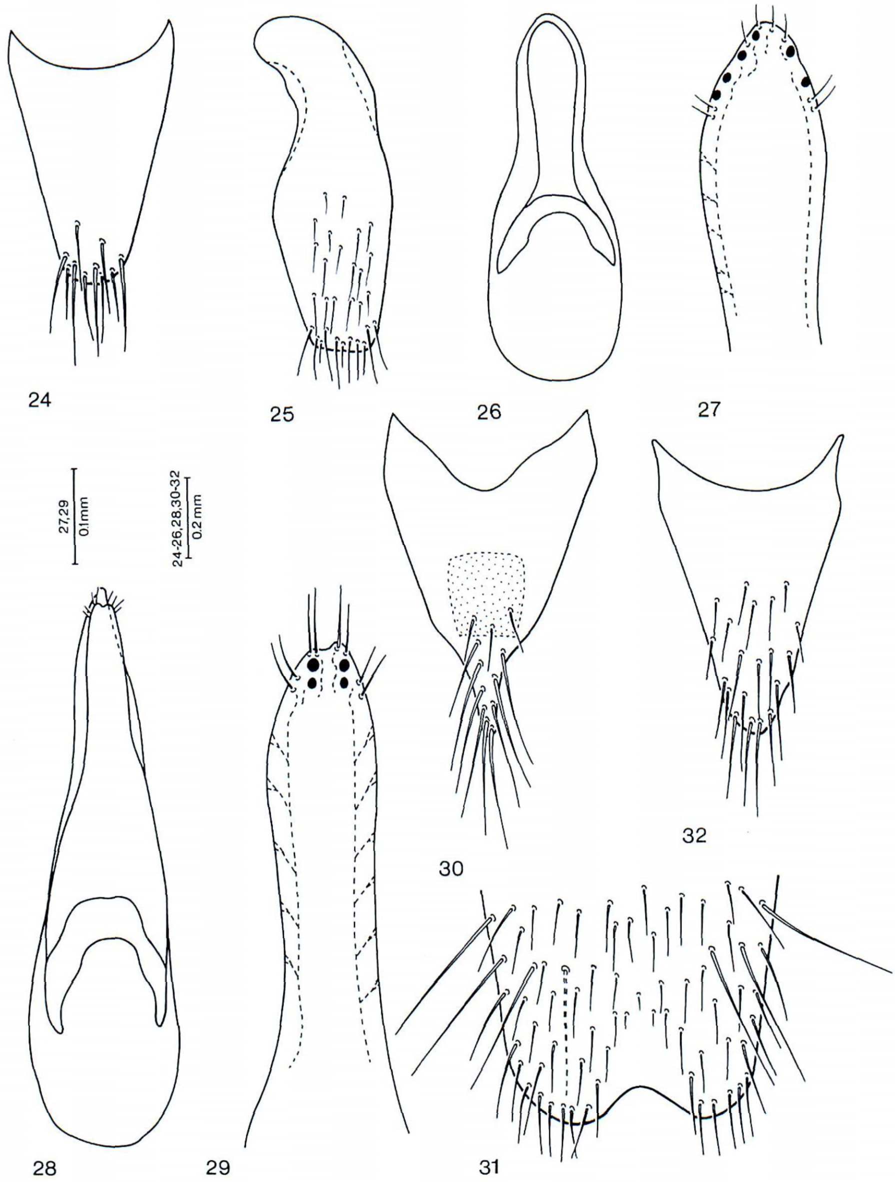
Type material. Holotype (male): China: "**CHINA**: Gansu province DAG-CANGLHAMO (=Langmusi) env., 34°04.6–05.1′ N 102°37.7–38.1′ E, 3,464–3,644 m (GPS), [Ch 5]"/"25.VI.2005, J. Hájek, D. Král & J. Růžička leg.; wet coniferous forest (*Picea*, *Abies*, *Rhododendron*) on N slope". In the SMETANA collection, Ottawa, Canada.

Geographical distribution. *Quedius cephalus* is at present known only from the type locality in Gansu (at the border with Sichuan).

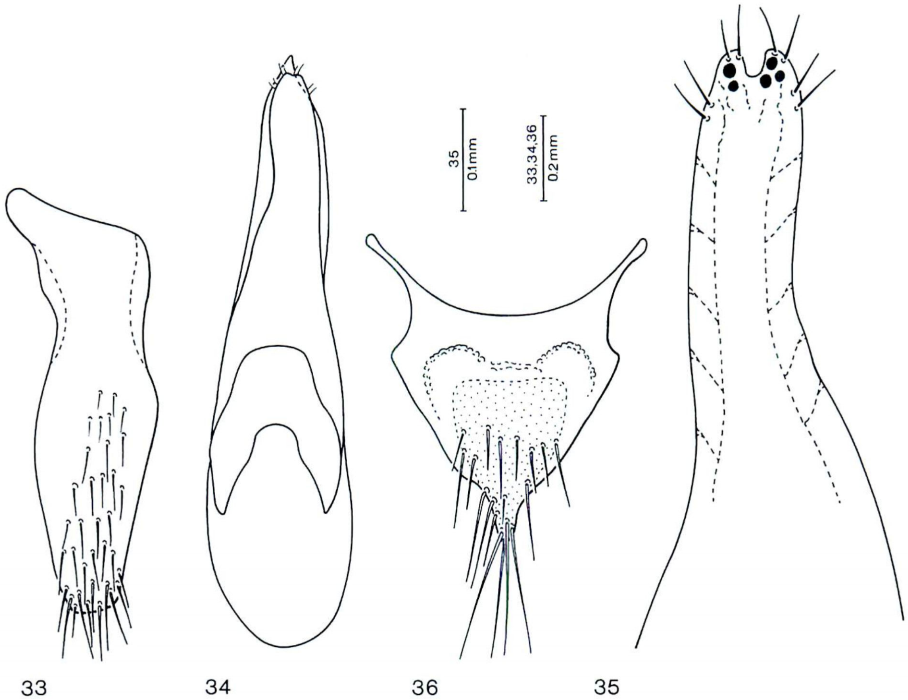
Bionomics. The holotype was found in wet coniferous forest (*Picea*, *Abies*) with rhododendron undergrowth, but no details are known about collecting circumstances.

Recognition and comments. *Quedius cephalus* is a conspicuous species, due to the shape and chaetotaxy of the head, the short antennae and long elytra, as well as due to the male sexual characters (first four segments of front tarsus only slightly dilated, the shape and setation of sternite 8, and tergite 10 of the genital segment). The aedoeagus is quite similar to that of *Q. kabateki* SMETANA, 1997. *Quedius kabateki* is of similar size, similar body and appendices coloration and has also additional punctures between anterior and posterior frontal punctures along the medial margin of the eye. However, it differs by the shape of the head and the eyes, the different chaetotaxy of the pronotum (additional puncture between dorsal and sublateral rows of punctures), the different male sternite 8, etc.

Etymology. The specific epithet is the latinized Greek word *κεφαλη* (head). It referes to the size and shape of the head of this species.



Figs. 24–32. —— 24–27. *Quedius cephalus*: 24, tergite 10 of male genital segment; 25, sternite 9 of male genital segment; 26, aedoeagus, ventral view; 27, apical portion of underside of paramere. —— 28–30. *Quedius jaang*: 28, aedoeagus, ventral view; 29, apical portion of underside of paramere; 30, tergite 10 of female genital segment. —— 31, 32. *Quedius jaangoides*: 31, apical portion of male sternite 8; 32, tergite 10 of male genital segment.



Figs. 33–36. *Quedius jaangoides*: 33, sternite 9 of male genital segment; 34, aedoeagus, ventral view; 35, apical portion of underside of paramere; 36, tergite 10 of female genital segment.

Quedius (*Microsaurus*) *jaang* SMETANA, 2006

(Figs. 28–30)

Quedius jaang SMETANA, 2006, 83

Comment. The original series of this species unfortunately included two in all characters, including those on the aedoeagus, very similar species, *Q. jaang* and an undescribed species, both occurring in the same habitat.

The original series is composed of the holotype, allotype and 8 paratypes. Two males bear the same locality label as the holotype (with "[C169]" at the end) and are in the SMETANA collection; four males and two females bear the same data as holotype, but were collected by SCHÜLKE and the locality labels bear "[C2000–16]" at the end, these specimens are both in the SCHÜLKE and SMETANA collections. Only the holotype, allotype and one paratype, collected by A. SMETANA [C169], represent the original series of *Q. jaang*. All remaining paratypes, including those in the SCHÜLKE collection, belong to the new species *Q. jaangoides*, described below, and become members of the original series of that species. The original paratype labels were turned upside down on the pins and the new paratype labels were added.

Three additional specimens of *Q. jaang* were discovered recently:

New records. [Yunnan]: Yunnan [Ch 07–22] Nujiang Lisu Aut. Pref., Gaoligong Shan, valley 21 km W Gongshan, 3,320 m 27°47′08″N 98°27′39″E, moss, alder, bamboo, Rhodod. Sifted, 6.VI.2007, M. SCHÜLKE, 1♂, 1♀ (ASCC, MSC); N-YUNNAN [C 2005–16] Nujiang Lisu. Aut. Pref., Gongshan Co., Gaoligong Shan, sidevalley, 3,000–3,050 m 27°47′90″N 98°30′19″E/conif. Forest with Rhododendron, broad leaved bushes, litter, moss, dead wood sifted along creek and snowfields, 21.VI. 2005, M. SCHÜLKE [C2005–16], 1♀ (MSC).

Quedius (*Microsaurus*) *jaangoides* sp. nov.

(Figs. 31–36)

Description. In all characters very similar to *Q. jaang* SMETANA, 2006 and different only by the male and female sexual characters.

Male. First four segments of front tarsus markedly dilated, sub-bilobed, each densely covered with modified pale setae ventrally; segment 2 about as wide as apex of tibia; segment 4 narrower than preceding segments. Sternite 8 with three or four long setae on each side, similar to that of *Q. jaang*, with moderately wide and deep, subarcuate medioapical emargination (Fig. 31). Genital segment with tergite 10 similar to that of *Q. jaang* in shape and setation (Fig. 32); sternite 9 markedly larger and longer than that of *Q. jaang*, setose as in Fig. 33. Aedoeagus (Figs. 34, 35) similar to that of *Q. jaang* (Figs. 28, 29), but more robust; median lobe somewhat wider, with differently shaped, slightly asymmetrical, apical portion; paramere larger and more robust, of different shape (Figs. 29, 34, 35); apical setae and sensory peg setae on underside of paramere similar to those of *Q. jaang* (Figs. 29, 35); internal sac without larger sclerotized structures.

Female. First four segments of front tarsus similar to those of male, but markedly less dilated, segment 2 slightly narrower than apex of tibia. Tergite 10 of genital segment entirely different from that of *Q. jaang,* both in shape and pigmentation (Figs. 30, 36).

Length 6.0–6.5 mm.

Type material. Holotype (male): China: "CHINA: N-Yunnan Nujiang Lisu Aut. Pr. Gongshan Co. Gaoligong Shan, valley at 3,000–3,050 m 27°47.90′ N 98°30.19′ E 21.VI.2005 A. Smetana [C 169]". In the SMETANA collection, Ottawa, Canada. Allotype (female): China: "CHINA: Yunnan [Ch 07–22] Nujiang Lisu Aut. Pref., Gaoligong Shan, valley 21 km W Gongshan, 3,320 m 27°47′08″N 98°27′39″E, moss, alder, bamboo, Rhodod. sifted, 6.VI.2007, M. Schülke". In the SCHÜLKE collection, Berlin, Germany.

Paratypes: [Yunnan]: same data as holotype, 2♂♂, in the SMETANA collection; same data as allotype, 2♂♂, 3♀♀, in the SCHÜLKE and SMETANA collections; N-Yunnan [C2005–16] Nujiang Lisu Aut. Pref., Gongshan Co., Gaoligong Shan, sidevalley, 3,000–3,050 m 27°47.90′ N, 98°30.19′ E/conif. forest with *Rhododendron*, broad leaved bushes, litter, moss, dead wood sifted along creek and snowfields, 21.VI.2005, M. SCHÜLKE [C2005–16], 1 ♂, 1 ♀, in the SCHÜLKE collection.

Geographical distribution. *Quedius jaangoides* is at present known only from the type locality in the Gaoligong Shan, a mountain range west of the Salween river near the Myanmar border.

Bionomics. The specimens of the original series were taken in a large clearing in a coniferous forest by sifting leaf litter, various debris, moss and dead wood under rhododendron and broadleaved bushes along creeks and snowfields. Specimens of *Q. goong* SMETANA, 2006, *Q. jaang*, *Q. kwang* SMETANA, 2006, *Q. pyn* SMETANA, 2006 and *Q. lanugo* were collected in the same habitats.

Recognition and comments. *Quedius jaangoides* is in all external characters very similar to *Q. jaang* and the sympatric species mentioned above; it can be positively distinguished from them only by the male and female sexual characters.

Etymology. The specific epithet is a noun in apposition, expressing the similarity of the new species to *Q. jaang*.

Acknowledgments

I thank Michael SCHÜLKE, Berlin, who graciously allowed me to keep the holotypes of several new species described above in my collection. I thank Mr. GO SATO, Agriculture and Agri-Food Canada, Ottawa, for carefully finishing the line drawings.

要　　約

A. SMETANA: 中国産ツヤムネハネカクシ亜族に関する知見. 33. ツヤムネハネカクシ属 *Microsaurus* 亜属の 18. —— *Microsaurus* 亜属のツヤムネハネカクシの 6 新種を中国甘粛省, 四川省および云南省から記載し, 他の 1 種の雌を初めて記録した.

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Elytra, Tokyo, **37**(2): 244, November 14, 2009

New Record of *Merionoeda basalis* (Coleoptera, Cerambycidae) from Borneo

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Merionoeda basalis was described on account of a female specimen collected in Sumatra (Aurivillius, 1924). Thereafter, there has been no record of the species. Recently, we have collected specimens of this species in South Kalimantan, Borneo. We have also found its specimens in a few collections from East Kalimantan as well as from Sabah in northern Borneo. It has been thus confirmed that *M. basalis* is widely distributed in Borneo. Occurring in both Sumatra and Borneo, the species seems to have a typical distribution in the Greater Sunda Islands.

We wish to thank Swedish Museum of Natural History in Stockholm for enabling us to re-examine the holotype of *M. basalis* preserved there, and are also due to Dr. Yutaka Johki and Mr. Hiroshi Makihara for generously providing us with the valuable material.

Merionoeda basalis Aurivillius, 1924

Merionoeda basalis Aurivillius, 1924, Arkiv Zool., **15**, p. 442; type locality: "Sumatra: Palembang, Mana-Riang".

Specimens examined. 51 ♂♂, 41 ♀♀, Papagaran, South Kalimantan, Indonesia, 23～30–X–2007, Y. Yokoi leg.; 1 ♂, Bukit Soeharto, East Kalimantan Indonesia, 9～22–VI–1998, H. Makihara leg.; 1 ♂, same locality and collector as the preceding, 16–IX–1998; 1 ♂, same locality and collector as the preceding, 5–X–1998; 1 ♀, same locality and collector as the preceding, 24–IX–1998; 1 ♂, Sepilok, Sabah, E. Malaysia, Y. Johki leg.; 1 ♀, near Keningau, Crocker Range, Sabah, E. Malaysia, local collector leg.

Distribution. Sumatra and Borneo (new record).

Reference

Aurivillius, C., 1924. Neue oder wenig bekannte Coleoptera Longicornia. 19. *Arkiv Zool.*, **15**(25): 1–43.

Elytra, Tokyo, **37**(2): 245–253, November 14, 2009

More New Brachypterous Species of the Group of *Platydomene nobilis* (Coleoptera, Staphylinidae) from Northeastern Honshu, Japan

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Abstract Three new staphylinid species of the group of *Platydomene nobilis* are described under the names *P. daibosatsuensis*, *P. flavipes* and *P. iidesana*. They are found in the leaf litter accumulated in deciduous broadleaved forests on mountain areas of eastern Honshu, Japan.

As a continuation from the previous paper (WATANABE, 2008), I am going to describe three new species of the group of *Platydomene nobilis* in the present paper. They were found in the leaf litter accumulated in deciduous broadleaved forests on mountain areas of eastern Honshu, Japan. One of these seems to be placed near *P. nobilis* (SAWADA) in having similar configuration of male genital organ. After a close examination, however, it has become clear that it is new to science on account of difference in external feature and configuration of the fused paramere of male genital organ. The remaining two species are readily distinguishable from the previously known species of the *nobilis* group by remarkably different configuration of the male genital organ.

Before going further, I wish to express my hearty thanks to Dr. Shun-Ichi UÉNO, Visiting Professor at Tokyo University of Agriculture, for his kind advice on the present study. Deep gratitude is also due to the late Messrs. Kôichi SASAKI, Sapporo-shi, and Keijirô TAKAHASHI, Tokyo, for their kind help through the cooperative work on the Iide Mts., and Mr. Junnosuke KANTOH, Laboratory of Entomology, Tokyo University of Agriculture, for taking the photograph inserted in this paper.

Platydomene daibosatsuensis Y. WATANABE, sp. nov.

[Japanese name: Daibosatsu-dôgane-nagahanekakushi]

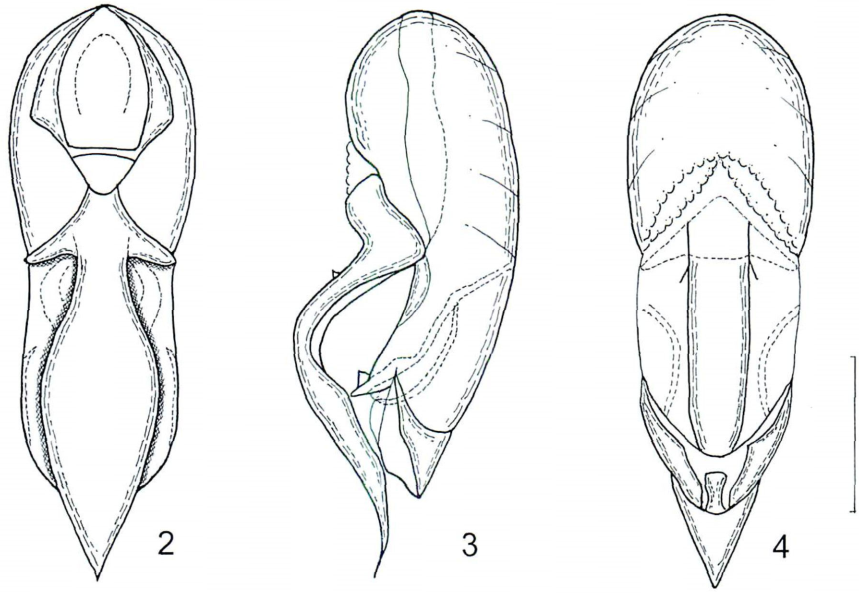
(Figs. 1–4)

Body length: 7.6–8.3 mm (front margin of the head to anal end); 4.2–4.4 mm (from front margin of head to elytral apices).

Body elongate, parallel-sided and somewhat depressed above. Colour brownish black and moderately shining, with mouth parts, antennae and legs reddish brown, and elytra with somewhat bronzy reflection.

Fig. 1. *Platydomene daibosatsuensis* sp. nov., ♂, from Mt. Daibosatsu, Yamanashi Pref., Japan. Scale: 1.0 mm.

M a l e. Head suborbicular and elevated medially, as long as wide, widest at the middle and slightly more strongly narrowed posteriad than anteriad; lateral sides gently arcuate and about 2.5 times as long as the longitudinal diameter of each eye which is slightly prominent laterad; frontal area between antennal tubercles flattened and glabrous, bearing a remarkable setiferous puncture on each side; surface densely and coarsely punctured, the punctures becoming much closer and finer in latero-basal parts. Antennae moderately long, extending a little beyond the middle of pronotum and not thickened apicad, with basal segment polished, 2nd and 3rd subopaque, the remainings opaque, 1st segment robust and dilated apicad, twice as long as wide, 2nd more than 1.5 times as long as wide, but remarkably shorter (2nd/1st=0.71) and somewhat narrower (2nd/1st=0.86) than 1st, 3rd equal to 2nd in both length and width, 4th a little longer than wide (length/width=1.33), somewhat shorter (4th/3rd=0.80) than though equal in width to 3rd, 5th to 10th more or less moniliform and equal in both length and width to one another, each a little longer than wide (length/width=1.16), somewhat shorter (each of 5th to 10th / 4th=0.88) than though equal in width to 4th, 11th fusiform, more than 1.5 times as long as wide, distinctly longer (11th/10th=1.43) than though equal in



Figs. 2–4. Male genital organ of *Platydomene daibosatsuensis* sp. nov.; dorsal view (2), lateral view (3), and ventral view (4). Scale: 0.5 mm.

width to 10th, subacuminate at the apex.

Pronotum gently elevated medially, remarkably longer than wide (length/width=1.22), evidently longer (pronotum/head=1.17) but slightly narrower than head (pronotum/head=0.96), widest at anterior third and slightly more strongly narrowed posteriad than anteriad; lateral sides nearly straight except near anterior and posterior angles as seen from dorsal side, anterior margin arcuate though truncate or slightly emarginate at the middle, posterior margin subtruncate, anterior angles obtuse and not visible from above, posterior ones rounded; surface densely and coarsely punctured, the punctures becoming closer and finer in lateral parts as in head, provided with a median longitudinal smooth space, which is sometimes indistinct in posterior half. Scutellum subtriangular and somewhat convex, surface uneven and provided with a few minute setiferous punctures. Elytra subquadrate and more or less depressed above, slightly dilated posteriad, a little longer than wide (length/width=1.08), somewhat shorter (elytra/pronotum=0.93) but slightly wider (elytra/pronotum=1.04) than pronotum; lateral sides slightly arcuate, posterior margin emarginate at the middle, posterior angles broadly rounded; surface densely and roughly punctured; epipleuron provided with a longitudinal carina inside the outer margin. Hind wings reduced, three-quarters as long as elytra. Legs moderately long and similar in structure to those of the other members of this species-group.

Abdomen elongate, gradually dilated towards 7th segment, and then abruptly narrowed apicad, 3rd to 7th tergites each shallowly and transversely depressed along the base, closely covered with fine punctures and fine brownish pubescence, 8th tergite somewhat more sparingly punctured than in the preceding tergites; 8th sternite subtriangularly excised at the middle of posterior margin, provided with a deep spindle-shaped depression in front of the excision, bottom of the depression asperate; 7th sternite broadly and shallowly emarginate at the middle of posterior margin, bearing a shallow and horseshoe-shaped depression before the emargination; 6th sternite slightly flattened at the middle just before posterior margin; 5th sternite simple.

Genital organ spindle-shaped and symmetrical. Median lobe elliptical and distinctly wider than fused paramere, slightly narrowed towards the rounded apex as seen from ventral side. Fused paramere considerably extending beyond median lobe, widest at the middle and somewhat more strongly narrowed apicad than basad, the apex acutely pointed as seen from dorsal side, suddenly curved ventrad near the middle and provided with a minute subtriangular projection on basal fourth in profile.

Female. Similar in general appearance to the male though the 8th abdominal sternite narrowed towards the broadly rounded apex, 7th and 6th sternites each not modified.

Type series. Holotype: ♂, allotype: ♀, Mt. Daibosatsu, Yamanashi Pref., Honshu, Japan, 25–V–1980, Y. WATANABE leg. Paratypes: 6 ♂♂, 4 ♀♀, same data as for the holotype.

Distribution. Japan (central Honshu).

Remarks. The present new species is closely similar in facies as well as in configuration of male genital organ to *P. nobilis* (SAWADA, 1965), but different from it in the following points: Head slightly broader than pronotum, surface slightly more coarsely punctured on medio-frontal area, pronotum less strongly narrowed posteriad; lateral sides slightly more strongly arcuate; 8th abdominal sternite of the male provided with a spindly depression in front of the subtriangular excision at the middle of posterior margin, bottom of the depression asperate all over; 7th sternite broadly and feebly emarginate at the middle of posterior margin and provided with a weak horseshoe-shaped depression before the emargiantion, 6th sternite more weakly depressed than in 7th sternite at the middle just in front of posterior margin; genital organ with median lobe longrer and wider, fused paramere more strongly dilated at the median part.

Bionomics. All the type specimens were obtained by sifting dead leaves accumulated in deciduous broadleaved forest at an altitude of about 1,600 m.

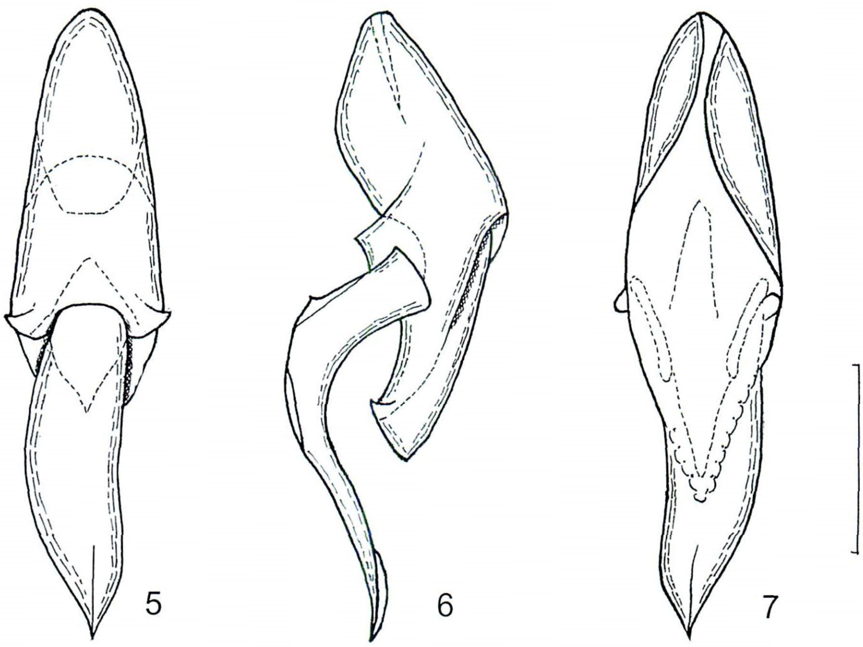
Etymology. The specific epithet of this new species is derived from the type locality "Mt. Daibosatsu".

Platydomene flavipes Y. WATANABE, sp. nov.

[Japanese name: Kiashi-dôgane-nagahanekakushi]

(Figs. 5–7)

Body length: 7.4–8.1 mm (from front margin of head to anal end); 4.3–4.5 mm (from front margin of head to elytral apices)



Figs. 5–7. Male genital organ of *Platydomene flavipes* sp. nov.; dordsal view (5), lateral view (6), and ventral view (7). Scale: 0.5 mm.

Body elongate, parallel-sided and subdepressed above. Colour brownish black and moderately shining, with mouth parts and antennae brownish red, abdomen reddish brown, posterior half of elytra and legs yellow, elytra with feeble bronzy reflexion.

Similar in general appearance to the preceding species, but easily distinguishable from it in antennal articulation, colour of elytra and configuration of male genital organ.

M a l e. Head suborbicular and as long as wide as in the preceding species, though less elevated medially and more strongly narrowed posteriad in posterior half than in the preceding species; lateral sides gently arcuate and 2.5 times as long as the longitudinal diameter of each eye which is somewhat prominent laterad; surface densely though less coarsely punctured than in the preceding species, the punctures becoming much denser and finer in latero-basal parts as in the preceding species. Antennae longer than those of the preceding species, extending to near the posterior margin of pronotum, 4th to 10th not moniliform, basal segment polished, 2nd and 3rd subopaque, the remainings opaque, 1st segment robust and dilated apicad, twice as long as wide, 2nd to11th equal in width to one another, 2nd clearly longer than wide (length/width = 1.67), considerably shorter (2nd/1st = 0.63) and narrower (2nd/1st = 0.75) than 1st, 3rd twice as long as wide, a little longer (3rd/2nd = 1.20) than 2nd, 4th to 7th equal in length to one another, each evidently longer than wide (length/width = 1.67) though somewhat shorter (each of 4th *to 7th / 3rd* = 0.83) than 3rd, 8th 1.5 times as long as wide, slightly shorter than 7th (8th/7th = 0.90), 9th and 10th equal in length to each other, 11th fusiform, twice as long as wide and 1.5 times as long as 10th, subacuminate at the apex.

Pronotum similar in configuration to that of the preceding species though slightly longer (length/width=1.28) than that of the preceding species, a little longer (pronotum/head=1.23) but slightly narrower (pronotum/head=0.96) than head; surface densely and slightly more coarsely punctured than in the preceding species, the punctures becoming closer and finer in lateral parts as in the preceding species except for a narrow median smooth space through the length of pronotum. Scutellum similar in structure to that of the preceding species. Elytra subtrapezoidal and slightly dilated apicad, slightly longer than wide (length/width=1.04), a little shorter (elytra/pronotum=0.88) but somewhat wider (elytra/pronotum=1.08) than pronotum; lateral sides almost straight, posterior margin more strongly emarginate at the middle than in the preceding species; surface densely and much more coarsely punctured than in the preceding species. Hind wings reduced to small lobes which are as long as elytra. Legs similar in structure to those of the preceding species.

Abdomen gradually narrowed towards 7th segment and then abruptly narrowed apicad as in the preceding species; each tergite densely and slightly coarsely punctured than in the preceding species; 8th sternite somewhat more broadly and deeply excised at the middle of posterior margin than in the preceding species, and the spindle depression before the exision larger than that of the preceding species, bottom of the depression more sparingly asperate than in the preceding species; 7th sternite broadly and shallowly emarginate at the middle of posterior margin and slightly depressed in front of the emargination; 6th sternite simple.

Genital organ elongate and considerably different from those of the previously known species of this species-group. Median lobe spindle-shaped, slightly wider than fused paramere, widest at the middle, distinctly narrowed basad and apicad. Fused paramere asymmetrical and extending beyond the apex of median lobe, nearly parallel-sided in basal two-thirds, and abruptly narrowed towards the acutely pointed apex, dorsal surface provided with a fine longitudinal carina in apical fourth, suddenly curved ventrad at basal third and provided with a minute spine at basal fourth in profile.

Female. Similar in facies to male, but the 8th abdominal sternite narrowed towards the apex which is subtruncate; 7th sternite simple.

Type series. Holotype: ♂, allotype: ♀, Nukumidaira on the Iide Mts., Yamagata Pref., Honshu, Japan, 28–VII–1964, Y. WATANABE leg. Paratypes: 5 ♂♂, 9 ♀♀, same data as for the holotype; 3 ♂♂, same locality and date as above, K. SASAKI leg; 1 ♂, same locality and date as above, K. TAKAHASHI leg.; 3 ♂♂, 3 ♀♀, Ishikorobizawa on the Iide Mts., Yamagata Pref., Honshu, Japan, 27–VII–1964, Y. WATANABE leg.; 1 ♀, same locality and date as above, K. SASAKI leg.

Distribution. Japan (northeastern Honshu).

Bionomics. All the type specimens were obtained by sifting dead leaves accumulated in deciduous broadleaved forests of two different localities, Nukumidaira (550 m alt.) and Ishikorobizawa (1,300 m alt.).

Etymology. The specific epithet of this new species is given after its yellow legs.

Platydomene iidesana Y. WATANABE, sp. nov.

[Japanese namme: Iide-dôgane-nagahanekakushi]

(Figs. 8–10)

Body length: 6.4–6.6 mm (from front margin of head to anal end); 3.3–3.4 mm (from front margin of head to elytral apices).

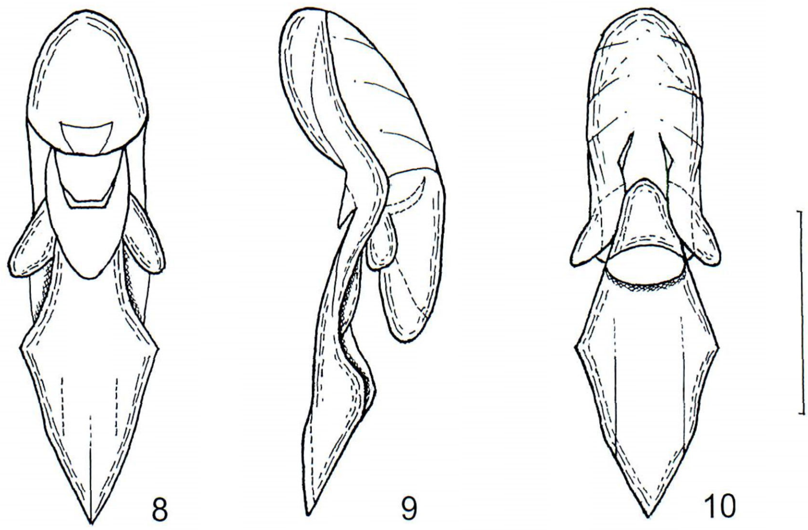
Body elongate, parallel-sided and subdepressed above. Colour blackish brown to brownish red and moderately shining, with mouth parts, antennae and legs dark yellow.

M a l e. Readily distinguishable from the previously known species by narrow body, elytra strongly punctured, different secondary sexual character of 8th abdominal sternite and configuration of genital organ in the male.

Head subquadrate and gently elevated medially, slightly transverse (width/length =1.06), widest at posterior third and slightly more strongly narrowed anteriad; lateral sides feebly arcuate and 2.5 times as long as the longitudinal diameter of each eye which is somewhat prominent laterad; surface coarsely and somewhat sparingly punctured on medio-frontal area, the punctures becoming much closer and finer in latero-basal areas. Antennae moderately long, extending to the middle of pronotum, two proximal segments polished and the remainings opaque, 1st segment robust and dilated apicad, twice as long as wide, 2nd remarkably longer than wide (length/width=1.75), distinctly shorter (2nd/1st=0.59) and narrower (2nd/1st=0.67) than 1st, 3rd elongate, twice as long as wide, a little longer (3rd/2nd=1.14) than though as wide as 2nd, 4th to 6th equal in both length and width to one another, each 1.5 times as long as wide, somewhat shorter (each of 4th to 6th / 3rd=0.75) than though as wide as 3rd, 7th a little longer than wide (length/width=1.30), as long as though slightly wider than 6th (7th/6th= 1.15), 8th to 10th equal in both length and width, as long as though slightly wider than 7th (each of 8th to 10th / 7th=1.09), 11th twice as long as wide, distinctly longer (11 th/10th=1.67) than though as wide as 10th, subacuminate at the apex.

Pronotum only slightly narrowed posteriad and somewhat strongly convex than in head, distinctly longer than wide (length/width=1.35), evidently longer (pronotum/ head=1.35) but slightly narrower (pronotum/head=0.94) than head; lateral sides almost straight except near anterior and posterior angles, anterior margin arcuate, posterior margin subtruncate, anterior and posterior angles similar to those of the preceding species; surface densely and somewhat more coarsely punctured than in *P. flavipes* except for a narrow smooth median space throughout the length of pronotum. Elytra nearly oblong, longer than wide (length/width=1.19), slightly shorter (elytra/ pronotum=0.96) but slightly wider (elytra/pronotum=1.09) than pronotum; lateral sides only just slightly arcuate, posterior margin emarginate at the middle, posterior angles broadly rounded, surface densely covered with somewhat coarser punctures than those of pronotum; epipleuron provided with a fine longitudinal keel inside the outer margin. Hind wings degenerated to small lobes which are three-quarters as long as elytra. Legs similar in structure to those of the members of this species-group.

Abdomen elongate, nearly parallel-sided from 3rd to 7th segments, and then



Figs. 8–10. Male genital organ of *Platydomene iidesana* sp. nov.; dorsal view (8), lateral view (9), and ventral view (19). Scale: 0.5 mm.

abruptly narrowed apicad, 3rd to 7th tergites each shallowly and transversely depressed along the base; surface of each tergite closely, somewhat coarsely punctured and covered with fine brownish pubescence; 8th sternite subtriangularly excised at the middle of posterior margin and longitudinally depressed before the excision, surface of the depression asperate all over; 7th sternite shallowly emarginate at the middle of posterior margin and slightly, horse-shapedly depressed in front of the emargination, surface of the depression less punctured and pubescent than in other parts; 6th sternite simple.

Genital organ spindle-shaped and symmetrical. Median lobe somewhat narrower than fused paramere, gently rounded at the apex. Fused paramere obviously extending beyond median lobe and nearly rhomboidal, widest at the middle and more strongly narrowed apicad than basad, acutely pointed at the apex as seen from dorsal side; dorsal surface provided with a fine longitudinal carina in apical fourth; ventral surface also with a fine longitudinal carina at each side of the middle in apical half.

F e m a l e. Similar in general appearance to male, but the 8th abdominal sternite gradually narrowed towards the broadly rounded apex; 7th sternite simple.

Type series. Holotype: ♂, allotype: ♀, Ishikorobizawa on the Iide Mts., Yamagata Pref., Honshu, Japan, 27–VII–1964, Y. WATANABE leg. Paratypes: 1 ♂, 1 ♀, same locality and date as above, K. SASAKI leg.; 2 ♂♂, Nukumidaira on the Iide Mts., Yamagata Pref., Honshu, Japan, 26–VII–1964, K. TAKAHASHI leg.

Distribution. Japan (northeastern Honshu).

Bionomics. All the type specimens were obtained from under stones or by sifting dead leaves accumulated in deciduous broadleaved forests on the Iide Mts. at an altitude of 550 m (Nukumidaira) and 1,300 m (Ishikorobizawa).

Etymology. The specific epithet of the present new species is derived from the Iide Mountains, on which lie the two known localities.

要　約

渡辺泰明：本州北東部から採集されたドウガネナガハネカクシ種群（コウチュウ目ハネカクシ科）の3新種. ── 前報にて日本産ドウガネナガハネカクシ種群の4新種を記載したが，その後，本州東部の山地帯で採集された，この種群に含まれる個体を検討した結果，新たに3種が見出された. このうちの大菩薩嶺から得られた種は雄交尾器の形状からドウガネナガハネカクシに近縁の種とおもわれるが，外部形態や交尾器の形状に差異が認められ，未記載種と判断されたのでダイボサツドウガネナガハネカクシ *P. daibosatsuensis* と命名・記載した. 一方，残りの飯豊山で採集された2種は，いずれも雄交尾器の形状がこれまでの既知種のものとは極端に異なっていて，これらも未記載種と判断されたのでキアシドウガネナガハネカクシ *P. flavipes* およびイイデドウガネナガハネカクシ *P. iidesana* とそれぞれ命名・記載した.

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Elytra, Tokyo, **37**(2): 254, November 14, 2009

A Note on Distribution of *Merionoeda anulus* HOLZSCHUH (Coleoptera, Cerambycidae)

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Merionoeda anulus HOLZSCHUH was described based on the specimens collected from Saraburi of NE Bangkok and three localities in southern Thailand (HOLZSCHUH, 1991). Even though the localities in southern Thailand were rather near to the Malaysian border, there was no record of this species outside of Thailand, neither in the Malay Peninsula nor in the adjacent Greater Sunda Islands.

A recent examination of collected materials at the hands of the authors has, however, resulted in discovering new localities of this species, both in the Malay Peninsula as well as in Sumatra. It is interesting to note that the distribution of *M. anulus* is in fact much more extended, covering also a substantial part of 'Malayana'.

We would like to thank Mr. Carolus HOLZSCHUH of Villach, Austria, for providing us with a valuable paratype of this species.

Merionoeda anulus HOLZSCHUH, 1991

Merionoeda anulus HOLZSCHUH, 1991, FBVA, Berichte, (60), p. 37, fig. 39; type locality: "Thailand, NE Bangkok, Saraburi".

Specimens examined. 1 ♂ (paratype), "Hat Yai, S-Thailand, I~III–1980, native collector leg."; 5 ♂♂, Cameron Highlands, Pahang, W. Malaysia, V~VI, local collector leg.; 1 ♀, Harau Valley, W. Sumatra, 16~18–X–2006 Y. YOKOI leg.

Distribution. Southern Thailand, Malayan Peninsula (new record) and Sumatra (new record).

Reference

HOLZSCHUH, C., 1991. 63 neue Bockkäfer aus Asien, vorwiegend aus China und Thailand (Coleoptera: Disteniidae und Cerambycidae). *FBVA, Berichte*, (60): 1–71.

Elytra, Tokyo, **37**(2): 255–259, November 14, 2009

An Additional Record of *Torynognathus chrysomelinus* (Coleoptera, Lucanidae) from the Malay Peninsula, with Description of the Female

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Abstract As a third specimen of a rare lucanid species, *Torynognathus chrysomelinus* BOMANS, 1986, an additional female individual is recorded from the Malay Peninsula. Morphological characteristics of the female including its genitalia are illustrated and described for the first time.

The curious lucanid genus *Torynognathus* was established by ARROW (1935) for *T. oberthuri* from Sumatra, and after that, BOMANS (1986) described *T. chrysomelinus* on the basis of two male specimens from the Malay Peninsula as a second member of the genus. Of these, the latter species seems to be very rare, and no additional specimen has so far been recorded other than two males of the type series.

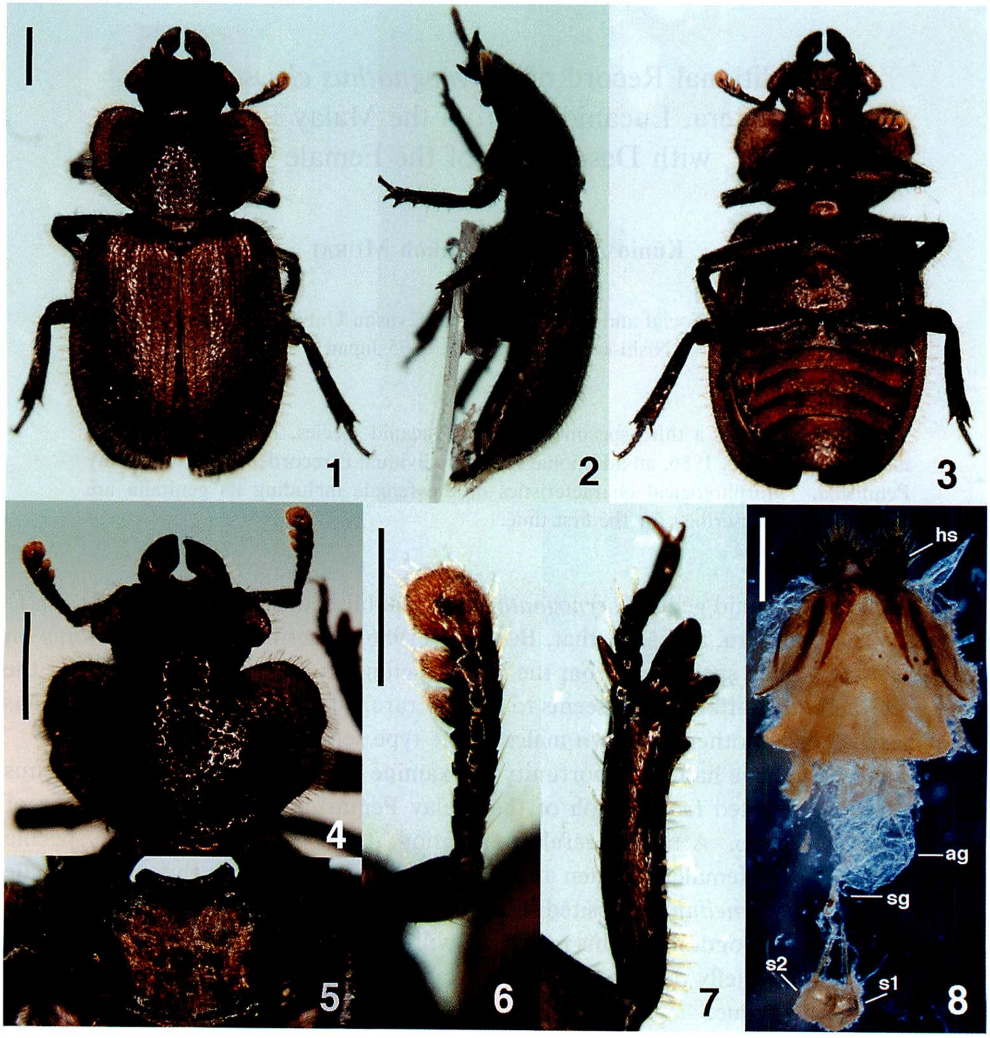
Recently, we have had an opportunity to examine a female specimen of the genus *Torynognathus* collected from Pasoh of the Malay Peninsula through the courtesy of Mr. K. WADA, Tokyo. After a careful examination, it was concluded that the specific characteristics of the female specimen at our hand were identical with those of the male paratype of *T. chrysomelinus* deposited in the entomological collections of the Natural History Museum of London. In this paper, we will record an additional specimen of *T. chrysomelinus*, and briefly describe some important characteristics of the female of this species for the first time.

Torynognathus chrysomelinus BOMANS, 1986

(Figs. 1–9)

Torynognathus chrysomelinus BOMANS, 1986, Nouv. Revue Ent., (N.S.), **3**, p. 308. —— KRAJCIK, 2001, Lucanidae of the World, p. 53; 2003, Lucanidae of the world, **2**, p. 172.
Aegus (*Torynognathus*) *chrysomelinus*: MAES, 1992, Revta. Nicarag. Ent., **22**, p. 106.

Description of female. Length from anterior margin of head (excluding mandibles) to apex of elytra 7.6 mm. Body (Figs. 1–3) dull glossy and reddish brown in color, upper surface closely and shallowly punctured; each puncture bearing a long golden hair. Head (Figs. 4, 9) transverse, with a protuberance on each side close to frontal



Figs. 1–8. *Torynognathus chrysomelinus*, ♀.—— 1, dorsal view; 2, lateral view; 3, ventral view; 4, head and pronotum; 5, mentum; 6, antenna; 7, front tibia; 8, genital organs (ag: accessory gland, hs: hemisternite, s1 and s2: two-lobed spermatheca, sg: spermathecal gland). Scales: 1.0 mm for Figs. 1–4 and 0.5 mm for Figs. 6–8.

margin of eye. Canthus (Fig. 9) well developed, completely dividing eye, not distinctly angular in front, almost straight at side; hind angle rather rounded. Antenna (Fig. 6) consisting of ten segments; eighth to tenth segments forming partly pubescent club. Mandibles simple, short and broad, curved laterally, without inner teeth. Mentum (Fig. 5) roundly emarginate at the apex. Prothorax (Figs. 4, 9) broader than long, with rounded large anterior lobes; each lateral margin with a distinct concavity at middle;

9 10

Figs. 9–10. Head and pronotum of *Torynognathus* spp., ♀. —— 9, *T. chrysomelinus*; 10, *T. oberthueri*, paralectotype. Scale: 1.0 mm for Figs. 9–10.

base strongly rounded. Elytra slightly wider than pronotum; upper surface with faint striae. Legs (Fig. 7) slender; tibiae simple, without spine at lateral side of middle and hind tibiae; tarsi very short and compact.

Female genital organ (Fig. 8). Styli absent. Hemisternites relatively large and well sclerotized; pointed apices with long setae. Accessory gland very large. Spermathecal gland very small. Spermatheca with large two circular lobes.

Specimen examined. 1 ♀, Pasoh Forest Res., Negeri Sembilan, West Malaysia, FRG 20–II, 1982, M. KUBOTA leg.

Specimen compared. All the specimens examined for comparison were deposited in the entomological collections of the Natural History Museum of London.

T. chrysomelinus: 1 ♂, paratype, Malaysia, 22 miles N. E. Kuala Lumpur, alt. 600 m, 9–VI–1962 (E. E. ROSS & D. Q. CAVAGNARO); originally in collection of H. E. BOMANS.

T. oberthueri: 1 ♂, lectotype, N. Sumatra, Semangoes Forest, J. BOUCHARD; 1 ♀, paralectotype, same data as the lectotype.

Notes. The female of *T. chrysomelinus* is closely related to that of *T. oberthuri* but is distinguished from the latter by the following characteristics (Figs. 9, 10): 1) Body gloss dimmer, and golden setae on dorsal surface much longer than those of *T. oberthuri*; 2) middle part of the upper surface of head rather depressed but not swollen as in *T. oberthuri*; 3) a concavity at the middle of each lateral margin of prothorax larger and broader than that of *T. oberthuri*; 4) front angle of canthus rather rounded but not sharply produced forwards as in *T. oberthuri*; 5) punctures on the surface of prothorax rather sparser and shallower than those of *T. oberthuri.*

Sexual dimorphism between male and female of *T. chrysomelinus* is almost the same as in *T. oberthuri*: head, clypeus and mandibles of male are slightly larger and broader than those of female.

The morphological features of the genus *Torynognathus* are quite curious, and ARROW (1935) suggested that such characteristics of the genus as setose upper surface, simple unspined tibiae and rounded anterior lobes of the prothorax may indicate some possible degree of relationship to the genera *Aegus* and *Aegotypus*. Consequentlly, MAES (1992) accepted ARROW's suggestion and downgraded the genus *Torynognathus*, as well as *Aegotypus*, to subgenera within the genus *Aegus*. He also assigned *Aegus marginivillosus* DE LISLE, 1967, of which the female holotype has solely been known from New Guinea, to the members of the subgenus *Torynognathus* (MAES, 1992). As the result of examination of female genital organs in the present study, it was revealed that the female of *T. chrysomelinus* had two-lobed spermatheca, which was also shared by the females of some species of the genus *Aegus* (MURAI, personal observation). Further detailed comparative studies on the morphology including male and female genital organs of the genus *Torynognathus* will possibly clarify its systematic position within the family Lucanidae.

Acknowledgments

We would like to express our hearty thanks to Mr. K. WADA, Tokyo, Mr. M. KERLEY, the Natural History Museum, London, and Dr. M. MATSUI, Kyoto for giving us the opportunity to examine the precious materials. This study was supported in part by a Grant-in-Aid from the Japan Society for the Promotion of Science (Nos. 1004166 and 1840501) to K. A.

要　約

荒谷邦雄・村井悠孔：マレー半島で得られた *Torynognathus chrysomelinus*（コウチュウ目クワガタムシ科）の追加標本の記録と雌の記載．—— 小型で特異な形態をした *Torynognathus* 属は，スマトラから記載された *T. oberthuri* に基づいて創設されたクワガタムシ科の小属である．本属の2番目の種としてマレー半島から記載された *T. chrysomelinus* BOMANS (1986) は珍しい種のようで，記載以来，タイプ標本に指定された2頭の雄のみが知られているに過ぎず，雌は未知であった．筆者らは，最近，東京都の和田薫氏のご厚意で，マレー半島で採集された本属の1種の標本を検視する機会を得た．大英自然史博物館に所蔵されている *T. chrysomelinus* の雄のパラタイプ標本との比較を含む詳細な検討の結果，今回の標本が初めて得られた *T. chrysomelinus* の雌であることが明らかとなった．本種の雌はスマトラ産の本属のタイプ種である *T. oberthuri* の雌と非常によく似ているが，1) 体表面の光沢は鈍く，背面に生えた金色の毛は *T. oberthuri* のものと比べてずっと長い；2) 頭部の中央部は平らで，*T. oberthuri* のような隆起部がない；3) 前胸背

板の側縁にある凹みが *T. oberthuri* のものと比べると大きくて目立つ；4) 眼縁突起の前縁部は丸く，*T. oberthuri* のように鋭く前方に突出しない；5) 前胸背板上面の点刻は *T. oberthuri* に比べて粗で浅い，等の特徴によって区別できる．また，本属の形態における性的二型はきわめて小さく，*T. oberthuri* および *T. chrysomelinus* の両種とも，雄の方が雌に比べて頭部や頭盾，大顎がやや大きく幅広い，という程度の差異しかないことも明らかとなった．

Torynognathus 属は，クワガタムシ科の中でもきわめて特異な形態的特徴を有しているが，Arrow (1935) は本属の記載の中で，毛で覆われた体表面や浅い条溝が走る鞘翅，棘列のない脛節，両側が丸く大きく突出する前胸背板の前縁部，などの本属に見られるいくつかの形態的特徴が，*Aegus* 属とその近縁属，中でも *Aegotypus* 属のいくつかの種と共通していることを指摘し，*Aegotypus* 属と本属に何らかの類縁関係がある可能性を示唆した．その後，Maes (1992) はこの Arrow (1935) の示唆に基づいて，世界のクワガタムシ科のリストの中で *Torynognathus* 属および *Aegotypus* 属を *Aegus* 属の亜属のうちの 1 つにそれぞれ格下げして扱った．今回，*T. chrysomelinus* の雌の交尾器形態を観察した結果，本種の雌は 2 つの大きい房状の受精嚢を持つことが明らかとなったが，この特徴は少なくとも著者らが観察した *Aegus* 属の種の雌と共通していた．今後，まだ報告のない *Torynognathus* 属の雄交尾器形態をはじめとするさらなる詳細な形態の比較検討によって，クワガタムシ科における本属の系統的な位置が明らかになることを期待したい．

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Elytra, Tokyo, **37**(2): 260, November 14, 2009

A New Record of *Microcacia longiscapa* (Coleoptera, Cerambycidae) from Sumatra Island, Indonesia

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Microcacia longiscapa was described by BREUNING (1938–1940, p. 434) based on a female specimen collected from Borneo. This species is remarkable (Fig. 1) and easily distinguished from the other species of the genus by the brown elytra scattered with several small maculations of light yellow pubescence; however, no contribution has ever been made to this species.

Recently, I had an opportunity to examine a specimen of this species collected from Sumatra Isl. I will record it for the first time from the island as follows:

Specimen examined. 1 ♂, Jambi, Suban, Sumatra, Indonesia, 7∼10–IV–2007, Y. YOKOI coll.

I wish to expresses my sincere thanks to Dr. Nobuo OHBAYASHI, Prof. Masahiro SAKAI and Assoc. Prof. Hiroyuki YOSHITOMI for their kind advice, guidance and constant encouragement. Further, I wish to express my special thanks to Mr. Yaheita YOKOI for offering the invaluable specimen.

Reference

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Fig. 1. *Microcacia longiscapa* BREUNING, from Sumatra Isl.

Elytra, Tokyo, **37**(2): 261–272, November 14, 2009

Phylogeny and Evolution of the Tribe Platycerini (Coleoptera, Lucanidae) of the World Inferred from Mitochondrial 16S rRNA and COI Gene Sequences

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Abstract The tribe Platycerini is a small group in the family Lucanidae, which is divided into three genera, *Platycerus*, *Platyceroides* and *Platyceropsis* (BENESH, 1946). We have analyzed the mitochondrial 16S rRNA and COI gene sequences of approximately 300 specimens consisting of 37 species of this tribe of the world. The molecular genealogical trees suggest that the Platycerini is divided into two major lineages, the *Platyceropsis* – *Platyceroides* lineage and the *Platycerus* lineage, and the branching point between these two is considerably deep. The *Platycerus* lineage is further divided into four geographically linked lines, namely, the Japanese, North American, West Eurasian, and East Eurasian sublineages. Based on the molecular phylogenetical data, a probable evolutionary history of the platycerine lucanid beetles is discussed.

Introduction

The tribe Platycerini MULSANT, 1842 (*sensu* BENESH, 1946) is a unique group of lucanid beetles, characterized by small body usually less than 15 mm in length, short eye canthus less than one-quarter of the eye, partially geniculate antennae, and arcuately curved lateral margin of the pronotum (HOWDEN & LAWRENCE, 1974). This tribe has been considered to include three genera, namely, *Platycerus* GEOFFROY, 1762, *Platyceropsis* BENESH, 1946, and *Platyceroides* BENESH, 1946. Of these, the genus *Platycerus* contains more than 40 species widely distributed in the Holarctic Region, and particularly diversified in China and Japan where approximately 30 species have been recognized, while the other two genera are endemic to western North America, containing only a single (*Platyceropsis*) and seven (*Platyceroides*) species, respectively.

In this study, we have analyzed the mitochondrial gene sequences of 16S rRNA and

Table 1. List of the specimens used in this study

No.	Scientific name	Locality	DDBJ Accession No. (16S)
[*Platyceroides*]			
1	*Platyceropsis keeni* (Casey, 1895)	Curry Co., Oregon, NW. USA	AB490781
[*Platyceropsis*]			
2	*Platyceroides aeneus* (Van Dyke, 1928)	Del Norte Co., California, W. USA	AB490780
[*Platycerus*]			
Japanese lineage			
3	*P. acuticollis* Y. Kurosawa, 1967	Hôshi, Gunma, C. Japan	AB490400
4	*P. albisomni* Kubota *et al.*, 2008	Mt. Gassan, Yamagata, NE.Japan	AB490401
5	*P. takakuwai* Fujita, 1987	Daibosatsu Mts., Yamanashi, C. Japan	AB490406
6	*P. viridicuprus* Kubota *et al.*, 2008	Mt. Hyôno-sen, Hyogo, SW. Japan	AB490408
7	*P. sue* Imura, 2007	Ishizuchi Mts., Ehime, SW. Japan	AB490407
8	*P. sugitai* Okuda et Fujita, 1987	Ishizuchi Mts., Ehime, SW. Japan	AB490404
9	*P. urushiyamai* Imura, 2007	Kujû Mts., Oita, SW. Japan	AB490409
10	*P. akitaorum* Imura, 2007	Odaigahara, Nara, SW. Japan	AB490405
11	*P. kawadai* Fujita et Ichikawa, 1982	Misakubo, Shizuoka, C. Japan	AB490403
12	*P. delicatulus* Lewis, 1883	Asahi Mts., Yamagata, NE. Japan	AB490402
North American lineage			
13	*P. oregonensis* Westwood, 1844	Santa Clara Co., California, W. USA	AB490170
14	*P. virescens* (Fabricius, 1775)	Palos Forest Reserve, Chicago, NE. USA	AB490171
West Eurasian lineage			
15	*P. caprea* (De Geer, 1774)	near Mt. Grebeni, S. Uralskiy Mts., Russia	AB490165
16	*P. caraboides* (Linné, 1758)	Dokutchaeva Vil., Kharkov, N. Ukraine	AB490166
17	*P. caraboides* (Linné, 1758)	Fontainebleau, Paris, France	AB490168
18	*P. caraboides* (Linné, 1758)	Banska-Bystrica, C. Slovakia	AB490167
19	*P. caraboides* (Linné, 1758)	Zlata Idka, Kosice, E. Slovakia	AB490169
20	*P. caucasicus* Parry, 1864	Mt. Lysaja, Krasnodar, NW. Caucasus, Russia	AB490172
21	*P. primigenius* E. Weise, 1960	Mt. Azish-Tau, Krasnodar, NW. Caucasus, Russia	AB490779
East Eurasian lineage			
22	*P. tangi* Imura, 2008	Mt. Jiuding Shan, NC. Sichuan, SW. China	AB490298
23	*P. hiurai hiurai* Tanikado et Tabana, 1997	Baoxing Xian, C. Sichuan, SW. China	AB489987
24	*P. tieguanzi* Imura, 2007	Mt. Erlang Shan, C. Sichuan, SW. China	AB490174
25	*P. cyanidraconis* Imura, 2008	Mt. Jiuding Shan, NC. Sichuan, SW. China	AB490299
26	*P. cupreimicans* Imura, 2006	Yunling Mts., NW. Yunnan, SW. China	AB489984
27	*P. tabanai tabanai* Tanikado et Okuda, 1994	Qinling Mts., S. Shaanxi, C. China	AB489982
28	*P. dundai* Imura et Bartolozzi, 1994	Hailuo Gou Valley, C. Sichuan, SW. China	AB489983
29	*P. ladyae* Imura, 2005	Mt. Erlang Shan, C. Sichuan, SW. China	AB490301
30	*P. feminatus* Tanikado et Tabana, 1997	Meigu Xian, SC. Sichuan, SW. China	AB490696
31	*P. feminatus* Tanikado et Tabana, 1997	Heizhu Gou, SC. Sichuan, SW. China	AB489986
32	*P. hongwonpyoi hongwonpyoi* Imura et Choe, 1989	Mt. Gaji-san, Gyeongsangnam-do, S. Korea	AB490699
33	*P. h. hongwonpyoi* Imura et Choe, 1989	Mt. Jiri-san, Gyeongsangnam-do, S. Korea	AB490698
34	*P. h. hongwonpyoi* Imura et Choe, 1989	Mt. Odae-san, Gangwon-do, S. Korea	AB490700
35	*P. h. shennongjianus* Imura, 2008	Shennongjia, W. Hubei, C. China	AB490704
36	*P. h. qinlingensis* Imura, 1993	Qinling Mts., S. Shaanxi, C. China	AB489979
37	*P. h. qinlingensis* Imura, 1993	Ningshan Xian, S. Shaanxi, C. China	AB489985
38	*P. rugosus* Okuda, 1997	Mt. Guangtou Shan, N. Chongqing, C. China	AB489980
39	*P. rugosus* Okuda, 1997	Shennongjia, W. Hubei, C. China	AB490703

Table 1. List of the specimens used in this study

No.	Scientific name	Locality	DDBJ Accession No. (16S)
40	*P. rugosus* OKUDA, 1997	Micang Shan Mts., NE. Sichuan, SW. China	AB490701~490702
41	*P. businskyi* IMURA, 1996	Ningshan Xian, S. Shaanxi, C. China	AB489981
42	*P. turnai sichuanus* IMURA, 2008	Wolong, C. Sichuan, SW. China	AB490300
43	*P. turnai turnai* IMURA, 2001	Shennongjia, W. Hubei, C. China	AB490697
44	*P. xiongmao* IMURA, 2008	Baoxing Xian, C. Sichuan, SW. China	AB489988
45	*P. consimilis phagophilus* IMURA, 2005	Micang Shan Mts., NE. Sichuan, SW. China	AB490694
46	*P. consimilis consimilis* TANIKADO et TABANA, 1998	Miyaluo, NC. Sichuan, SW. China	AB490695
47	*P. consimilis consimilis* TANIKADO et TABANA, 1998	Bipeng Gou, NC. Sichuan, SW. China	AB490173
48	*P. nagahatai* IMURA, 2008	Qinling Mts., S. Shaanxi, C. China	AB490293
49	*P. bashanicus* IMURA et TANIKADO, 1998	Guangtou Shan, N. Chongqing, C. China	AB490296~490297
50	*P. yeren* IMURA, 2008	Shennongjia, W. Hubei, C. China	AB490294
51	*P. kitawakii* IMURA et TANIKADO, 1998	Daba Shan Mts., N. Chongqing, C. China	AB490295

*Numerals correspond to those shown in Figs. 1–3.

the cytochrome *C* oxidase subunit I (COI) of approximately 300 specimens consisting of 37 species of all the above three genera from various regions of the world. The examined species consist of more than 70% of all the known species, and their localities cover most of the overall distributional ranges of the tribe. On the molecular genealogical trees are recognized two major lineages each corresponding to *Platyceropsis* plus *Platyceroides* from western North America and *Platycerus* from the whole range of the Holarctic Region. In the latter lineage are recognized four geographically linked phylogenetic lines, namely, the Japanese, North American, West Eurasian, and East Eurasian sublineages. No cross contaminations of any species within a given lineage to other lineages have been found. Based on the results obtained, a probable evolutionary history of the platycerine lucanid beetles is discussed.

Materials and Methods

Sampling

The specimens analyzed for mitochondrial 16S rRNA gene (512–514 bp) are listed in Table 1, and the localities where the samples analyzed were collected are shown in Figure 1. The representative species used in this study are shown in Figure 2. The gene sequences of most species were also analyzed for mitochondrial COI (552 bp). The scientific names used herein are according to those routinely adopted by the taxonomists without considering any molecular data. To prevent DNA degradation, the beetles were immediately killed in 95% ethanol and sorted in the same solution until use. Thorax muscles from adult individuals were used for DNA extraction. For several examples (some of the European and North American species and *P. kitawakii* from China), dried specimens were used for DNA extraction.

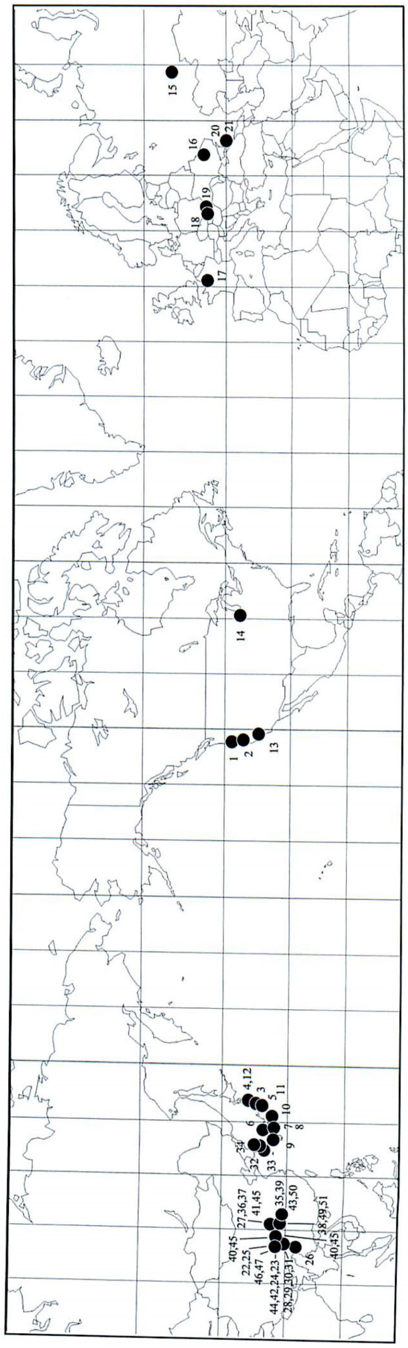

Fig. 1. Map showing the collecting sites of the specimens used in this study. Numerals correspond to those shown in Figs. 2, 3 and Tab. 1.

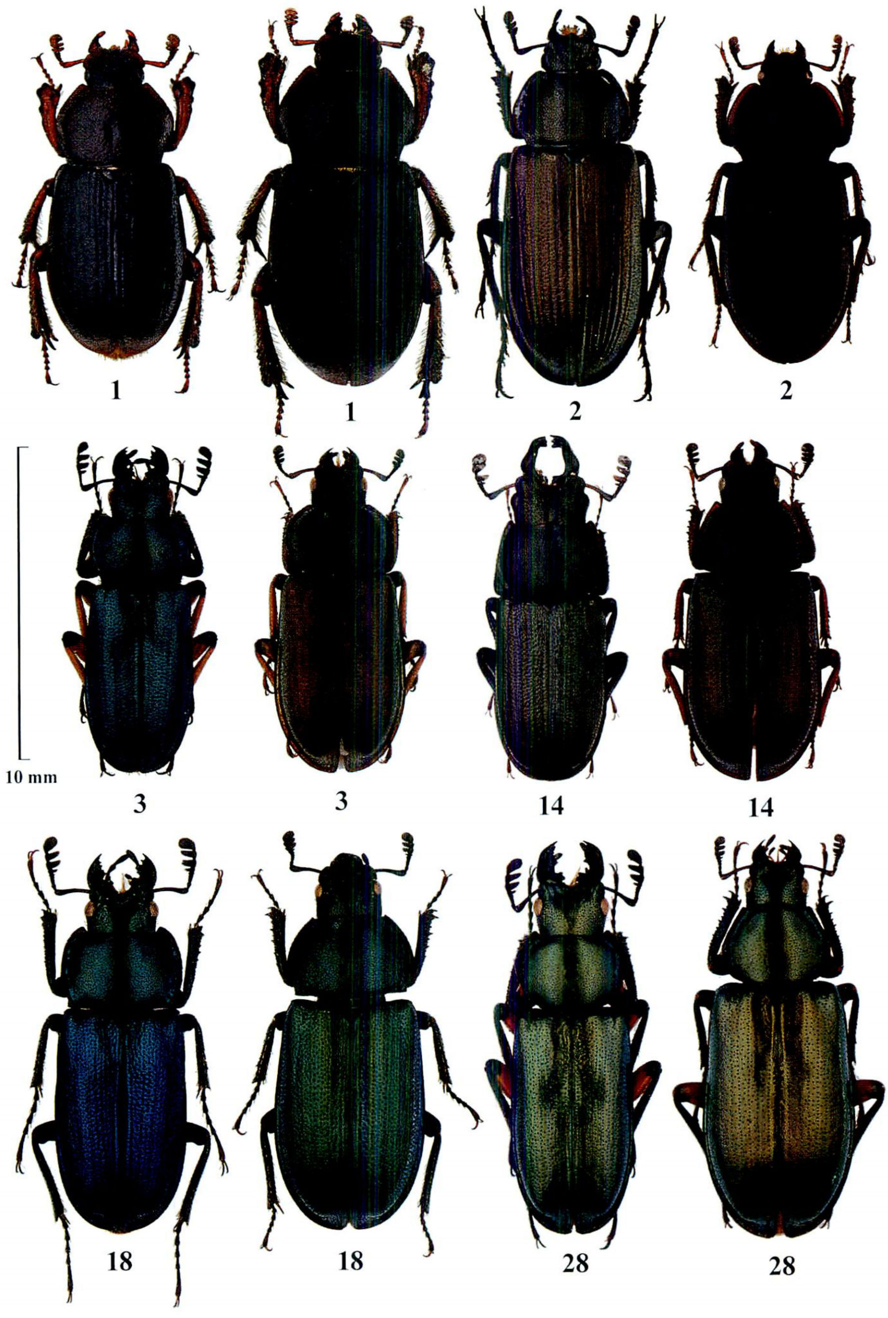

Fig. 2. Habitus of the representative species of the tribe Platycerini. Numerals correspond to those used in Figs. 1, 3, and Tab.1. Left – male; right – female. Identification of Specimen No. 2 (*Platyceroides aeneus*) is tentative, since we were unable to make a direct comparative study between the type specimen.

DNA extraction, amplification (PCR) and sequencing

Total DNA was prepared using DNA Extraction FM Kit (Wako, Osaka, Japan). DNA for each specimen was finally dissolved in 12 μl reaction system, and ca. 50 ng of solution was used as template for amplification of DNA fragments by polymerase chain reaction (PCR). The fragment of the mitochondrial 16S rRNA DNA containing 512–514 bp 3′-region was amplified using a primer pair (forward 5′-A ATG ATT TTT AGG ATT GGA AGT GTC-3′; reverse 5′TTT AAT CCA ACA TCG AGG TCG-3′). Direct sequencing was performed with Big Dye Terminator v1.1 Cycle Sequence Kit (ABI, Foster, CA). The following primers were used for amplification of the COI gene (552 bp): LCO1490 and HCO2198 (HEBERT *et al.*, 2003). Details for the PCR amplification and direct sequencing methods were described in a series of papers on the phylogenetic studies of carabid beetles (*e.g.*, SU *et al.*, 2005).

Phylogenetic analyses

The 16S rRNA gene region (512–514 bp upstream from the 3′-terminal), and the COI gene region (552 bp upstream from the 3′-terminal stop codon) were used for phylogenetic analyses. Sequence alignments were carried out using the multiple alignment program MEGA 4.0. The following analyses were made: neighbor-joining (NJ) (SAITOU & NEI, 1987), unweighted pair-group method with arithmetic mean (SOKAL & MICHENER, 1958) and maximum parsimony (MP) (FARRIS, 1970). Construction of the NJ- and UPGMA trees was made using evolutionary distance (D) computed by KIMURA's two-parameter method (KIMURA, 1980). A heuristic search to determine the MP tree was performed using tree-bisection-reconnection (TBR) branch-swapping. The string tree was obtained via stepwise addition. All the trees were evaluated using the bootstrap test (FELSENSTEIN, 1985) based on 1,000 replicates. The 16S rRNA tree and the COI tree were outgroup-rooted using the gene sequences of six lucanid species and two lucanid species, respectively, taken from the database of the DDBJ. The nucleotide sequence data reported in this paper appear in the DDBJ, EMBL, and GenBank nucleotide sequence database (Table 1).

Results

The number of insertion-delition of the 16S rRNA was 0 to16 (three in average) in pairwise sequence comparisons between two species. The G+C contents were nearly constant (22.3±1.1% for the 16S rRNA gene and 33.3±1.5% for the COI gene). The 16S rRNA tree showed essentially the same topology with the COI tree. Some minor differences between the 16S and COI trees were found in the branching order within some subclusters. Since this did not affect the main conclusion and discussion, the 16S rRNA tree was mainly used in the following results and discussions.

Molecular phylogeny of Platycerini based on the 16S rRNA gene sequences

Figure 3 shows the NJ-phylogenetic tree of the three genera treated in this study, together with six representative species of other genera belonging to the family Lucanidae as the outgroup. From the tree were recognized two major lineages, the *Platyceropsis – Platyceroides* lineage and the *Platycerus* lineage. The branching point between these two lineages was considerably deep. Their differentiation seems to have taken place long ago, and would have been traced back to almost the same period of differentiation of several other major genera belonging to the family Lucanidae, *e.g.*, *Dorcus*, *Lucanus* and *Prismognathus*, etc. On the tree, the *Platycerus* lineage was further divided into four sublineages.

The Platyceropsis – Platyceroides *lineage*

This lineage contained two North American genera, and was divided into two branches, each composed of *Platyceropsis keeni* CASEY, 1895, from Oregon of northwestern USA, which is a single component of the genus *Platyceropsis*, and *Platyceroides aeneus* VAN DYKE, 1928, from California of western USA, which is one of the seven species belonging to the genus *Platyceroides*. The branching point between the two branches was very deep, which means that their differentiation have taken place long ago.

The Platycerus *lineage*

All the species in this lineage belong to the genus *Platycerus*, and was radiated into four sublineages within relatively short time. It is worth noting that each sublineage was apparently linked with the geography. The precise branching order among the sublineages could not be determined presumably because of their almost simultaneous emergence, though the diversification of the Japanese species seems to have taken place a little earlier than that of the species distributed in other regions. This was suggested from both the 16S rRNA and COI trees.

The first sublineage was represented by the species distributed in Japan alone, and we call it the Japanese sublineage. Only selected examples were included in this tree among much more specimens analyzed, including all the species and subspecies distributed in Japan. This sublineage was further divided into two clusters; one was composed of *P. acuticollis* and its allied species, and the other was composed of all the remaining species containing both the species-group of *P. sugitai* and the *P. delicatulus*-complex. In the latter cluster, greater parts of the species were differentiated within very short time, and the result of the present phylogenetic analysis did not reflect the morphological classification.

The second one, called the North American sublineage, was composed of two out of four North American species, *P. oregonensis* and *P. virescens*. The former is from California of western USA and the latter is from Chicago of northeastern USA.

The third sublineage consisted of four out of nine (according to BARTOLOZZI & SPRECHER-UEBERSAX, 2006) species distributed in the western part of the Eurasian

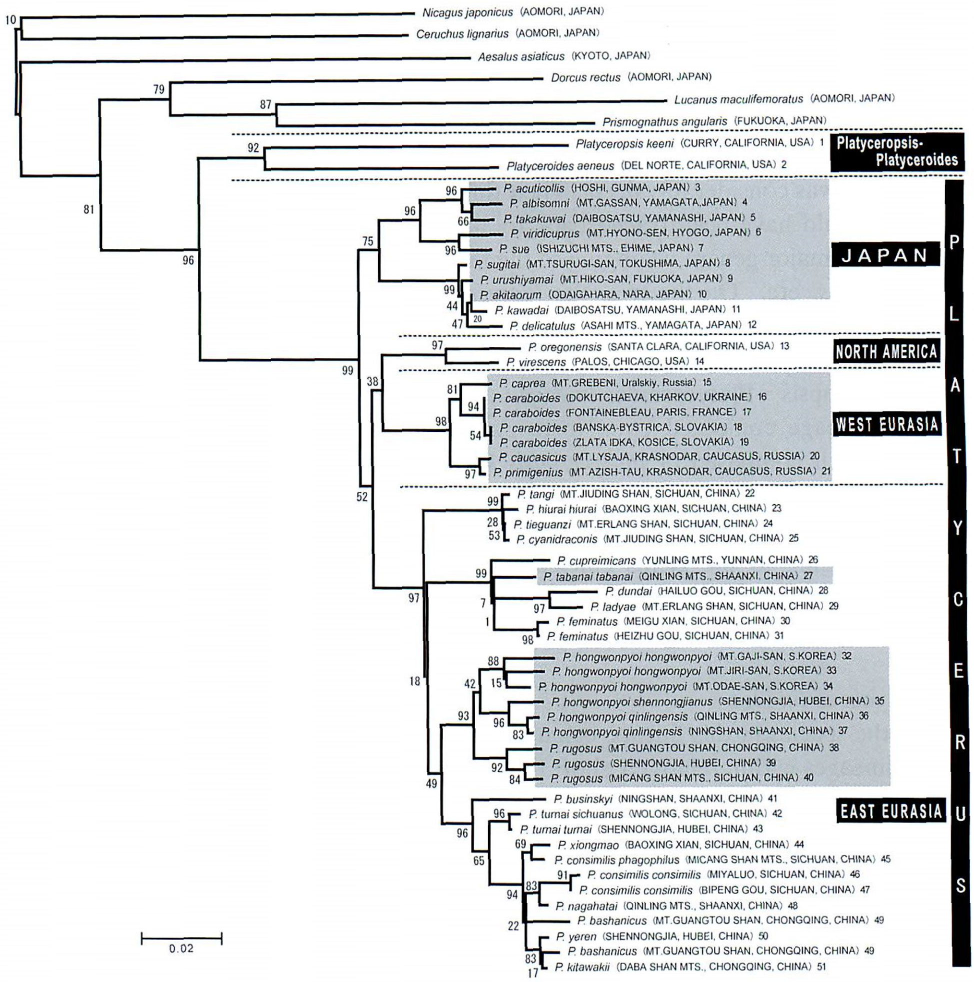

Fig. 3 Neighbor-joining (NJ) phylogenetic tree of the Platycerini of the world constructed from mitochondrial 16S rRNA gene sequences. Numerals at each branching point indicate bootstrap percentage. Those shown after the scientific names correspond to those used in Figs. 1, 2, and Table 1. The species currently regarded as belonging to the *P. acuticollis*-complex (bearing sharply pointed pronotal hind angles) are boxed in gray shadow. Scale bar represents KIMURA's 2-parameter evolutionary distance.

Continent, and we call it the West Eurasian sublineage. This sublineage was further subdivided into two clusters. One cluster included two species, *P. caraboides* from Slovakia, Ukraine and France, and *P. caprea* from Russia. Another cluster included the two species, *P. primigenius* and *P. caucasicus*, both from Caucasus.

The fourth one, here called the East Eurasian sublineage, consisted of all the known species from the eastern part of the Eurasian Continent, and was further divided into four clusters. The first cluster consisted of four species from central Sichuan of Southwest China. Externally, all the species belonging to this cluster are characterized by small male mandibles and characteristically shaped endophallus of the male genital organ. It is interesting that *P. hiurai* belonged to this cluster. This species is peculiar in having entirely black legs and can be distinguished from any of other East Eurasian species at a glance. The second cluster contained five species mainly distributed in the southwestern part of the distributional range of the genus *Platycerus* in China. It is remarkable that *P. tabanai* of southern Shaanxi belonged to this lineage. This species bears sharply pointed hind angles of the pronotum, and has been regarded, together with *P. hongwonpyoi* and *P. rugosus*, as belonging to the *P. acuticollis*-complex. The third cluster contained two species from Korea and China, namely, *P. hongwonpyoi* distributed from the Korean Peninsula to Central China and *P. rugosus* which are distributed from western Hubei to northeastern Sichuan of Central China. Both of these species are characterized by having sharply pointed hind angles of the pronotum, and, as mentioned above, have been regarded as belonging to the *P. acuticollis*-complex to which all the Japanese species with pointed pronotal hind angles also belong. The fourth cluster was represented by eight species from western Hubei to central Sichuan of China. Of these, *P. businskyi* from southern Shaanxi, *P. turnai* from western Hubei and central Sichuan, and *P. kitawakii* from northern Chongqing are unique in having peculiarly shaped male genital organ, and readily distinguished from each other. All the remaining five species belong to the species-group of *P. bashanicus*, which are characterized by small mandibles and uniquely featured male genital organ.

Discussion

Morphologically, the two North American genera, *Platyceropsis* and *Platyceroides*, have been placed, together with the Holarctic genus *Platycerus*, in a single tribe Platycerini (BENESH, 1946). However, the present genealogical tree shows that they are phylogenetically remote from each other. The genus *Platyceropsis* is monotypical, represented by a flightless species, *P. keeni*, distributed from British Columbia to northern California along the Pacific coast (BENESH, 1946), where this species is found under the decayed driftwood on sandy beach. The genus *Platyceroides* contains seven species, the distributional range of which are from British Columbia to California throughout the Cascade, Sierra Nevada, and the Coast Mountains. The male of this genus is fully-winged and can fly, but the female is flightless (BENESH, 1946). According to Taro ELDREDGE of New York (pers. comm.), they are found from relatively matured mixed- or broadleaved forest and the larvae prefer to feed on white-rotten branches. Since we have been unable to analyze any of the six other species of this genus, discussion as to the phylogenetic relationship among them will have to be left until these species become available for analyses. Very recently, PAULSEN and HAWKS (2008) established a new tribe, Platyceroidini for these two genera (type genus: *Platyceroides*) mainly based on the peculiar morphological characters. The two American authors' view is questionable, because these two genera are phylogenetically quite remote from each other. However, it is possible to regard these two higher taxa as two subtribes of the tribe Platycerini.

On the mitochondrial 16S rRNA as well as the COI trees, all the species belonging to the genus *Platycerus* consist of a single, distinct phylogenetic lineage which is supported by a high bootstrap value of 99%. The most noticeable is that the *Platycerus* lineage is differentiated into four geographically well-linked phylogenetic lines, namely, the Japanese, North American, West Eurasian, and East Eurasian sublineages. This genus has been currently classified into two species-complexes according to the shape of hind angles of the pronotum; one is the *P. delicatulus*-complex with the hind angles of the pronotum rounded, and the other is the *P. acuticollis*-complex with the same angles sharply pointed. On the present 16S rRNA as well as the COI trees, however, the morphology of pronotal hind angles and molecular phylogeny does not always run parallel. For example, eight of the 10 Japanese species, all the European species, and three of the 19 Chinese species are morphologically classified into the *P. acuticollis*-complex, and yet they appear in three of the four different sublineages on the molecular genealogical trees (see gray-shaded parts in Figure 3). The species morphologically classified into the *P. delicatulus*-complex also appear in three of the four different sublineages. All the North American species, two of the 10 Japanese species and a greater part (16 of 19) of the Chinese species are of this type. So far as the morphology of the pronotal hind angles is concerned, the two types of character states, namely, either rounded or pointed, appear randomly in each sublineage, and therefore cannot be regarded as synapomorphy. Rather, it should be regarded as homoplasy most probably depending on the living environment, mating strategy, and ovipositional behavior of each species.

To discuss about the origin and establishment of the present distributional ranges of the platycerine lucanid beetles, the phylogenetic position and distributional range of the two genera, *Platyceropsis* and *Platyceroides*, must be important. Both of them are considered to be plesiomorphic in both the external and male genitalic morphologies, and rather narrowly extant in the western part of North America. One possible scenario on the origin and process of dispersal of the genus *Platycerus* as deduced from the 16S rRNA (as well as COI) phylogenetic profile is that this genus emerged in North America from the common ancestry of *Platyceropsis* and *Platyceroides* and expanded its distributional range to the Holarctic region. They radiated into four geographically liked sublineages within a short time, although their branching order cannot be determined with certainty. The speciation would have initiated shortly after establishment of each sublineage. Above all, an explosive diversification of the species seems to have taken place in the Chinese Continent. Our knowledge of the platycerine fauna of this region is still insufficient, and yet more than 20 species have been known up to the present (including a new species described from Guizhou by IMURA in 2009). This situation is comparable with the evolutionary history of the tribe Cychrini in the family Carabidae (SU, pers. comm.). As to the Chinese sublineage, we have already finished molecular and morphological analyses for all the known taxa, the details of which will be introduced in our next paper.

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要　約

井村有希・永幡嘉之：ミトコンドリア 16S rRNA および COI 遺伝子の塩基配列からみた世界のルリクワガタ族の系統と進化．―― ルリクワガタ族 Platycerini はルリクワガタ属 *Platycerus*，ムカシルリクワガタ属 *Platyceropsis*，ニセルリクワガタ属 *Platyceroides* の 3 属によって構成される．本研究では，世界各地から収集した，同族の構成種の 7 割以上に相当する計 37 種，約 300 個体について，ミトコンドリア 16S rRNA および COI 遺伝子の塩基配列を決定して分子系統樹を作製し，検討をくわえた．その結果，ムカシルリクワガタ属・ニセルリクワガタ属の二者とルリクワガタ属との分岐は古く，その時期はクワガタムシ科の他の主要な属が分化した時期にまで遡りうることが判明した．一方，世界のルリクワガタ属は分布域と密接に関連した 4 系統（日本系，北米系，西ユーラシア系，東ユーラシア系）に分かれ，これまで属内の系統を論じる上で重視されてきた前胸背板後角の形状は，分子系統とは無関係に各系統にランダムに出現することが判明した．本属はおそらく，北米大陸においてムカシルリクワガタ属・ニセルリクワガタ属と共通の祖先種から分化し，比較的急速に全北区へと分布を広げ，現在の 4 主要分布域において種分化を起こしたものであろうと考えられる．

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Food Plants of a Supralittoral Hydrophilid Beetle, *Cercyon* (*Cercyon*) *dux* (Coleoptera, Hydrophilidae)

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Cercyon (*Cercyon*) *dux* SHARP, 1873 is a supralittoral Hydrophilid beetle that is widely distributed along the shorelines from the southern Kuril Isls. to Kyushu Is., and it is commonly present along the cobble and shingle beaches of Japan (ÔHARA & JIA, 2006; SATÔ, 1981, 1989; SHARP, 1873; SHATROVSKIY, 1989, 1992). Its adults feed on detritus such as seaweeds and sea grasses that drift ashore (HANSEN, 1999; ÔHARA & JIA, 2006). However, it is still poorly known for the food plant utilization of *C.* (*C.*) *dux* to each seaweed and sea grass, although they would be frequently observed under the decomposed sea tangle more than the other seaweeds and sea grass in field condition (ÔHARA & KOBAYASHI, personal observations). In this paper, I examine the food acceptance tests of *C.* (*C.*) *dux* for the commonly observed seaweeds (sea tangle, sea lettuce, and gulfweed) and sea grass (tape grass) along the seaside shorelines of Hokkaido.

Materials and Methods

Non-choice feeding tests were carried out to detect the acceptability for seaweeds and sea grass. A total of 31 adult individuals of *Cercyon* (*Cercyon*) *dux* were sampled from four localities in Hokkaido as follows: Onishika, Obira, Rumoi (N 44°03′ 14″, E 141°39′ 14″, 4 indiv.); Bikuni, Furubira (N 43°17′ 44″, E 140°36′ 47″, 8 indiv.); Nishikioka, Tomakomai (N 42°35′ 20″, E 141°27′ 09″, 3 indiv.); Ayoro cape, Noboribetsu (N 42°27′ 11″, E 141°12′ 21″, 16 indiv.). In this experiment, three species of seaweeds, sea lettuce (Ulvaceae: *Ulva* sp.), gulfweed (Sargassaceae: *Sargassum* sp.), sea tangle (Laminariaceae: *Laminaria* sp.), and one species of sea grass, tape grass (Zosteraceae: *Phyllospadix* sp.) were examined because these four plant species are commonly found along the beaches of Hokkaido. All plant species were sampled from Shioya, Otaru (N 43°12′ 54″, E 140°55′ 16″). Seven to nine individuals were tested for each plant species.

Pieces of plants (about 0.1 g) were each placed in a transparent polystyrene case (65×55×20 mm), the bottom of which was covered with moist filter paper soaked in marine water. A beetle was released into the case and was allowed to feed on one of four plant species during 48 hours. Prior to the examination, beetles were settled on starvation for 48 hours. The experiments were performed at 20℃ in dark conditions. Since it is impossible to assess the amount of the feeding trace, I checked the acceptance of each plant by the number of beetles' fecal pellets after 48 hours. I pooled the data of different sex and different locality samples, because each sample size is very small. I examined the number of fecal pellets among the treatments using ANOVA. And, for pair-wise comparison between treatments, I used the Turkey-Krammer method.

Results and Discussion

Observed numbers of fecal pellets of *Cercyon* (*Cercyon*) *dux* among treatments were different in food acceptance tests ($F=29.834$, d.f.$=3$, $p<0.0001$, one-way ANOVA). And, in pair-wise comparisons, the number of fecal pellets of *C.* (*C.*) *dux* between treatments was significantly different, except for that between *Sargassum* sp. and *Laminaria* sp. (Table 1).

Fecal pellets of *C.* (*C.*) *dux* were observed in the seaweeds treatments, but they were not observed in the sea grass' (*Phyllospadix* sp.) treatment. Adults of *C.* (*C.*) *dux* would not use

Table 1. Number of fecal pellets of adult individuals of *Cercyon* (*Cercyon*) *dux* for four plant species during 48 hours in non-choice feeding test.

Plant species	(*N*)	Number of fecal pellets in each beetle	Mean±SD
Ulva sp. (Ulvaceae)	(8)	10, 10, 9, 11, 6, 9, 18, 12	10.63 ± 3.46^{a}
Sargassum sp. (Sargassaceae)	(7)	2, 8, 8, 6, 3, 2, 3	4.57 ± 2.70^{b}
Laminaria sp. (Laminariaceae)	(7)	6, 4, 5, 7, 3, 8, 6	5.57 ± 1.72^{b}
Phyllospadix sp. (Zosteraceae)	(9)	0, 0, 0, 0, 0, 0, 0, 0, 0	0 ± 0^{c}

N means the examined number of beetles. Values with different letters are significantly different (Turkey-Krammer method, $P<0.01$).

Phyllospadix sp. as their food plants. In the comparisons of three species of seaweed, the average number of fecal pellets for *Ulva* sp. was significantly higher than those for the rest. The present study suggests that *Ulva* sp. presents a suitable food plant for *C.* (*C.*) *dux*, more than *Sargassum* sp. or *Laminaria* sp. Surprisingly, this result is not consistent with the abundance of *C.* (*C.*) *dux* in the field observation. As mentioned above, adults of this species frequently occur under *Laminaria* sp. more than other seaweeds. Although this inconsistency has not been satisfactorily clarified yet, some other factors could be also influential for the food selection of *C.* (*C.*) *dux* in field conditions, for example, richness of seaweeds at the shoreline, degree of decomposition of seaweeds, etc. Further examinations are highly required.

Acknowledgements

I wish to express my thanks to Ms. H. YAMAMOTO for the collected beetle samples. I am indebted to Mr. T. LACKNER for the grammatical revision of this manuscript. I thank Dr. S. SUZUKI for the technical advice. And, last but not least, I am grateful to Dr. M. ÔHARA for his kind support.

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Elytra, Tokyo, **37**(2): 275–278, November 14, 2009

Records of *Platycerus rugosus* (Coleoptera, Lucanidae) from Sichuan, Chongqing and Hubei, China, with Description of a New Subspecies

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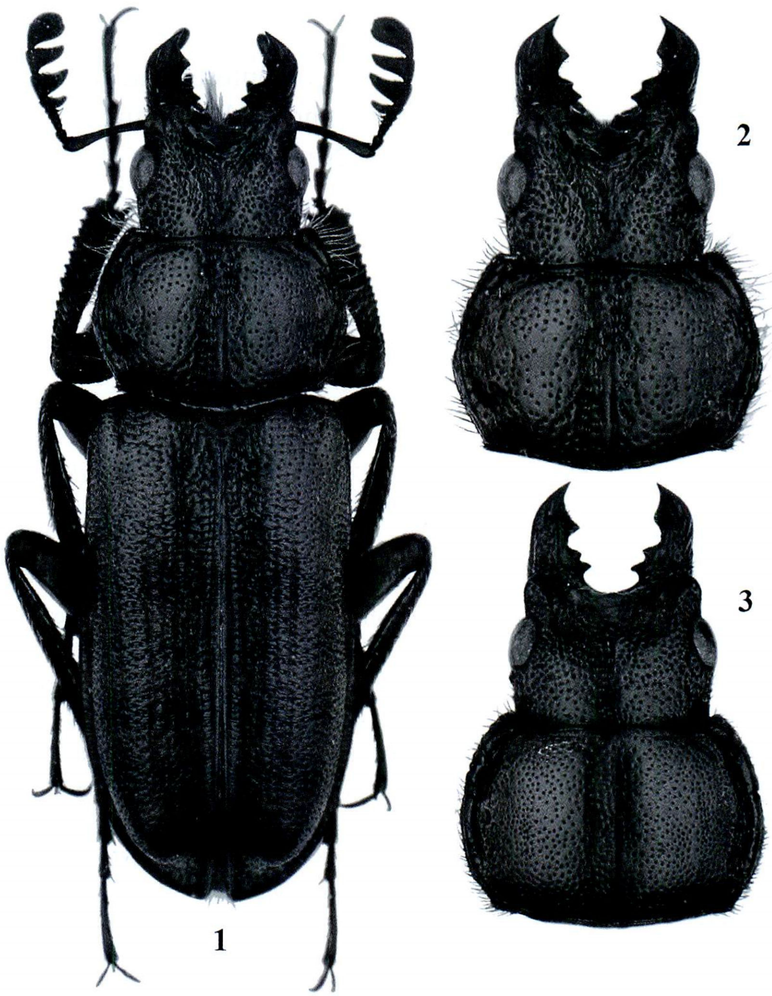
Abstract *Platycerus rugosus* are newly recorded from Chongqing and Sichuan, China, and a new subspecies is described from Shennongjia of western Hubei, under the name *P. r. jaroslavi*.

Platycerus rugosus was originally described by Okuda (1997, p. 11) based on the specimens collected from Bashan on the Dabashan Mountains in northestern Sichuan (northern Chongqing at present) by the late Mr. Wako Kitawaki and native collectors under his orders. Since then, no contribution has been made to this species, because Kitawaki unexpectedly passed away in the spring of 1997 without telling any details about the collecting site and/or habitat. In March, 2006, I made a collecting trip to the Daba Shan Mountains and the nearby regions with the object of surveying the platycerine fauna. Though unable to find any species from the type area, I collected a series of specimens referable to Okuda's species from Mt. Guangtou Shan which is about 30 km distant to the south from the main ridge of the Daba Shans. In addition to this discovery, I found the same species from the Micang Shan Mountains of northeastern Sichuan which was collected as larvae in November 2005 and emerged later in the laboratory. Furthermore, a male of the same species was collected very recently from Shennongjia of western Hubei and was submitted to me for study. This specimen is evidently different from the nominotypical *rugosus*, and worth regarded as representing a new geographical race. In this paper, I am going to record all the specimens of *P. rugosus* now in my hands, and describe the Shennongjia one as a new subspecies.

Before going further, I wish to express my sincere thanks to Messrs. Jaroslav Turna (Czech Republic), Yoshiyuki Nagahata (Yamagata University), Fan Ting (International Academic Exchange Center of the Academia Sinica, Chengdu) and Shigehiko Shiyake (Osaka Museum of Natural History) for their kind help in various ways. Thanks are also due to Dr. Shun-Ichi Uéno (National Museum of Nature and Science, Tokyo) for reading the manuscript of this paper.



Figs. 1–3. *Platycerus rugosus* subspp. from China.—— 1–2, Subsp. *jaroslavi* nov. (♂, holotype) from Dashennongjia in western Hubei; 3, subsp. *rugosus* (♂, holotype, in coll. Osaka Museum of Natural History).—— 1, Habitus in dorsal view; 2–3, head and pronotum in dorsal view.

1. *Platycerus rugosus rugosus* OKUDA, 1997

(Fig. 3)

Platycerus rugosus OKUDA, 1997, Gekkan-Mushi, Tokyo, (313), p. 11, figs. 1, 2, 9 (on p. 2, pl. 1), 1-a & 2 (on p. 10); type locality: Bashan, Chengkou Xian, Dabashan, alt. 1,600–1,900 m, 32°09′ N/108°04′ E, Sichuan Province, Central China; type depository: Osaka Museum of Natural History (coll. No. OMNH TI 61).

Specimens examined. 1 ♂, 1 ♀, above Jianfeng [尖峰], 1,800–2,000 m in altitude, ENE shoulder of Mt. Guangtou Shan [光头山], on the borders between SE Chongkou

Xian [城口县], and NW Wuxi Xian [巫溪县], of NE Chongqing Shi [重庆市], Central China, 30–III–2006, Y. IMURA leg.; 4 ♂♂, 4 ♀♀, same data (Y. IMURA and Y. NAGAHATA leg.); 1 ♂, 1 ♀, ca. 3 km north-northwest from Daba [大坝], 1,550–1,650 m in altitude, the Micang Shan National Forest Park [米仓山国家森林公园], in northern Nanjiang Xian [南江县], of northeastern Sichuan, Southwest china, 2∼5–XI–2004, larvae collected by Y. IMURA and Y. NAGAHATA in the field and emerged in the laboratory in 2005–'06; all preserved in coll. Y. IMURA.

Remarks. So far as I have examined the external and aedeagal features, both the Guangtou Shan and Micang Shan specimens could be identical with or very closely related to the nominotypical *rugosus*. Though tentatively regarded as the nominotypical subspecies, their taxonomic positions should be discussed again taking the endophallic structure into account. This species is sympatric with *P. bashanicus* (IMURA & TANIKADO, 1998, p. 93; IMURA, 2006 a, p. 132; *idem*, 2006 b, p. 138) on Mt. Guangtou Shan, and with *P. consimilis phagophilus* (IMURA, 2005, p. 260) on the Micang Shan Mountains. Larvae prefer to feed on softly rotten twigs of deciduous broadleaved trees fallen down on the ground. They are also found from brown-rotten branches partly stuck in the ground under fallen leaves on the forest floor. Female leaves peculiar oviposition marks on these food plants.

2. ***Platycerus rugosus jaroslavi*** IMURA, subsp. nov.

(Figs. 1–2)

Length (including mandibles): ♂, 11.2 mm. Distinguishable from the nominotypical subspecies by the following points: 1) elytra more remarkably bearing coppery tinge; 2) head a little more hypertrophic; 3) mandibles more acutely hooked inwards near apices; 4) punctures on head obviously larger and more frequently confluent with one another, those on pronotum also larger and much more sparsely set; 5) elytral surface more widely and remarkably rugoso-striate. Female unknown.

Type series. Holotype: ♂, above Jinhouling [金猴岭], 31°28′ N/110°18′ E, 2,800–2,900 m in altitude, on the northeastern slope of the peak Shennongding [神农顶] on the Dashennongjia [大神农架] Massif, in western Hubei, Central China, 25–V∼15–VI–2008, to be deposited in the Department of Zoology, National Museum of Nature and Science, Tokyo.

Remarks. This new subspecies was collected from rather high altitudinal area on the northeastern slope of the Dashennongjia Massif. In the lower part of the same mountain range, two other *Platycerus* species, *P. turnai* (IMURA, 2001, p. 28) and *P. yeren* (*idem*, 2008, p. 113) occur sympatrically. Of these, the latter was first recorded as *P. businskyi* (IMURA, 2002, p. 38), and later described as an independent species. Our knowledge is not sufficient as yet whether or not this subspecies occurs sympatrically with the two other species. This new subspecies is named after Mr. Jaroslav TURNA of Czech Republic.

要　　約

井村有希：サザナミルリクワガタの記録と1新亜種の記載．—— サザナミルリクワガタはこれまで，基準産地とされる大巴山からの記録しかなかったが，ここ数年のあいだに，中国重庆市北部の光头山と四川省北東部の米仓山，および湖北省西部の神农架の三箇所からあらたに発見された．本論文では，これらを記録するとともに，外部形態上の相違に基づき，神农架のものを新亜種 *P. r. jaroslavi* として記載した．

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Elytra, Tokyo, **37**(2): 279–282, November 14, 2009

New or Little-known Elateridae (Coleoptera) from Japan, LII

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Abstract A new species and a new subspecies of elaterid beetles are described and illustrated from Japan. They are named *Quasimus ozakii* (subfam. Negastriinae) and *Homotechnes motschulskyi ryoheii* (subfam. Dendrometrinae: Hypnoidini).

In the present study, I am going to describe a new species and a new subspecies of elaterid beetles from Honshu, Japan. The holotypes of both species to be described in this paper are preserved in the collection of the National Museum of Nature and Science, Tokyo.

Before going further, I wish to express my sincere gratitude to Dr. Shun-Ichi Uéno of the National Musem of Nature and Science, Tokyo for reading the manuscript and giving me useful suggestions, and to Mr. Toshihiro Ozaki of Akita and Ryohei Shimoyama of Nagano for their kindness in offering the specimens used in this study.

Quasimus ozakii sp. nov.

(Fig. 1 A–I)

M a l e. Length 2.8 mm (Fig. 1 A), width about 1 mm. Body small and subovate, moderately convex above; black to blackish brown, antennae blackish brown, and legs dusky brown. Vestiture pale fulvous, subdecumbent on elytra, longer on head and pronotum, decumbent on ventral surface.

Head gently convex between eyes, surface smooth, moderately densely and evenly punctate; clypeal margin well ridged, rounded and more or less weakly depressed at subvertical portion in middle (Fig. 1 D ↑).

Antennae short, not attaining to posterior angles of pronotum; basal segment robust and subovate, 2nd segment subcylindrical, 3rd also subcylindrical and about 0.8 times as long as 2nd, 4th almost as long as 2nd (Fig. 1 F), from 4th to 10th weakly and imperfectly serrate.

Pronotum sobtrapezoidal and widest across posterior angles, with sides clearly sinuate just before posterior angles, rounded at middle, thence gradually tapering towards anterior angles; disc dome-like, moderaretely densely and regularly punctate, but the punctures are more or less sparser in median longitudinal area; posterior angles short, pointed postero-laterad, each with a distinct carina above along lateral margin to

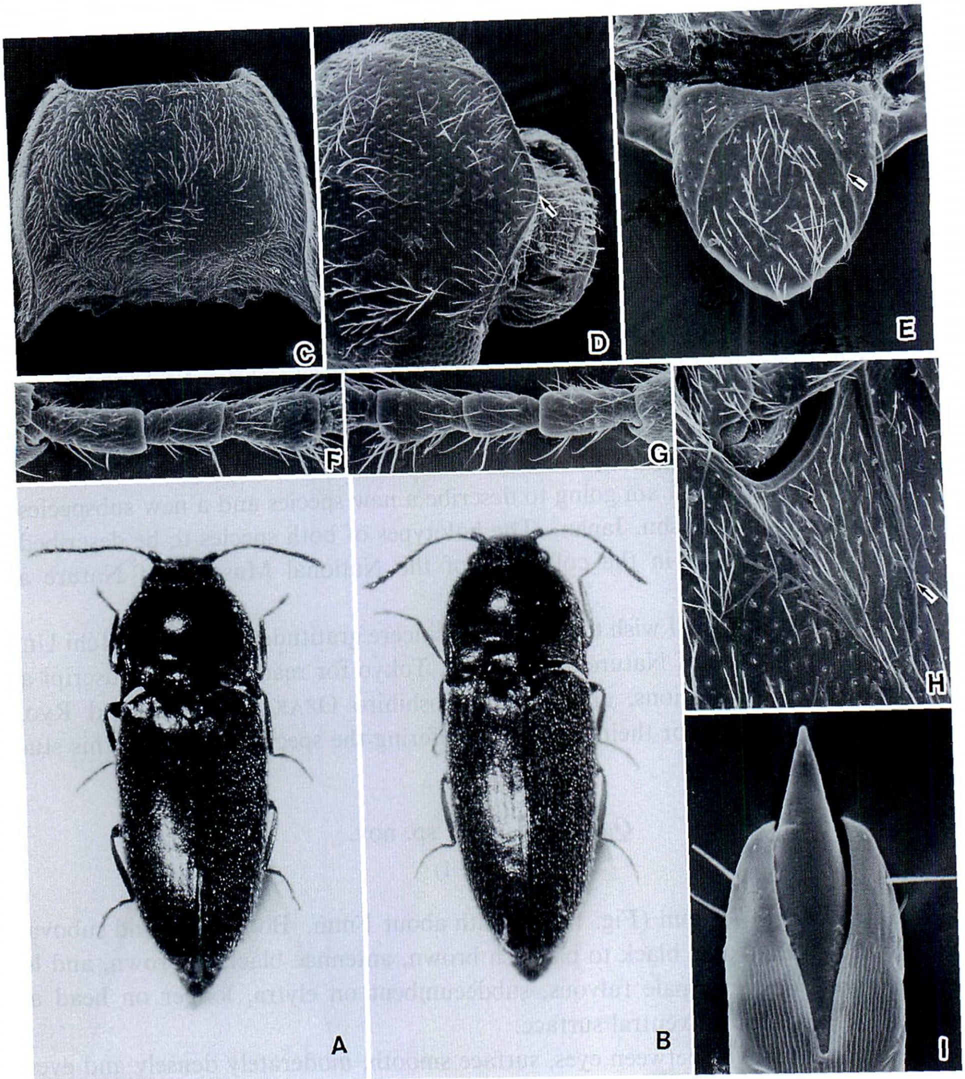

Fig. 1. *Quasimus ozakii* sp. nov. —— A, Holotype (♂); B, paratype (♀); C, pronotum, dorsal aspect (♂); D, head, dorso-lateral aspect (♂); E, scutellum, dorsal aspect (♂); F, 2nd to 4th segments of left antenna (♂); G, same, right (♀); H, left metasternal carinae (↑) (♂); I, apical portion of male genitalia, dorsal aspect.

anterior angles (Fig. 1 C). Scutellum lingulate and obtusely pointed apically, with surface flattened and bearing a subtrapezoidal link-like carination as illustrated (Fig. 1 E ↑).

Elytra about twice as long as their basal width, with sides almost parallel in basal halves, thence gradually rounded and convergent towards apices which are normally pointed apically; striae fine and indistinct. Left metasternal carinae on metasternum as

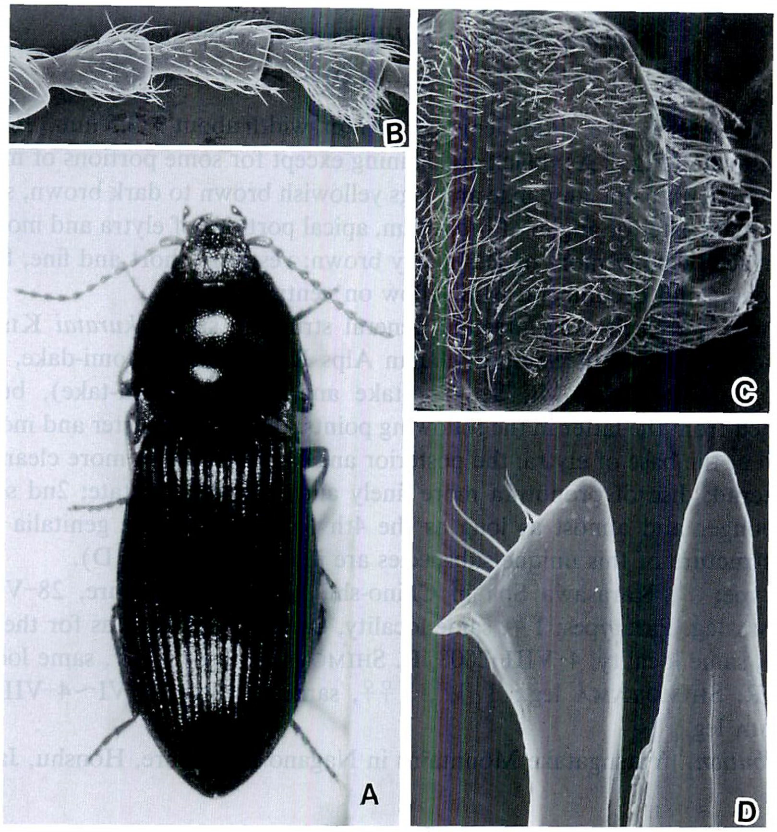

Fig. 2. *Homotechnes motschulskyi ryoheii* subsp. nov. —— A, Holotype (♂); B, 2nd to 4th segments of left antenna (♂); C, head, dorsal aspect (♂); D, apical portion of male ganitalia, dorsal aspect.

illiustrated (Fig. 1 H ↑).

Male genitalia as illustrated (dorsal aspect); median lobe narrow and distinctly longer than lateral lobes, with apical portion subtriangular and sharply pointed apicad (Fig. 1 I).

F e m a l e. Very difficult to distinguish from male without examination of genital apparatus (Fig. 1 B).

Holotype: ♂, Jôgaseki-chô, Hirakawa-shi, Aomori Prefecture, 19–VI–1999, T. OZAKI leg. Paratypes: 4 ♂♂, 9 ♀♀, same date and locality as for the holotype.

Distribution. Honshu, Japan.

This new species is very similar to *Q. babai* KISHII, 1970 from Honshu, Japan, but can be distinguished from the latter by the robuster and more convex body, subtrapezoidal link-like carination on scutellum, narrow and elongate metasternal carinae on metasternum (Fig. 1 H ↑); narrow and more sharply attenuate median lobe of male genitalia (Fig. 1 I).

Homotechnes motschulskyi ryoheii subsp. nov.

(Fig. 2, A–D)

M a l e and f e m a l e. Body length 9–11 mm, width about 3–3.5 mm. Body robust and oblong-ovate (Fig. 2 A); black and shining except for some portions of mouthparts including maxillary palpi, antennae and legs yellowish brown to dark brown, some parts of anterior and posterior angles of pronotum, apical portions of elytra and most parts of ventral surface of body more or less dusky brown; vestiture short and fine, fulvous on dorsum, denser and decumbent, pale yellow on ventral surface.

This new subspecies resembles in general structure subsp. *kuratai* Kishii, 1968 from norhern areas of the Southern Japan Alps Range (Mt. Shiomi-dake, Mt. Kita-dake, Mt. Houwou-dake, Mt. Senjô-ga-take and Mt. Koma-ga-take), but can be distinguished from the latter in the following points: the body robuster and more weakly constricted at the base of elytra; the posterior angles of pronotum more clearly pointed postero-laterad; disc of pronotum more finely and sparsely punctate; 2nd segment of antennae longer and almost as long as the 4th (Fig. 2 B); male genitalia and some principal structure of this unique subspecies are illustrated (Fig. 2 D).

Holotype: ♂, Karasawa Spa in Chino-shi, Nagano Prefecture, 28–V–2005, R. Shimoyama leg. Paratypes: 1 ♀, same locality, date and collector as for the holotype: 2 ♂♂, 1 ♀, same locality, 4–VIII–2008, R. Shimoyama leg.; 2 ♂♂, same locality, 27–VI–2009, R. Shimoyama leg.; 3 ♂♂, 3 ♀♀, same locality, 27–VI〜4–VII–2009, R. Shimoyama leg.

Distribution. Yatsugatake Mountains in Nagano Prefecture, Honshu, Japan.

要　　約

大平仁夫：日本産コメツキムシ科の新種，LII. ―― 本報告では青森県に分布するミズギワコメツキ亜科の *Quasimus* 属の 1 新種と，長野県八ケ岳連峰に分布するカネコメツキムシ亜科のヒサゴコメツキ族に含まれる *Homotechnes* 属の 1 新亜種を記載した．

1. *Quasimus ozakii*（オザキチビマメコメツキ）は，体長 2.8 mm 内外．黒色の種で，一般外形は *Q. babai*（ババチビマメコメツキ）に類似しているが，触角の基部節や後胸腹板線や雄交尾器の形態で識別できる．本種は平川市 碇ケ関湯ノ沢（旧：南津軽郡碇ケ関湯ノ沢）から見出された．

2. *Homotechnes motschulskyi ryoheii*（ヤツガタケミヤマヒサゴコメツキ）は，体長 10 mm 内外で，一般外形は中央アルプスの北部山岳地帯に見出される *H. m. kuratai*（センジョウミヤマヒサゴコメツキ）に類似しているが，体は一般により大型で，体の両側はより平行状を呈し，雄交尾器の側突起の末端部の三角形状部の形状も特徴的である．本種の亜種は八ケ岳連峰からはこれが最初の記録であるが，この連峰には広く分布しているように思われる．

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Elytra, Tokyo, **37**(2): 283–286, November 14, 2009

A New Species of the Genus *Malthodes* (Coleoptera, Cantharidae) from the Island Yaku-shima, Southwest Japan

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Abstract A new cantharid beetle is described under the name of *Malthodes takakuwai* sp. nov. on the basis of materials collected in the montane zone of Yaku-shima Island, Southwest Japan.

Introduction

Malthodes Kiesenwetter, 1852 is a relatively large genus in the tribe Malthodini Brancucci, 1980, subfamily Malthininae. The genus contains twenty-three species in Japan, though only one species *M. yakushimanus* N. Takahashi, 2000 is hitherto known from Yaku-shima Island.

In 2008, on a survey of the higher region of Yaku-shima conducted by the Kanagawa Prefectural Museum of Natural History, interesting cantharid specimens doubtless belonging to the genus *Malthodes* were collected. Through the courtesy of Dr. M. Takakuwa, I was given an opportunity to study the material. After a detailed examination, I have concluded that the specimens belong to a species quite different from *M. yakushimanus*. Besides, it does not coincide with any of the other Japanese species of *Malthodes*. I am therefore going to describe it in the present paper.

Before going further, I wish to express my deep gratitude to Dr. Masatoshi Takakuwa, Kanagawa Prefectural Museum of Natural History, Odawara, for his giving me the opportunity to study on the precious material and critically reading the original manuscript.

Material and Methods

The male genitalia examined in this paper were treated with 10% KOH solution at 90℃ for about 10 minutes or more to remove membrane, protein, etc. After that they were sketched in 50% glycerin.

A term for the male genitalia is followed Takahashi (2002).

The abbreviations used in the text are as follows: HW – width of head; PW – width of pronotum; PL – length of pronotum; PA – width of anterior margin of pronotum; PB – width of basal margin of pronotum; EW – width of elytra; EL – length of elytra.

Type depositories. The holotype designated in this paper is deposited in the collection of the Kanagawa Prefectural Museum of Natural History, Odawara. Paratypes are preserved in the same museum and in my collection.

Description

Malthodes takakuwai sp. nov.

(Figs. 1–7)

M a l e. Body almost brownish black; mandibles and claws testaceous.

Head obtriangular, densely covered with fine punctures and pubescence; frons and clypeus provided with relatively long hairs; eyes rather large and prominent; interocular distance 2.25–2.37 times as wide as eye. Mandibles simple in shape though very slightly serrate at the anterior inner half. Gula lustrous and hardly punctate; gular sutures clearly visible. Antennae filiform and obviously long, nearly reaching the apices of elytra; comparative lengths of respective segments as follows:— 1.63 : 1.00 : 1.43 : 1.84 : 1.91 : 1.85 : 1.69 : 1.63 : 1.58 : 1.56 : 1.84.

Pronotum approximately rectangular, rather broad, widest at base or basal two-thirds; frontal and basal margins slightly curved outwards, lateral ones curved inwardly in basal two-thirds, obliquely truncated in frontal third, the truncation being like a sucker in oblique-frontal view; anterior angles somewhat angulate, posterior ones slightly prominent; PW/HW 0.98–1.00, PW/PL 1.43–1.44, PW/PA 1.21–1.31, PW/PB 0.99–1.00; surface closely covered with pubescence; punctures small and moderately dense on elevated area, rather rugose at lateral concave areas; disc well elevated except for lateral sides, with a longitudinal furrow at middle; lateral sides longitudinally concave, each concavity being constricted at the middle. Scutellum trapezoidal, very broad and short. Elytra slender though abbreviated, wider than pronotum, shorter than abdomen; EW/PW 1.34–1.38, EL/EW 2.66–2.68. All claws simple, somewhat swollen at bases.

Eighth tergite short, gradually narrowed posteriad (Fig. 4); ninth tergite invisible in dorsal view, though the basal part is slightly visible in lateral view (Fig. 6); tenth tergite barely rectangular in dorsal view, posterior margin slightly emarginate, and basal portion weakly constricted in dorsal view (Figs. 4, 6). Ninth sternite slender, slightly dilated posteriad; posterior margin emarginate in nearly U-shape (Fig. 5). Male genitalia relatively slender; basal piece with posterior angles weakly concave; dorsal lobes of penis relatively long, slightly longer than basal piece, apices somewhat angulate in ventral view (Fig. 7).

Length: 3.8–4.3 mm; breadth: 1.0–1.1 mm.

F e m a l e. Similar to male, but body somewhat wider, eyes relatively small, antennae shorter than in male; PW/HW 1.12–1.18, PW/PL 1.40–1.42, PW/PA 1.20–1.22, PW/PB 1.00–1.01; EW/PW 1.35–1.43, EL/EW 2.53–2.72.

Length: 3.9–4.5 mm; breadth: 1.1–1.3 mm.

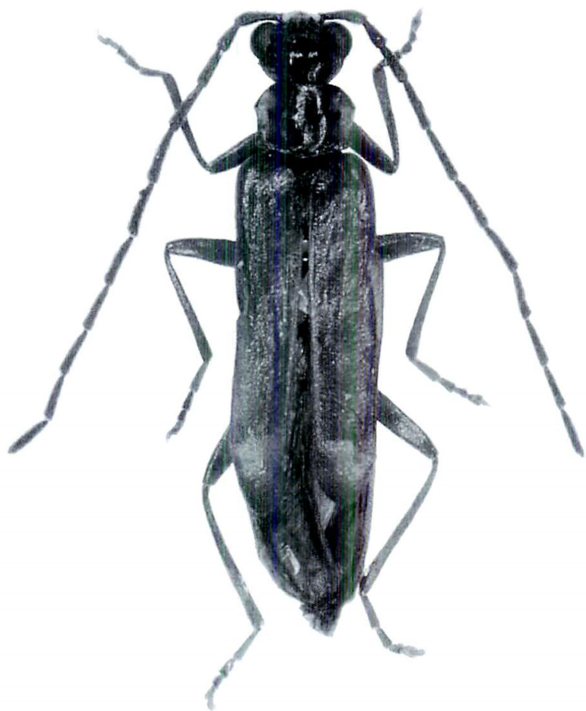
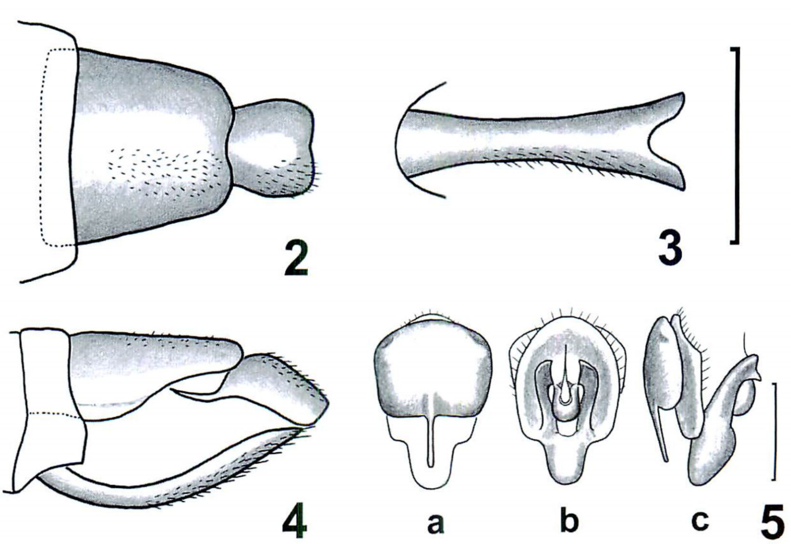


Fig. 1. Habitus of the holotype of *Malthodes takakuwai* sp. nov.



Figs. 2–5. Apical portions of male abdomen and genitalia of *Malthodes takakuwai* sp. nov. —— 2, 8th and 10th tergites in dorsal view; 3, 9th sternite in ventral view; 4, 8th and 10th tergites and 9th sternite in lateral view; 5, male genitalia. —— a: ventral view; b: dorsal view; c: lateral view. Scales long: 0.5 mm (2–4); short: 0.25 mm (5).

Type series. Holotype: ♂, Hananoegô, Yaku-shima Is., northern Ryukyus, Kagoshima Pref., 27–V–2008, M. TAKAKUWA leg. Paratypes: 8 ♂♂, 11 ♀♀, same data as for the holotype.

Distribution. Yaku-shima Is., Southwest Japan.

Remarks. The present new species is fairly related to *M. kurosawai* WITTMER, 1954 from Odayama, Fukushima Pref., but can be distinguished from the latter by the following points: tenth tergite slightly constricted near anterior margin in dorsal view; posterior margin of ninth sternite of male emarginate in a U-shape.

要　約

高橋和弘：屋久島産の *Malthodes* 属（コウチュウ目ジョウカイボン科）の 1 新種. ―― 鹿児島県屋久島産の標本に基づき，ジョウカイボン科の 1 新種 *Malthodes takakuwai* sp. nov. を記載した. 本種は，屋久島から 2 種目として記録される *Malthodes* 属の種で，雄交尾器の構造は，キタチビジョウカイ *Malthodes kurosawai* WITTMER にやや近縁であるが，雄の第 8 腹板および第 10 背板の形態で区別できる.

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Elytra, *Tokyo*, **37**(2): 287–288, November 14, 2009

Megabostrichus imadatei CHÛJÔ, 1964 (Coleoptera, Bostrichidae), a New Synonym of *Phonapate fimbriata* LESNE, 1909

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Michio CHÛJÔ, an eminent Japanese entomologist, described in Part III of the "Coleoptera from Southeast Asia" in 1964, new genus and species of a beetle belonging to the family Bostrichidae. He named it *Megabostrichus imadatei*. The comprehensive description was based on a single specimen (male, according to CHÛJÔ) collected in Thailand, and complemented with two photos. Attached photos show that the described genus and species probably belong to the tribe Apatini (subfamily Apatinae), but not to Bostrichini (subfamily Bostrichinae) as classified by the author of the original description. Unfortunately, photos are not sharp enough to clearly define the exact systematic position of this bostrichid. CHÛJÔ suggested that *Megabostrichus* is similar to the following genera: *Heterobostrychus*, *Lichenophanes* and *Bostrichopsis* (now *Dominikia*). Following his opinion, without supporting evidence, we placed in our catalogue (BOROWSKI & WĘGRZYNOWICZ, 2007) the above-mentioned genus to the tribe Bostrichini. Exept for the catalogue, there have been no other records of this species.

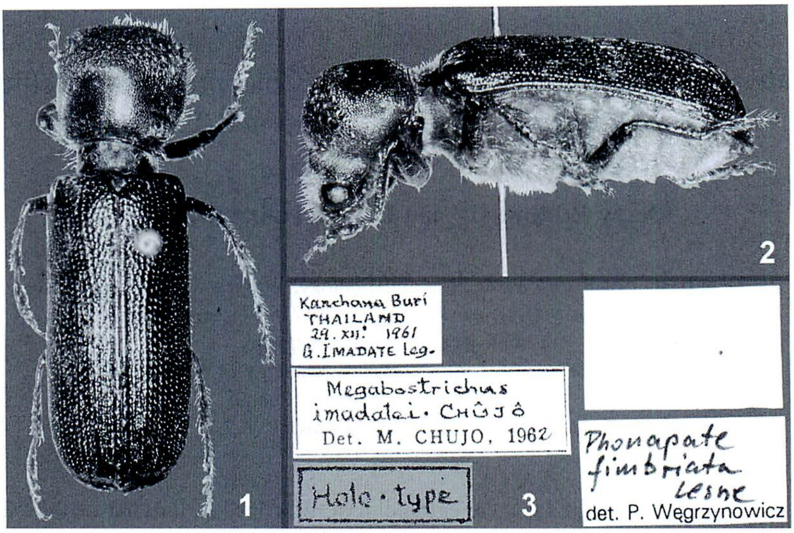
Thanks to the kindness of Dr. Satoshi KAMITANI of the Entomological Laboratory, Faculty of Agriculture of the Kyushu University, Fukuoka, we had a chance to examine the holotype of *Megabostrichus imadatei* (Figs. 1–2). After the careful examination of the holotype, our suspicion of the wrong placement of the genus was confirmed and we were able to secure its systematic position belonging to the tribe Apatini (subfamily Apatinae). Moreover, the type specimen is, in fact, the species *Phonapate fimbriata* LESNE, and it is female, and not a male, as erroneously stated by CHÛJÔ.

Phonapate fimbriata, described by Pierre LESNE in 1909, is a rather common species distributed in India, south China, Vietnam, and Indonesia (Celebes) (BOROWSKI & WĘGRZYNOWICZ, 2007). The type locality of *M. imadatei*, Kanchana Buri (Thailand) is a new record for *Ph. fimbriata*.

Genus *Phonapate* LESNE, 1895

Phonapate LESNE, 1895, 178. Type secies: *Apate uncinata* KARSCH, 1881 (=*Apate nitidipennis* WATERHOUSE, 1881), subsequent designation by VRYDAGH, 1961.

Megabostrichus CHÛJÔ, 1964, 206. Type species: *Megabostrichus imadatei* CHÛJÔ, 1964 (=*Phonapate fimbriata* LESNE, 1909), by original designation. **Syn. nov.**



Figs. 1–3. Holotype of *Megabostrichus imadatei* CHŨJÔ (=*Phonapate fimbriata* LESNE). —— 1, habitus, dorsal view; 2, habitus, lateral view; 3, labels.

Phonapate fimbriata LESNE, 1909

Phonapate fimbriata LESNE, 1909, 568.

Megabostrichus imadatei CHŨJÔ, 1964, 208. **Syn. nov.** Holotype (examined): "Kanchana Buri THAILAND 29.XII.1961 G. Imadate leg.", "*Megabostrichus imadatei* Chûjô Det. M. Chûjô 1962", "[blank bleu label]", "Holo type", "*Phonapate fimbriata* Lesne det. P. Węgrzynowicz".

Distribution. India, south China, Vietnam, Thailand (new record), Indonesia (Celebes).

We would like to thank to Dr. Satoshi KAMITANI (Entomological Laboratory, Faculty of Agriculture of the Kyushu University, Fukuoka) for providing us with the holotype of *Megabostrichus imadatei.* Special thanks are due to Professor Masahiro ÔHARA (The Hokkaido University Museum, Sapporo) and Dr. Munetoshi MARUYAMA (Kyushu University Museum, Fukuoka) for their kind help. Grammatical revision of this manuscript was provided by Tomáš Lackner (The Hokkaido University Museum, Sapporo). This publication has been supported by the grant N N 309 137135 given by the Ministry of Science and Higher Education, Poland.

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Elytra, *Tokyo*, **37**(2): 289–290, November 14, 2009

Stephanopachys sachalinensis (MATSUMURA, 1911) (Coleoptera, Bostrichidae), a New Synonym of *Stephanopachys substriatus* (PAYKULL, 1800)

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The genus *Stephanopachys* WATERHOUSE is widely distributed in the Palearctic and Nearctic Regions, and consists of 15 species (BOROWSKI & WĘGRZYNOWICZ, 2007). All known species are associated with conifers, primarily with pine trees (*Pinus* L.). Therefore, a species of *Stephanopachys* has been collected primarily in the boreal parts of the Holarctic Region (in areas with warmer climates they occur in mountains and foothills).

In the Asian part of the Palearctic Region, 3 species of the genus *Stephanopachys* was recorded: *S. substriatus* (PAYKULL), *S. linearis* (KUGELAN), and *S. sachalinensis* (MATSUMURA).

Fig. 1. Holotype of *Rhyzopertha sachalinensis* MATSUMURA [=*Stephanopachys substriatus* (PAYKULL)], habitus, dorsal view.

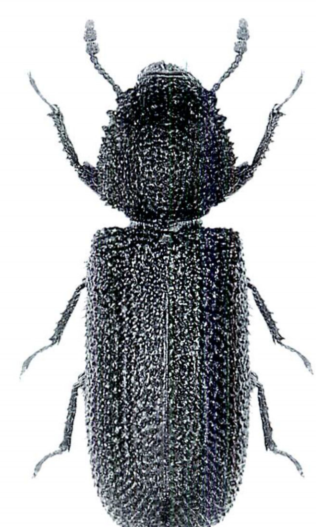

Fig. 2. *Stephanopachys substriatus* (PAYKULL), habitus, dorsal view.

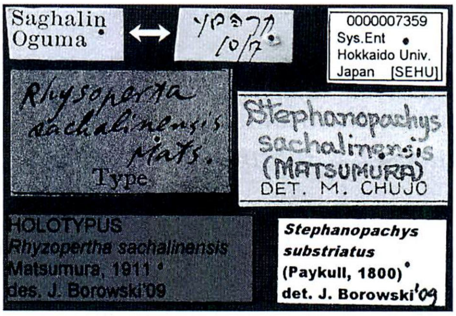

Fig. 3. Labels of the holotype of *Rhyzopertha sachalinensis* MATSUMURA [=*Stephanopachys substriatus* (PAYKULL)]. Reverse of the label contains the name of locus typicus "Solovyovka" written in Japanese characters.

Due to the very wide geographical distribution of *S. substriatus* (from Norway, throughout the northern Palearctic, to the Nearctic), we suspected that the specimen described by MATSUMURA (1911) from Solovyovka (most southern part of Sakhalin, Russia), under the name *Rhyzopertha sachalinensis* (=*Stephanopachys sachalinensis*), really belongs to the widely distributed species, *substriatus*.

Through the courtesy of Professor Masahiro ÔHARA from The Hokkaido University Museum, we have opportunity to study the holotype of *Rhyzopertha sachalinensis* and it confirmed earlier speculation. Thus, *Rhyzopertha sachalinensis* MATSUMURA is a junior synonym of *Stephanopachys substriatus* (PAYKULL).

We would like to thank to Professor Masahiro ÔHARA (The Hokkaido University Museum, Sapporo) for loaned specimen, and Mr. Piotr ŚLIPIŃSKI (Museum and Institute of Zoology, Warsaw) for taking photo of specimens and labels. This publication was supported by the grant N N 309 137135 given by the Ministry of Science and Higher Education, Poland.

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Elytra, Tokyo, **37**(2): 291–295, November 14, 2009

A New Species of the Genus *Antibothrus* (Coleoptera, Bothrideridae) from the Amami Islands of Japan

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3–8–12 Nishiazabu, Minato-ku, Tokyo, 106–0031 Japan

Abstract A third Japanese species of the genus *Antibothrus, A. hirsutus* sp. nov., is described from the Amami Islands. It is distinguishable from the two congeners from Japan by the broadly connected two terminal antennomeres, the small oval depressions on pronotal disc, very slight angulation of lateral margins of pronotum, the elytra with distinct setae apically and smaller body size.

Two species of the genus *Antibothrus* have hitherto been known in Japan: *A. morimotoi* Sasaji, 1997 and *A. ichihashii* Narukawa, 2002, both distributed in the central part of Japan. Recently, a third species was found from Tokunoshima and Amami-Ohshima Islands in southwestern Japan and is described below as a new species.

Antibothrus hirsutus sp. nov.

(Figs. 1–4)

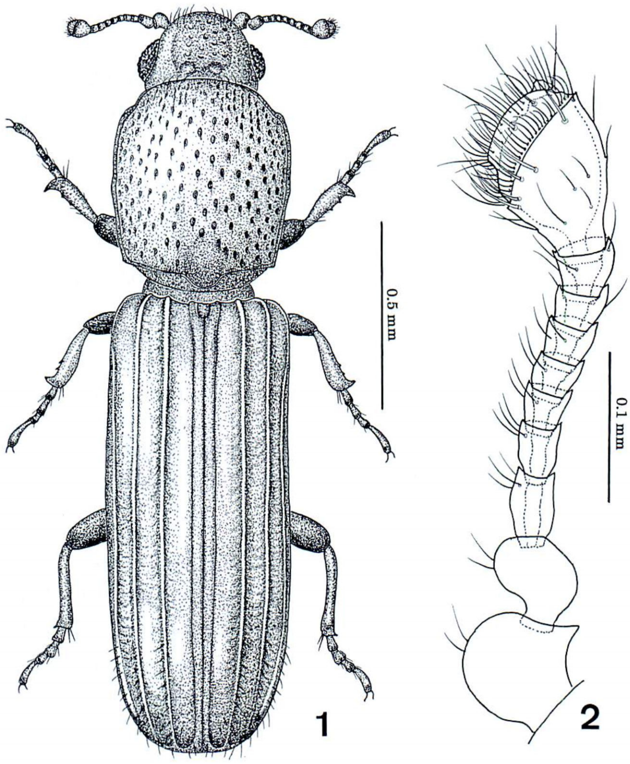
Body length: 1.85–2.10 mm.

Color: — Body, antennae and legs yellowish red brown and shining. Apical part of each antennomere and each segment of legs often dark-colored.

Head with anterior clypeal border truncate, lateral borders oblique and weakly concave; clypeus coarsely punctate, with short setae sporadically. A broad, shallow concavity found on median part of head. Antennae 11-segmented (Fig. 2); antennomere I with a sharp spine; II weakly widened; III distinctly longer than wide; X elongate, wider anteriorly and cut obliquely; XI widened, with transverse angulation, provided with several long setae and numerous curved setae, connected to penultimate segment X in full width.

Pronotum a little longer than wide, sculptured by small, somewhat elongate oval depressions well separated from one another and each with a fine seta; anterior margin bearing minute setae; anterolateral corners each with a small rounded projection; posterolateral corners angulate; a shallow oval concavity in medioposterior part of pronotum.

Elytra more than twice as long as their combined breadth (2.37 × as long as wide), posterior end rather truncate, broadly and smoothly rounded. Each elytron with four



1 2

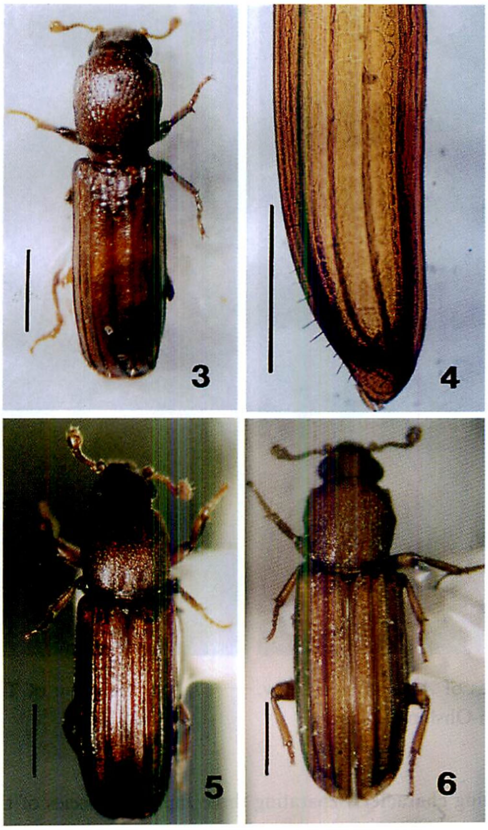
Figs. 1–2. *Antibothrus hirsutus* sp. nov. —— 1, Dorsal aspect (holotype). —— 2, Antenna (right) (holotype).

distinct longitudinal carinae; lateralmost carina becoming thicker and higher apically, disappearing short distance before reaching apical end of elytron; second lateral and second inner carinae connecting with each other apically and reaching to near the apical end of innermost carina. Outer three carinae each with 9–12 rigid setae (Fig. 4). No distinct punctures between carinae.

All tibiae of legs each with strong external tooth and two apical spurs; femora partly dark-colored.

Type series. Holotype: At the foot of Mt. Tanpatsu, Tokunoshima Island of the Ryukyu Islands, South Japan. — 1 paratype: Kinsakubaru, Amami-Ohshima of the Ryukyu Islands; 4 paratypes: Mt. Yui-dake, Amami-Ohshima Island of the Ryukyu Islands. Holotype (NSMT–I–C) and 3 paratypes (MSMT–I–C) are deposited in the collection of the National Museum of Nature and Science, Tokyo (NSMT).

Notes. Table 1 shows distinguishing characters of the three Japanese species of the genus *Antibothrus*. Most distinctive features of the new species are 1) terminal and penultimate antennomeres (X and XI) connecting in full width, 2) pronotal disc with small depressions well separated, and 3) distinct rigid setae on apical portion of elytra.



Figs. 3–6. Three Japanese species of *Antibothrus*. —— 3, *A. hirsutus* sp. nov. from Tokunoshima Is. (paratype). —— 4, Left elytron of *A. hirsutus* sp. nov. from Amami-Ohshima (paratype), showing rows of rigid setae on apical part. —— 5, *A. morimotoi* SASAJI from Fukui. —— 6, *A. ichihashii* NARUKAWA from Mie (holotype). Scale bars = 0.5 mm.

Among the foreign species of the genus, *A. carinatus* SHARP from Sli Lanka differs from the new species in the pronotal sculpture consisting of large punctures so closely placed that the interstices are merely very fine reticulations. *Antibothrus fatalis* NIKITSKY, 1985 from Russia is distinguishable from the new species by the terminal antennomere far narrower than the penultimate one and smoothly rounded lateral margins of pronotum.

Acknowlegement

I wish to express my sincere thanks to Dr. Katsura MORIMOTO, Prof. emeritus of Kyushu University, Dr. Ryohei YAMANISHI and Dr. Shigehiko SHIYAKE of Osaka Museum of Natural History for the loan of type specimens. Mr. Isamu TANAKA of Nishinomiya City kindly offered me a valuable specimen of *Antibothrus ichihashii* for the

Figs. 7–8. Collecting sites of *A. hirsutus* sp. nov. —— 7, Mt. Tanpatsu of Tokunoshima Island. —— 8, Mt. Yui of Amami-Ohshima Island.

Table 1. Distinguishing characters separating three Japanese species of the genus *Antibothrus*.

	A. morimotoi SASAJI, 1997	*A. ichihashii* NARUKAWA, 2002	*A. hirsutus* sp. nov.
Body length (mm)	2.25–2.50	2.20–2.50	1.85–2.10
Antenna			
Antennomere I	with sharp spine	without sharp spine	with sharp spine
Antennomere II	strongly widened	not widened	moderately widened
Antennomere III	slightly longer	distinctly longer	distinctly longer
Antennomere IX	narrower than X	narrower than X	as wide as X
Lateral sides of pronotum	weakly angulate	sharply angulate	slightly angulate
Setae on elytra	absent	absent	rigid and distinct
Elytra/pronotum in length	2.64	2.31	2.11
Distribution	Honshu (Fukui, Mie, Nara and Hyôgo)	Honshu (Mie and Nara)	Tokunoshima and Amami-Ohshima

comparative study with the new species. Dr. Shun-Ichi UÉNO, emeritus curator of the National Museum of Nature and Science, Tokyo, gave me valuable advice after carefully reading my manuscript.

要　　約

青木淳一：日本産イノウエホソカタムシ属の1新種（コウチュウ目ムキヒゲホソカタムシ科）．―― 日本産イノウエホソカタムシ属 *Antibothrus* には，イノウエホソカタムシ *A. morimotoi* SASAJI およびイチハシホソカタムシ *A. ichihashii* NARUKAWA の2種が知られているが，今回琉球列島の徳之島と奄美大島から未知の種が発見されたので，シリゲホソカタムシ *Antibothrus hirsutus* sp. nov. として命名記載した．本種の特徴は触角の球桿部を形成する先端の2節が同じ幅で接合していること，前胸背板を覆う楕円形の点刻が小さく離れ離れになっていること，上翅の3本の隆起線の先端部に顕著な強い刺毛が生じていること，体の大きさが小さいこと (1.85－2.10 mm) などで，それによって日本および他地域の同属既知種と区別される．

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SHARP, D., 1885. On some Colydiidae obtained by Mr. G. LEWIS in Ceylon. *J. Linn. Soc. London*, **19**: 117–131, 1 pl.

Elytra, *Tokyo*, **37**(2): 295–296, November 14, 2009

Xylopsocus galloisi LESNE, 1937 (Coleoptera, Bostrichidae), a New Beetle in the Chinese Fauna

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The genus *Xylopsocus* LESNE belongs to the tribe Xyloperthini and subfamily Bostrichinae of the family Bostrichidae (BOROWSKI & WĘGRZYNOWICZ, 2007). Most of the 18 described species of the genus *Xylopsocus* are distributed in Oriental, Australian and Ethiopian Regions. In the

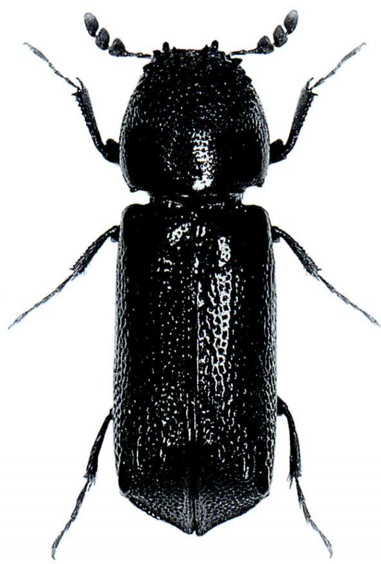

Fig. 1. *Xylopsocus galloisi* LESNE, habitus, dorsal view.

Palearctic Region, 4 species have hitherto been recorded, including a single Chinese species, *X. capucinus* (FABRICIUS, 1781) (BOROWSKI, 2007).

Working on the material belonging to the collection of Naturkundemuseum Stuttgart, Germany, we found among the unidentified material, a single specimen of *Xylopsocus galloisi*. The specimen of the species was collected in Shaanxi Province (labeled: China Shaanxi Huashan 120 km E of Xian 3–4 Jun 1992 M. BOK lgt.). So far, *X. galloisi* has only been recorded from Japan (Honshu, Shikoku, Kyushu) (LESNE, 1937; CHÛJÔ, 1958; SAKAI, 1985), it is a new record to China.

We would like to thank to our colleagues: Piotr ŚLIPIŃSKI for the taking photo of the specimen of *X. galloisi* and Wolfgang SCHAWALLER (Naturkundemuseum Stuttgart, Germany) for the loaned specimen. Tomáš LACKNER (Sapporo, Japan) has helped with the grammatical revision of this manuscript. This publication was supported by the grant N N 309 137135 given by the Ministry of Science and Higher Education, Poland.

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Elytra, Tokyo, **37**(2): 297–304, November 14, 2009

The True Affinity of the Genus *Sasajia* MASUMOTO et AKITA (Coleoptera, Tenebrionoidea), with Description of a New *Ocholissa* from the Ryukyu Islands

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Abstract *Sasajia* MASUMOTO et AKITA, 2007, described as a member of the subfamily Colydiidae in the family Zopheridae, is transferred to the family Salpingidae and synonymized with the genus *Ocholissa*. *Sasajia hiroyukii* MASUMOTO et AKITA is changed to *Ocholissa hiroyukii* comb. nov. A problematical species, *Szekessya hypophloeoides* KASZAB, originally described as a member of the family Tenebrionidae, is now known as a member of Salpingidae. Its type specimen is re-examined, and their habitus and male genitalia are shown in this paper. A new species of the genus *Ocholissa*, *O. hiranoi* sp. nov. is described from the Ryukyu Islands, Southwest Japan.

Species of the genus *Ocholissa* of the family Salpingidae possess a rather small, flattened and subparallel-sided body with the tarsal fomula 4–4–4. Nine species of the genus have hitherto been known from South Africa, India, Ceylon, Tasmania and Samoa. The type species of the genus, *Ocholissa laeta* PASCOE, 1863, was collected from the "Amazons Valley".

The first record of a Japanese species of this genus was made by SATÔ (1982) as "*Ocholissa* sp." from Minami-Iwojima (=Minamiiwô-tô) Island. It was regarded as a member of the family Colydiidae. Later, MASUMOTO and AKITA (2007) erected the genus *Sasajia* for a small unknown species from the Ogasawara Islands as a member of the subfamily Colydiinae in the family Zopheridae.

Recently, some entomological friends of the first author kindly suggested that *Sasajia* resembles the genus *Ocholissa* PASCOE, 1863, and therefore should belong to the family Salpingidae. Since then, it has been re-examined carefully, and the authors finally concluded that *Sasajia* should be a genus of the family Salpingidae and could not be separated from the genus *Ocholissa*.

Meanwhile, the genus *Szekessya* was erected by KASZAB (1955) for *S. hypophloeoides* from Samoa Island as a member of the family Tenebrionidae. KULZER (1957) described two species belonging to this genus from Micronesia, the Caroline Islands and the Marshall Islands, respectively. NAKANE (1970) recorded a "*Szekessya*" from the Ogasawara Islands (Hahajima Island). The true systematic position of this genus remained problematical because of unclear status of its components. Finally, it was placed in the subfamily Prostominiinae of the family Salpingidae by LAWRENCE and NEWTON (1995).

On this occasion we also re-examined *Szekessya*, and herewith show its habitus and the shape of male genitaila.

Before going into further details, they would like to express their cordial acknowledgement to Dr. Wolfgang SCHAWALLER, Staatliches Museum für Naturkunde, Stuttgart, Dr. Ottó MERKL, Természettudományi Múzeum, Budapest, Mr. Maxwell BARCLAY, The Natural History Museum, London, for loaning types and materials. Dr. Hermes E. ESCALONA G., FAGRO-Universidad Central de Venezuela, Dr. Eric G. MATTHEWS, South Australian Museum, Mr. Yukihiko HIRANO, Odawara City, Dr. Jun-ichi AOKI, Tokyo, Mr. Satoshi INADA, Urasoe City, and Mr. Haruki KARUBE, Kanagawa Prefectural Museum, for offering precious materials for this study.

They also thank Dr. Makoto KIUCHI, Tsukuba City, for taking clear photographs inserted in this paper. Finally, they wish to express their deepest appreciation to Dr. Shun-Ichi UÉNO, Emeritus Curator of the National Museum of Nature and Science, Tokyo, for his constant guidance on their taxonomic study.

1. Systematic Position of the Genera *Sasajia* and *Szekessya*

Genus *Ocholissa* PASCOE, 1863

Ocholissa PASCOE, 1863, J. ent., **2**: 85. Type species: *O. læta* PASCOE (as a genus of Colydiidae).
Sasajia MASUMOTO et AKITA, 2007, Ent. Rev. Japan, Osaka, **62**: 18. Type species: *S. hiroyukii* MASUMOTO et AKITA (as a genus of Colydiinae in Zopheridae). [*Syn. nov.*]

Original description of the genus *Ocholissa*. "Caput retractum, subtriangulare, antice rotundatum, oculis prominulis. Antennæ 11-articulatæ, basi tectæ, clava triarticulata. Palpi crassi, breves, labiales obtusi, maxillares oblique truncati. Prothorax quadratus, lævis. Elytra parallela, lævia. Tibiæ subtrigonnatæ, breviter calcaratæ. Tarsi graciles, articulis tribus primis brevibus. Corpus elongato-ovatum, subdepressum.

Nearly allied to *Aulonium*, from which it differs in the smooth prothorax, slender, simple tibiæ, and shorter tarsi. Other species of this genus have been detected by Mr. WALLACE in New Guinea, and are found also in Batchian, Mysol, Sula &c."

Notes. PASCOE did not mention about the tarsal fomura 4–4–4 which is one of the important characteristics. Structures of ventral sides are also very important for identification of the genus, subfamily and family.

Genus *Sasajia* MASUMOTO et AKITA, 2007

Sasajia MASUMOTO et AKITA, 2007, Ent. Rev. Japan, Osaka, **62**: 18. Type species: *S. hiroyukii* MASUMOTO et AKITA (as a genus of Colydiinae in Zopheridae).

The genus *Sasajia* was erected by MASUMOTO and AKITA (2007) for *S. hiroyukii* in the subfamily Colydiinae of the family Zopheridae. It is characterized as follows:

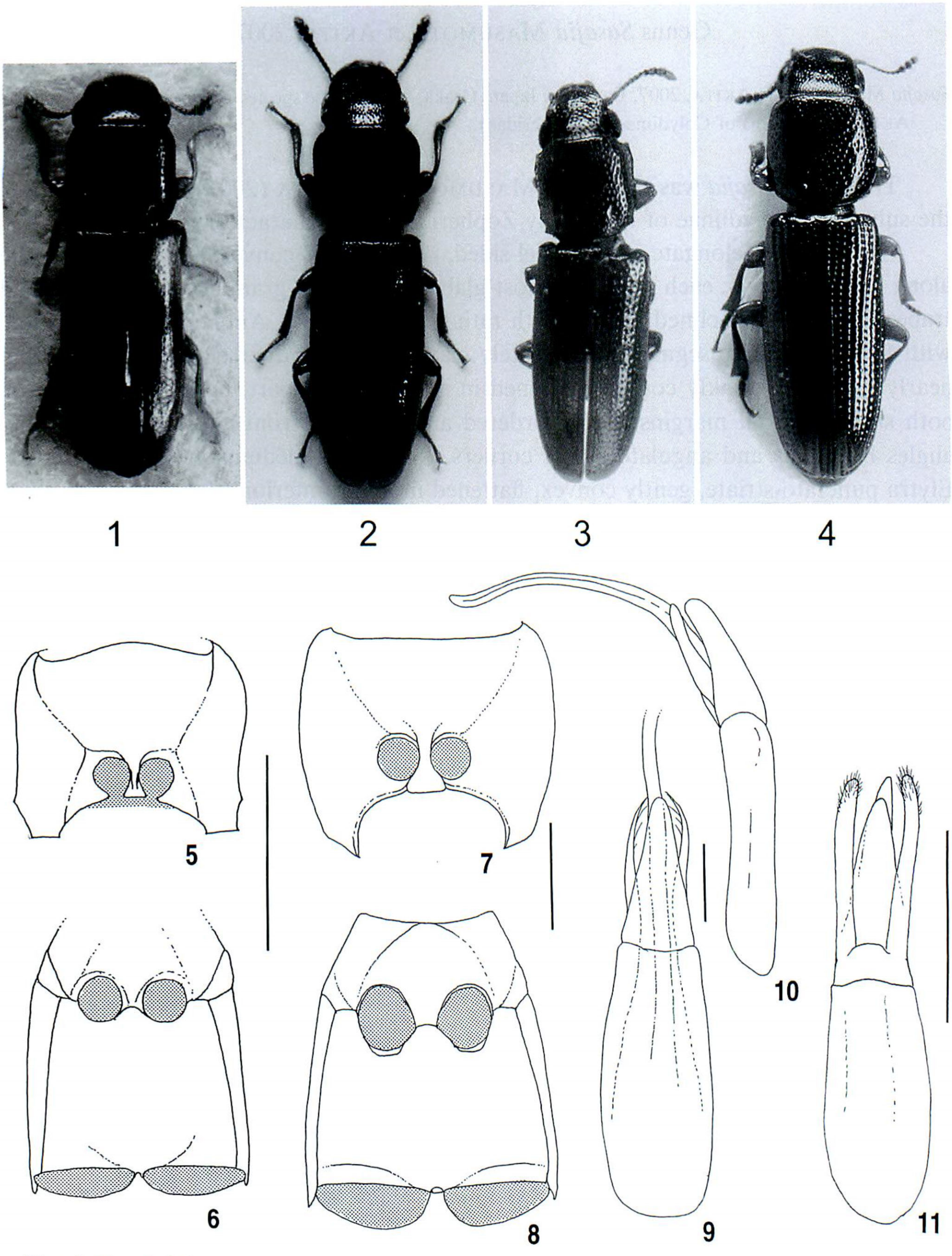
"Body rather elongate, subparallel-sided, only weakly convex dorsad, not serrate along outer margins; each surface almost glabrous, without granules or humps. Head trapezoidal, gently inclined apicad, with rather long clypeus. Antennae 11-segmented, with the apical three segments moderately clavate. 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 segment of maxillary palpus 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 the related species; 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 formula 4–4–4, not specially modified, without tufts on ventral sides; claws falciform."

Notes. The first two abdominal ventrites of *Sasajia* are connate. The postcoxal extensions of the pronotum (hypomeron) do not meet with the prosternal process. In salpingids all the ventrites are movable, or just the first two are connate, and the procoxal cavities appear to be externally open. The characters mentioned above are in common with *Ocholissa*. This genus is one of a few salpingids which has a 4–4–4 formula.

As compared with *O. læta* PASCOE (Figs. 1 & 5–6), the type species of *Ocholissa*, that of *Sasajia* possesses more elongate body, with each surface more strongly punctate, lateral margins of the pronotum hooked and weakly sinuate among hooks, and the elytra more noticeably striated. Except for these, the present authors are unable to find any distinct peculiarities. Thus, *Sasajia* should be regarded as a junior synonym of *Ocholissa*.



Figs. 1–11. *Ocholissa* spp. and *Szekessya hypophloeoides* KASZAB. —— 1 & 5–6, *O. laeta* PASCOE, type; 2, *O. hiroyukii* (MASUMOTO et AKITA), holotype, ♂; 3 & 11, *O. hiranoi* sp. nov., holotype, ♂; 4 & 7–10, *Szekessya hypophloeoides* KASZAB, paratype, ♂; 1–4, Habitus; 5 & 7, prothoraces; 6 & 8, meso- and metathoraces; 9 & 11, male genitalia (dorsal view); 10, same (lateral view). Scales: 0.5 mm for 5–8; 0.1 mm for 9–11.

In European Museums, *e.g.*, Staatliches Museum für Naturkunde, Stuttgart, Természettudományi Múzeum, Budapest, there are other specimens from tropical Asia to Oceania more closely allied to "*Sasajia hiroyukii*" but apparently belonging to undescribed species.

Genus *Szekessya* KASZAB, 1955

Szekessya KASZAB, 1955, Proc. Hawai. ent. Soc., **15**: 661. Type species: *S. hypophloeoides* KASZAB.

Szekessya has been another questionable genus. It is seemingly similar to the genus *Hypophloeus* FABRICIUS, 1790=*Corticeus* PILLER et MITTERPACHER, 1783, of the family Tenebrionidae, but some structures of the body are quite different. WATT (1974, p. 389) supposed that *Szekessya* belongs to the family "Prostomidae?". LAWRENCE (1977) placed *Ocholissa* and *Szekessya* in the subfamily of Trogocryptinae of the family Othnidae. Later, LAWRENCE and NEWTON (1995) placed them in the family Salpingidae.

On this occasion, we re-examined the type species of *Szekessya* and confirmed that the genus also belongs to the family Salpingidae, subfamily Prostominiinae. The present authors are going to show the photographs of the habitus and drawings of the pro- and mesosterna and the male genitalia of *S. hypophloeoides* KASZAB in the present paper (Figs. 4 & 7–10).

Ocholissa hiroyukii (MASUMOTO et AKITA, 2007), comb. nov.

[Japanese name: Ogasawara-hoso-chibi-kikawa-mushi]

(Fig. 2)

Sasajia hiroyukii MASUMOTO et AKITA, 2007, Ent. Rev. Japan, Osaka, **62**: 19. (figs. 1–10).

Distribution. Ogasawara Islands: Haha-jima and Chichi-jima Isls. (Bonin Islands), Minamiiwô-tô Is. (Volcano Islands) [New record].

Specimens examined. Minamiiwô-tô Is.: 4 exs., "Col to Summit, 24. VI. 2007, H. KARUBE leg."; 2 exs., "Col to 750 m, 24. VI. 2007, H. KARUBE leg."; 3 exs., "near Summit, 24–25. VI. 2007, H. KARUBE leg."; 1 ex., same data, Yasuhiko ITÔ leg.

2. Description of a New *Ocholissa* Species from Japan

Ocholissa hiranoi sp. nov.

[Japanese name: Okinawa-hoso-chibi-kikawa-mushi]

(Figs. 3 & 11)

Reddish brown to dark reddish brown, with eyes, lateral margins of head, pronotum, and elytra blackish, antennae and legs lighter in color, hairs on antennae and tarsi pale; dorsal surface moderately shining, ventral surface dully so. Body subparallel-sided, only weakly convex dorsad.

M a l e. Head longitudinally subelliptical and gently inclind apicad, rather closely punctate, outer margins of genae and clypeus very finely rimmed; clypeus feebly convex in middle, with apex subtruncate, fronto-clypeal border semicircular and finely sulcate, intersectional areas of frons, genae and clypeus weakly depressed; genae hardly defined from frons, with outer margins weakly raised and feebly produced laterad; frons gently convex, weakly depressed in postero-interior parts of eyes, with diatone about four times the width of transverse diameter of an eye. Eyes elongated subovate, weakly produced laterad. Antennae clavate, reaching the middle of pronotum, with three apical segments widened, the 10th widest, the terminal one the largest and subovate, ratio of the length of each segment from base to apex: 0.06, 0.05, 0.02, 0.01, 0.01, 0.01, 0.01, 0.01, 0.04, 0.03, 0.07.

Pronotum subquadrate, slightly wider than long, weakly narrowed basad; apex weakly produced anteriad, very feebly emarginate in middle, noticeably sinuous and finely in lateral parts; base weakly produced, entirely rimmed; sides rather strongly inclined laterad in anterior part, gently so in medial and posterior parts, with lateral margins finely bordered and rimmed, finely hooked at apical 1/6, at the middle, at basal 2/5 and before hind angles, and weakly sinuate between respective hooks; front angles subrectangular, hind angles finely pointed; disc gently convex, broadly flattened in middle, rather closely punctate, the punctures longitudinally ovate, with a pair of impressions near base. Scutellum transversely semicircular, very feebly raised posteriad, sparsely scattered with small punctures.

Elytra twice as long as wide, 1.2 times wider and 2.3 times longer than pronotum, feebly produced laterad, widest at the middle; dorsum weakly convex, flattened in middle; disc with rows of small punctures, which are rather closely set and very slightly grooved in posterior parts; intervals weakly convex, odd intervals each with a row of smaller punctures, which are irregularly set; humeri weakly swollen, finely toothed at each outer corner, with outer margins grooved and finely rimmed.

Prosternum wide, rather closely, coarsely punctate; procoxal cavities margined in intero-anterior parts, opened posteriad; prosternal process obtusely truncate; mesosternum rather wide and hardly depressed, more coarsely and closely punctate than prosternum; mesocoxal cavities rather rhombic, approximate with each other (not connected); metasternum wide and rather closely punctate, the punctures in medial part small and sparse, with a shallow medial depression in posterior half; metacoxae transverse. Abdomen closely punctate, the punctures rather longitudinally ovate; apex of anal segment rounded; pygidium rather large, subcordate, feebly convex in middle.

Tibiae feebly curved and weakly widened apicad; ratios of the lengths of pro-, meso- and metatarsal segments from base to apex: 0.05, 0.04, 0.03, 0.11; 0.05, 0.04, 0.03, 0.12; 0.04, 0.03, 0.03, 0.15.

Male genitalia as shown in Fig. 11.

Compared with male, pronotum in female not noticeably narrowed basad.

Body length: 2.2–2.9 mm.

Holotype: ♂, "JAPAN; Ryukyus / Okinawa-jima Is. / Okinawa-shi / Kurashiki, 15. V. 1998 / Satoshi INADA leg." // "K. AKITA / Collection / KAC 35822". (National Museum of Nature and Science, Tokyo). Paratypes: 1 ♀, "Chinufuku-Rindô, Kunigami-son, Okinawa Pref., 20. Oct. 2000, Y. HIRANO leg."; 1 ♀, "Taiho Ôgimi-son, Okinawa Pref., 3. Oct. 2000, Y. HIRANO leg."; 1 ♀, "Ada, Kunigami-son, Okinawa-jima, 27–I–2009, J. AOKI leg."; 1 ♂, "JAPAN; Ryukyus, Okinawa-jima Is., Kunigami-son, Yona〜Terukubiyama, 22. V. 2008, Jun-ichi AOKI leg."

Distribution. Ryukyu Islands: Okinawa-jima Is.

Notes. This new species resembles *Ocholissa hiroyukii* (MASUMOTO et AKITA, 2007), but can be distinguished from the latter by the body shorter and lighter in color, with the head and pronotum less closely punctate, the antennae slenderer, eyes larger, the number of hooks on the lateral margins of pronotum larger, and the elytra not punctato-striate but with rows of sparser punctures.

The specific name is given after Mr. Y. HIRANO, who collected the paratypes and also gave the authors invaluable suggestion for this study.

要　　約

益本仁雄・秋田勝己：*Sasajia* の分類学的位置づけ，および沖縄産 *Ocholissa* 属の 1 新種（コウチュウ目ゴミムシダマシ上科）．—— 筆者らは，小笠原諸島産の不明なゴミムシダマシ上科の甲虫を，2007 年に *Sasajia hiroyukii* gen. et sp. nov. ササジホソカタムシとして記載し，コブゴミムシダマシ科 Zopheridae ホソカタムシ亜科 Colydiinae に含めた．その後，数人の研究者から，当該種はチビキカワムシ科 Salpingidae に属するのではないか，またとくに *Ocholissa* 属に近い種であろうとの指摘を受けた．そこで，ロンドン自然史博物館より *Ocholissa* 属の基準種標本を，また，ヨーロッパ各地の博物館より近似種の標本を借り出して検討した結果，*Sasajia* と *Ocholissa* とを区別できる点はわずかであることが明らかになった．小論では前者を後者の新参シノニムとし，*Sasajia hiroyukii* MASUMOTO et AKITA を *Ocholissa hiroyukii* (MASUMOTO et AKITA), comb. nov. と組み変えた．それにともない和名をオガサワラホソチビキカワムシと改称する．なお，*Ocholissa* はチビキカワムシ科の Prostominiinae に含まれる．また，火山列島南硫黄島から新たに記録した．

さらに沖縄島でも別種が採集されたので，*Ocholissa hiranoi* sp. nov. オキナワホソチビキカワムシとして記載した．

なお，ゴミムシダマシ科のものとして記載された *Szekessya* 属は，長いあいだ所属が不明であったが，1995 年 J. F. LAWRENCE および A. F. NEWTON, JR. によって，チビキカワムシ科の Prostominiinae のものとされた．ここには本属の基準種 *S. hypophloeoides* KASZAB の副基準標本♂の写真および特異な形状の交尾器の図を掲載しておく．

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Discrepancy between Mitochondrial and Nuclear DNA Phylogenies in the Genus *Mesechthistatus* (Coleoptera, Cerambycidae)

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Abstract Nucleotide sequences of the mitochondrial cytochrome oxidase subunit I gene (COI) and the nuclear internal transcribed spacer 1 (ITS1) gene are examined for four *Mesechthistatus* species endemic to Japan. Though the mitochondrial gene tree does not recover the monophyly of each species except for *M. binodosus*, the nuclear gene genealogy reveals the monophyly of all four species and sister relationships between *M. binodosus* and *M. fujisanus* and between *M. furciferus* and *M. tanguchii*. Altitudal ditributions of the four species are also examined.

Introduction

The longicorn beetles belonging to the genus *Mesechthistatus* BREUNING, 1950, are flightless because of atrophy of the hindwings. This genus includes four species based on external morphology and distributional patterns: *M. binodosus* (WATERHOUSE, 1881), *M. furciferus* (BATES, 1884), *M. taniguchii* (SEKI, 1944), and *M. fujisanus* HAYASHI, 1957. Although *M. yamahoi* (MITONO, 1943) was described from Taiwan, its existence is currently in doubt, since no subsequent records have been available since the time of original entry (HASEGAWA, 2007). The four *Mesechthistatus* species are endemic to Japan, and are distributed almost parapatrically in Honshu and Sado Island (Fig. 1). Each of the species can be clearly discriminated from the others based on external morphology.

It is true that the molecular phylogenetic analysis is a powerful tool to reveal interspecific relationships, but gene genealogies are sometimes incongruent between mitochondrial DNA (mtDNA) and nuclear DNA (nDNA) as is previously reported (*e.g.*, SOTA & VOGLER, 2001; SHAW, 2002; KIYOSHI & SOTA, 2006). We already reported molecular phylogenetic relationships of the four *Mesechthistatus* species inferred from mitochondrial COI gene (NAKAMINE & TAKEDA, 2008). In this paper, the genealogies of nuclear and mitochondrial DNA will be compared to resolve the non-monophyly of mitochondrial haplotypes and to reconstruct the species relationships. Altitudinal distributions of these species are also investigated to examine the degree of range overlaps which would facilitate interspecific hybridization.

Materials and Methods

Samples and sequence analysis of DNA

The data for 21 specimens analyzed in this study are listed in Table 1, and the localities where they were collected are shown in Fig. 1. The beetles were immediately fixed in 95–99.5% ethanol and preserved in the same solution until dissection. Total genomic DNA was extracted from cephalic and thoracic muscles by using GenElute™ Mammalian Genomic DNA Miniprep Kit (Sigma-Aldrich, Inc.). Each genomic DNA sample was finally dissolved in 200 μl elution buffer.

Fragment of the mitochondrial DNA containing 1144 bp of the cytochrome oxidase subunit I (COI) gene was amplified by polymerase chain reaction (PCR) with an originally designed primer set (NAKAMINE & TAKEDA, 2008) as follows: KobCI1.2 (5′-TAA GAA GAA TTG TAG AAA ATG G-3′) and YhzCI2.2 (5′-TGT AGC GAT TTC TAA AAA AAG G-3′). The fragment of the nuclear DNA containing about 1000 bp of the 18S rRNA, internal transcribed spacer 1 (ITS1) and 5.8S rRNA gene was amplified from the total DNA solution by PCR with a newly designed primer set as follows: 18SrRNA (5′-TAG TGA GGT CTT CGG ACT GG-3′) and 5.8SrRNA (5′-AAT GTG CGT TCG AAA TGT CG-3′).

The subcloning of purified PCR products of ITS1 region from agarose gels were carried out into pBluescript vector, infecting competent cells (DH5α, *Escherichia coli*). After cultivation, one colony was picked up from the plate and incubated in cultivation solution. The plasmid was prepared for sequencing by alkaline lysis mimi-prep method. The plasmid containing ITS1 region was amplified by using a BigDye® Terminator Cycle Sequencing Kit (Applied Biosystems) with primer 5.8SrRNA. A partial sequence of the ITS1 gene was determined by a ABI PRISM® 310 Genetic Analyzer or ABI PRISM® 3100 Genetic Analyzer (Applied Biosystems). Direct sequencing of the COI gene fragment was performed by the same method as above with primer set KobCI1.2 and YhzCI2.2.

Phylogenetic analysis

The sequences of COI gene were aligned without alignment program, because the COI sequences had no indels (insertions/deletions). The 555–585 bp sequences of ITS 1 region were aligned by using CLUSTAL W version 1.83 (THOMPSON *et al.*, 1994) with default setting. The maximum likelihood (ML) trees were constructed using the

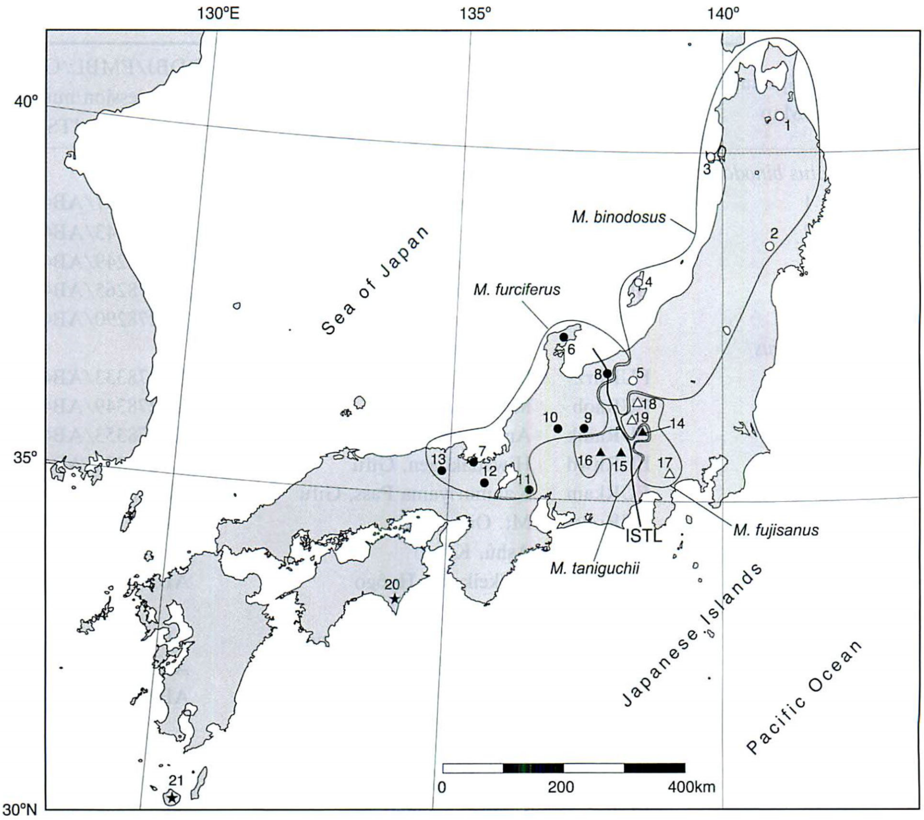

Fig. 1. The distributional areas of four *Mesechthistatus* species enclosed by lines and the localities where specimens of the four species were collected. Open circles, localities of *M. binodosus* specimens collected; closed circles, localities of *M. furciferus*; open triangles, localities of *M. fujisanus*; closed triangles, localities of *M. taniguchii* and closed stars, localities of *Parechthistatus* and *Hayashiechthistatus* used as outgroup specimens for phylogenetic analysis. Locality numbers correspond to the number in Table 1 and Fig. 2. ISTL: Itoigawa-Shizuoka Tectonic Line.

GARLI version 0.96 beta (Zwickl, 2006). The substitution model used in the ML analysis was the HKY85+G+I selected in COI gene and the K80+G selected in ITS 1 region with hierarchical likelihood ratio tests (hLRTs) using the Modeltest version 3.06 (Posada & Crandall, 1998). The bootstrap test was executed on 1000 replicates with default resample proportion value (1.0). To obtain the bootstrap proportions, we used PAUP* version 4.0b10 (Swofford, 2002). *Parechthistatus gibber* and *Hayashiechthistatus inexpectus* were used as outgroups.

The constructed trees of COI and ITS were examinated for homogeneity by Incongruence Length Difference (ILD) test (Farris *et al.*, 1994, 1995) with the number of ILD replicates at 100, with the number of random taxon addition replicates at 10 per ILD replicate on PAUP* version 4.0b10.

Table 1. The specimens analyzed in this study.

Species and Specimen no. in Map	Isolate Code	Locality	DDBJ/EMBL/GenBank Accession number COI/ITS
Mesechthistatus binodosus			
1	BINher	Mt. Herai, Aomori	AB278237/AB428382
2	BINfgt	Mt. Funagata, Miyagi	AB278243/AB428383
3	BINsiz	Shinzan, Akita	AB278249/AB428384
4	BINddy	Mt. Donden, Sado Is., Niigata	AB278265/AB428385
5	BINayg	Akiyamagô, Nagano	AB278290/AB428387
M. furciferus			
6	FURhrz	Mt. Hôryû, Ishikawa	AB278333/AB428388
7	FURaob	Mt. Aoba, Fukui	AB278349/AB428389
8	FURamk	Amakazari, Nagano	AB278353/AB428390
9	FURhwd	Hiwadakôgen, Gifu	AB278374/AB428391
10	FURkam	Kanmuriyama Pass, Gifu	AB278381/AB428392
11	FURokd	Mt. Oike, Mie	AB278384/AB428393
12	FURasy	Ashû, Kyoto	AB278398/AB428394
13	FURiti	Itoikeikoku, Hyôgo	AB278406/AB428395
M. taniguchii			
14	TANydh	Yadehara rindô, Nagano	AB278413/AB428396
15	TANnkz	Nakazawa Pass, Nagano	AB278418/AB428397
16	TANodr	Ôdaira Pass, Nagano	AB278422/AB428398
M. fujisanus			
17	FUJddr	Dôdaira, Kanagawa	AB278437/AB428399
18	FUJtni	Takinoirisawa, Nagano	AB278445/AB428400
19	FUJsjr	Sanjirô, Nagano	AB278447/AB428401
Out group			
Parechthistatus gibber			
20	GIBnny	Mt. None, Kôchi	AB278516/AB428411
Hayashiechthistatus inexpectus			
21	INEydg	Yodogawa, Yaku Is., Kagoshima	AB278551/AB428415

Altitudinal distributions of the four species

We have registered 231 data of mitochondrial COI gene sequence of four *Mesechthistatus* species to DDBJ/NCBI/EMBL GenBank (accession numbers AB278221–AB28451), and the latitude and longitude data of collected localities were registered together. The number of collected localities: 46 for *M. binodosus*, 49 for *M. furciferus*, 16 for *M. taniguchii*, and 11 for *M. fujisanus*. To investigate altitudinal distributions of the four species, the altitude and longitudinal data from each collected locality were obtained by using Denshi Kokudo web system (http://cyberjapan.jp/).

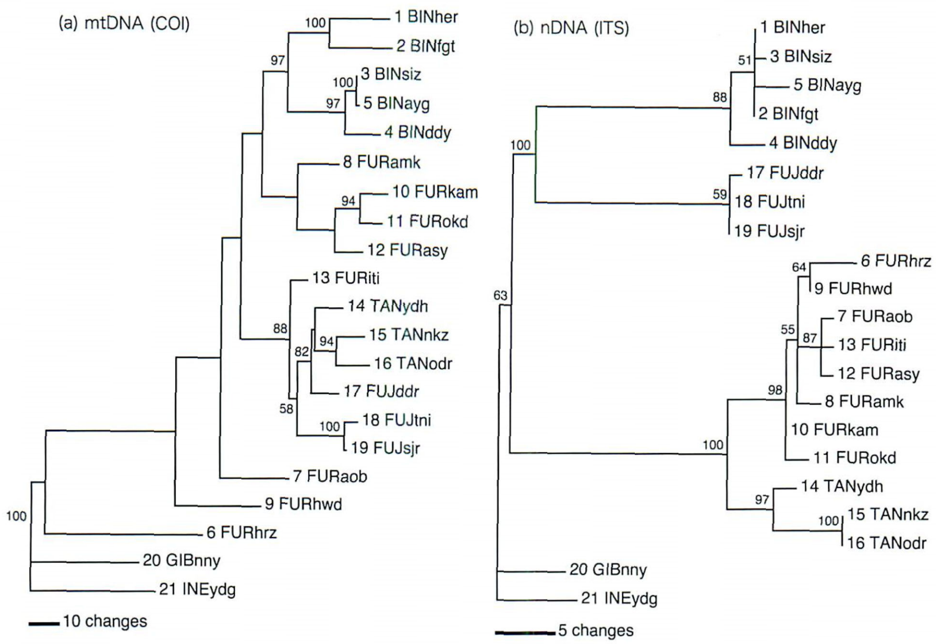

Fig. 2. Maximum likelihood trees based on the mitochondrial COI gene sequences (a) and the nuclear ITS gene sequences (b) of the four *Mesechthistatus* species, *P. gibber* and *H. inexpectus*. The number in each node indicates the bootstrap value (when >50%). The locality numbers before the specimen identity corresponds to the number for locality in Table 1 and Fig. 1.

Results

Molecular phylogeny

Figure 2 shows the maximum likelihood phylogenetic trees. The mtDNA tree (Fig. 2a) revealed that only the haplotypes from *M. binodosus* (BIN) were monophyletic, whereas monophyly of haplotypes from each of the other three species, i.e., *M. furciferus* (FUR), *M. tanguchii* (TAN), and *M. fujisanus* (FUJ), was not recovered. In contrast, the nDNA tree (Fig. 2b) revealed the monophyly of sequences from each of the four species with the sister species relations between *M. binodosus* (BIN) and *M. fujisanus* (FUJ) and between *M. furciferus* (FUR) and *M. tanguchii* (TAN). The ILD test of mtDNA vs. nDNA sequence data indicated significant incongruence of phylogenetic information contents between these data sets ($P=0.001$).

Vertical distribution of the four Mesechthistatus *species*

Figure 3 shows altitudinal distributions of four *Mesechthistatus* species. *M. binodosus* and *M. furciferus* showed wide altitudinal ranges between approximately 0 m to 1,800 m, whereas *M. tanguchii* and *M. fujisanus* were more confined to higher altitudes from approximately 1,000 m to 1,800 m. The distributions of *M. binodosus* and

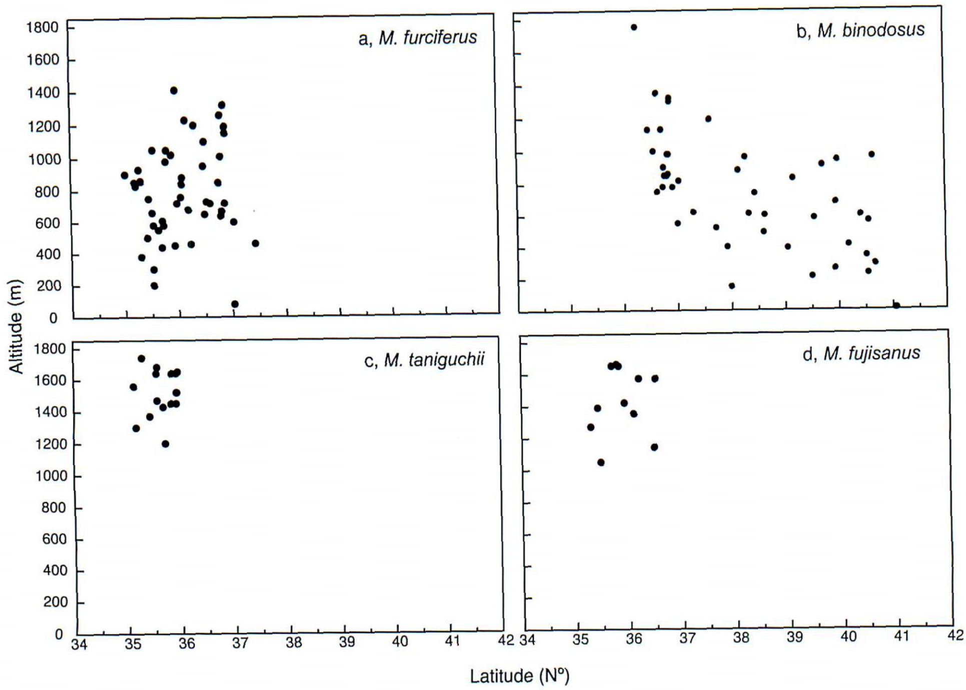

Fig. 3. Altitudinal distributions of four *Mesechthistatus* species. a, *M. furciferus*; b, *M. binodosus*; c, *M. taniguchii*; d, *M. fujisanus*.

M. fujisanus, and of *M. furciferus* and *M. tanguchii* are vertically overlapping, respectively, at the boundaries of horizontal distribution.

Discussion

The incongruence between a genealogy based on the mitochondrial DNA and that on nuclear genes can be explained by assuming introgressive hybridization and the lineage sorting of ancestral polymorphism (*e.g.*, SOTA & VOGLER, 2001). NAKAMINE & TAKEDA (2008) have already investigated the mitochondrial gene genealogy of *Mesechthistatus* for more samples from wider sampling areas and inferred that some mitochondrial haplotype of *Mesechthistatus* species were derived from introgressive hybridizations. In fact, putative hybrid specimens were collected from the species boundaries of *Mesechthistatus* (*e.g.*, TAKAKUWA, 1988; TAKAKUWA *et al.*, 2004).

Mesechthistatus binodosus and *M. fujisanus* are distributed in the area east of the Itoigawa-Shizuoka Tectonic Line (ISTL), whereas *M. furciferus* and *M. taniguchii* are distributed west of this line (Fig. 1). The genealogical tree of the nuclear ITS (Fig. 2) indicated the sister relationships between *M. binodosus* and *M. fujisanus* and between *M. furciferus* and *M. taniguchii*, which are consistent with the distribution patterns. Thus, ISTL has been the dispersal barrier for *Mesechthistatus* since the initial differentiation of lineages.

Differences have been found in larval feeding habits among the four species that exhibit different altitudinal ranges. Although *M. binodosus* and *M. furciferus* are mainly found in beech forest belts, their habitat ranges from lowlands to the lower belt of conifer forests. *M. taniguchii* and *M. fujisanus* are distributed between the high altitude beech forest belt and conifer forest belt. *Mesechthistatus* larvae feed on the woody part of dead trees, though different species prefer different tree species (HASEGAWA, 2007). *M. binodosus* and *M. furciferus* infest various species of broadleaved trees, whereas *M. taniguchii* and *M. fujisanus* are hosted by *Abies* spp., *Tsuga* spp., *Picea* spp., and other varieties of Pinaceae, as well as dead broadleaved trees. The habitat and host choices of *M. taniguchii* and *M. fujisanus* indicate that they are adapted to high altitudes and cold climate. Their speciation might occur during the glacial periods in the Pleistocene, because the mitochondrial haplotypes of *Mesechthistatus* started to diverge at the end of the Pliocene (NAKAMINE & TAKEDA, 2008). A *Mesechthistatus* ancestor might originally use dead broadleaved trees, but with the arrival of a glacial period, its host range might be broadened to include conifers.

The majority of Cerambycidae feeding dead trees are found in the subcortical tissue (HANKS, 1999). In comparison to sapwood and heartwood containing mainly lignin and cellulose, subcortical tissue is richer in nutrients than the core and surface parts. However, larvae of the four *Mesechthistatus* species are usually found in wood of advanced decomposition stage like dead sapwood and heartwood that has fallen to the ground and rotten roots buried underground (K. MORI & H. NAKAMINE, unpublished observation). Cortical tissue of dead conifer in cold areas tends to peel off easily, presenting problems to cerambycid larvae seeking subcortical tissue to feed. However, *Mesechthistatus* makes use of the woody part, and this might be a "pre-adaptation" that facilitated their use of a new host, i.e., conifers. In order to understand the evolution of species in *Mesechthistatus*, it will be necessary to conduct a more comprehensive molecular phylogenetic analysis and ecological research.

Acknowledgments

The authors sincerely thank Mr. Kazuki MORI for his instruction about larval host plants of *Mesechthistatus* species. We wish to give our hearty thanks to Messrs. Katsumi AKITA, Toshio KOBAYASHI, Kazuki MORI, Yasunari NAMEDA, Naoki ÔTSUKA, Syôgo SAITÔ, Keiichirô SHIKATA, Masao TÔYAMA, Isao YOSHIDA for their specimens used in this paper.

要　　約

中峰　空・竹田真木生: コブヤハズカミキリ属の分子系統の不一致. —— 日本産コブヤハズカミキリ属4種について，ミトコンドリアDNAのCOI部分配列と核DNAのITS1領域を用いて

分子系統解析を行い，得られた二つの系統樹を比較した．その結果，ミトコンドリアDNAではコブヤハズのみが単系統性を示したが，核DNAでは4種すべてが単系統性を示した．さらに核DNAの系統解析から，コブヤハズとフジコブヤハズが，マヤサンコブヤハズとタニグチコブヤハズがそれぞれ姉妹種関係にあることが示唆された．

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Study on Prionine Cerambycid *Megopis* (Coleoptera, Cerambycidae) (Revisional Studies of the Genus *Megopis* sensu LAMEERE, 1909–9)

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Abstract The prionine cerambycid *Megopis* SERVILLE, 1832 is revised and regarded as a small genus which is distributed only in southeastern Africa and islands of western Indian Ocean. *Megopis modesta* and *M. edgerleyi* are revived as independent species, and *M. coquereli* is revived as a subspecies of *modesta*. A new species *Megopis hirticollis* sp. nov. is described from Mauritius and a key to the species of this genus is given. A new genus *Oceanomegopis* gen. nov. is proposed to receive *M. caledonica* and *M. kudrnai* which are distributed to New Caledonia.

Introduction

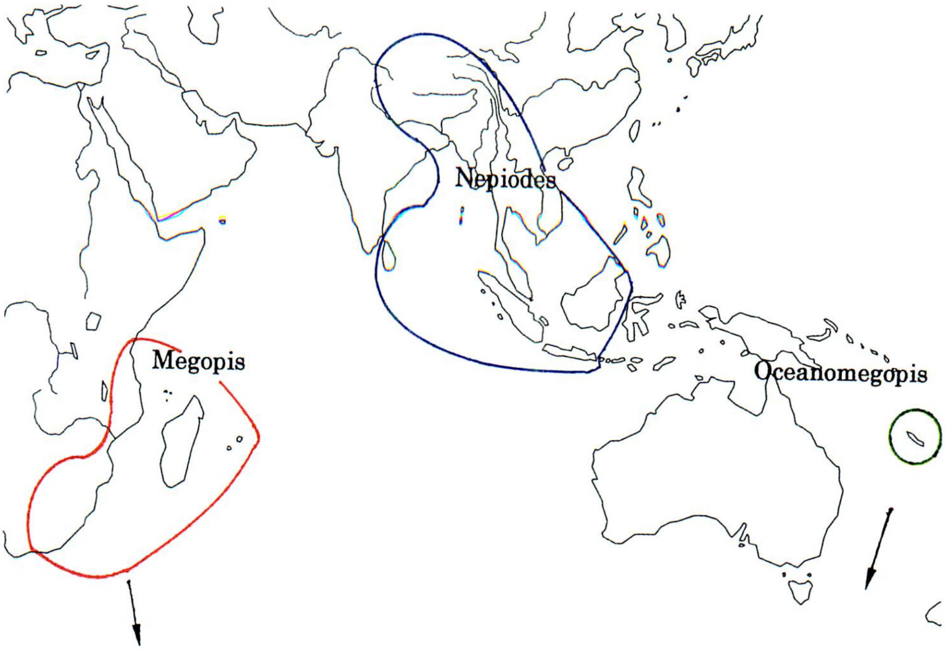
The genus *Megopis* SERVILLE, 1832 was erected for *M. mutica* of Mauritius Island. LAMEERE (1919) lumped 37 species, which had elongated body, narrowed to the posterior end of metepisternum, and elongated segment 3 of antennae, into the genus *Megopis*. Since then, the name *Megopis* has long been used very widely, and it has been regarded that this genus is distributed from Africa through Eurasia to islands of Oceania. LAMEERE (1909) divided the genus into five subgenera (later he recogniz seven subgenera) and in the subgenus *Megopis*, he involved seven species. Then, he re-divided the subgenus *Megopis* into two groups. The first group (Premier groupe) was composed of *M. bowringi*, *M. terminalis*, *M. sulcipennis* and *M. costipennis* and the second group consisted of *M. mutica*, *M. modesta* and *M. caledonica*. Although he did not give these two groups any names as taxa, he clearly noted several differences between them as if they had been subgenera. This time, we compared every species which are involved in these two groups and found that these two groups bear a very important diversity which was not mentioned by LAMEERE (1909). The distance between under eye-lobes is very remote in the first group (Fig. 30) and very close in the second group (Fig. 19:7). This character-state is sometimes so important as to be used in the key for distinguishing the tribe Meroscelisini from Anacolini (GALILEO, 1987) and we believe that these two groups by LAMEERE (1909) should be regarded as different taxa.

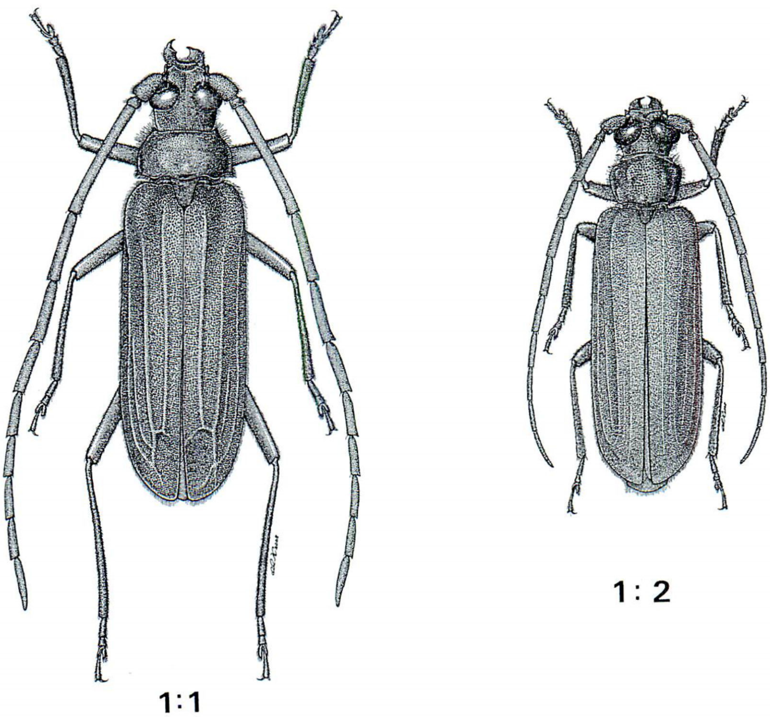
However, concerning *Megopis caledonica*, which had been a member of the second group in LAMEERE (1909), characters did not smoothly agree with the others. This species had not only an intermediate state in the distance of eyes but also a quite different shape of antennae, pronotum and legs from the other members of *Megopis* (Fig. 1: 2). Meanwhile, DRUMONT and VIVES (2007) described a second species of this group, *Megopis kudrnai* (Fig. 32: 5) from New Caledonia. This species probably belongs to the same genus with *M. caledonica* but it also has some similarity to the genus *Toxeutes* NEWMAN, and this fact suggested that *Megopis* of New Caledonia could have an affinity with Australian genera and have an origin independent from *Megopis* of Africa. After a close examination, we found a series of important differences between *Megopis* of Africa and these two species from New Caledonia.

Then, we concluded that the subgenus *Megopis* sensu LAMEERE, 1909 should be divided into three genera which were the genus *Megopis*, a genus for the species group found mainly in tropical Asia (="Premier groupe" sensu LAMEERE, 1909), and a genus for the species of New Caledonia. These results which were based on morphological diversities also well correspond to geographical distribution of them (see Fig. 1). In this paper, we are going to revise the subgenus *Megopis* sensu LAMEERE, 1909 and propose to regard it as a small genus which is distributed in southeastern Africa and islands of the western Indian Ocean. Then, we will describe a new genus *Oceanomegopis* gen. nov. to receive *Megopis caledonica* and *M. kudrnai* from New Caledonia. As for the subgenus *Megopis* sensu LAMEERE, 1909 from Asia, we will postpone to give precise revision because more investigations will be required for that but tentatively we omit them from the genus *Megopis* under an assumption of transferring them to the genus *Nepiodes* PASCOE, 1867.

The genus *Megopis* (in the sense of this paper) is rather monotypic throughout wide range from South Africa, through the Comoro to Madagascar and suddenly becomes polytypic in Mauritius. LAMEERE (1909, 1919) recognized three species of *Megopis* from Mauritius namely *M. mutica*, *M. modesta* and *M. parallela*. VINSON (1962, 1963) described *M. edgerleyi* and noted that he was unable to confirm *parallela*. QUENTIN and VILLIERS (1975) revised this genus, newly described *M. vinsoni* and regarded *M. modesta* and *M. edgerleyi* as junior synonyms of *M. mutica*. Santos FERREIRA (1980) revived *M. modesta* as independent species and DRUMONT and BJORNSTAD (2005) regarded *M. modesta* again as a synonym of *mutica*. When we started the study of

Fig. 1. Distributional map of the three genera *Megopis*, *Oceanomegopis*, nov. and *Nepiodes* (*Nepiodes* LAMEERE, 1909+Premièr groupe of *Megopis* sensu LAMEERE, 1909). —— 1: 1, Habitus of *Megopis modesta modesta*, ♂, of South Africa. —— 1: 2, Habitus of *Oceanomegopis caledonica* gen. nov., comb. nov., ♂.


Nepiodes
Megopis
Oceanomegopis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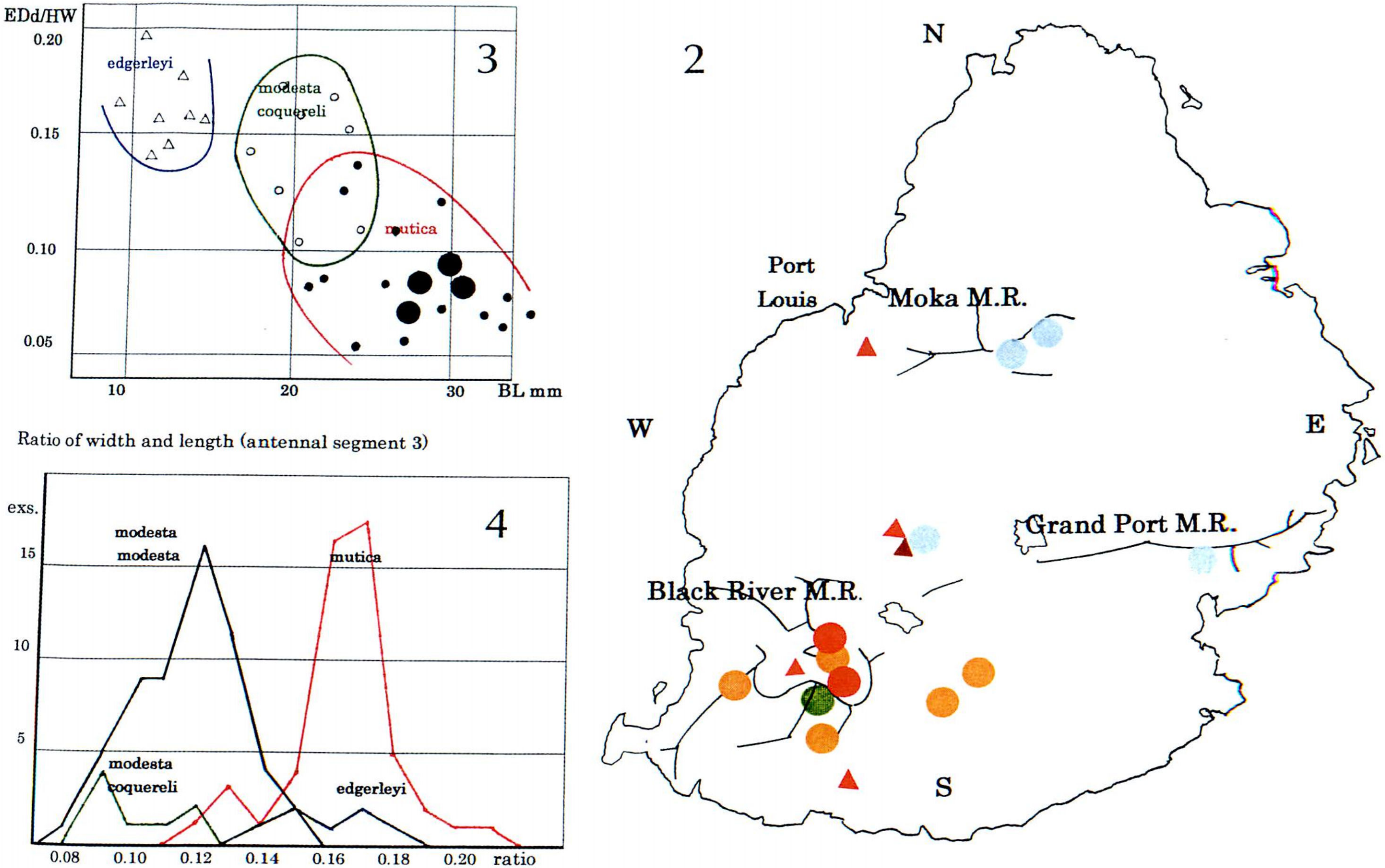

Fig. 2–4. 2, Map of Mauritius. Colored circles: newly found places, red; *Megopis mutica*, yellow; *M. modesta coquereli*, green; *M. edgerley*, pale blue; no *Megopis* was found after searching. Colored triangles: confirmed localities of old collection, red; *M. mutica*, brown; type locality of *M. hirticollis* sp. nov. —— 3, Comparison of characters of *Megopis* spp. newly obtained from Mauritius: black circles and red line; *M. mutica* (large circles indicate 10exs.), white circles and grean line; *M. modesta coquereli*, triangles and blue line: *M. edgerleyi*. —— 4, Ratio of width and length of male antennal segment 3.

Megopis sensu LAMEERE (1909) in 2001, we considered to take up the nominotypical subgenus in an early stage, but after we examined a series of materials in European museums, we decided to postpone the revision because we found it not easy and we thought it better to do after we would obtain some more data or materials. In 2006, Mr. Ivo JENIS of Czech Republic submitted us fairly long series specimens of this genus and we were able to see in total 81 *Megopis* spp. from Mauritius which had been obtained after 1990. We also examined 10 new examples of the same genus from Reunion and 72 from continental Africa, the Comoro and Madagascar. After examining total 215 specimens of this genus including the collections in BMNH, MNHN and IRSNB, we concluded that we should revive *M. modesta* and *M. edgarleyi* as independent species. We also proposed to revive *coquereli* FAIRMAIRE from Reunion as a subspecies of *M. modesta* and included *M. modesta* sensu LAMEERE, 1909 from Mauritius into this subspecies. We will describe a new species *M. hirticollis* sp. nov. from Mauritius and give a key to the species of the genus.

The abbreviations and special terminologies used in this paper are the same as those previously used in this series 5–8 (see KOMIYA & DRUMONT, 2007) and we will add the followings: EWd – width of each eye in dorsal view, EDd – Distance of eyes on dorsal side, EDv – Distance of eyes on ventral side.

ADC – collection of Alain DRUMONT, ZKC – collection of Ziro KOMIYA.

Genus *Megopis* SERVILLE, 1832

Megopis SERVILLE, 1832, Annls. Soc. ent. Fr., **1**: 161. —— WHITE, 1853, Cat. Coleopt. Brit. Mus., **7**: 27. —— THOMSON, 1861, Essai Classif. Ceramb., 289 & 309; 1864, Syst. Ceramb., 288; 1868, Syst. Ceramb., 472; —— LACORDAIRE, 1868, Gen. Coleopt., **8**: 155. —— LAMEERE, 1909, Annls. Soc. ent. Belg., **53**: 135 (pro parte); 1913, Coleopt. Cat. Junk, (52): 41 (pro parte); 1919, Gen. Ins. Wytsman, (172): 67 & 71 (pro parte). —— VINSON, 1934, Contribution à l'Étude des Coléoptères des Iles Mascareignes, 36 & 37; 1962, Mauritius Ins. Bull., **4**: 202. —— FERREIRA & Veiga FERREIRA, 1952, Forest Entomology of Mozambique, Cerambycidae, Prioninae, 78; 1959, Mems Inst. Invest. Cient. Mozambique, 33. —— GILMOUR, 1956, Longicornia, **3**: 108. —— QUENTIN & VILLIERS, 1975, Faune de Madagascar, **40**: 236. —— Santos FERREIRA, 1980, Mem. Nas. Mus. Bloemfontein, (13): 155.

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Type species: *Megopis mutica* SERVILLE, 1832. Annls. Soc. ent. Fr., **1**: 162.

M a l e. Body elongate, subcylindrical and depressed in posterior half. BL 9–36 mm, usually between 17–31 mm. Body color brown, sometimes darker or paler, rarely reddish. Most parts of body covered with hairs which are usually thinner on elytra and abdomen.

Head short and thick, usually finely granulate, sometimes punctate on vertex. Mandibles 0.3–0.4 times as long as head, each mandible acute at apex, external side steeply bent just beyond middle and internal side furnished with a tooth at about basal third. Eyes bulging, coarsely faceted, interspace between eyes very narrow, less than a third of each lobe in dorsal side and being narrower in ventral side. Antennae 11-

segmented but segment 11 usually bearing clearly recognizable fused trace of segment 12, covered with short hairs for the most part, punctured in basal two segments and the remainder usually not punctured nor granulated, AL/BL ♂, 1.0–1.3, ♀, 0.7–1.0; basal segments 1 and 2 subcylindrical and slightly depressed on ventral face; segment 3 strongly depressed and ventral face shallowly concave; segments 4–11 depressed; each corner at apical ends of segments 5 to 10 angulate, the angles more distinct in external corner than in internal one; a longitudinal edge running along external margin of segments 3–11 and a more obtuse edge appearing along internal margin; segment 3 about 3–4 times as long as segment 1, segment 4 about 0.4–0.7 times of segment 3, segment 11 as long as segment 4 or 5.

Pronotum hemicircular in dorsal view, widest at base or middle and roundly narrowed apicad, PW/PL ♂, 1.4–1.7, ♀, 1.8–2.1, PA/PB ♂, 1.3–1.6, ♀, 1.7–2.0, usually finely granulate; lateral margins strongly edged in basal half but not clear in apical half; furnished with an acute spine or angle at each basal corner, and often also with a middle spine at about basal third of lateral margin; apical angle obtuse or rounded. Prosternum furnished with a large callosity at each side anterior to coxal cavity, the shape of which is usually triangular in lateral view but very variable in the shape and the state of surface.

Elytra usually as long as three times of the united lengths of head and pronotum, thinly haired and finely punctured, sub-uniformly brown colored but basal part sometimes slightly darker; inner costae (C1, C2) mostly recognizable and often strong, outer costae (C3, C4) feeble or absent but, in *M. edgerleyi*, and *M. hirticollis* sp. nov., C5 is recognized; sutural ends angled but not forming spine.

Legs slender, covered with sparse hairs and partly finely punctured; profemora shallowly longitudinally canaliculated on the underside; tibiae depressed laterally but not so widened; metatarsi narrower than protarsi, claw shorter than united length of three tarsal segments.

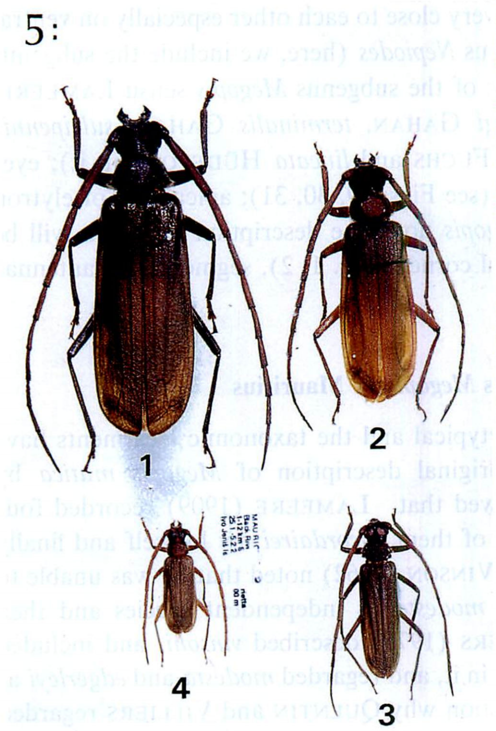
Penis long and slender but not so elongated as in the genus *Aegosoma* or *Spinimegopis*; lateral lobe about 0.7 times as long as penis.

F e m a l e. Antennae about as long as or shorter than body, slenderer than in male, and the carina of sides is usually recognized only on several apical segments; pronotum shorter and wider than in male, PL/PW > 1.9, elytra longer.

Distribution. Mauritius, Reunion, the Archipelago of Comoro, Madagascar, south-eastern Africa (Rep. South Africa, Mozambique, Tanzania, Kenya).

Notes. This genus belongs to the genus-group with small body (mostly shorter than 32 mm), segment 3 of antennae without hair-fringes, depressed dorso-ventrally and shallowly, longitudinally concave underside. As compared with the other genera, this

Fig. 5–8. 5, *Megopis* spp. ♂♂, newly obtained from Mauritius; 1 & 2, *M. mutica* ♂, 3, *M. modesta coquereli* ♂, 4, *M. edgerleyi* ♂. —— 6, Landscape of the Black River Gorges (photo J. LORENC). —— 7, Biotope of a locality where *M. mutica* and *M. coquereli* were found (photo I. JENIS) —— 8, Biotope of a locality where *M. edgerleyi* was found (photo I. JENIS).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genus is very distinct in having eyes placed very close to each other especially on ventral side (see Figs. 19: 7, 22: 6, 28). In the genus *Nepiodes* (here, we include the subgenus *Nepiodes* sensu LAMEERE, 1909 and a part of the subgenus *Megopis* sensu LAMEERE, 1909 distributed to Asia, namely *bowringi* GAHAN, *terminalis* GAHAN, *sulcipennis* WHITE, *costipennis* WHITE, *multicarinata* FUCHS and *lineata* HÜDEPOHL in it); eyes widely separated especially on ventral side (see Figs. 29, 30, 31); apical end of elytron with distinct spine. The genus *Oceanomegopis* nov., the description of which will be given later, has pronotum widened at apical corner (Fig. 1: 2), segment 3 of antennae relatively shorter, legs and penis shorter.

Diagnosis of the Genus *Megopis* of Mauritius

Megopis of Mauritius was known polytypical and the taxonomic treatments have been changed many times. After the original description of *Megopis mutica* by SERVILLE (1832), THOMSON (1864) followed that. LAMEERE (1909) recorded four species from this island but he deleted one of them, *lacordairei*, by himself and finally recognized *mutica, modesta* and *parallela*. VINSON (1962) noted that he was unable to confirm *parallela*, recognized *mutica* and *modesta* as independent species and then described *edgerleyi*. QUENTIN and VILLIERS (1975) described *vinsoni*, and included *parallela* LAMEERE (1909) [nec SERVILLE] in it, and regarded *modesta* and *edgerleyi* as junior synonyms of *mutica*. We had a question why QUENTIN and VILLIERS regarded *M. modesta* as a synonym of *mutica* though the differences were very clearly noted by LAMEERE (1909), and this treatment was supported by VINSON (1962). The second and more confusing question was that concerning the relation of *M. edgerleyi* and *vinsoni*. Why VINSON (1962) did not describe *vinsoni* (he wrote nothing about that though every material which would be used later by QUENTIN and VILLIERS (1975) had been in his collection) and described only *edgerleyi* while QUENTIN and VILLIERS recognized *vinsoni* and regarded *edgerleyi* as a junior synonym of *mutica*.

We examined 41 males and 11 females of *Megopis* spp. from this island preserved in BMNH, IRSNB, NMHN and NSMT and after the scrutiny of these materials which had been obtained before 1975, we found the following matters.

1. In the male, we were able to separate five forms which are supposed to correspond to *mutica, coquereli* (we use this name for a subspecies of *modesta*), *edgerleyi, vinsoni* and an unnamed form (which we are going to describe in this paper under the name *Megopis hirticollis* sp. nov.) and typical examples are quite different from each other. In these typical forms, they are different from the others in many characters such as size, color, ratio of width, length and thickness of body, hairs on head, antennae, pronotum and elytra, distance between eyes, shape of pronotum, sculpture and punctures on elytra, shapes of genital organs and so on, and the diversity of these forms is large enough as compared with specific relations in the other species-groups.

2. However, when we try to draw a line between some pairs of two species, in order to distinguish by any single characterstate, there is usually found some exceptions.

3. Between *mutica* and *coquereli*, and *mutica* and *vinsoni*, there are some examples which have intermediate characters and these pairs of species look to be connected with each other by transit forms, but such examples are much fewer than typical ones.

4. In the female, *mutica* and *coquereli* are very close to each other while *edgerleyi* is fairly different from them and *vinsoni* is conspicuously different from any other.

5. *Megopis* specimens obtained before 1910 (1830? and 1910) including the syntypes of *mutica* and those between 1920 and 1963 (mainly those of VINSON's collection) are different. The latter look more various because it involves *edgerleyi* and *vinsoni* but regarding only with *mutica*, the range of variations is much wider in the former.

In 2006, Mr. Ivo JENIS brought us 71 males and three females of *Megopis* spp. from this island. Before this, between 1988 and 2005, several other persons searched Mauritius and, thank to their effort, we had obtained five males and one female of this genus with some important knowledge of distribution in the island.

In these new examples, we were able to distinguish four forms (Figs. 5: 1–4) and they are *mutica* (Fig. 5: 1, 54 exs.), *modesta coquereli* (Fig. 5: 3, 6 exs.), *edgerleyi* (Fig. 4: 4, 7 exs.) and small variation of *mutica* (Fig. 5: 2, 4 exs.). In these four forms, *edgerleyi* was found from only one spot and the other three forms were collected from the forest, at an altitude of 600 m. The five male specimens which had been obtained before 2005 were all *coquereli* and they were taken at four places (Fig. 2).

The table (Fig. 3) was made by newly obtained males of *Megopis* from Mauritius and indicates body length and the ratio of interspace between upper eye-lobes and head (EDd/HW). In this table, three clusters are observed; large sized specimens with a narrower interspace of eyes are the most frequent, smaller ones with wider space form another group and the smallest ones with distant eyes form the third group. We consider that the first ones correspond to *M. mutica*, the second ones to *M. modesta coquereli* and the third ones can be regarded as *M. edgerleyi*.

Here, we conclude that *Megopis mutica*, *M. coquereli* and *M. edgerleyi* are three different species. They are clearly distinguished from others by many examples, and the table (Fig. 3) shows that each of them forms different cluster: any clearly recognizable intermediate specimens between some pairs of species were not included in these new examples though variations of each species were still rich; these three species have different pattern of micro-distribution in this island; *M. mutica* was found from the middle of the Black River Gorges mountain range (Fig. 2) and area was not wide (within 3 km around Macabé) but abundant in the habitat; *M. edgerleyi* was found from the narrowest area which was less than a hundred square meters (Fig. 8) and was allopatric from any others; only *M. modesta coquereli* was collected from wider places (five places within 20 km distance, see Fig. 2) and in one place of which it was found mixed with *M. mutica* and not abundant in any place.

Then we regarded intermediate examples between some pairs of species which appeared more often in the old collections as hybrids. For example, we believe Fig. 25 (♂, Mauritius, syntype of *M. mutica* in BMNH) is a hybrid between *M. mutica* and *M. modesta coquereli* because it has pronotum furnished with distinct lateral spine and long

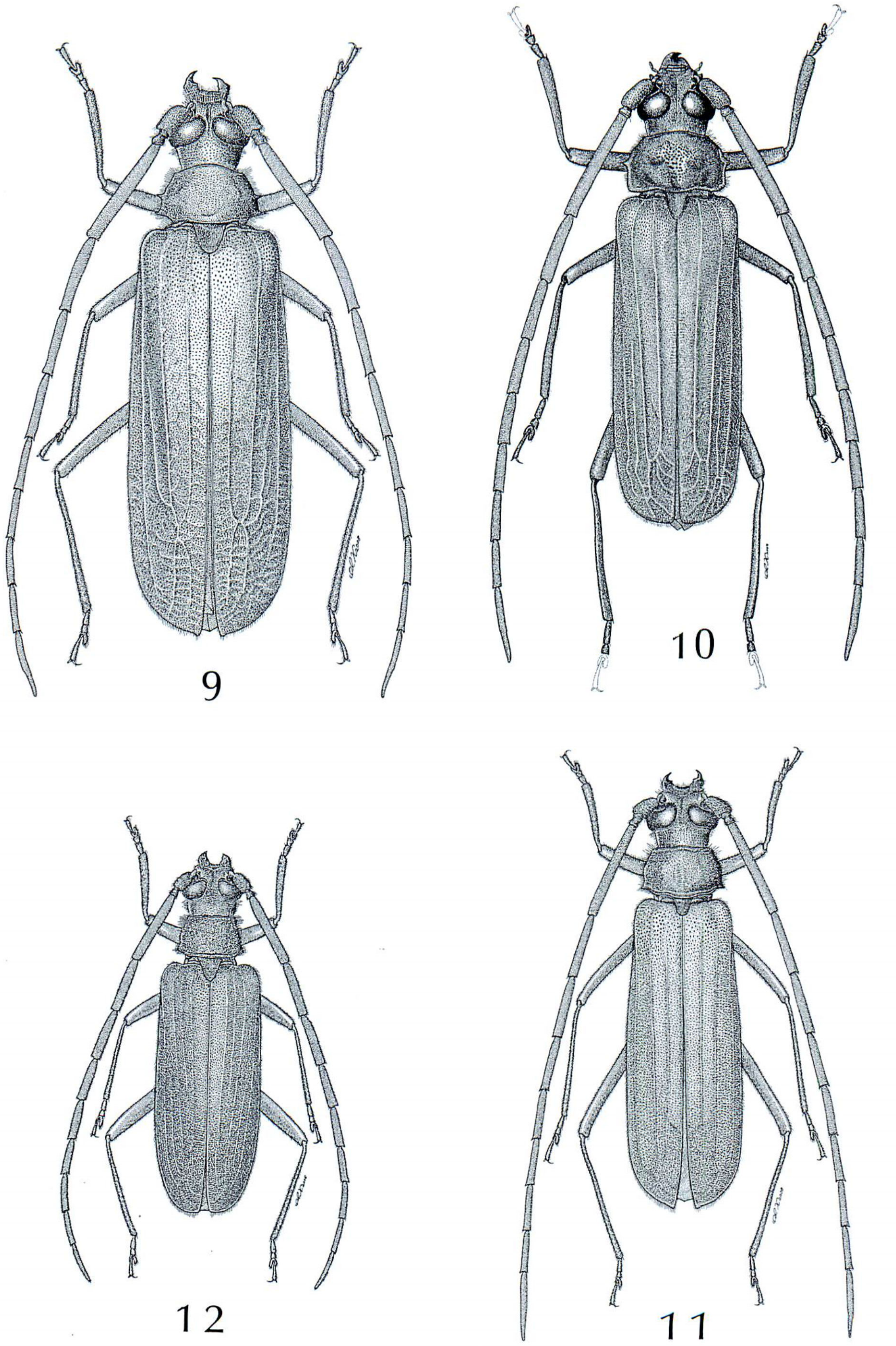


Fig. 9–12. 9, *Megopis mutica*, ♂, habitus, from Mauritius. —— 10, *M. vinsoni*, ♂, habitus. —— 11, *M. modesta coquereli*, ♂, habitus from Mauritius. —— 12, *M. edgerleyi*, ♂, habitus.

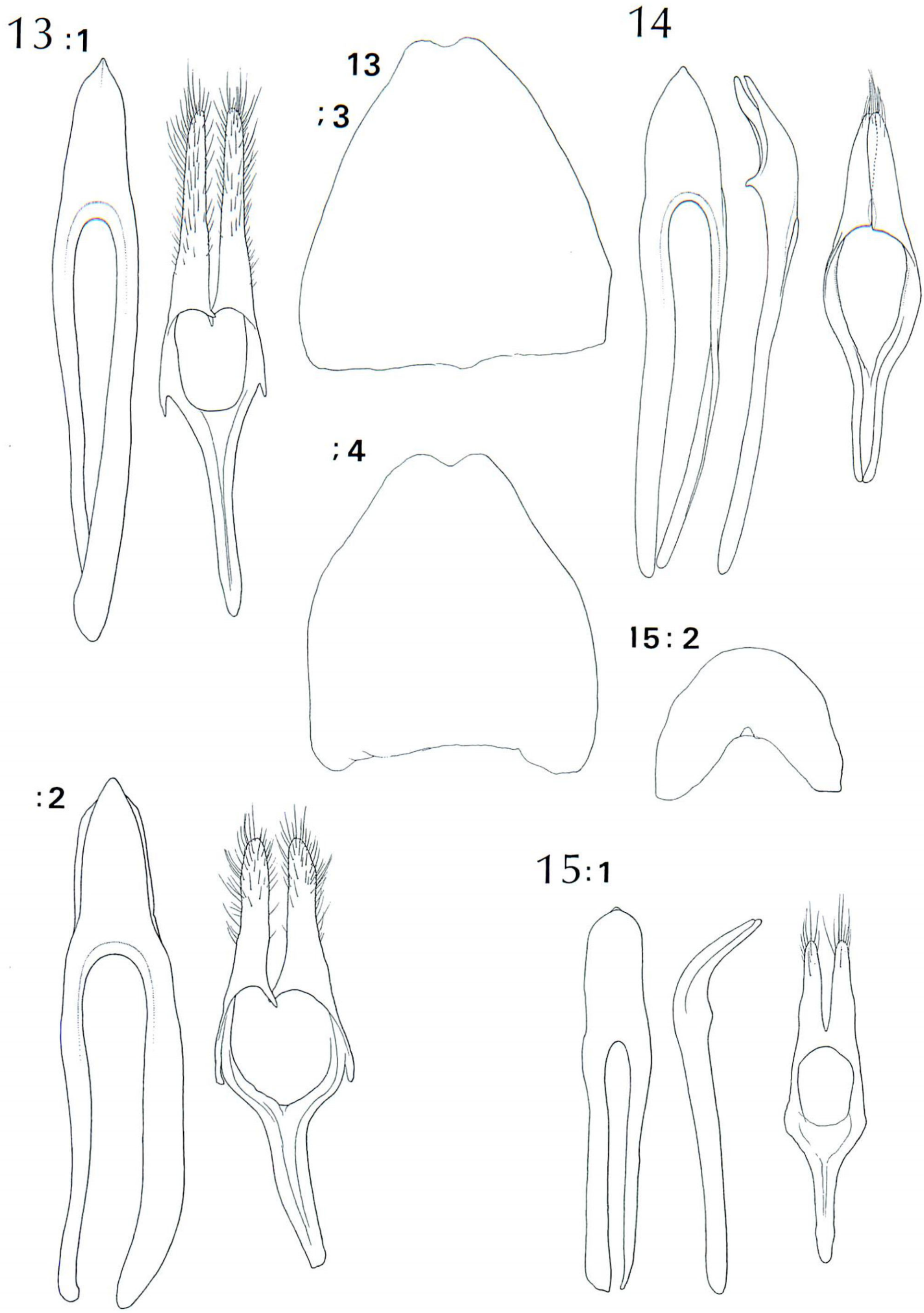


Fig. 13–15. 13: 1–4. Male genital organ of *Megopis mutica*; 1, 2, penis and lateral lobe; 3, 4, 8th tergite; 1, 3, from Mauritius; 2, 4, from Reunion. —— 14, Male genital organ of *M. vinsoni*; (Holotype). —— 15: 1, 2. Male genital organ of *M. edgerleyi*; 1, penis and lateral lobe; 2, 8th tergite.

hairs but other characters clearly accord to those of the latter. Similar examples were included in the syntypes of *M. mutica* and recent examples from Reunion but not included in the materials taken between 1930 and 2008 in Mauritius (in total 108). We believe Fig. 27 (♂, Macabé, 7–III–1962, J. VINSON in BMNH) is a hybrid between *M. mutica* and *M. vinsoni* because its body color and form of tarsi are intermediate, antennae and pronotum *vinsoni*-formed, but other parts are close to those of *M. mutica*. This example was obtained at Macabé where these two species were known and was obtained in the same season with them.

Megopis mutica SERVILLE, 1832

(Figs. 5: 1, 5: 2, 9, 13: 1–4, 19: 1–8)

Megopis mutica SERVILLE, 1832, Annls. Soc. ent. Fr., **1**: 162. —— WHITE, 1853, Cat. Coleopt. Brit. Mus., **7**: 28. —— THOMSON, 1864, Syst. Ceramb., 472. —— LACORDAIRE, 1868, Gen. Col., **8**: 156. —— GEMMINGER & HAROLD, 1872, Cat. Coleopt, 2777. —— ALLUAUD, 1900, in GRANDIDIER, Hist. Phys. Nat. pol. Madagascar, **21**, 1(1): 339. —— LAMEERE, 1909, Annls. Soc. ent. Belg., **53**: 147, 164; —— 1913, Coleopt. Cat. Junk, **52**: 41; —— 1919, Gen. Ins. Wytsman, (172): 75. —— VINSON, 1934, Trans. roy. Soc. Arts & Sci. Mauritius, **3**: 37. —— DUFFY, 1957, Monogr. Immat. Stages afr. Timber Beetles, 61. —— VINSON, 1962, Mauritius Inst. Bull., **4**(4): 202; 1967, Mauritius Inst. Bull., **4**(5): 339. —— QUENTIN & VILLIERS, 1975, Faune de Madagascar, **40**: 237–242 (*pro parte*).
Aegosoma mutica CASTELNAU, 1840, Hist. nat. Ins. Coleopt., **2**: 399.
Megopis (Aegosoma) lacordairei LAMEERE, 1885, Annls. Soc. ent. Belg., 29.
Megopis Lacordairei ALLUAUD, 1900, *in* GRANDIDIER, Hist. Phys. Nat. Pol. Madagascar, **21**, **1**(1): 338.

LAMEERE (1909) precisely redescribed this species and most of important characteristics were indicated at that time. This species is usually larger than the other congeners.

Male. Body depressed, interspace between eyes narrower than a fourth of each eye-lobe in dorsal side and much narrower in ventral side. Antennae strongly depressed; segment 3 thinner than a half of width at middle, edged on each lateral sides and more or less concave underside; segment 11 often longer than segment 4, vestigial segment 12 recognized at apical three-sevenths. Pronotum thickly haired, furnished with a middle spine at each side, having basal corner acutely projected and apical corner obtusely angled; lateral margins not distinctly edged in apical half; callosity under lateral margin (on prosternum) well developed but very variable in form and structure of the surface. Elytra covered with sparse pubescence and thickly haired near base, wide and depressed, usually widest at about apical third; C1 and C2 short and weakly raised, C3 and C4 usually absent; costae branched and connected, forming mesh in apical half; sutural end obtusely angled but often rounded and without notable spine. Eighth abdominal tergite rich in variation but generally large, longer than wide, subtriangular or trapezoidal, more or less emarginate at apex (Figs. 13: 3, 13: 4). Median lobe slender, basal slit between struts about three-fourths of total length, steeply narrowed at about apical third, then becoming a bullet-form apically; dorsal plate bent about 40 degrees downwards and ventral plate a little more steeply bent downwards in lateral view. Tegmen

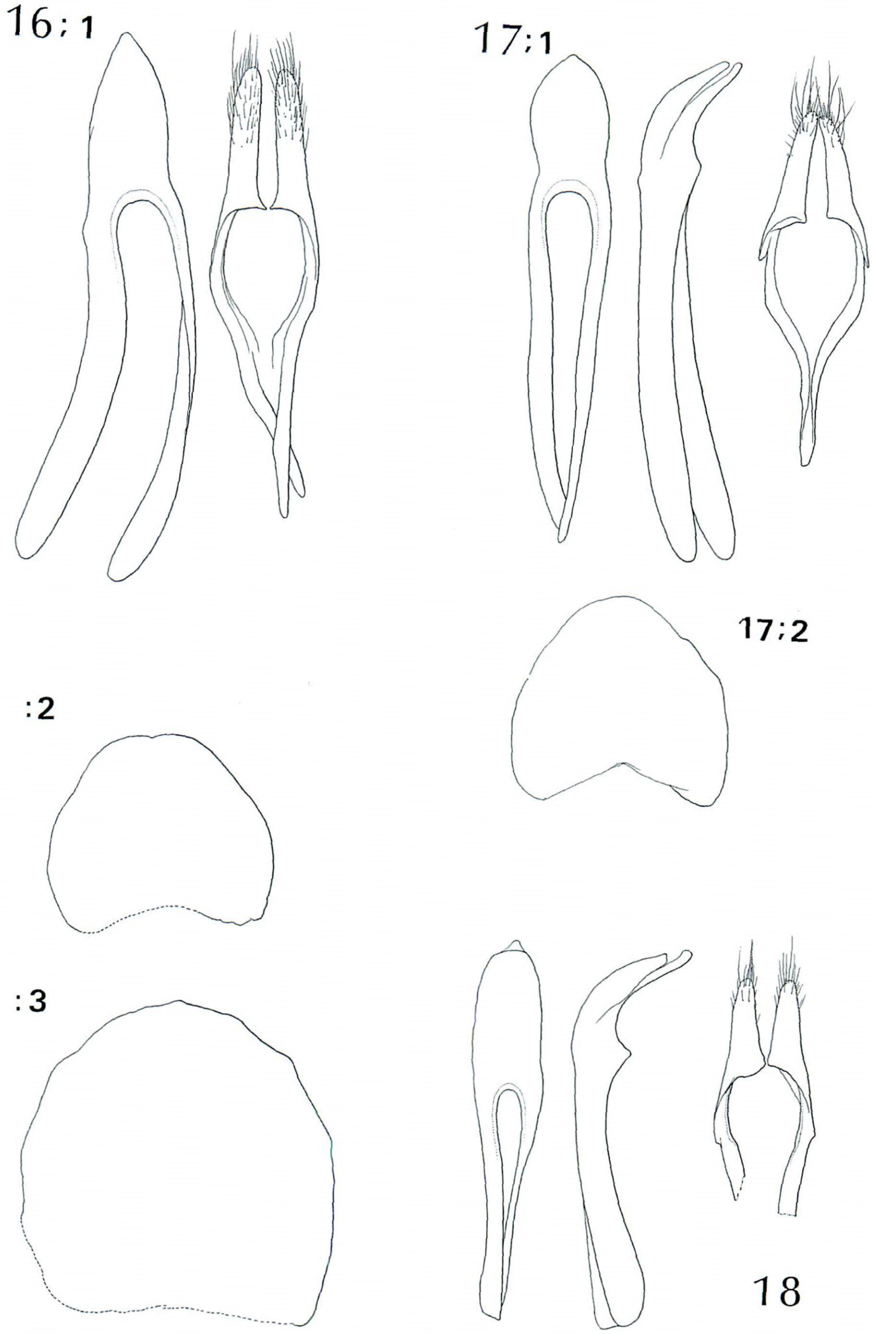


Fig. 16–18. 16: 1–3, Male genital organ of *Megopis modesta modesta* from South Africa; 1, penis and lateral lobe; 2, 3, 8th tergites; 2, typical form, 3, large form. —— 17: 1, 2, male genital organ of *Megopis modesta coquereli* from Mauritius; 1, penis and lateral lobe; 2, 8th tergite. —— 18, male genital organ of *Oceanomegopis caledonica*.

about 0.6–0.7 times as long as median lobe, bilobed parts of paramera 0.3–0.4 times as long as the total length of tegmen, long and slender, haired on apical three-fourths. (Figs. 13: 1, 13: 2)

F e m a l e. Head and pronotum relatively smaller and less haired as compared with those of the male; antennae 0.9–1.0 times as long as body, less depressed and slenderer; pronotum wide, PL/PW 0.52–0.56, subrectangular but apical corner rounded, without lateral spine or distinct angle.

BL: ♂, 22–36 mm (usually 29–31 mm), ♀, 27–34 mm.

Distribution. Mauritius, Reunion, Comoro?

Specimens examined. (Mauritius): Lectotype ♂ (Fig. 19: 2), with labels "Lectotype", "Ex Musaeo Mniszech", "Mutica, Ile. de France", in MNHN; paralectotype of *mutica* ♀ (Fig. 26), with labels "Brunner Serv. I. de France", "Ex Musaeo Mniszech", "Megopis mutica Serville Paralectotype, Quentin & Villiers det. 1974" in MNHN; Holotype of M. *Lacordairei* LAMEERE ♂, with labels "Megopis [=Aegosomis] sp. nov. via Lacord Vill.", "M. Lacordairei Lam. Type, cf. Ann. Ste. Ent. Belg. 29, 1885, Bull. P. XII", "Megopis lacordairei Lam. Holotype 1 ♂, Quentin & Villiers det. 1974, =M. mutica Serville", in IRSNB; 1 ♂, "Ile Maurice Curepipe Carié, Janv. 1911, Achat Le Moult", "Megopis mutica Serville Quentin & Villiers, det. 1974." in IRSNB; 1 ♂, "Coll. RIScNB, Ile Maurice, Port Louis, May 10" in IRSNB; 1 ♂, with labels "Fry Col. 1905, 100.", "Paralectotype", "Ex. Mus Dejean", "Mauritius", "297s4", "Megopis mutica paralectotype, Q. & V., det. 1974" in BMNH; 1 ♂, "Brit Mus 1972–220", "Mauritius Macabe, 13–II–1963, Vinson", in BMNH; 2 ♂♂, "Mauritius G. Antelme", "Pres. by Imp. Bur. Ent. Brit. Mus. 1926–376", "Megopis mutica Serville ♂ Quentin & Villiers det. 1974" in BMNH; 1 ♀, "Mauritius, Les Mares, 30–xii–1934, R.F. Lawrence, B.M. 1935–171", "Megopis mutica Serville, ♀, Quentin & Villiers det. 1974" in BMNH; 1 ♂, "Mauritius. D'Emmerez de Charmoy 1913–109.", "Megopis mutica Serville, ♂, Q. & V. det. in BMNH, 1974"; 1 ♂, Mauritius, I–1919, col. Kato in NSMT; 1 ♀, Le Pétrin vil. 610 m, X–2004, J. Lorenc leg.; 55 ♂♂, 3 ♀♀, Mauritius sw. Black River Gorges, 12 km south of Henrietta, 25–I∼5–II–2006, alt. 600 m, Ivo Jenis leg. in ZKC; 1 ♂, Black River, Mare Longue area, 17∼18–I–2008, leg. Jiri Moravec, in ADC.

(Reunion): 1 ♂, with labels "Coll. RIScNB, I. Bourbon=Iles de la Reunion", A. Lameere det. Megopis mutica Serv.", "sec. A. Lameere, Col. Cat. Junk, xxii, 52, 1913, p. 41, Megopis mutica Serv." in IRSNB; 1 ♂, 1 ♀, Route de Maïdo, 1700–1800m, X–1992, J. Janák leg. in ZKC.

(Comoro): 1 ♂, with labels "Coll. R.I.Sc.N.B. Muséum Paris, Grande Comore Prost 1898, Achat Le Moult", "Mutica Lam.", "Megopis mutica Serv. Det. A. Lameere 1913", "sec. A. Lameere, Col. Cat. Junk, xxii, 52, 1913, p. 41 Megopis (Megopis) mutica Serv.", "Megopis mutica Serville, Quentin & Villiers det. 1974." in IRSNB. This is the only example from Comoro we were able to examine.

Variations. In the old specimens before 1910, robust male specimens are not rare (Fig. 19: 4) but after 1920, such variation was not found. In the new examples, small exs. (Figs. 5: 2, 19: 3) which had not been found before were included. *BL*. 22–26 mm.

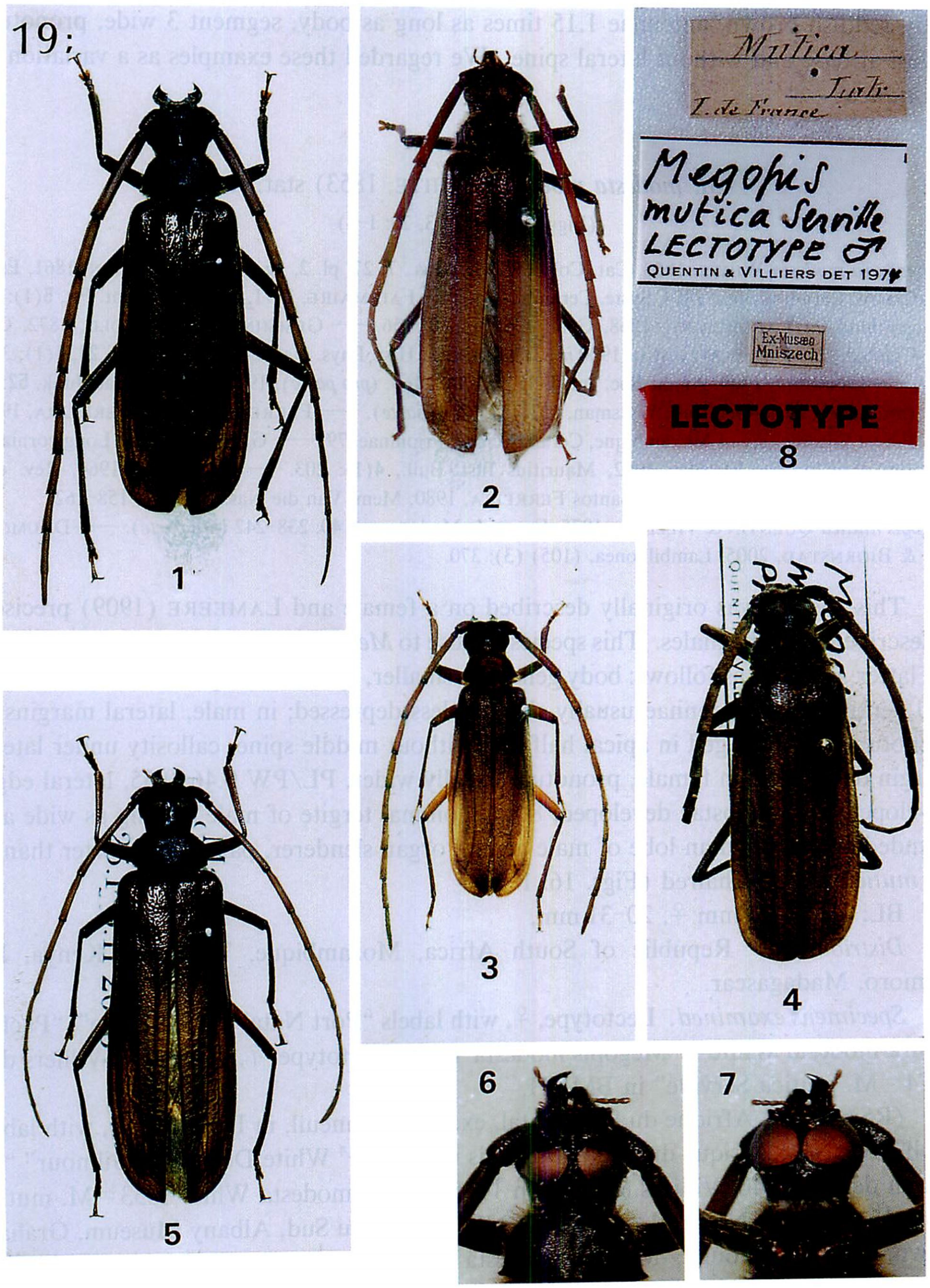


Fig. 19. 1–5, *Megopis mutica* habitus from Mauritius; 1–4, ♂, 1, typical form from Mauritius; 2, Lectotype (MNHN), 3, small form in new material; 4, robust form in paralectotype (BMNH); 5, ♀, typical form; 6, 7, ♂, head of typical form, 6, dorsal view, 7, ventral view; 8, labels on lectotype (19 : 2).

Body reddish brown, antennae 1.15 times as long as body, segment 3 wide, pronotum widest at base and without lateral spine. We regarded these examples as a variation of *M. mutica*.

M. modesta modesta (WHITE, 1853) stat. rev

(Figs. 1: 1, 16: 1–3, 20: 1–4)

Pachypleura modesta WHITE, 1853, Cat. Coleopt. Brit. Mus., **7**: 27, pl. 2, fig. 1. —— THOMSON, 1861, Essai Classif. Ceramb., 308.; 1864, Syste. Ceramb., 288. —— FAIRMAIRE, 1871, Annls. Soc. ent. Fr., **5**(1): 56.
Megopis modesta LACORDAIRE, 1868, Gen. Coleopt., **8**: 156. —— GEMMINGER & HAROLD, 1872, Cat. Coleopt., 2777. —— ALLUAUD, 1900 *in* GRANDIDIER, Hist. Phys. Nat. Pol. Madagascar, **21**, **1**(1): 399. —— LAMEERE, 1909, Annls. Soc. ent. Belg., **53**; 148, 164. (*pro parte*); 1913, Coleopt. Cat. Junk, **52**: 41 (*pro parte*); 1919, Gen. Ins., Wytsman, (172): 75. (*pro parte*). —— FERREIRA & Veiga FERREIRA, 1952, Forest Entomology of Mozambique, Cerambycidae, Prioninae, 79. —— GILMOUR, 1956, Longicornia, **3**: 109, fig. 29. —— VINSON, 1962, Mauritius Inst. Bull., **4**(1): 203. —— FERREIRA, 1964, Rev. ent. Mozambique, **7** (2): 545. —— Santos FERREIRA, 1980, Mem. Van die Nas. Mus. **13**: 158–162.
Megopis mutica QUENTIN & VILLIERS, 1975, Faune de Madagascar, **40**: 238–242 (*pro parte*). —— DRUMONT & BJORNSTAD, 2005, Lambillionea, (105) (3): 370.

This species was originally described on a female and LAMEERE (1909) precisely redescribed it on the males. This species is close to *Megopis mutica* but as compared with the latter, it differs as follows: body generally smaller, eyes more separated both in dorsal and ventral sides; antennae usually shorter, less depressed; in male, lateral margins of pronotum clearly edged in apical half and without middle spine, callosity under lateral margin developed; in female, pronotum usually wider, PL/PW 0.46–0.55, lateral edges developed; elytral costae developed; 8th abdominal tergite of male as long as wide and rounded apicad; median lobe of male genital organ slenderer, paramere shorter than in *M. mutica* and less haired (Figs. 16: 1–3).

BL: ♂, 15–25 mm ♀, 20–31 mm,

Distribution. Republic of South Africa, Mozambique, Tanzania, Kenya, Isl. Comoro, Madagascar.

Specimens examined. Lectotype, ♀, with labels "Port Natal", "Lectotype", "Pachypleura modesta White", "Megopis modesta White Lectotype, ♀, Quentin & Villiers det. 1974=M. mutica Serville" in BMNH.

(RSA): 1 ♂, Afrique du Sud. Natal, ex. coll. Bonneuil, in IRSNB; 1 ♀, with labels "coll. RIScNB.: Afrique du Sud" "Megopis modesta ♂ White Det. E. F. Gilmour" "cf. Fauna de Mdg., 40. Villiers & Quentin 1975, p. 238, modesta White 1853=M. mutica Serv. 1832" in IRSNB; 1 ♂, "Coll. IRScNB Afrique du Sud, Albany Museum, Graham Town, Achat Le Moult" "Megopis modesta White, det. E. Hintz" "M. mutica Serville, Quentin & Villiers, 1975" in IRSNB; 1 ♂, Sodwana Bay, Natal, I–1988, DANHENSHOUS leg. in ZKC; 1 ♂, Alexandra Woody Cape, Eastern Cape, 10∼13–XII–1997; 2 ♂♂, Port Edward, KwaZulu-Natal, V–2006, A. VIOSSAT leg. in ADC; 4 ♂♂, same locality and collector, IX–2007, in ADC; 2 ♂♂, Umtamduna Gorge Eastern Cape, XII–2004, in ADC; 2 ♂♂, KwaZulu Natal, 20∼22–III–2004, Di GENNARO coll. in ADC; 1 ♀, same

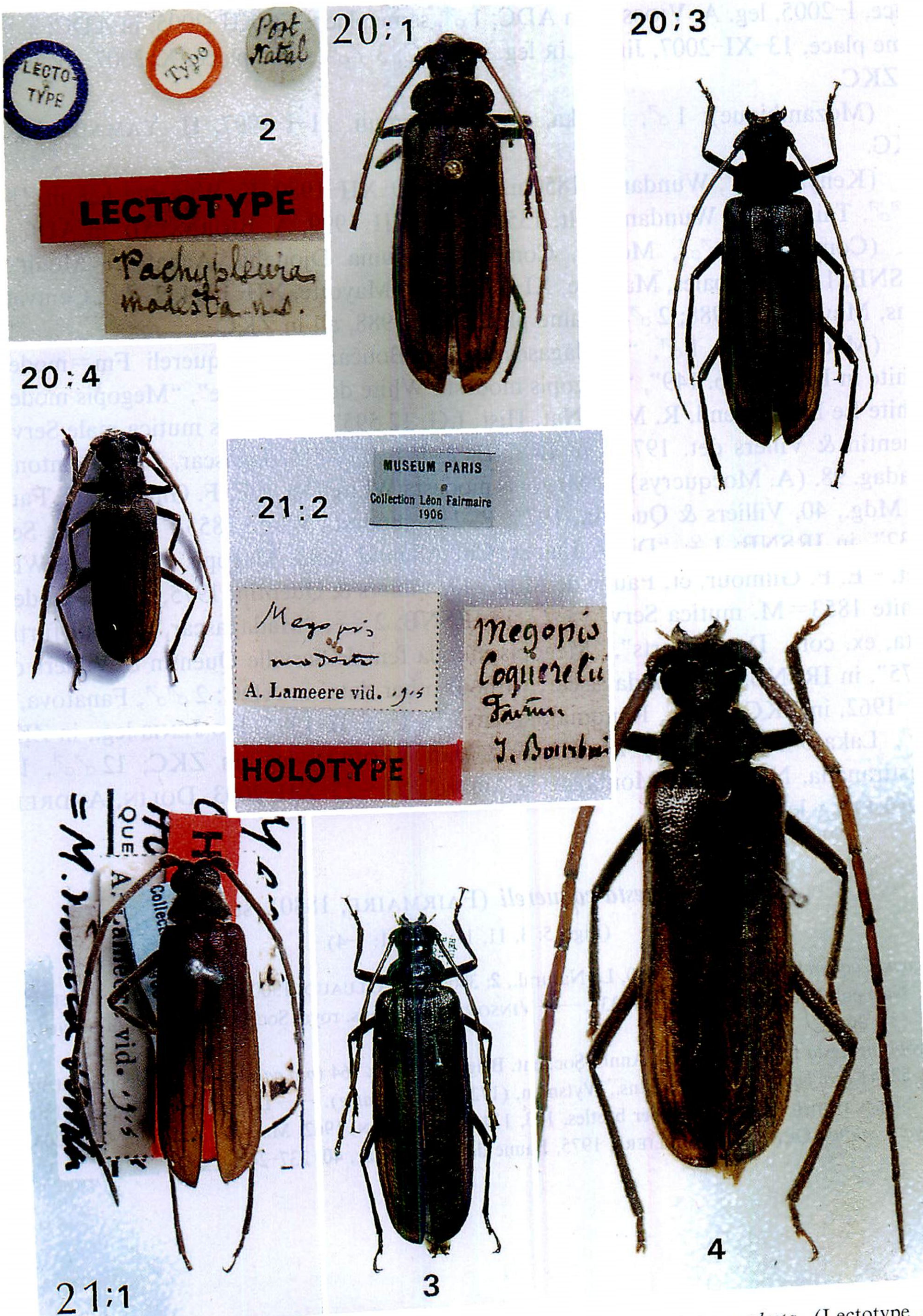


Fig. 20–21. 20: 1–4, *Megopis modesta modesta*, habitus. 1, *M. modesta modesta* (Lectotype of *Pachypleura modesta* WHITE) ♀: 2, labels attached to 1; 3, ♀, from Madagascar; 4, ♂, from Madagascar small form (16 mm.). —— 21: 1–4, *Megopis modesta coquereli* habitus; 1, holotype, ♂, from Reunion; 2, labels attached; 3, ♀, from Reunion; 4, ♂ from Mauritius.

place, I–2005, leg. A. VIOSSAT in ADC; 1 ♂, same place, 12–XII–2005, in ADC; 2 ♂♂, same place, 13–XI–2007, Jiri KLIR leg. in ADC; 3 ♂♂, same place, X–2007, locals leg. in ZKC.

(Mozambique): 1 ♂, Kitoka, nr. Mt. Nymuli, 11–I–1997, H. YAMADA leg. in ZKC.

(Kenya): 1 ♂, Wundanyi, 1850m., Taita, 20–XII–1989, K. WERNER leg. in ZKC; 3 ♂♂, Taita Hills, Wundanyi, alt. 1350 m, 11–XII–1999, A. BJORNSTAD, in ADC.

(Comoro): 2 ♂♂, Mohéli, Comores, Djouma Djougha, Achat Le Moult, in IRSNB; 1 ♂, Combales, Mayotte, XI–1990; 1 ♂, Mayotte, XII–1994; 2 ♂♂, Comvalescens, Mayotte, I–1988; 2 ♂♂, same place, XII–1988, all in ZKC.

(Madagascar); 1 ♂, "Madagascar, Coll. Boucard, M. coquereli Fm=modesta White in Lameere p. 149", "Megopis modesta White det. Lameere", "Megopis modesta White Le Moult vend. R. Mus. Nat. Hist. I.G. 12.595", "Megopis mutica male Serville Quentin & Villers det. 1974". in IRSNB; 2 ♂♂, 1 ♀, "Madagascar, Baie d'Antongil, Madag. 98. (A. Mocqucrys)", "Megopis modesta White Det. – E. F. Gilmour, cf. Faune de Mdg., 40, Villiers & Quentin, 1975, P. 238, modesta White 1853=M. mutica Serv. 1832", in IRSNB; 1 ♀, "Diego Juarez, Ch. Alluaud 1893, Megopis modesta ♀ White Det. – E. F. Gilmour, cf. Faune de Mdg., 40, Villiers & Quentin, 1975, p. 238, modesta White 1853=M. mutica Serv. 1832", in IRSNB; 2 ♀♀, "Madagascar, without further data, ex. coll. De Moffarts", "Megopis mutica female Serville Quentin & Villiers det. 1975", in IRSNB; 1 ♂, Madagascar, without other data, in ADC; 2 ♂♂, Fanatova, 4–III–1962, in ZKC; 2 ♂♂, Ranomafana env. 28–I～6–II–1995, Ivo JENIS leg., in ZKC; 1 ♂, Lakato Moramanga, 19–XII–1998, Jan VVOIRAL leg. in ZKC; 12 ♂♂, 1 ♀, Anstiranana, Nat. Park "Montagne D'Ambre", 21～25–XII–2003, DOLIN, ANDREEV, ANDREEVA leg. in ZKC.

Megopis modesta coquereli (FAIRMAIRE, 1880), stat. nov.

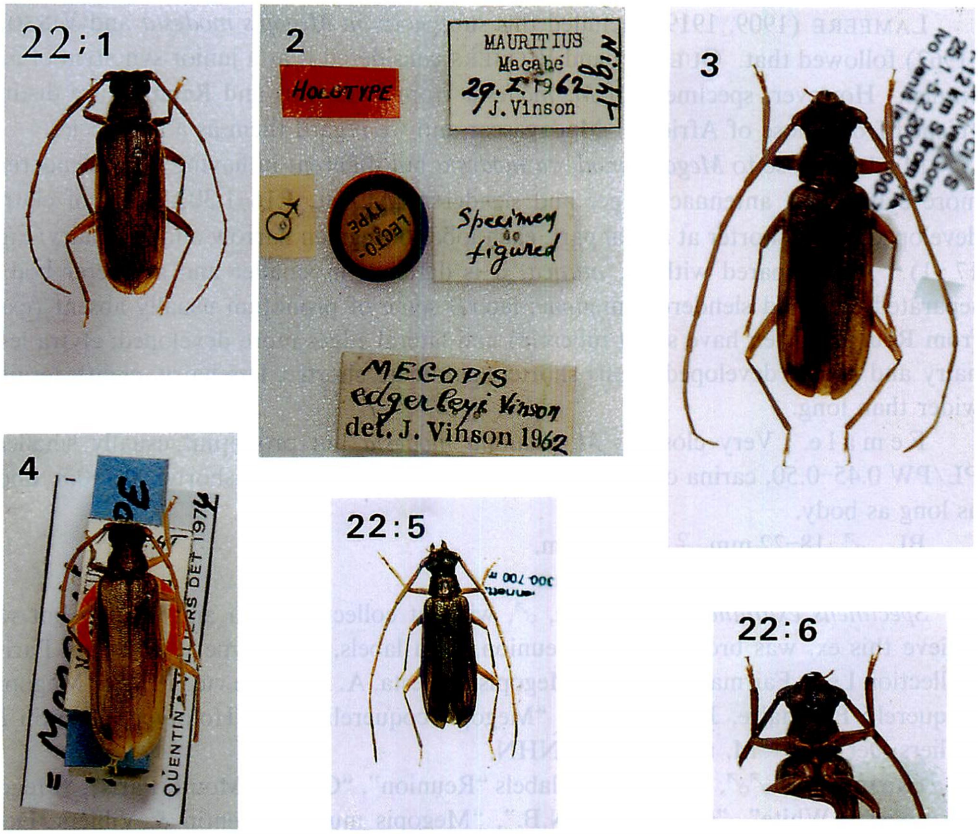
(Figs. 5: 3, 11, 17: 1–2, 21: 1–4)

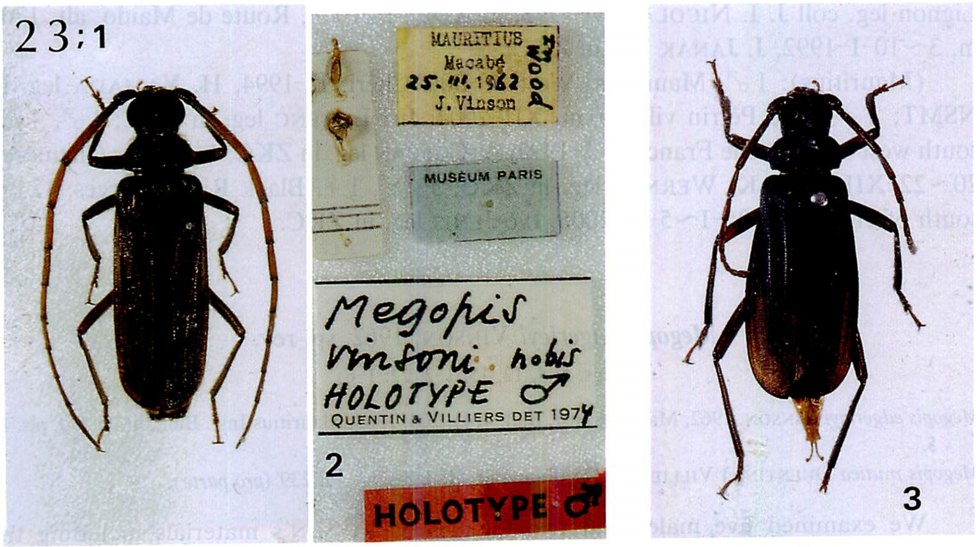
Megopis Coquereli FAIRMAIRE, 1880, Le Natural., **2**: 300. —— ALLUAUD, 1900 *in* GRANDIDIER, Hist. Phys. Nat. pol. Madagascar, 21, **1**(1): 338. —— VINSON, 1934, Trans. royal Soc. Arts and Sci. of Maurit, **100** (3): 36.

Megopis modesta LAMEERE, 1909, Annls. Soc. ent. Belg., **53**: 148 & 164 (*pro parte*); 1913, Coleopt. Cat. Junk, **52**: 41 (*pro parte*); 1919, Gen. Ins., Wytsman, (172): 75 (*pro parte*). —— DUFFY, 1953, Monogr. Immat. Stages British imported Timber beetles, 113, 114. —— VINSON, 1962, Maurit. Inst. Bull., **4**(1): 203.

Megopis mutica QUENTIN et VILLIERS, 1975, Faune de Madagascar, **40**: 237–242.

Fig. 22–23. 22: 1–6, *Megopis edgerleyi*, habitus; 1, holotype, ♂; 2, labels attached; 3, ♂, large form; 4, ♀, neallotype; 5, ♂, smallest ex. (9 mm.); 6, head, ventral view. —— 23: 1, *Megopis vinsoni*, holotype, ♂; 2, labels attached; 3, paratype, ♀.


22 : 1
2
HOLOTYPE
MAURITIUS
Macabé
29.I.1962
J. Vinson
♂
Specimen figured
MEGOPIS edgerleyi Vinson det. J. Vinson 1962
3
4
QUENTIN & VILLIERS DET 1974
22 : 5
22 : 6


23 : 1
MAURITIUS
Macabé
25.III.1962
J. Vinson
MUSÉUM PARIS
Megopis vinsoni nobis
HOLOTYPE ♂
QUENTIN & VILLIERS DET 1974
2
HOLOTYPE ♂
3

LAMEERE (1909, 1919) included this subspecies in *Megopis modesta* and VINSON (1962) followed that. QUENTIN and VILLIERS considered it as a junior synonym of *M. mutica*. However, specimens of *M. modesta* from Mauritius and Reunion are distinguished from those of Africa or Madagascar and we regard them as a subspecies.

Male. Close to *Megopis modesta modesta* but different in having body slenderer, more cylindrical, antennae longer and slenderer (AL/BL 1.16–1.30), costa of elytra developed, penis shorter at apical part, each lobes of tegmen narrow and less hairy (Fig. 17 : 1). As compared with *M. mutica*, it is different in smaller and slenderer body, separated eyes and slenderer antennae; lateral spine of pronotum usually absent (exs. from Reunion often have small tubercle) and lateral edges more developed; elytra less hairy and costae developed; penis shorter, paramere shorter, less hairy, eighth tergite wider than long.

Female. Very close to *M. modesta modesta* but pronotum usually smaller, PL/PW 0.45–0.50, carina of lateral margins developed; antennae shorter, 0.7–0.8 times as long as body.

BL. ♂, 18–22 mm, ♀, 22–25 mm.

Distribution. Reunion, Mauritius.

Specimens examined. Holotype, ♂, without collecting data and locality but we believe this ex. was brought from Reunion, with labels, "Holotype", "Muséum Paris, Collection Léon Fairmaire, 1906", "Megopis modesta, A. Lameere vid. 1916", "Megopis Coquerelii Fairmaire, J. Bouchard", "Megopis coquereli Frm. Holotype, Quentin & Villiers Det 1974=M. mutica" in MNHN.

(Reunion): 4 ♂♂, all with same labels "Reunion", "Coll–Le Moult, Paris", "Megopis modesta White", "Coll. R.I.Sc.N.B.", "Megopis mutica Quentin & Villiers, Det. 1974", in IRSNB; 1 ♂, Trois Bassius, III–1985, in ZKC; 1 ♂, Reunion, St. Leo, J.P.ds. Lignon leg. coll J. I. NICOLAS IV–1993, in ADC; 1 ♂ 1 ♀, Route de Maido, alt. 1700 m, 3∼10–I–1992, J. JANÁK leg. in ZKC;

(Mauritius): 1 ♂, Mauritius, West of Bois Chéri, II–1994, H. YAMADA leg. in NSMT; 2 ♂♂, Le Pétrin vil. 610 m, XII–2004, Jiri LORENC leg. in ZKC; 1 ♂, 4 km south west of Nouvelle France, 3–I–1997, A. COPPAN leg. in ZKC; 1 ♂, near Chamarel, 20∼22–XII–1994, K. WERNER leg. in ZKC; 5 ♂♂, 1 ♀, Black River Gorges, 12 km south of Henrietta, 25–I∼5–II–2006, Ivo JENIS leg. in ZKC.

Megopis edgerleyi VINSON, 1962, sp. rev.

(Figs. 5: 4, 12, 15: 1–2, 22: 1–6)

Megopis edgerleyi VINSON, 1962, Mauritus Inst. Bull. **4**(4): 204; 1963, Mauritius Inst. Bull., **5**(7): 270, pls. 1–5.

Megopis mutica QUENTIN et VILLIERS, 1975, Faune de Madagascar, **40**: 239 (*pro parte*).

We examined five males and two females of VINSON's materials including the holotype, allotype and paratypes and eight newly obtained males, and found that the characteristics which had been described by VINSON (1963) are mostly available and it is obviously a species different from *Megopis mutica* or *M. modesta*. Ivo JENIS informed us that he found this species in a forest about 1 km away from the nearest habitat of *M. mutica* or *M. modesta coquereli* and it was never found with other congeners at the same place though the habitat-forest (Fig. 5: 8) of this species did not look so special.

As compared with *M. modesta* or any other species of the genus, this species is much smaller. It can be distinguished from *M. modesta* in smaller size (BL: ♂, 9–17 mm, ♀, 17 mm) (in *M. modesta modesta*, males of 15–17 mm in size are rarely found but they always have very wide pronotum, such a small male is not known in *M. m. coquereli*); having antennae relatively shorter with the segment 3 narrowed to each end, pronotum narrower (PL/PW, ♂, 0.66–0.70, ♀, 0.70), elytra usually wider and each furnished with 3–5 feeble costae; 8th abdominal tergite slightly wider than long and lunular (see Fig. 15:2), median lobe long, distinctly bent downwards. We were unable to find any clear trace of hybrid with other species concerning this species.

BL. ♂, 9–17 mm (ex. of 9 mm, is the smallest of all Prioninae (Fig. 22: 5)), ♀, 16–17 mm.

Distribution. Mauritius (600 m alt.).

Specimens examined. Holotype, ♂, in BMNH, Mauritius, Macabé, 29–II–1962, J. VINSON, "Holotype", "Lectotype", "Megopis edgerleyi Vinson, det. J. Vinson 1962", "Megopis mutica ♂, Quentin & Villiers det. 1974". Allotype, ♀, in BMNH, same locality and collector as holotype, 19–I–1963, "Neallotype", "Brit. Mus. 1964–188", "Megopis edgerleyi Vinson, det. J. Vinson 1962", "Megopis mutica ♀, Quentin & Villiers det. 1974". Paratypes, all in BMNH, same locality and collecter, 1 ♂, 29–I–1962, 1♂, 13–II–1963. Other old specimens in BMNH, 1 ♀, without data, with labels "M. edgerleyi Vins. ♀, J. Vinson, det. 1964", "Pres. By Imp. Bur. Ent. Brit. Mus. 1926–376", "Megopis mutica Quentin & Villiers, det. 1974", 1 ♂, with labels "Mauritius G. Antelme", "Pres. By Imp. Bur. Ent. Brit. Mus. 1926–376", "Megopis edgerleyi ♂, J. Vinson det. 1964", "Megopis mutica Quentin & Villiers, det. 1974". Paratype; 1 ♂, same locality and collecter as holotype, 13–II–1963, "Megopis edgerleyi Vins. J. Vinson det.", "paratype", "Megopis mutica Quentin & Villiers, det. 1974" in MNHN; 8 ♂♂, Mauritius sw. Black River Gorges, 12 km south of Henrietta, 25–I∼5–II–2006, 600 m. Ivo JENIS leg. in ZKC.

Note. VINSON (1963) noted that this species may not be a member of the genus *Megopis* without writing the reason why he thought so. Mr. Ivo JENIS also wrote privately to KOMIYA that this species might not belong to the genus *Megopis* because it was somehow different from others when he caught them. These two persons have been the only ones who had ever caught this species by their own hand. We believe they were experienced entomologists and these recognitions based on observation of living materials may be very important. However, after close examination, we thought it better to leave this species in this genus by the body structure.

Megopis vinsoni QUENTIN et VILLIERS, 1975

(Figs. 10, 14, 23: 1–3)

Megopis vinsoni QUENTIN et VILLIERS, 1975, Faune de Madagascar, **40**; 242.

Different from *Megopis mutica* in having integument dark brown, antennae provided with oblique seta on basal several segments which is more distinct underside, pronotum widest at middle or just posterior to the middle and basal angle narrower, elytra less pubescent, tarsi long and slender. This species is closer to *M. mutica* than to *M. modesta* in size, body structure especially in form of antennae, distance between eyes, lateral spine of pronotum but male genital organs is similar to *M. modesta modesta*.

BL: ♂, 22–29 mm, ♀, 25–28 mm.

Specimens examined. Holotype ♂, Mauritius Macabé, 25–III–1962, J. VINSON, in wood, "Megopis vinsoni nobis Holotype ♂, Quentin & Villiers det. 1974", "Muséum Paris", in MNHN. Allotype ♀, Mauritius Macabe, 18–II–1962, "Megopis vinsoni nobis Allotype ♀, Quentin & Villiers det. 1974", "Muséum Paris", "Collected in nymphal stage", in MNHN. Paratypes 3 ♂♂, 1 ♀, Mauritius Macabé, 25–III–1962, in MNHN and BMNH; 1 ♂, same locality and collector with the holotype, 30–II–1962, 1 ♀, 18–II–1962 in BMNH.

Notes. We examined above-mentioned 5 ♂♂, 3 ♀♀, including every type of QUENTIN and VILLIERS (1975) which originally came from VINSON's collection and captured between 18–II and 25–III of 1962 by VINSON. Three males were added labels "in wood" and two females "collected in nymphal stage" and this fact suggests that these examples were all taken from some wood when it was cut or broken.

Megopis parallera LAMEERE, 1909 [nec SERVILLE, 1832] (*incertae sedis*)

Megopis parallera LAMEERE, 1909, Annls. Soc. ent. Belg., **53**: 143. —— VINSON, 1962, Mauritius Inst. Bull., **4**(4): 203.

Megopis vinsoni QUENTIN et VILLIERS, 1975, Faune de Madagascar, **40**; 242. (*pro parte*)

This species has never been seen by anyone after LAMEERE, (1909) and QUENTIN and VILLIERS (1975) regarded it as a female of *Megopis vinsoni*. The characteristics given by LAMEERE agreed with *M. vinsoni* in the shape of antennae, pronotum and sculpture of elytra but did not agree in color and shape of elytra. We therefore surmise it could be *M. vinsoni* but it is also possible that it was an independent species as LAMEERE considered. However, it is not easy to believe that this species really belongs to the genus *Aegosoma* as LAMEERE suggested because this genus has never been found from Africa and only known from Europe or Asia. The main reason why LAMEERE regarded this species as *Aegosoma* seemed to be that it had glabrous antennae but we believe this is not a diagnostic character of *Aegosoma*. As we have been unable to find the specimen used by LAMEERE, we think it better to regard the name as an "*incertae sedis*" as VINSON considered but we believe that it must belong to the genus *Megopis* as

QUENTIN and VILLIERS considered.

Megopis hirticollis sp. nov.

(Fig. 24, 28)

Male. Integument chestnut brown, covered with long yellow hairs on head, pronotum, scutellum, basalmost parts of elytra and anterior half of the underside. Antennae, abdomen and legs covered with very short and dense pubescence, middle part of elytra subglabrous.

Head roughly punctured; eyes less bulging as compared with other congeners, interspace between upper eye-lobe about 0.6 times as long as each lobe; antennae 1.0 times as long as body, segment 3 as long as segments 4+5 combined, without oblique long hairs.

Pronotum 0.6 times as long as wide; surface of disc shiny, roughly puncto-granulate, covered with very long and thick hairs so as to conceal the surface not well observed; each side furnished with an indistinct projection at middle and basal angle not well projected.

Elytra 2.8 times as long as wide, parallel-sided; roughly puncto-granulate throughout; each elytron with five costae which are indistinct due to rough granules which are connected to each other or to costae and forming mesh; surface glabrous on costae and granules, and sparsely furnished with setae on basal and apical parts and concaved parts of intervals.

BL. 25 mm.

Female. Unknown.

Holotype. ♂, Nov.–1900 Ile. Maurice Curepipe, Carié, in IRSNB with labels, "Coll. R. I. Sc. N. B., Achat Le Moult", "Megopis mutica, Quentin & Villiers, Det. 1974".

Distribution. Mauritius.

Notes. This species obviously belongs to this genus but quite different from any other species recognized in this paper. It is rather close to *Megopis modesta* but differs in having head, pronotum and scutellum covered with thick and very long hairs; eyes more widely separated; antennae covered with thick pubescence and without oblique long hairs; elytra roughly puncto-granulate.

Discussion on Interspecific Relations of the Genus *Megopis* in Mauritius

We presume that the history of the genus *Megopis* in Mauritius was as follows.

An original species arrived to this island and after some adaptive radiation, which is sometimes observed in an isolated island, it was separated into at least six or more species. We wrote "at least" because we found in the examples from this island several forms which had been regarded as variations of *M. mutica* (for example Figs. 19: 3, 19: 4, 25, 26), but we think they can be sibling new species, though it is difficult to verify without observation of many living materials. Such radiations were noted by QUENTIN and VILLIERS (1975) on the genus *Polybothris* DEJEAN (Buprestidae, 200 species) of the Madagascar and VINSON (1961) on the tribe Obriini (Cerambycidae, 20 species) of Mauritius. In these insects, they suggested the cases of specific exploding in islands from a few origin to many derivative forms.

We can find *Megopis* spp. only from the Black River Gouges and surrounding hills (Fig. 2). Mrs. K. WERNER (1994), A. COPPAN (1997–2000) and J. LORENC (2004) tried searching for *Megopis* at several places of the Moka Mountain Range and the Grand Port Mountain Range which are covered with forests outside of the Black River Range, but they were unable to find any *Megopis* from these areas. The old materials of museums before 1920 are mostly without data of precise locality in the island and only a few of them are attached more *localities*. Some of them were from the Black River Range but three *M. mutica* were from Port Louis (1904–1911) and the same species from Curepipe (1910) are preserved in IRSNB. We therefore believe that *Megopis* was distributed to the Moka Mountain Range and possibly the Grand Port Mountain Range before 1910. We presume that *Megopis* spp. were originally distributed to wider parts of the island and adapted to each place or environment. *Megopis mutica* was the most prior species, *M. modesta coquereli* the next and the others were rare. Throughout the 19th and 20th centuries, forest cover was widely lost and 98% of original forests had disappeared before 1997 (data from portal site of Mauritius, 2008). Then, many species of *Megopis* lost their original habitats and segregation systems which caused radiation were widely broken. In the results, some species became difficult to survive and, at the same time, hybridization among some pairs of species widely took place. In a small island, there may be a tendency that hybridization is easy to take place (see KOMIYA & DRUMONT, 2004). When SERVILLE (1832) obtained a series of *Megopis*, his examples (=syntypes of *M. mutica*) partly included hybrid between *M. mutica* and *M. coquereli* (Fig. 25). In the early 19th Century, the forest cover in Mauritius was very rapidly lost (cf. portal site 2008 fig. 2.5, the ratio of the forest cover were 83% in 1773, 51% in 1835, 23% in 1872) and, in our hypothesis, hybridization often took place under rapid change of the circumstances. The examples before 1910 including SERVILLE's types must have been collected in such condition and involved hybrids or polytypical specimens that appeared after hybridization. However, after 1935 when VINSON started to collect *Megopis*, no example like Fig. 25 was obtained. It is not clear why VINSON was unable to capture *M. modesta coquereli* (= *modesta,* sensu VINSON, 1962) but, in his period, this species could be very rare and it could have recovered population recently. In the new materials after 1990, *M. mutica* was less variable and became smaller and *edgerleyi* was more distinct from the other species. When we compare new materials with old ones, we cannot help regarding that they have changed in recent two centuries. At the same time, they include a series of unusual variations, though less often than in the old materials, and we guess these changes by periods and the wide variation range of these species must be the results of introgressive hybridization in the sense of ARNOLD *et al.*, (1998). As we made up this work mostly by morphological evidences, we hope the application of gene sequencing will be made to this genus in the near future.

Key to the Species of *Megopis*

Male

1. Body shorter than 18 mm. ························2.
— Body longer than 18 mm. ························3.
2. Pronotum narrower, PL/PW < 0.64; (Mauritius) ························*M. edgerleyi*.
— Pronotum wider, PL/PW > 0.65; (Comoro; Mohéli, Madagascar, Saint-Marie)··· ························*M. modesta modesta* (small sized ex.)
3. Body dark brown, antennae furnished with long and sparse oblique setae underside, hind claw narrow; (Mauritius) ························*M. vinsoni*.
— Body brown or reddish brown, long and oblique setae on antennae absent or limited only in joint parts, hind claw normal ························4.
4. Elytra roughly punctato-granulate, antennae very thickly covered with pubescence and without long hairs; (Mauritius) ························*M. hirticollis* sp. nov.
— Elytra finely punctured or granulate, antennae furnished with long hairs at least in apical end of each segment ························5.
5. Segment 3 of antennae wider, (width/length > 0.13, usually > 0.15), elytra more depressed in apical halves and widened, tergite 8 longer than wide (Figs. 13: 3–4), median lobe of male genitalia wide in apical part, paramere slender and long (Figs. 13: 1 –2); (Mauritius, Reunion, Comoro?) ························*M. mutica*.
— Segment 3 of antennae narrower, (width/length < 0.15, usually < 0.12), elytra less depressed and lateral margins sub-parallel at apical halves, tergite 8 semicircular and wider than long (Figs. 16: 2, 3), median lobe narrow in apical part, paramere short; (Africa, Comoro, Madagascar, Reunion, Mauritius) ···········*M. modesta*.

Female

1. Body shorter than. 17 mm; (Mauritius) ························*M. edgerleyi*.
— Body much longer than 17 mm ························2.
2. Body dark brown, elytra wider (LE/WE < 1.9), lateral side of pronotum angled at middle; (Mauritius) ························*M. vinsoni*.
— Body bright brown, elytra narrower (LE/WE > 2.0), pronotum rounded at middle ························3.
3. Elytra wider (LE/WE < 2.2), mat and without mesh in apical halves, edge of pronotum strong; (Africa, Comoro, Madagascar, Reunion, Mauritius)·············· ························*M. modesta*.
— Elytra narrower (LE/WE > 2.3), shinny and usually with mesh-pattern in apical halves, edge of pronotum obtuse; (Mauritius, Reunion, Comoro?)······*M. mutica*.

Genus *Oceanomegopis* nov.

Megopis DRUMONT & VIVES, 2007, Les Cahiers Magellanes, (67): 3.

Type species: *Megopis caledonica* FAUVEL, 1906, 43.

Generic features. Integument uniformly dark brown, sometimes partly reddish or yellowish. Body cylindrical, slightly depressed. BL 17–28 mm.

Interspace between eyes wider on ventral side. Antennae 0.79–1.02 times as long as body in male and 0.62–0.97 in female; segments 3–11 depressed and carina running on each lateral side, underside flattened; segment 4 relatively shorter than in the other close genera.

Pronotum sub-rectangular, widest at apical angle and often also widened at middle but never wider than apical angle; basal angle obtuse or rounded.

Legs relatively short.

Notes. The genus *Oceanomegopis* nov. is similar to the genus *Megopis* but can be distinguished in having pronotum widest at apical angle while in the other close genera, *viz*., *Megopis* and *Nepiodes*, pronotum widest at basal angle or at middle spine; segment 4 of antennae longer as compared with segment 3 (Al4/Al3 > 0.85 in *Oceanomegopis* while in *Megopis* or in *Nepiodes* Al4/Al3 < 0.75) and shorter femora. Interspace between eyes on ventral side (Fig. 32: 4) wider than *Megopis* but narrower than *Nepiodes*. Male genital organ shorter than in the genera *Megopis* or *Nepiodes*. Two species are included in this genus and the difference between them was precisely given by DRUMONT and VIVES (2007) recently. In this paper, therefore, we will give only synonymic list and a key to the species.

Distribution. New Caledonia: Is. Grande Terre, Is. Lifou and Is Maré.

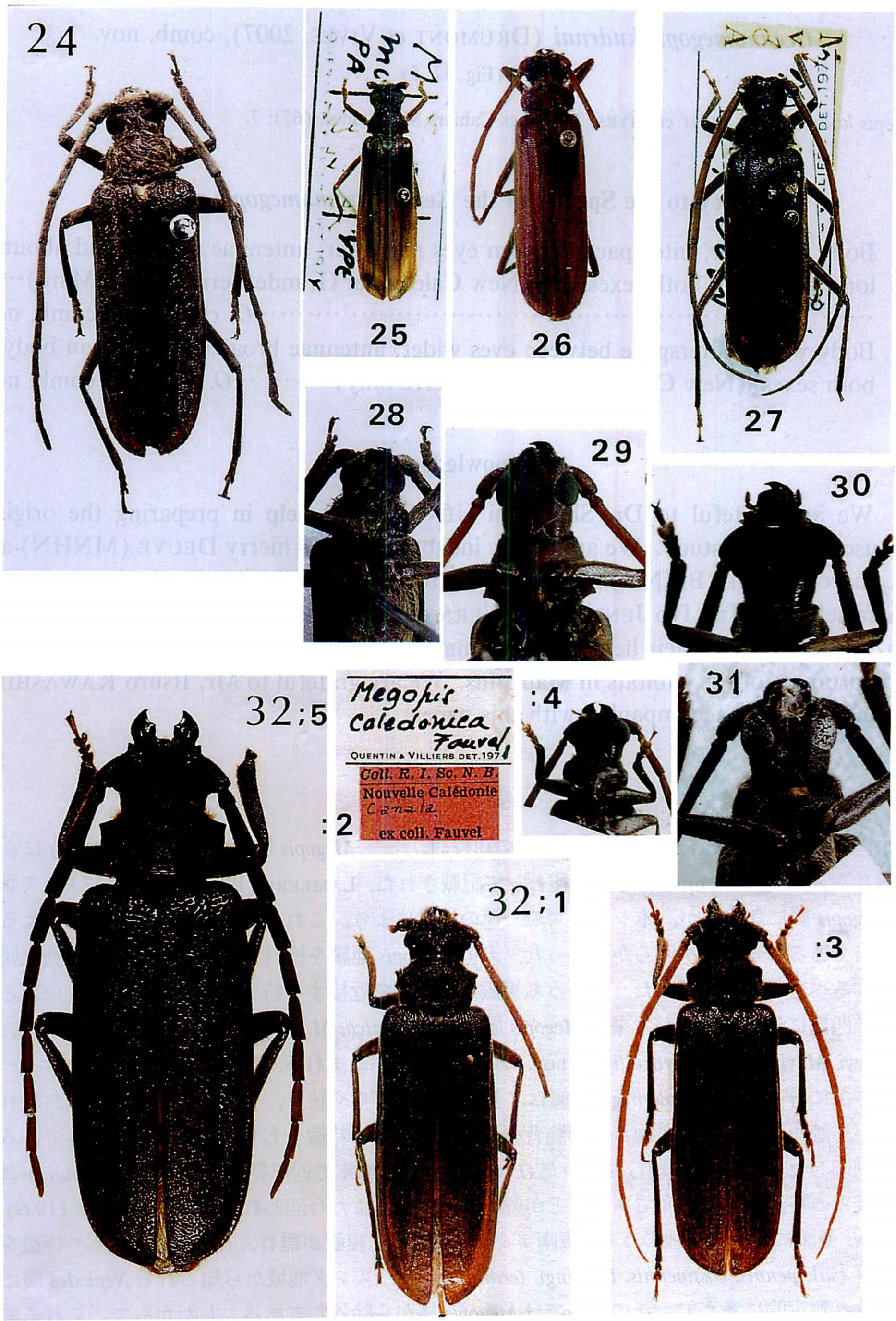
Oceanomegopis caledonica (FAUVEL, 1906), comb. nov.

(Figs. 1: 2, 32: 1–4)

Megopis modesta MONTROUZIER, 1861 [*nec* WHITE, 1853], Annls. Soc. ent. France. **4**(1): 278, 279.—— FAUVEL, 1867, Bull. Soc. ent. France, **2**(1): 204.

Megopis caledonica FAUVEL, 1906, Rev. Ent., **22**: 43.—— LAMEERE, 1909, Ann. Soc. ent. Belg., **53**: 149, 150. —— LAMEERE, 1919, Gen. Ins., Wytsman, (172): 75.—— GRESSITT, 1950, Proc. Hawai ent. Soc., **14**: 69.—— DRUMONT & VIVES, 2007, Les Cahiers Magellanes, (67): 3.

Fig. 24–32. 24, *Megopis hirticollis* sp. nov., holotype, ♂, habitus.—— 25–27, Supposed hybrid specimens; 25, *mutica*×*modesta coquereli* (syntype of *Megopis mutica*, in BMNH); 26, ditto, ♀ (paralectotype of *M. mutica*, in MNHN); 27, *mutica*×*vinsoni*, ♂ (Macabé, VINSON col. in BMNH).—— 28, Head of *Megopis hirticollis* sp. nov., ventral view.—— 29–31, Head of *Nepiodes* spp. (including present *Megopis*), ventral view; 29, *N. costipennis*, ♂; 30, *N. cognata*, ♂; 31, *N. sulcipennis*, ♂.—— 32: 1–5, *Oceanomegopis* spp., habitus; 1, *O. caledonica* comb. nov., ♀, lectotype; 2, labels attached; 3, 4, *O. caledonica* comb. nov., ♂; 3, habitus; 4, head ventral view; 5, *O. kudrnai* comb. nov., holotype, ♂.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32;5
Megopis caledonica Fauvel,
QUENTIN & VILLIERS DET.197
Coll. R. I. Sc. N. B.
Nouvelle Calédonie
Canala
ex coll. Fauvel
:2
:4
32;1
:3

Oceanomegopis kudrnai (DRUMONT et VIVES, 2007), comb. nov.

(Fig. 32: 5)

Megopis kudrnai DRUMONT et VIVES, 2007, Les Cahiers Magellanes, (67): 7.

Key to the Species of the Genus *Oceanomegopis* nov.

1. Body slenderer, interspace between eyes narrower, antennae slender and about as long as body in both sexes; (Ils. New Caledonia: Grande Terre, Lifou, Maré)······ ···*O. caledonica* comb. nov.

— Body wider, interspace between eyes wider, antennae broad, shorter than body in both sexes; (New Caledonia: Grande Terre only)···········*O. kudrnai*. comb. nov.

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要　約

小宮次郎・Alain DRUMONT: *Megopis* 属の再検討. —— *Megopis* 属は, SERVILLE (1832) によりモーリシャス島の *M. mutica* を基準種として記載された. LAMEERE (1909, 1919) は 37 種, 7 亜属を *Megopis* 属に含めたが, 本シリーズの一連の検討により, これらの亜属は独立の属と考えるべきものであることが順次明らかになった. 今回 *Megopis* 亜属を検討した結果, みっつの独立属に分割するべきものと判明した. そのうち複眼が体下面で近接する特徴をもち, アフリカ東部とインド洋西部に分布するのが本来の *Megopis* 属で, *M. mutica, M. modesta, M. modesta coqueleri, M. edgerleyi, M. vinsoni, M. hirticollis* sp. nov. の 5 種 1 亜種が含まれる. 今回新たに記載したニューカレドニアに分布する *Oceanomegopis* 属は, 複眼の間隔がやや狭く, 従来 *Megopis* 属に入れられていたが, 触角第 3 節と脚が短く, 前胸背板が前方に拡がる特徴をもち, 別属とするべきであることが判明した. これまで知られていた *O. caledonica* に加えて近年発見された *O. kudrnai* が含まれ, 後者の特長により別属であることが鮮明となった. また今回われわれは LAMEERE (1909) が *Megopis* 亜属にふくめた種のうち, 東南アジアに分布し, 複眼が離れ, 上翅端に棘をもつ特徴をもつ一群 (*sulcipennis, costipennis, bowringi, terminalis*) を, スンダ地域から知られる *Nepiodes* 属に含まれると暫定的に考えて, この論文では *Megopis* 属から除外してある. したがって, これまでアフリカ, ユーラシア, オセアニアに広い分布圏をもつとされた *Megopis* 属は, アフリカ東部に分布する小さい属の名称となる.

モーリシャス島における *Megopis* 属は，多形的で，その扱いは何度か修正された．近年は QUENTIN & VILLIERS (1975) の提案により *M. mutica* および *M. vinsoni* を独立種と認め，*M. modesta, M. coquereli, M. edgerleyi* の 3 種は *M. mutica* のシノニムとされ，*M. parallela* を *M. vinsoni* のシノニムとされていたが，今回上記のごとく 3 種（内 1 種は亜種）を復活，さらに 1 新種 *M. hirticollis* sp. nov. を記載した．*M. pararella* を VINSON (1962) の扱いのとおり不明種 (incertae sedis) とし，その属は LAMEERE (1909) の考えたように *Aegosoma* 属ではなく，QUENTIN & VILLIERS の提案どおり *Megopis* 属と推定する．このような分類の混乱は，モーリシャス島からこの属が得られた初期 (1830–1910) において，特殊な特徴をもつ標本群が残されているためと考えられる．それはこの時期同島における森林破壊が急速に進み，分化の初期段階にあった *Megopis* 属各種間でさまざまな異種間交雑個体が生じ，それが SERVILLE の総基準標本等に混入した結果ではないかという仮説を立てた．こうした異種交雑個体と考えられるものは 1800–1910 に多く，近年（1990 年以降）得られた 80 個体以上の標本にはほとんど含まれていないが，近似種間の浸透交雑に起因すると推定される個体変異は少なくない．

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Three New *Merionoeda* (Coleoptera, Cerambycidae) from Northern Indochina

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Abstract Three new species of the genus *Merionoeda* from Laos, Thailand and Yunnan are described. *Merionoeda argentata* sp. nov. and *M. kinoshitai* sp. nov. are rather peculiar in appearance, while *M. neglecta* sp. nov is probably related to *M. scutulata* Holzschuh or *M. melanocephala* Gressitt et Rondon.

Introduction

The geographical region of northern Indochina together with the bordering Yunnan Province of China is rather rich in the *Merionoeda* fauna with about 35 recorded species of this genus. Even though it is comparatively well explored and studied, new species of this genus with an appearance quite different from the hitherto known species are still recorded. *Merionoeda argentata* sp. nov. and *M. kinoshitai* sp. nov., as described in the following lines, are two of the recent examples. *Merionoeda argentata* sp. nov. is interesting in the fact that it has so far only a distant resemblance to *M. fusca* Gressitt et Rondon (1970, p. 121, fig. 22c) and is otherwise singular in appearance. *Merionoeda kinoshitai* sp. nov. is also peculiar. Its body and legs resemble those of *M. uraiensis* Kano (1930, p. 43, fig. 1), *M. rusticula* Holzschuh (2003, p. 182, fig. 28) or *M. jeanvoinei* Pic (1933, p. 9) and thus it may be distantly related to these three species. The coloration pattern, however, differs fundamentally from this group of three. Again it is rather isolated in the genus. The third new species, *M. neglecta* sp. nov., on the other hand, resembles and is apparently related to *M. scutulata* Holzschuh (1989, p. 163, fig. 20) and *M. melanocephala* Gressitt et Rondon (1970, p. 125, fig. 22f), forming a group of three related species. Regarding the evolution of the *Merionoeda* fauna in this region, it is observed here again that the genus itself is well diversified with a manifold of highly different types of species, as indicated in the case of *M. argentata* sp. nov. and *M. kinoshitai* sp. nov. At the same time, the splitting and multiplication at the level of subgroups in the genus is also well advanced, as in the case of *M. neglecta* sp. nov. and related species.

We would like to thank Mr. Theodore L. CHILDERS for his critical reading of the draft of this paper, and also to Dr. Masatoshi TAKAKUWA and Mr. Hiroyuki WAKAHARA for their kind offer of invaluable specimens used in this study. The abbreviations used in the ratio of measurement are already explained in our previous paper (YOKOI & NIISATO, 2008).

Merionoeda argentata sp. nov.

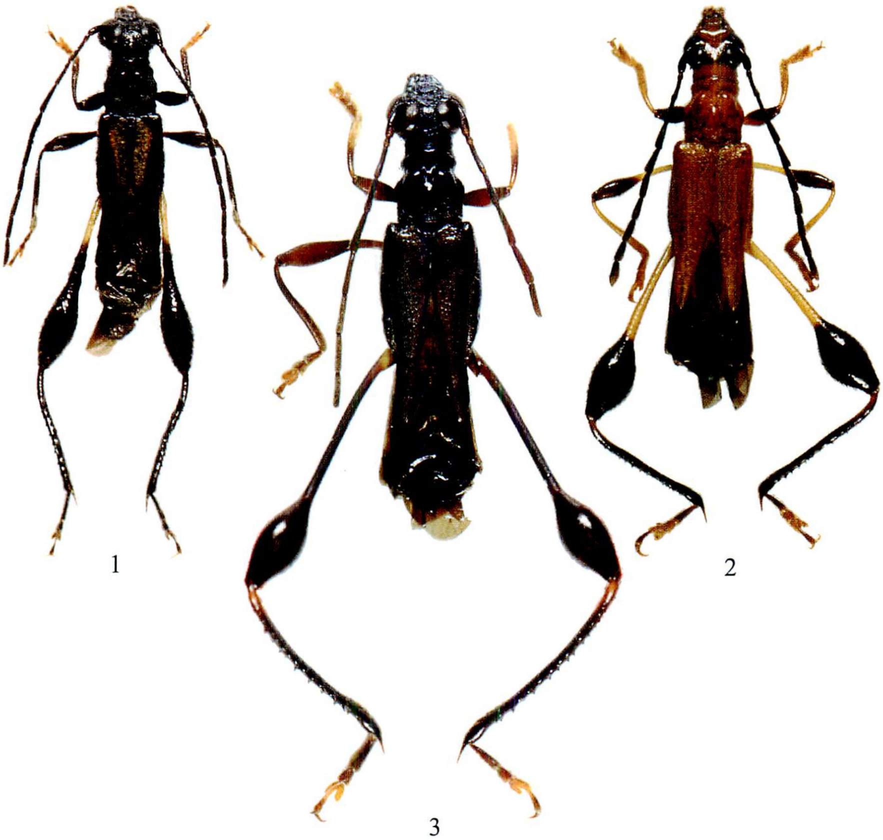
(Figs. 1, 4–9)

Body length (from apical margin of clypeus to abdominal apex) 4.5–6.0 mm.

M a l e. Colour pitchy black, shiny though matted on antennae except for scape; each elytron with an elongated drop-shaped, rather clearly bordered, pale yellow to yellowish brown maculation in basal half, which is about half the width of elytron, narrowed to middle; base of fore, basal third of mid and 2/5 of hind femur pale yellow though gradually darkened apicad; tarsus and fore tibia more or less brown to yellowish brown.

Head moderately projected forwards, with rather elongate neck, weakly convex, wider than the maximum width of pronotum, HW/PW 1.15, provided with dense medium-sized punctures near upper eye-lobes, more or less furnished with long lying silvery hairs throughout except near vertex; occiput provided with dense coarse punctures and fairly long erect silvery hairs behind upper eye-lobes, with sides rugose or coarsely punctured; frons 1/3 the length of basal width, moderately declivous towards a deep median groove, scattered with medium-sized coarse punctures, FA/FB 0.80–0.88 (M 0.84); clypeus about 3/5 the length of basal width, distinctly narrowed towards apex, impressed near middle, provided with medium-sized irregular punctures, often furnished with dense long silvery hairs, with fronto-clypeal suture very deep; eyes large and prominent, very deeply and narrowly emarginate under antennal scapes, separated from one another by 2/5 the width of occiput. Antennae fairly long, surpassing elytral apex at base of segment 10 though not quite attaining to abdominal apex, clothed with minute silvery pubescence on segments 3–11 and additionally with sparse pale yellow hairs on undersides of segments 2–6; scape weakly clavate and arcuate, furnished with a few silvery hairs, segments 3 and 4 nearly equal in length to scape, segments 5–11 obtusely or weakly flattened and serrate, terminal segment bluntly teethed at apex.

Pronotum slightly longer than wide, moderately convergent to apex, PL/PW 1.00–1.05 (M 1.03), PA/PW 0.73–0.87 (M 0.79), PB/PW 0.83–0.95 (M 0.89); sides with moderate lateral swellings near middle, weakly constricted before and behind the swellings; apex and base thickly bordered; disc with three distinct callosities, of which the median longest one is elongate club-shaped, stretching from apical middle almost to basal middle, a pair of large, oblique kidney-shaped ones of 3/5 the length of pronotum



Figs. 1–3. *Merionoeda* spp. from northern Indochina. —— 1, *M. argentata* sp. nov., holotype ♂, from C. Laos; 2, *M. neglecta* sp. nov., holotype ♀, from C. Laos; 3, *M. kinoshitai* sp. nov., holotype ♂, from NW. Thailand.

at a level between basal fifth and apical fourth, scattered with large coarse punctures on interspaces of the callosities, densely clothed with long lying silvery hairs throughout except on the callosities and their interspaces. Scutellum trapezoidal, densely clothed with lying silvery hairs.

Elytra moderate in length, reaching apical margin of basal ventrite, EL/EW 2.1–2.16 (M 2.14); sides moderately projected forwards at humeri, slightly emarginate between basal fourth and apical eighth, strongly dehiscent in apical 2/3, with apical part pronounced broadly knife-shaped; each elytron provided with an obtuse costa from humerus to apical third as well as with irregular rows of medium-sized puncture which decrease in number from 9 to 2 apicad, sparsely furnished with short erect silvery hairs, impressed near apical third.

Venter of thoraces moderately shiny, clothed with long, lying silvery hairs except for apical margin of prosternum; prosternum moderately produced behind apical margin, with intercoxal process strongly compressed between coxae; mesosternum with intercoxal process very broad and subparallel; metasternum well convex with apex deeply and sharply emarginate. Abdomen subparallel at sides, shiny though clothed with fairly long lying silvery hairs on basal half of ventrite 1, near bases of ventrites 2–3 and at sides of ventrites 2–5; ventrite 1 9/20 the length of abdomen, ventrite 2 1/6 likewise; anal tergite bluntly angulate at middle of apex.

Legs fairly long and slender; hind femur surpassing abdominal apex by about half its length, weakly arcuate, gradually clavate in apical half, the club 3 times as thick as peduncle with rather sparse short erect pale yellow hairs; hind tibia 4/5 the length of femur, moderately arcuate, with small dents in two rows along external sides, terminal spur fairly short, 3/4 the length of 1st tarsal segment.

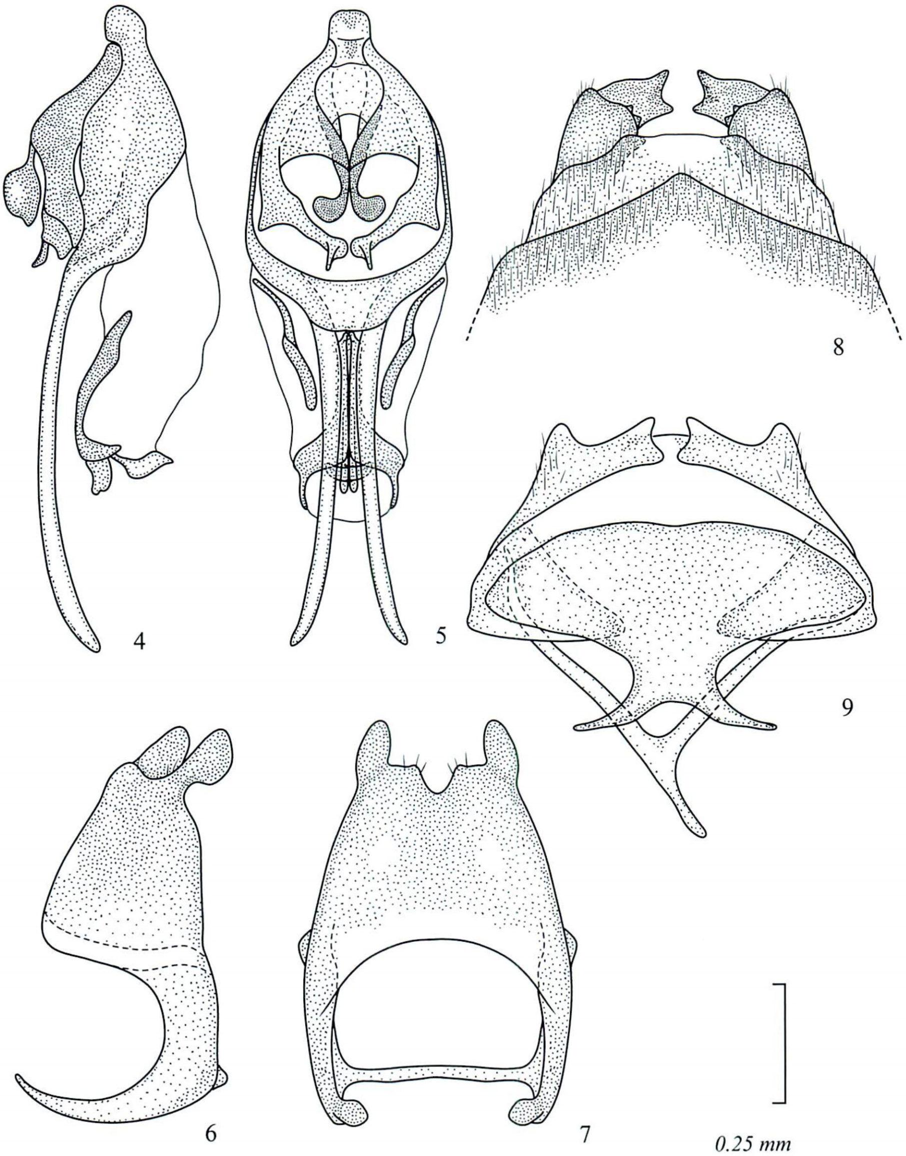
Median lobe broad spindle-shaped with thick appendicle at the extremity, markedly convex, 3/5 the length of abdomen; dorsal plate widely divided in arcuate line in apical 2/3 which is highest in profile, slightly approximate at basal third then slightly divided posteriad, each lateral wall in base triangularly produced at external angle, provided with a blunt hook-shaped tubercle at inner angle; apical part of ventral plate with a rather large rounded tubercle; copulatory piece as shown in Figs. 4–5. Tegmen moderately wide, sub-trapezoidal with arcuate sides in parameres, transverse quadrate in ring part, about 3/5 the length of median lobe; parameres arcuately emarginate at apical margin with a large triangular concavity at middle, provided with rather long spatulate lobes at each side, without any setae. Eighth abdominal segment transverse; tergite provided with a pair of thick lateral projections, bifurcate at apex; sternite ordinary fan-shaped, weakly arcuate at apical margin.

Type series. Holotype ♂, 8–12 km W. of Nhahin, alt. 500–700 m, Borikhamxaxai Prov., C. Laos, 6–IV–2004, T. NIISATO leg. Paratypes: 4 ♂♂, same data as the holotype. The holotype is preserved in the National Museum of Nature and Science, Tokyo, and the paratypes are in the private collection of the authors.

Distribution. Central Laos.

Notes. Dark in colour, with clavate part of hind femur gradually swollen and with silvery hairs covering a good portion of pronotum as well as head, so that *M. argentata* sp. nov. is rather conspicuous. It can be compared only to *M. fusca* GRESSITT et RONDON, sharing the same structure of hind femur as well as basic colour pattern. It differs from the latter, however, in having the clearly longer elytra, with acute apex in contrast to the rounded elytral apex of the latter. Further, the antennae of the new species are much less flattened, the body lacks the long standing hair of the latter, while its pronotum is mostly covered with silvery hairs. It is also smaller.

All the specimens of the type series of this new species were found on a white tree blossom in the late morning near Nhahin in Central Laos.



Figs. 4–9. Male genital organs of *Merionoeda argentata* sp. nov., from C. Laos. —— 4, Median lobe, lateral view; 5, ditto, dorsal view; 6, tegmen, lateral view; 7, ditto, dorsal view; 8, anal tergite and 8th abdominal segment, dorsal view; 9, 8th abdominal segment in ventral view.

Merionoeda neglecta sp. nov.

(Fig. 2)

Body length (from apical margin of clypeus to abdominal apex) 6.4–6.7 mm.

Female. Similar in many respects to *M. scutulata* from NE. Laos but easily distinguished from the latter by wholly reddish meso- and metathoraces including scutellum (a little infuscate in metasternum in paratype), almost wholly black antenna except for reddish tips of terminal segment, and straight sutural margins of elytra instead of emarginate ones. Colour reddish yellow, partly black to dark brown, weakly shiny in general; head dark reddish yellow except for reddish occiput, black in eyes, antenna and mandibular apex; legs reddish yellow, dark brown in swollen parts of fore and mid femora, and basal segment of hind tarsus, black in swollen part of hind femur and hind tibia except for brownish base; hind wings brownish black.

Head almost as in *M. scutulata* though not so large, coarsely punctured on occiput except for smooth median area, with eyes more weakly prominent, and more widely separated from one another, its interval 2/5 the width of occiput, HW/PW 1.03–1.06, FA/FB 1.00. Antennae almost as in *M. scutulata* though a little stouter and shorter, almost reaching elytral apices. Pronotum similar to that of *M. scutulata* though rather slender, not so strongly uneven at sides and on disc, PL/PW 0.98–1.00 (M 0.99), PA/PW 0.75–078 (M 0.77), PB/PW 0.85–0.93 (M 0.89); sides almost as in *M. scutulata*, with lateral prominent swellings near middle, markedly constricted before or hardly so behind the swellings, gently arcuate in basal 3/7; disc with three distinct callosities corresponding to those of *M. scutulata*, of which the median oblong one on basal third, a pair of large, oblique kidney-shaped ones of 3/5 the length of pronotum at a level between apical and basal third, scattered with large coarse punctures in interspaces of the callosities, densely clothed with long lying silvery hairs on basal third. Scutellum triangular, with rounded apex, densely clothed with minute silvery hairs. Elytra similar to those of *M. scutulata*, reaching the base of ventrite 2, EL/EW 1.85–1.95 (M 1.90); sides moderately narrowed in almost straight lines to apical third, then gently arcuate to apices, strongly dehiscent in apical 2/3 in almost straight lines, not emarginate as in *M. scutulata*. Ventral surface almost as in *M. scutulata*, though generally matted and sparsely punctured, with anal ventrite widely deeply emarginate. Legs almost as in *M. scutulata* though not so long.

Type series. Holotype ♀, Phonsavan, 1,150 m in alt., Xiengkhouang Prov., C. Laos, 16–III–2008, H. WAKAHARA leg. Paratype: 1 ♀, near Dadygang, 1,500 m in alt., Xishungbanna, Yunnan Prov., SW. China, 7–V–1982. The holotype is preserved in the National Museum of Nature and Science, Tokyo, and the paratype is in the Kanagawa Prefectural Museum of Natural History, Odawara.

Distribution. Laos and Yunnan (SW. China).

Notes. *Merionoeda neglecta* sp. nov. is apparently most closely related to *M. scutulata* HOLZSCHUH. However, it can be distinguished from the latter by the following differences. First, the meso- and metathoraces are reddish yellow or light brown in colour, and the scutellum is without exception reddish yellow, whereas these parts are black in colour in *M. scutulata*. Secondly, the antennae are black in general except the apices of the last segments, whereas the scape and the last 2 segments of the latter are more or less reddish. Thirdly, the pronotum is rather narrow with its length nearly equal to the width, while the swellings on the disc and on the sides are weaker. Finally, the elytra are broader, with a straight inner edge in contrast to the emarginate inner one of *M. scutulata*.

The new species resembles also *M. melanocephala* GRESSITT et RONDON, which seem to resembles *M. scutulata* according to the description. It differs, however, in the coloration of metathorax, scutellum and the apical third of elytra and thus can be distinguished. Nevertheless, *M. scutulata*, *M. melanocephala* and *M. neglecta* sp. nov. are probably closely related with each other and may form a group within the genus. The resemblance to *M. spadixelytra* GRESSITT et RONDON (1970, p. 126, fig. 22 g) regarding the coloration pattern seems to be of a more incidental nature, as they obviously differ in comparative length and structure of the elytra.

Merionoeda kinoshitai sp. nov.

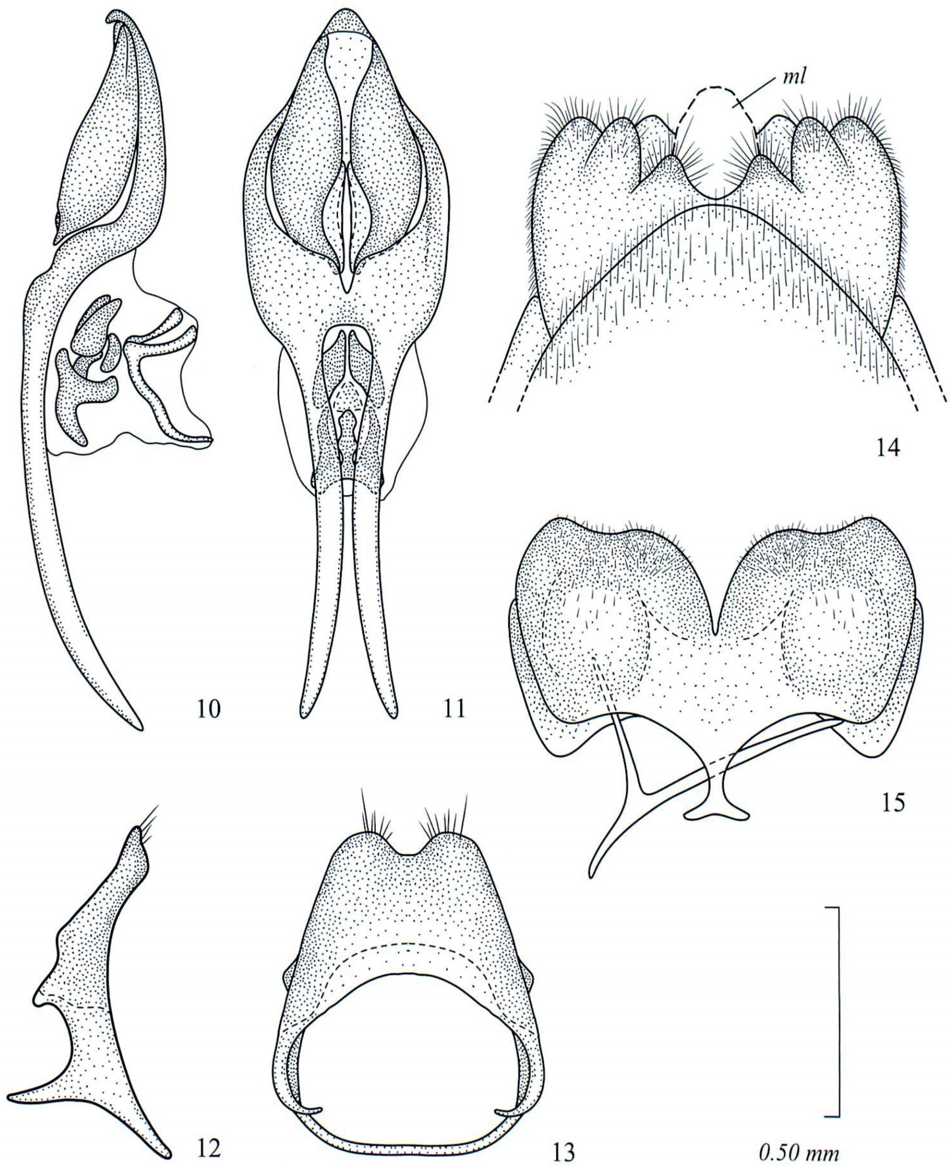
(Figs. 3, 10–15)

Body length (from apical margin of clypeus to abdominal apex) 8.1 mm.

M a l e. Colour black, though elytra and antennae dark brown; legs mostly reddish dark brown, bases of hind femur and tibia, and apical half of fore tibia yellowish brown; tarsus more or less yellowish brown; shiny though matted on elytra except at humeri and on legs except on clavate part of hind femur.

Head moderately projected forwards, with rather elongate neck, weakly convex, wider than the maximum width of pronotum, HW/PW 1.15, provided with dense medium-sized punctures and a few short silvery hairs near upper eye-lobes; occiput furnished with dense large punctures behind upper eye-lobes, with sides rugose or coarsely punctured; frons half the length of basal width, moderately declivous towards a deep median groove, scattered with large coarse punctures, FA/FB 0.9; clypeus about half the length of basal width, distinctly narrowed towards apex, flattened in apical 2/3, with large, coarse irregular punctures, fronto-clypeal suture very deep; eyes large and prominent, very deeply and narrowly emarginate under antennal scapes, separated from one another by 1/3 the width of occiput. Antennae fairly long, attaining abdominal apex, clothed with minute silvery pubescence on segments 5–11 and a few short silvery hairs on basal four segments, additionally with sparse pale yellow hairs on undersides of segments 2–6; scape weakly clavate, arcuate, furnished with a few silvery hairs, segments 3 and 4 nearly equal in length and 3/4 the length of scape, segment 5 obtusely and segments 6–11 weakly flattened, segments 6–10 hardly serrate, terminal segment bluntly teethed at apex.

Pronotum slightly longer than wide, moderately convergent to apex, PL/PW 1.05, PA/PW 0.72, PB/PW 0.91; sides with large lateral swellings near middle, moderately



Figs. 10–15. Male genital organs of *Merionoeda kinoshitai* sp. nov., from NW. Thailand. —— 10, Median lobe, lateral view; 11, ditto, dorsal view; 12, tegmen, lateral view; 13, ditto, dorsal view; 14, anal tergite and 8th abdominal segment, dorsal view; 15, 8th abdominal segment in ventral view; *ml*, outline of median lobe in apical part.

constricted before and hardly so behind the swellings; apex and base thickly bordered; disc with three distinct callosities, of which the median smallest one is drop-shaped, raised at a level between basal sixth and apical 2/5, a pair of large, oblique kidney-shaped ones of half the length of pronotum at a level between basal sixth and apical third, hardly punctured and almost glabrous, though furnished with a few silvery hairs in interspaces of callosities and densely clothed with short silvery hairs on basal margin and on basal half of oblique callosities, shagreened on basal third to sixth. Scutellum trapezoidal with emarginate apex, clothed with silvery pubescence.

Elytra moderate in length, surpassing apex of basal ventrite, EL/EW 2.18; sides moderately projected forwards at humeri, weakly emarginate between basal and apical sixth, strongly dehiscent in apical 2/3, with apical part pronounced broadly knife-shaped; disc furnished with fairly dense minute silvery hairs, each elytron provided with an obtuse to moderate costa from humerus to apical sixth, as well as with irregular rows of medium-sized punctures which are decreasing in number from 9 to 3 apicad, weakly impressed near apical third.

Venter of thoraces weakly shiny, clothed with silvery pubescence except for apical third of prosternum, middle of mesosternum and metasternum; prosternum moderately prominent behind apical margin, with intercoxal process strongly compressed between coxae; mesosternum with intercoxal process broad, widely and deeply emarginate at apex; metasternum well convex, with median suture deeply grooved and with a distinct transversal groove. Abdomen moderately arcuate at sides, clothed with silvery pubescence on ventrites 1–2 and at sides of ventrites 3–5; ventrite 1 4/9 the length of abdomen, ventrite 2 1/5 likewise; anal tergite narrowly rounded at apex.

Legs long and fairly slender; hind femur surpassing abdominal apex by about apical half, weakly arcuate, rather suddenly clavate in apical third, with short lying hairs; hind tibia 4/5 the length of femur, slightly arcuate, with small dents in two rows along external side, terminal spur short, reaching only the middle of 1st tarsal segment.

Median lobe broad and subparallel though strongly narrowed apicad from apical 2/5, weakly convex in profile, almost half the length of abdomen; dorsal plate rather narrowly divided in arcuate line in apical 2/5, almost approximate at 3/5 then arcuately divided again, completely conjoined at base, lateral walls entirely arcuate at sides; apical part of ventral plate hardly produced, gently bent upwards in profile; copulatory pieces as shown in Figs. 10–11. Tegmen wide, trapezoidal as a whole, distinctly dilated basad, about 2/5 the length of median lobe; parameres gently arcuate at apical margin, with a weak rounded triangular concavity at middle, provided with about 10 rather long setae near inner sides. Eighth abdominal segment strongly transverse though slightly dilated apicad, with developed sternite which is almost produced to dorsal side; tergite provided with a pair of large arcuate lobes at sides, and a pair of approximate triangular small projections near middle; sternite almost truncate at apical margin with a deep narrow triangular concavity at middle.

Type specimen. Holotype ♂, Chiang Mai District, IV–1988, no further data. The holotype is preserved in the National Museum of Nature and Science, Tokyo.

Distribution. NW. Thailand (Chiang Mai District.).

Etymology. The name of this new species is dedicated to the memory of the late Mr. Tomio KINOSHITA, who was an excellent observer of the cerambycid fauna of Japan. He passed away unexpectedly on 30 August 2009, when this paper was in preparation.

Notes. Dark in coloration and with long slender femur, *M. kinoshitai* sp. nov. is almost unique in appearance and can therefore be easily distinguished. It shares the long, slender, rather suddenly thickened hind femora with *M. uraiensis* KANO, *M. rusticula* HOLZSCHUH or *M. jeanvoinei* PIC. It is probably related to the group of these three species. The overall black to dark coloration of the new species is, however, fundamentally different from the basically yellowish to reddish coloration of the latter three species. The resemblance with *M. indica* (HOPE) (1831, p. 28) or *M. nigrella* GRESSITT (1942, p. 79, pl. 1, fig. 1) regarding coloration is more superficial, as the form of the legs is fundamentally different.

Only one male holotype with scarce collecting data is known.

要　約

横井彌平太・新里達也：北部インドシナから発見されたモモブトコバネカミキリ属の3新種．── インドシナ北部および雲南南部を合わせた一帯からは，モモブトコバネカミキリ属既知種の3分の一に近い約35種がこれまでに記録されており，同属のカミキリムシの種多様性とその解明度が高い地域として知られている．しかし近年でもなお，既知種と直接の類縁関係をもたない顕著な新種が少なからず発見されており，本論文で記載した *Merionoeda argentata* sp. nov. と *M. kinoshitai* sp. nov. もそのよい例である．

1) *Merionoeda argentata* sp. nov.: 体全体の色調と後腿節肥大部の形状が *M. fusca* GRESSITT et RONDON に似ているが，触角や前胸背面，上翅の特徴が大きく異なり，ほかに近縁の種は見出されない．ラオス中部の比較的低い標高の原生林で採集された．

2) *Merionoeda neglecta* sp. nov.: *Merionoeda scutulata* HOLZSCHUH および *M. melanocephala* GRESSITT et RONDON に類縁が近く，これら3種は属内で1群を形成するものと考えられる．ラオス中部と雲南から採集された各1雌個体をもとに記載した．雄は未知．

3) *Merionoeda kinoshitai* sp. nov.: 体と肢の構造は，*M. uraiensis* KANO，*M. rusticula* HOLZSCHUH および *M. jeanvoinei* PIC に似ているが，色彩は全体が暗褐色でまったく異なっている．少なくとも現在までの知見では属内で孤立した存在である．タイ北西部で採集された1雄をもとに記載した．新名称は，本年8月30日に急逝した著名なカミキリムシ採集家である木下富夫氏に捧げた．

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Elytra, Tokyo, **37**(2): 353, November 14, 2009

Occurrence of *Cephalochetus rufus* (CEMERON) (Coleoptera, Staphylinidae) on the Island of Ishigaki-jima of the Ryukyu Archipelago, Japan

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Cephalochetus rufus (CAMERON) is widely distributed throughout the Oriental Region. However, this species has hitherto been known in Japan only from the Island of Nakanoshima of the Tokara Islands off southern Kyushu (SAWADA, 1961, p. 62). Recently, I had an opportunity to examine one specimen of this species obtained on the Island of Ishigaki-jima of the Ryukyu Archipelago. It is recorded below with the collecting data.

1 ♀, Takeda, Ishigaki-jima Is., Ryukyus, Japan, 30–III–1990, T. NONAKA leg.

I thank Dr. Yoshifumi NONAKA for his kindness in giving me the specimen and Mr. Yasutoshi SHIBATA, Machida-shi, for his kind help in consulting with literature.

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Elytra, *Tokyo*, **37**(2): 354, November 14, 2009

New Records of *Merionoeda* Species (Coleoptera, Cerambycidae) from Yunnan, Southwest China

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Through the courtesy of Dr. Masatoshi TAKAKUWA, we had an opportunity to examine *Merionoeda* specimens, which were collected from Yunnan Province, Southwest China about a quarter century ago. A result of our careful examination has revealed that the collection consisted of two unrecorded species from the province as listed below. We would like to thank Dr. TAKAKUWA for his kind offer of the invaluable specimens.

Merionoeda nigrella GRESSITT, 1942

Merionoeda (s. str.) *nigrella* GRESSITT, 1942, Notes Ent. Chin., **9**, p. 79, pl. 1, fig. 1; type locality: "Huang Shan, Anhwe".

Specimen examined. 1 ♂, near Daduang, 1,500 m in alt., Xishungbanna, Yunnan Province, SW. China, 7–V–1982.

Distribution. E. China and SW. China.

Merionoeda scutulata HOLZSCHUH, 1989

Merionoeda scutulata HOLZSCHUH, 1989, Koleopt. Rdsch., **59**, p. 155, fig. 20; type locality: "India, West Bengalen, Darjeeling Distr., Kalimpong, Khani".

Specimens examined. 11 ♂♂, 5 ♀♀, near Daduang, 1,500 m in alt., Xishuangbanna, Yunnan Province, SW. China, 7–V–1982.

Distribution. India (Bengal) and SW. China.

Elytra, Tokyo, **37**(2): 355–359, November 14, 2009

A Remarkable New Species of the Genus *Obrium* (Coleoptera, Cerambycidae) from Northeastern Laos

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Abstract A remarkable new species belonging to the genus *Obrium* is described from Houaphan Province of northeastern Laos under the name *O. miranda* sp. nov. The new species is easily distinguished from the other member of the genus by the large infuscate brown body with yellowish brown maculation on the humeri and apices of elytra.

Introduction

A total five members of the genus *Obrium* have so far been recorded from Laos (GRESSITT & RONDON, 1970; HOLZSCHUH, 2008), with the exception of *Uenobrium laosicum* (GRESSITT et RONDON) which was recently transferred to a different, newly established genus (NIISATO, 2006). During the field survey in Laos in the past five years, I obtained a rather long series of *Obrium* specimens. Though most of them were already described by previous authors, I was able to find an evident new species having very large, almost infuscate brown body with yellowish maculation on the elytral humeri and apices. In the following lines, I will describe it under the name *Obrium miranda* nov. and also introduce its exceptionally long ovipositor among the reproductive organs of the *Obrium* species.

I would like to thank Dr. Shun-Ichi UÉNO for his continuous guidance and reading the original draft of this paper, and also to Hiroyuki WAKAHARA for his help in the field work of Laos.

Obrium miranda sp. nov.

(Figs. 1–5)

Body length (measured from apical margin of clypeus to elytral apices) 9.1 mm.

F e m a l e. Colour pitchy reddish brown, yellowish brown in antennal segments 4–11, mouthparts except for mandibles, abdominal ventrites 2–5; pronotum pitchy reddish brown, brownish on discal callosities and along apical and basal margins; scutellum brown with black margin; elytra pitchy reddish brown, light yellowish brown at humeri and in apical fifth, the latter of which is strongly sinuate along anterior margin. Body sparsely clothed with short light brown hairs; antennae densely with recumbent light brown hairs on basal four segments, sparsely so on segment 5; pronotum only sparsely with long erect light brown hairs; elytra uniformly with short light brown hairs throughout; ventral surface sparsely covered with short pale hairs, except for silvery pubescent mesosternum and middle of prosternum.

Head large including well expanded eyes, 1.15 times as wide as the maximum width of pronotum, almost smooth, scattered with a few punctures; frons 3.3 times as wide as long, strongly declivous to a deep median groove, fronto-clypeal suture transverse semicircular, markedly deep; clypeus trapezoidal, 3/5 the length of basal width, with a few punctures; mandibles stout, rather long, hooked near apices; maxillary palpus elongate, arcuately dilated to basal half then gently narrowed apicad, twice the length of the preceding segment; vertex flattened; eyes in dorsal view separated from one another by 1/5 the width of occiput or 7/20 the width of each lobe. Antennae very long, filiform, stout, 1.6 times as long as body, exceeding elytral apices at base of segment 8, rough on surface of basal four segments, shagreened in the remainders; scape elongate, slightly clavate, 1.35 times as long as segment 3, segment 5 the longest, 1.25 times as long as segment 3, terminal segment hardly arcuate.

Pronotum relatively long, slightly divergent apicad, narrow, a little longer than wide, 1.40 times as long as the apical width, a little shorter than half the length or 4/5 the width of elytra; apical margin arcuately produced; basal margin gently emarginate; disc moderately convex, provided with a pair of rounded callosities at sides of apical third and a similar median one behind middle, very sparsely scattered with medium-sized punctures. Scutellum very narrow, longitudinally quadrate.

Elytra nearly 2.4 times as long as the humeral width, broad, widest at apical third which is 1.15 times as wide as humeri; sides with oblique humeri, gently arcuately emarginate to middle, then moderately arcuate to completely rounded apices; disc distinctly raised near suture of basal fifth and apical fourth, depressed on middle near suture, sparsely provided with fine punctures in irregular rows, which become sparser near apices.

Venter of thoraces sparsely scattered with fine punctures and short hairs, except for mesosternum and middle of prosternum which have coarse punctures and slivery pubescence; metepisternum provided with a deep longitudinal groove in almost entire length. Abdomen broad, well convex; basal ventrite large, 3/7 of the entire length, finely sparsely punctured; 2nd ventrite with rake-shaped organ more or less reduced, 2/5 the width of 2nd ventrite; anal ventrite obtuse triangular, clothed with long setae near apical margin.

Legs moderate in length, rather thin, coarsely rough on surface of tibiae and tarsi, with hind femur moderately clavate and compressed in apical 2/5, 1st hind tarsal segment 1.3 times as long as the following two segments combined.

Female genitalia. Paraproct and coxite weakly conjoined, consisting of a long piece, with thin baculi straight in the former though oblique in the latter; coxite lobe weakly sclerotized, rather short, rounded at apex, provided with long setae near apex and short ones at sides; stylus moderately sclerotized, slightly thickened apicad,

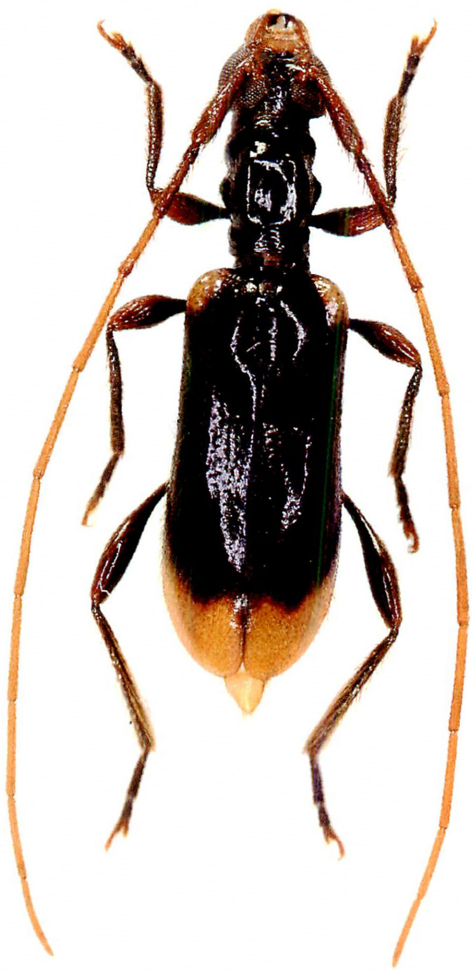


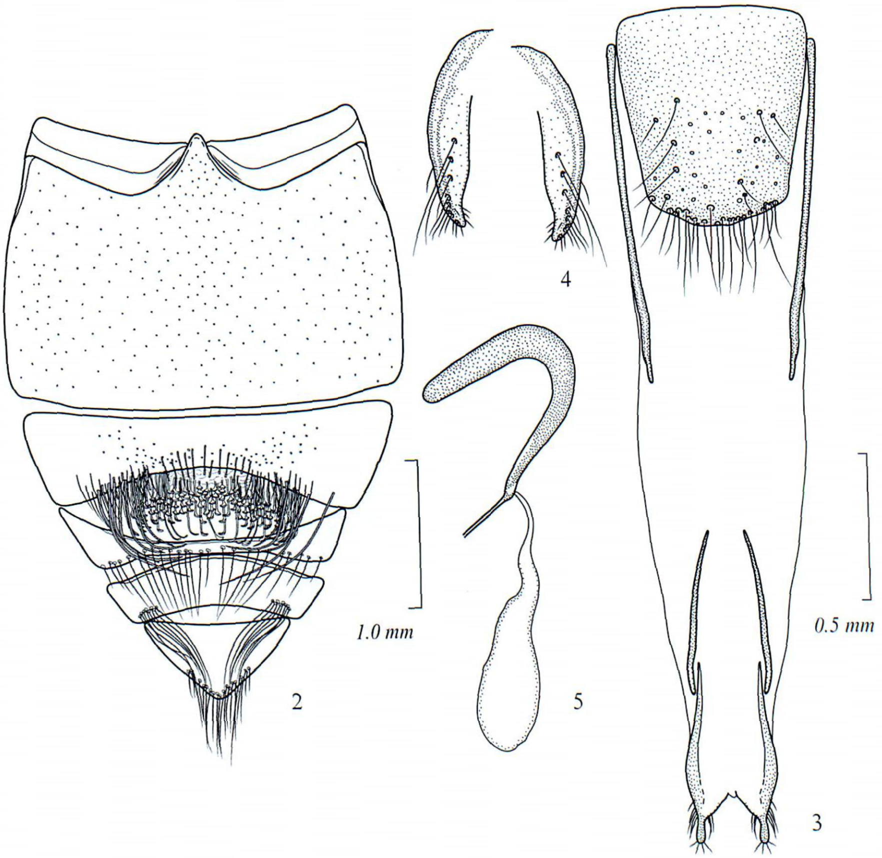
Fig. 1. *Obrium miranda* sp. nov., holotype ♀, from Phou Pan (Mt.), Houaphan Province of northeastern Laos.

with four long setae at apex; spermatheca distinctly sclerotized, long, almost U-shaped, with large gland which is constricted in basal part.

Type specimen. Holotype ♀, Phou Pan (Mt.), Houaphan Prov. of NE. Laos, 16–IV～15–V–2004, native collector leg. The holotype is preserved in the National Museum of Nature and Science, Tokyo.

Distribution. Laos.

Notes. *Obrium miranda* sp. nov. is a very peculiar species in having large infuscate brownish body with yellowish brown maculation at humeri and in apices of elytra. It has no close relative among the members of the genus. This new species may have some relatiopnship with *O. posticum posticum* GAHAN (1894, p. 14) and *O. p. saigonense* PIC (1933, p. 9), but is clearly distinguished from them by the unique coloration and



Figs. 2–5. Female abdomen and genital segments of *Obrium miranda* sp. nov., from Phou Pan (Mt.), Houaphan Province of northeastern Laos. —— 2, Abdominal ventrites, omitted fine hairs; 3, ovipositor and tergite 8; 4, sternite 8; 5, spermatheca.

structures of pronotum which has three distinct callosities instead of being almost smooth.

Only the female holotype examined was collected by native collector of Ban Saleui, foot of Phou Pan (Mt.).

要　　約

新里達也：ラオス北東部から発見されたムナミゾアメイロカミキリ属の顕著な1新種．—— ラオスからこれまでに5種のムナミゾアメイロカミキリ属が記録されているが，そのうち4種までがきわめて最近になって発見されたものである．私たちの同国の調査でも多数の本属の標本が得られているが，そのなかに見出された唯1点の雌個体は，きわめて大型でかつ独特な外観をもち，本属のいずれの既知種にも該当しない．そこで本論文で *Obrium miranda* sp. nov. という新名を与えて記載した．本新種は同属中に直接の類縁関係を求められるものはないが，色彩はまったく異

なるものの，北インドシナに広く分布する *O. posticum* Pic に形態がやや似ているところもある．また，*O. miranda* sp. nov. の産卵管はムナミゾアメイロカミキリ属にあっては非常に長く発達しておりきわめて特異である．

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Elytra, Tokyo, **37**(2): 359–360, November 14, 2009

New Distributional Record of *Cercyon* (*Cercyon*) *aptus* (Coleoptera, Hydrophilidae) from the Island of Iriomote-jima, the Ryukyus, Japan

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Cercyon (*Cercyon*) *aptus* was described from Honshu and Kyushu (SHARP, 1873), and is rather common under seaweeds on sandy beaches and widely distributed throughout Japan. Recently, the species has been additionally recorded from Primorsky Kray, the Kuril Islands, and peripheral Islands off Hokkaido, Japan (SHATROVSKIY, 1989, 1992, ÔHARA and JIA, 2006, and ÔHARA, 2008). Under a series of faunal researches of the supralittoral insects of the Island of Iriomote-jima, we have had the opportunity to examine several specimens collected under seaweeds on sandy beaches. This is the first record of the species from the Ryukyus. We thank Messrs. T. WADA and S. SHIYAKE (Osaka Museum of Natural History, Japan) who provided us valuable specimens.

Cercyon (Cercyon) aptus SHARP, 1873

Cercyon aptus SHARP, 1873, 65 [Japan (Kyushu: Nagasaki, Honshu: Hyogo)]; KILS, 1999, 177 [Hokkaido].
Cercyon (Cercyon) aptus: SHATROVSKIY, 1989, 281 [southern Kurils, Primorsky Kray]; ÔHARA & JIA, 2006, 131 [redescription, key; Kurils].
Cercyon (Cycreon) aptus: SHATROVSKIY, 1992, 367 [designation of lectotype (Japan, female); southern Kurils].
Cercyon sp. 2: KAWAKAMI, 2000, 7 [Iriomote-jima].

Specimens examined. [Iriomote-jima, the Ryukyus, Japan] 1 ex., Sonai-no-hama, 8–V–1999, T. WADA leg., housed in the Osaka Museum of Natural History. 2 males and 2 exs., Hoshizuna-no-hama, Uehara, 24°26′11″N 123°40′38″E, 4–XII–2008, M. ÔHARA leg. (IR-08-MO-040).

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Elytra, Tokyo, **37**(2): 361–366, November 14, 2009

A New Species of *Nothomyllocerus* (Coleoptera, Curculionidae, Entiminae) from Bhutan

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Abstract A new species of the broad-nosed weevil of the genus *Nothomyllocerus* KOJIMA et MORIMOTO, 2006 in the tribe Cyphicerini is described from Bhutan under the name *N. ugennamgyeli* sp. nov. as the westernmost distribution record of the genus. The weevil is frequently encountered in western and central Bhutan on leaves of various trees, especially on the Himalayan Blue Pine, *Pinus wallichiana*. This is an aberrant species among congeners in having almost denuded derm and the prominent prosternal process.

As the first report of our study on the Bhutanese weevils, we will describe a commonly encountered new species of entimine weevil, which may fall in the genus *Nothomyllocerus* of Myllocerina, Cyphicerini.

Nothomyllocerus was recently established based on one of the commonest Japanese weevils, *Myllocerus griseus* ROELOFS, 1873 (MORIMOTO *et al.*, 2006). Another six species from Japan, Korea, the Russian Far East and China, all having been placed in the large heterogeneous genus *Myllocerus* SCHOENHERR, 1823, were transferred to the same genus at that time.

A peculiar new species of *Nothomyllocerus* was found from Bhutan as the westernmost record of this generic distribution.

The authors express thier sincere thanks to Mr. Ugen NAMGYEL to whom the species name is dedicated, Mr. Gembo DORJI for his help in collecting materials and bringing them to Japan, and Mr. Max BARCLAY, the Natural History Museum, London, Dr. Katsura MORIMOTO, Fukuoka and Dr. Shun-Ichi UÉNO, Tokyo for their kind advice on various aspects. Special thanks are also due to Dr. Kenji KOHIYAMA, who kindly prepared us excellent photographs.

The type materials are preserved in the Laboratory of Entomology, Tokyo University of Agriculture, Atsugi, Kanagawa and the YORO Collection, Kamakura, Kanagawa, Japan.

Nothomyllocerus ugennamgyeli sp. nov.

(Figs. 1–10)

Male. Length: 6.5–8.4 mm; width: 2.3–2.9 mm.

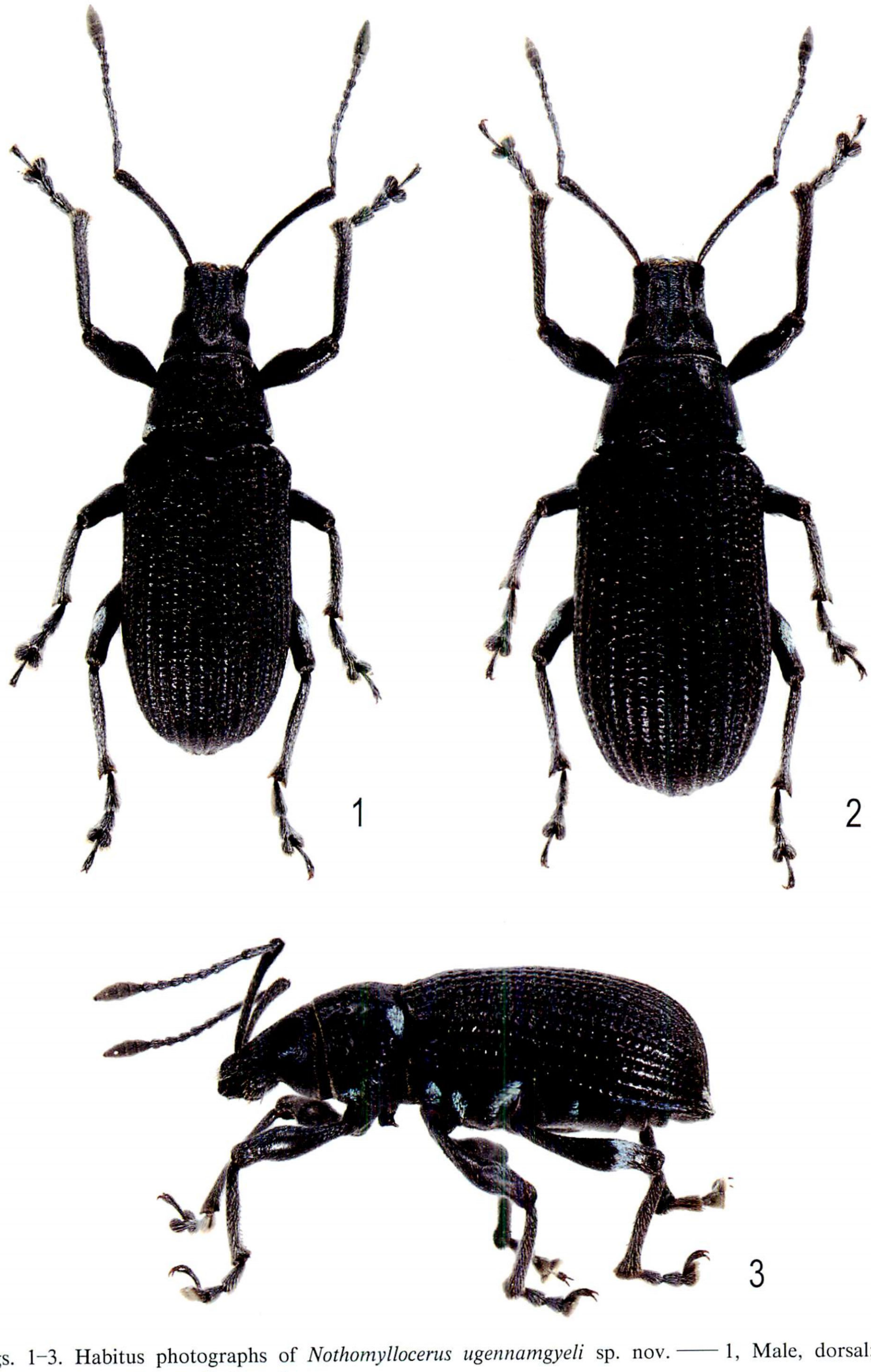
Derm shiny black, almost denuded except for small patches of white to blue or green metallic scales at hind angle of prothorax, extreme apices of second and third intervals of elytra, apical 1/4 of hind and faintly middle femora, and underside at antero-lateral part of prosternum, posterior corners of mesosternum and mesepisternum, anterior and posterior corners of metasternum, posterior part of metepisternum, and posterior corners of first and second ventrites.

Head with frons striolate antero-medially, faintly depressed, 0.6 times as wide as base of rostrum, weakly narrowing anteriorly from base to base of rostrum at sides, with median fovea continuing into median carina of rostrum, clothed with white to pale blue thin recumbent hairy scales. Eyes ovate, 1.1 times as long as wide, convex laterally beyond side margin of head, highest at middle. Rostrum a little wider than long, subparallel-sided in basal half, clothed with white to pale blue recumbent hairy scales, dorsolateral carinae convergent posteriorly behind swinging fossae and paralleled as far as level between apical third of eyes, dorsal area between carinae flat, with distinct median carina, lateral area striolate, with weak lateral oblique carina roughly parallel to dorsolateral one, epistome bare, obtusely angulate at posterior corner, without postepistomal ridge. Antennae with scape simple, weakly curved, reaching apical third of pronotum, with proportion in length (width) from scape to club as 34 (4): 11 (3): 10.5 (2.5): 4.5 (2.5): 4.5 (2.5): 4 (2): 4 (2.5): 3.5 (2.5): 13.5 (5), club with first segment nearly as long as second.

Prothorax subtrapezoidal, 1.4–1.5 times as wide as long, widest at base, distinctly bisinuate and roundly produced in middle at base, disc coarsely and densely punctate around median area, punctures becoming sparser on periphery, each puncture bearing short grayish recumbent hairy scale. Scutellum tongue-shaped, bare. Elytra about 1.8 times as long as wide, weakly prominent at humeri, subparallel-sided behind humeri to apical third, lateral margin clothed with white to metallic blue or green scales on apical third, striae regularly punctate, each puncture bearing very fine seta, very fine pale blue scales arranged around punctures, intervals rugose, each interval with row of grayish, very short recumbent scales. Legs with femora weakly dentate, tibiae feebly bisinuate internally, mucronate, not costate internally and externally, tarsi with second segments longer than wide.

Prosternum with prominent process pointed caudad behind coxae. Venter with second ventrite flattened in middle.

Terminalia as figured. Aedeagus slender, notched at apex, digitiform sclerite oblong ovate, pair of sclerites at ostium narrow, aedeagal apodeme slender, about 1.8



Figs. 1–3. Habitus photographs of *Nothomyllocerus ugennamgyeli* sp. nov. —— 1, Male, dorsal; 2, female, dorsal; 3, male, lateral.

times as long as aedeagal body, densely asperate from fold to gonopore, gonopore with complex thin sclerites.

F e m a l e. Length: 7.8–8.8 mm; width: 3.1–3.4 mm. A little robuster than male. Head with frons depressed, prothorax 1.5 times as wide as long, elytra about 1.7 times as long as wide, slightly widening behind humeri to apical third, venter with second ventrites weakly swollen. Terminalia as figured. Ovipositor with bursa copulatrix pigmented at caudal part. Spermatheca relatively slender, collum abruptly bent upwards, spermathecal gland very long.

Type materials. Holotype: male, Takin Reserve (alt. ca. 2,400 m), Thimpu, Bhutan, 27–VI–2005, Takeshi YORO. Paratypes. 12 males and 5 females, same data as the holotype. 2 females, Near Army Camp (alt. ca. 2,500 m), Thimpu, Bhutan, 29–VI–2005, T. YORO. 1 male and 1 female, Thimpu, Bhutan, 30–VI–1995, T. YORO. 2 males and 1 female, Nyimalung, Bhutan, 2〜9–VII–1995, T. YORO. 2 males, Jakar, Bhutan, 2〜7–VII–1995, T. YORO; 1 female, 1–VII–2005, T. YORO. 2 females, Ha (ca. 2,500 m), Bhutan, 22–VIII–2008, T. YORO. 3 males and 2 females, Chell La (3,700 m), Ha, Bhutan, 22–VIII–2008, T. YORO.

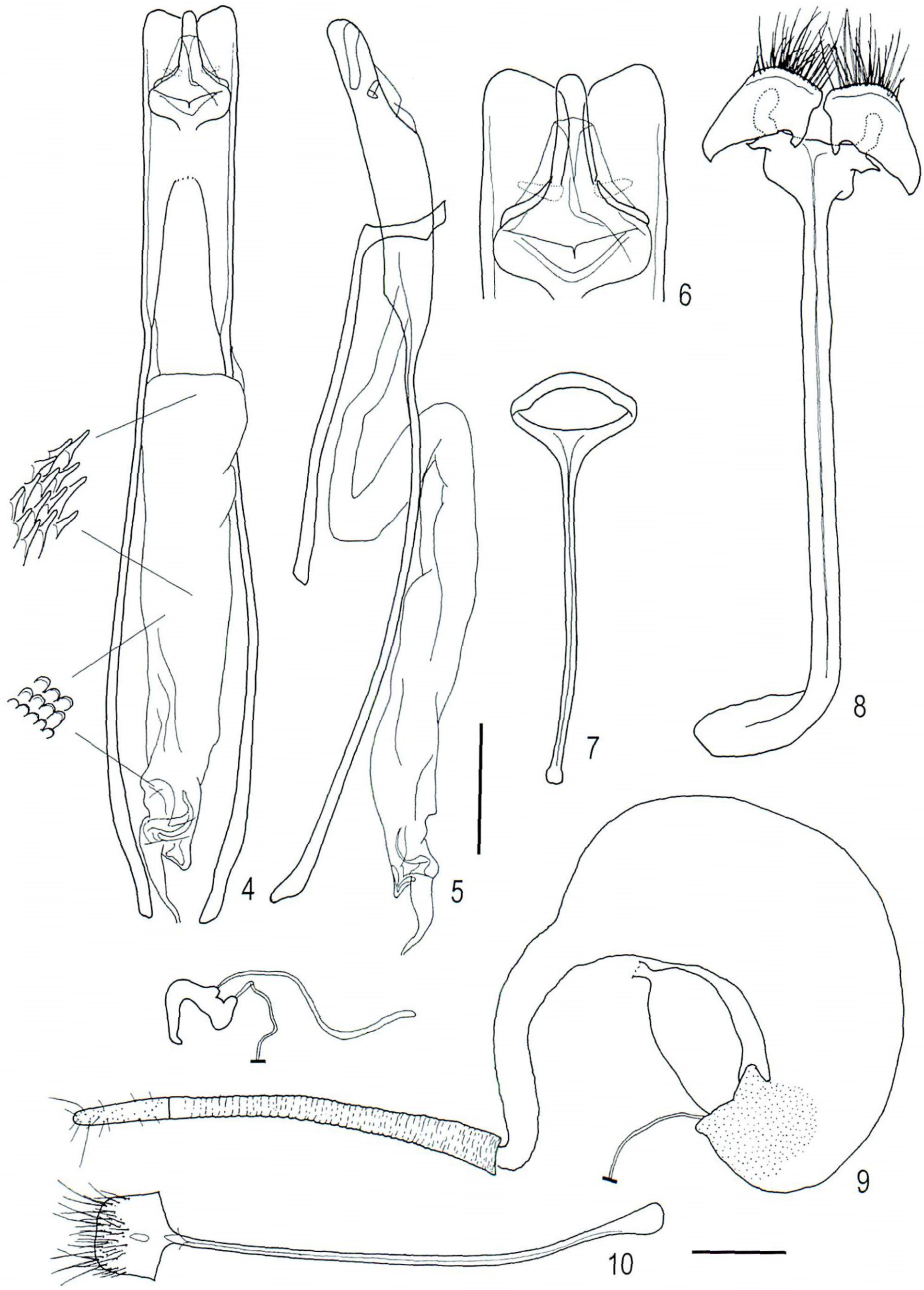
Distribution. Bhutan.

Comments. Assignment of this species into the genus *Nothomyllocerus* is at best a tentative, but this species is sharing the following principal features with *Nothomyllocerus*: mandibles each with only three setae; prementum with four setae; rostrum with epistome symmetrical, glabrous, obtuse-angled at posterior corner and prothorax deeply bisinuate at base, without vibrissae nor ocular lobes on sides of anterior margin behind eyes. This species is somewhat similar to *N. pini* KOJIMA et MORIMOTO, 2006 exceptionally associated with coniferous tree instead of broad-leaved trees in having the prothorax widest at the base. However, the almost denuded derm and the prominent prosternal process are peculiar among the congeners. The similar prosternal process has been known only in one species, *Cnodostethus seminudus* MARSHALL, 1944 from Java in Cyphicerini. However, the weevil belongs to another subtribe Cyphicerina and these similarities may merely be convergence.

Biological notes. Weevils were commonly captured by beating on various tree leaves in western and central Bhutan. Many individuals were often found walking on the bark of Himalayan Blue Pine, which grow in places above the altitude of about 2,000 m.

要　　約

養老孟司・小島弘昭：ブータンからの *Nothomyllocerus* 属（コウチュウ目ゾウムシ科クチブトゾウムシ亜科）の 1 新種．—— ブータンのゾウムシ研究の第 1 報として，この国で比較的普通に見られる *Nothomyllocerus* 属の 1 新種を命名記載した．本種は，同属の他種と比べ，体がほとんど鱗片に覆われない点や前基節後方の前胸腹板に顕著な突起を有する点できわめて異質であるが，それ以外のいくつかの重要な形質を本属と共有していることから，ここでは本属の種として扱った．また，本属のブータンからの発見は，属の分布の西限記録となる．



Figs. 4–10. Male and female terminalia of *Nothomyllocerus ugennamgyeli* sp. nov. (4–8, male; 9, 10, female) —— 4, Aedeagus, dorsal; 5, aedeagus and tegmen, lateral; 6, apex of aedeagus, enlarged; 7, tegmen; 8, sternites 8 and spiculum gastrale; 9, ovipositor; 10, sternite 8. Scale = 0.5 mm.

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Elytra, Tokyo, **37**(2): 366, November 14, 2009

Records of the Nanophyid Weevils (Coleoptera, Nanophyidae) from the Oki Islands, off Western Honshu, Japan

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The weevil fauna of the Oki Islands has poorly been studied, and a total of 79 species are presently known from the islands (KADOWAKI, 1983; FUKUI, 1988; HAYASHI *et al.*, 2006). No nanophyid weevil has ever been recorded from there. In this short paper, we record two species of the genus *Nanophyes* from the Island of Dôgo of the Oki Islands. We thank Mr. T. SHIMADA for the donation of specimens and his help in many ways.

1. *Nanophyes marmoratus* (GOEZE, 1777)
   1 male, O-ike Pond, Saigô-chô, Dôgo I., Oki Is., 6–VIII–2004, T. SHIMADA (at light trap).
2. *Nanophyes pallipes* ROELOFS, 1874
   1 male, same data as for *N. marmoratus*.

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Elytra, Tokyo, **37**(2): 367–372, November 14, 2009

New Flea Weevils of the Genus *Sphaerorchestes* (Coleoptera, Curculionidae) from Laos

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Abstract Two new species of the flea weevils of the genus *Sphaerorchestes* MORIMOTO et MIYAKAWA, 1996 are described from Laos under the names *S. laokao* sp. nov. and *S. laoensis* sp. nov. Probable host association of the genus with Lauraceae is suggested for the first time.

Flea weevil genus *Sphaerorchestes* is very unique in the spherical body form and the slender rostrum among the tribe Rhamphini. Three species have ever been known from Japan, Nepal and Borneo (MORIMOTO & MIYAKAWA, 1996). Sister group relationship with *Imachra* PASCOE, 1874 has been suggested based on several synapomorphic characters in their phylogenetic analysis and constitute a distinct clade with *Synorchestes* VOSS, 1958 among the tribe (KOJIMA & MORIMOTO, 1996). No information has ever been available on biology.

Two new species of the genus were found from Laos, the intervening area of their known distribution. Both of them were captured on the laurel family trees.

The type materials are preserved in the Laboratory of Entomology, Tokyo University of Agriculture, Atsugi, Kanagawa, Japan.

Sphaerorchestes laokao sp. nov.

(Figs. 1–4, 9–13)

M a l e. Length: 1.9–2.0 mm; width: 1.2–1.3 mm.

Black, antennal scape and often funicle, apex of rostrum and tarsi brownish, elytra reddish brown except for apical and sometimes basal parts, underside often dark reddish brown, clothed with grayish hairy scales, which are replaced by dark one on reddish brown parts of elytra and those on mesosternum plumose and dense on mesepimera.

Forehead between eyes linear, with row of setae. Eyes at lower margin close to ventral margin of rostrum at base in lateral aspect. Rostrum weakly curved, 1.8–1.9 times as long as pronotum, with antennal insertion at middle. Antennae with length (width) of segments from scape to club as 36 (5): 10 (4): 8 (2): 6 (2.5): 4 (3): 3 (3): 3 (4): 6 (7): 7 (7.5): 14 (6).

Pronotum 1.9 times as broad as long, rounded at posterior corners, dorsum densely punctate, interstices between them much narrower than their diameter. Scutellum ovate, similarly scaled as on neighboring areas. Elytra slightly longer than broad, broadest a little behind humeri, evenly rounded at sides to apex, evenly convex dorsally; intervals broader than striae, each with three to four rows of scales. Pygidium perpendicular, weakly convex, and densely punctate. Fore and middle legs almost of the same size and shape to each other, hind femora swollen, 2.2 times as long as broad, tarsal groove of hind tibia fringed with blackish spines along apical margin.

Prosternal process simple at apex, sternellum nodulose on each coner between coxae. Mesosternal process declivitous, subtruncate at apex, weakly convex at each corner. Metasternum trapezoidally depressed.

F e m a l e. Length: 2.1–2.2 mm; width: 1.4–1.5 mm. Similar to male except for antennae inserted behind middle of rostrum, the latter twice as long as pronotum, venter with first ventrite weakly inflated in middle.

Type material. Holotype: male, Ban Saleui~Phou Pan (alt. 1,460 m), Houaphan Prov., Laos, 24–VIII–2009, H. KOJIMA. Paratypes: 7 males and 6 females, same data as the holotype; 3 males and 1 female, 12–VI–2009, H. KOJIMA; 1 male, 21–VIII–2009, H. KOJIMA.

Etymology. Derived from the Laotian name of a local liquor.

Distribution. Laos (Houaphan Prov.).

Comments. This species is characterised by the coloration. One pair of Thai specimens quite similar to this species are in my collection, but the black and red contrast is more vivid and I herein hesitate to regard them as being conspecific with this species until more materials are available.

Biological notes. Weevils were captured on the laurel family trees.

Sphaerorchestes laoensis sp. nov.

(Figs. 5–8, 14–18)

M a l e. Length: 2.4 mm; width: 1.6 mm.

Reddish brown, head, pronotum, femora dorsally often slightly darker, eyes and antennal club blackish, clothed with grayish hairy scales, which are a little shorter and yellowish on dorsal area of elytra and those on venter bi- or trifid.

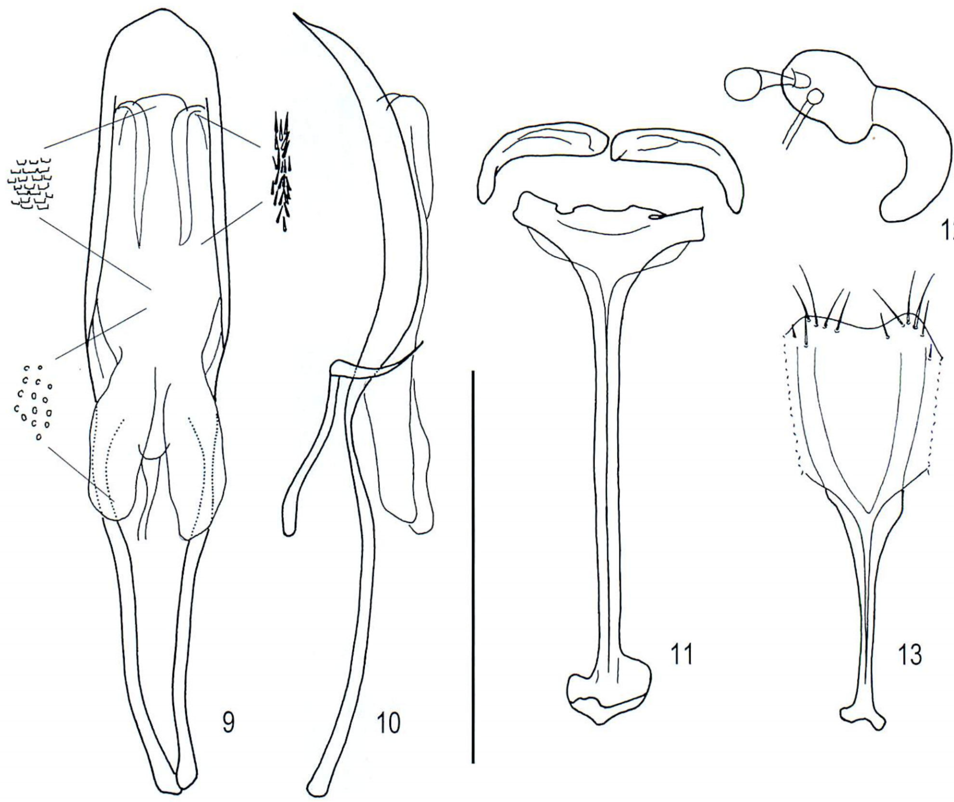
Forehead and rostrum as in *S. laokao*. Eyes at lower margin on middle level of rostrum at base in lateral aspect. Antennae with length (width) of segments from scape to club as 42 (6): 13 (5): 10 (3): 6 (3): 5 (3.5): 4 (3.5): 4 (5): 8 (8): 8 (9): 9 (8).

Pronotum and scutellum as in *S. laokao* except for the former twice as broad as long. Elytra and pygidium as in *S. laokao* except for the former 1.1–1.2 times as long as broad and intervals each with four to five rows of scales. Legs as in *S. laokao* except for hind femora 2.1 times as long as broad.

Pro-, meso- and metasterna and ventrites as in *S. laokao*.

F e m a l e. Length: 2.5 mm (2.2 mm in a small specimen); width: 1.7 mm (1.4 mm in a small specimen). Similar to male except for antennae inserted behind middle of

Figs. 1–8. Habitus photographs of the Laotian *Sphaerorchestes* spp. —— 1–4, *S. laokao* sp. nov. (1, 2, male; 3, 4, female); 5–8, *S. laoensis* sp. nov. (5, 6, male; 7, 8, female).



Figs. 9–13. Male and female terminalia of *Sphaerorchestes laokao* sp. nov. (9–11, male; 12, 13, female). —— 9, aedeagus, dorsal; 10, aedeagus and tegmen, lateral; 11, sternite 8 and spiculum gastrale; 12, spermatheca; 13, sternite 8. Scale=0.5 mm.

rostrum and venter with first ventrite inflated in middle.

Type materials. Holotype: male. Phou Pan (alt. ca. 1,500 m), Houaphan Prov., Laos, 22–VIII–2009, H. KOJIMA. Paratypes. 2 males and 2 females, same data as the holotype.

Etymology. Derived from the name of the locality.

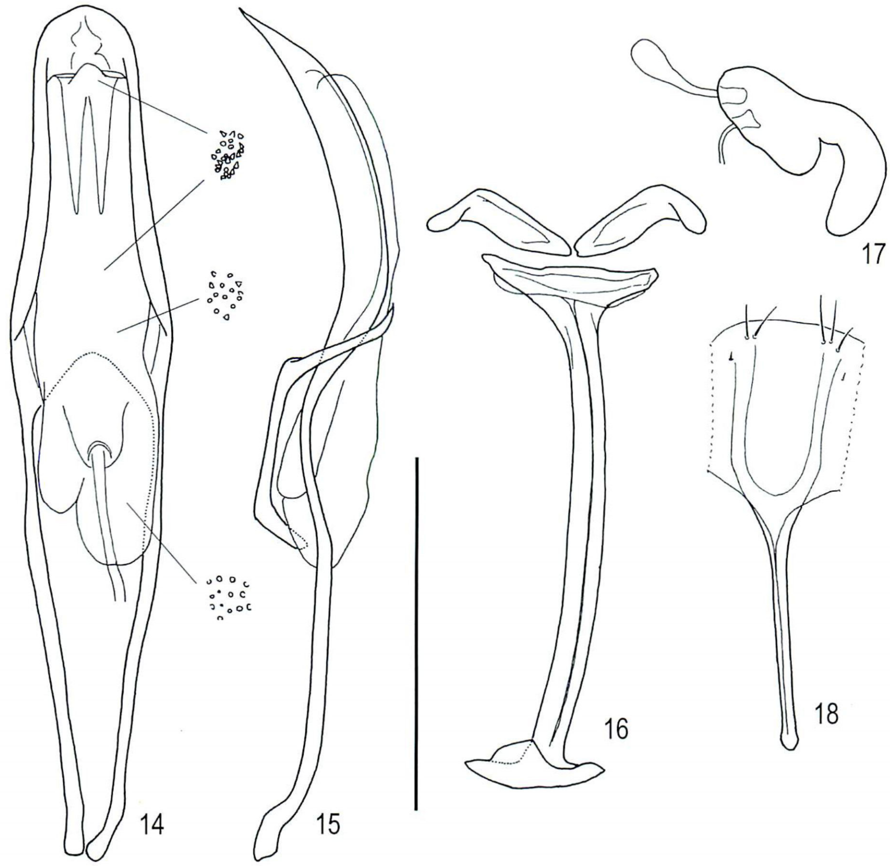
Comments. This species is very similar to *S. nepalensis* MORIMOTO et MIYAKAWA, 1996 in the concolorous coloration, but the antennal club is blackish and scales on venter are mostly bi- or trifid in *S. laoensis*.

Biological notes. Weevils were captured on a *Cinnamomum* tree.

Key to the known species of *Sphaerorchestes*

1(4) Elytra with a conspicuous black patch formed by blackish setae.

2(3) Black patch on elytra crescent, with short incisions on second intervals from anterior margin. Length: 2.5 mm. Japan. ···



Figs. 14–18. Male and female terminalia of *Sphaerorchestes laoensis* sp. nov. (14–16, male; 17, 18, female). —— 14, Aedeagus, dorsal; 15, aedeagus and tegmen, lateral; 16, sternite 8 and spiculum gastrale; 17, spermatheca; 18, sternite 8.

······································*S. kawasei* MORIMOTO et MIYAKAWA, 1996

3(2) Black patch on elytra V-shaped. Length: 2.4 mm. Borneo (Sabah). ··············
······································*S. kojimai* MORIMOTO et MIYAKAWA, 1996

4(1) Elytra concolorous or bicolorous without any blackish setaceous patch.

5(8) Derm concolorous yellowish red to reddish brown, elytral intervals each with four to six rows of scales.

6(7) Yellowish red except for blackish eyes. Length: 2.5–2.8 mm. Nepal. ··············
··································*S. nepalensis* MORIMOTO et MIYAKAWA, 1996

7(6) Reddish brown except for blackish eyes and antennal club. Length: 2.2–2.5 mm. Laos. ···*S. laoensis* sp. nov.

8(5) Derm bicolorous, black, with reddish brown elytra, which are blackish on apical and sometimes basal parts, intervals each with three to four rows of scales.

Length: 1.9–2.2 mm. Laos. ....*S. laokao* sp. nov.

Host Association of *Sphaerorchestes*

No biological information has ever been available for *Sphaerorchestes*. Two new Laotian representatives herein described were captured on the laurel family trees. Recently, Japanese species, *S. kawasei* was also captured on *Litsea acuminata* of Lauraceae (K. KUME, pers. comm.). These facts suggest that Lauraceae are likely the host of the weevils. This may also be supported by the fact that some species of *Imachra*, a sister group of *Sphaerorchestes* are also known to associate with *Cinnamomum japonicum* and *Machilus thunbergii* of Lauraceae (K. KUME and I. MATOBA, pers. comm.).

Larvae of flea weevils are mostly leaf-miners of young leaves, but, the peculiar features of *Sphaerorchestes* such as the spherical body form and the slender rostrum suggest other habit.

Acknowledgements

I thank the following friends for their kind help in various ways: Mr. H. WAKAHARA and his family in Laos, Dr. T. YORO, Mr. K. KUME and Mr. I. MATOBA. The author also thanks Dr. K. MORIMOTO and Dr. S.-I. UÉNO for their kind review of the manuscript and Dr. S. OKAJIMA for his encouragement. This study is supported in part by the KAKENHI (19770065, 21405019).

要　　約

小島弘昭: ラオス産タマノミゾウムシ属（コウチュウ目ゾウムシ科）の新種. —— タマノミゾウムシ属の分布の空白地帯であったラオスから本属の2新種を発見し，それぞれ *Sphaerorchestes laokao* sp. nov. および *S. laoensis* sp. nov. として命名記載した. 本属の生態的知見についてはこれまで知られていなかったが，ラオス産の両種ともクスノキ科の樹木から採集されたこと，日本産種も最近，クスノキ科の1種から見つかっていること（久米私信），さらに本属の姉妹群と考えられているクチブトノミゾウムシ属の数種もクスノキ科から得られていることなどから勘案して，本属とクスノキ科との関連性が示唆された.

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Elytra, *Tokyo*, **37**(2): 373–374, November 14, 2009

Records of Some Nanophyid Weevils (Coleoptera, Nanophyidae) New to Laos

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Laos is a landlocked country in Southeast Asia. No nanophyid weevil has ever been known from Laos, while a total of four genera and 18 species are known from the neighboring areas (KLIMA, 1934; PIC, 1950; PAJNI & BHATEJA, 1982; ALONSO-ZARAZAGA & LYAL, 1999). In recent surveys, at least eight genera and 12 species including undescribed and undetermined species were recognized from Laos. Among them, readily identifiable and widely distributed three species found in and around the local villages are herein recorded. We thank Mr. H. WAKAHARA for his arrangement of our trip and Dr. K. MORIMOTO for his review of manuscript.

1. *Ctenomerus lagerstroemiae* MARSHALL, 1923

Specimens examined. 16 males and 11 females, Ban Thad Son (alt. 191 m), Vientiane Prov., 24–IV–2008, J. KANTOH leg. (on the flower buds of *Lagerstroemia speciosa*).

Distribution. Indonesia (Java, Bali), Laos. New to Laos.

2. *Nanophyes dimorphus* MORIMOTO, 1964

Specimens examined. 7 males and 3 females, Muang Vang Vieng (alt. 242 m), Vientiane Prov., 22–IV–2008, J. KANTOH leg.; 4 males and 1 female, Ban Om (alt. 1,201 m), Xieng Khouang Prov., 26–IV–2008, J. KANTOH leg.

Distribution. Japan (Ryukyus), Laos. New to Laos.

Weevils were captured on *Ludwigia octovalvis* (Onagraceae) on riverside and non-cultivated paddy field.

3. *Nanophyes proles* HELLER, 1915

Specimens examined. 55 males and 35 females from Ban Nakha (alt. 173 m), Ban Hin Ngone (alt. 203 m), Muang Vang Vieng (alt. 242 m) and Ban Thad Son (alt. 191 m), Vientiane Prov., 22~24–IV–2008, J. KANTOH leg.; 3 males and 1 female, Phonesavanh (alt. 1,133 m) and Ban Om (alt. 1,201m), Xieng Khouang Prov., 25~26–IV–2008, J. KANTOH leg.

Distribution. Japan (Ryukyus), China (Fukien), Indonesia (Java, Bali), Laos, Philippines (Luzon). New to Laos.

Weevils were found on the same plant as *N. dimorphus*.

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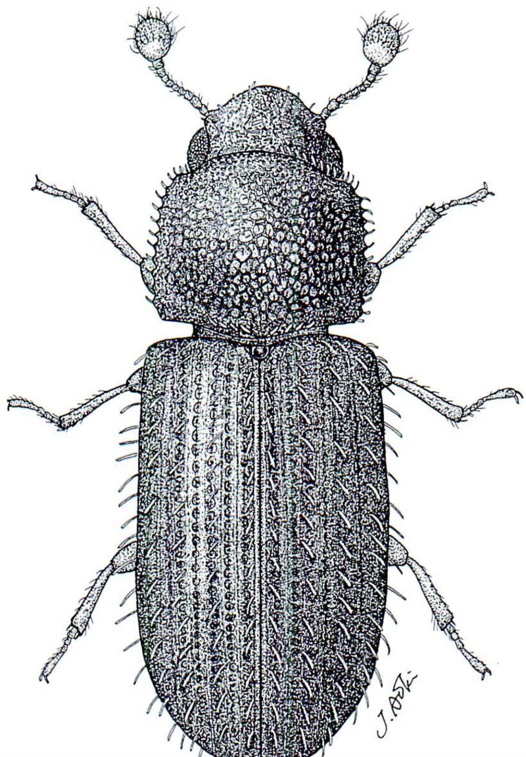

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WATANABE, Y., 1995. A new micropeplid species (Coleoptera) from Yunnan, Southwest China. *Elytra, Tokyo*, **23**: 245–249.

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