Ent. Rev. Japan, **61** (2): 97–118, December 21, 2006

On the Subspecies of *Homotechnes motschulskyi* (FLEUTIAUX, 1902) (Coleoptera: Elateridae) from Tochigi Prefecture, Japan

Takashi KISHII

1–10 6–410 Kamihamuro, Takatsuki, Osaka, 569–1044 Japan

Abstract Fourteen subspecies of *Homotechnes motschulskyi* (FLEUTIAUX, 1902) are recorded from Tochigi Prefecture. Seven of these are described as new subspecies under the names: subspp. *nyohou*, *shiobarensis*, *kengoi*, *yashu*, *kohshin*, *ozaku*, and *gyoudou*.

Homotechnes motschulskyi is an apterous medium-sized elaterid beetle endemic to Honshû (exclusive of the Chûgoku District) and Shikoku in Central Japan. It was originally described by FLEUTIAUX (1902) as *Corymbites Motschulskyi* in the subfamily Ctenicerinae (Dendrometrinae, Prosternini in the present sense) based upon a female specimen collected from "*Env. de Tokyo et Alpes de Nikko*" by M. J. HARMAND in 1901. After that, this species had been treated variously by the authors: *Corymbites* (*Selatosomus*) by SCHENKLING (1927), *Hypolithus* by NAKANE and KISHII (1955), or *Hypolithus* (*Hypnoidus*) by OHIRA (1968 b), and finally it was included in *Homotechnes* by KISHII (1993) after the examination of *Homotechnes corymbitoides* CANDÈZE, 1882, the type species of the genus from Moupin in Central China.

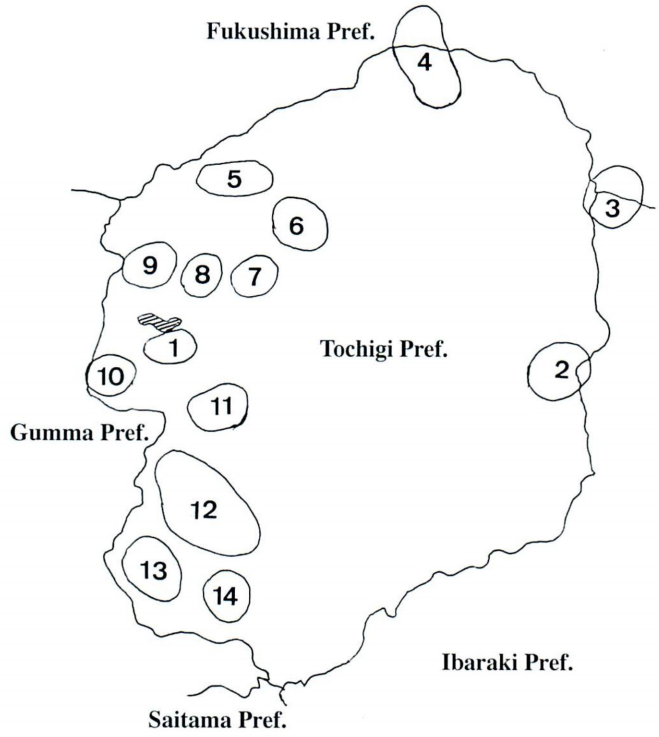
This species bears the degenerated hind wings, and is found sporadically and discontinuously in the high mountains of Honshû and Shikoku under stones. As in the most apterous beetles, this species is more or less different locally and has been splitted into 48 subspecies by KISHII and OHIRA (1956), KISHII (1956–2002), NAKANE (1963), and OHIRA (1963–1997) up to the present without specifying the nominotypical subspecies. I designate the original locality of this species as the southeast side of Lake Chûzenji, Nikkô City as pointing out in the following text. The external structures of some specimens from this locality is definitely conformable with FLEUTIAUX's description and OHIRA's comment based upon the original specimen (attached label: Env. de Tokyo et Alpes de Nikko) and the photograph (1968 b: photo L).

Up to date, seven subspecies of this species have been known from Tochigi Prefecture inclusive of the contiguous area. Recently, I had fortunately obtained opportunities to examine a lot of material collected from these areas through the kind courtesy of Mr. Hideo OHKAWA, Ashikaga City. After a careful examination I found that the material consists of 14 subspecific populations and seven of them are undoubtedly new to science (see Map). In the present paper, I am going to describe newly these subspecies under the names *Homotechnes motschulskyi shiobarensis* nov. from Shimo-shiobara, *H. m. kengoi* nov. from Koyasudo and Shimo-koami, *H. m. nyohou* nov. from Mt. Nyohô-san, *H. m. yashu* nov. from Kuriyama Vilage, *H. m. kohshin* nov. from Mt. Kôshin-zan, *H. m. ozaku* nov. from Mt. Ozaku-san and *H. m. gyoudou* nov. from Mt. Gyôdô-san and Ôfune.

Before going into further details, I would like to express my sincere gratitude to Mr. H.

Ohkawa for his kind offer of material and to his collaborator Mr. Kengo ONDA.

The holotype specimens of these new subspecies will be deposited in the collection of the Osaka Museum of Natural History (OMNH) and paratypes preserved in the collection of Mr. H. OHKAWA and my private collection. Concerning preparation of the male and female genitalia, see KISHII (1987).



Map. Distribution of subspecies of *Homotechnes motschulskyi* (FLEUTIAUX, 1902) in Tochigi Prefecture, Central Honshû, Japan. Closed circles indicate the collecting sites of the specimens examined in this study. —— 1, Subsp. *motschulskyi* s. str. (Mt. Hangetsu-san); 2, subsp. *ondai* (Ôsawa-rindô); 3, subsp. *yamizo* (Mt. Yamizo-san); 4, subsp. *aizu* (Mt. Futamata-san and Ôkawa-rindô); 5, subsp. *shimotsuke* (Yunishi-gawa and Yasuga-mori); 6, subsp. *shiobarensis* (Shimo-shiobara); 7, subsp. *kengoi* (Koyasudo); 8, subsp. *nyohou* (Mt. Nyohô-san); 9, subsp. *yashu* (Mt. Sannôbôshi-san to Mt. Tarô-san and Kawamata); 10, subsp. *kohshin* (Mt. Kôshin-zan); 11, subsp. *ozaku* (Mt. Ozaku-san); 12, subsp. *ohkawai* (Iwakiri-sawa, Mt. Narabe-yama, Kami-ohto and Mt. Izuru-san); 13, subsp. *gyoudou* (Mt. Gyôdô-san and Ôfune); 14, subsp. *karasawa* (Mt. Karasawa-san).

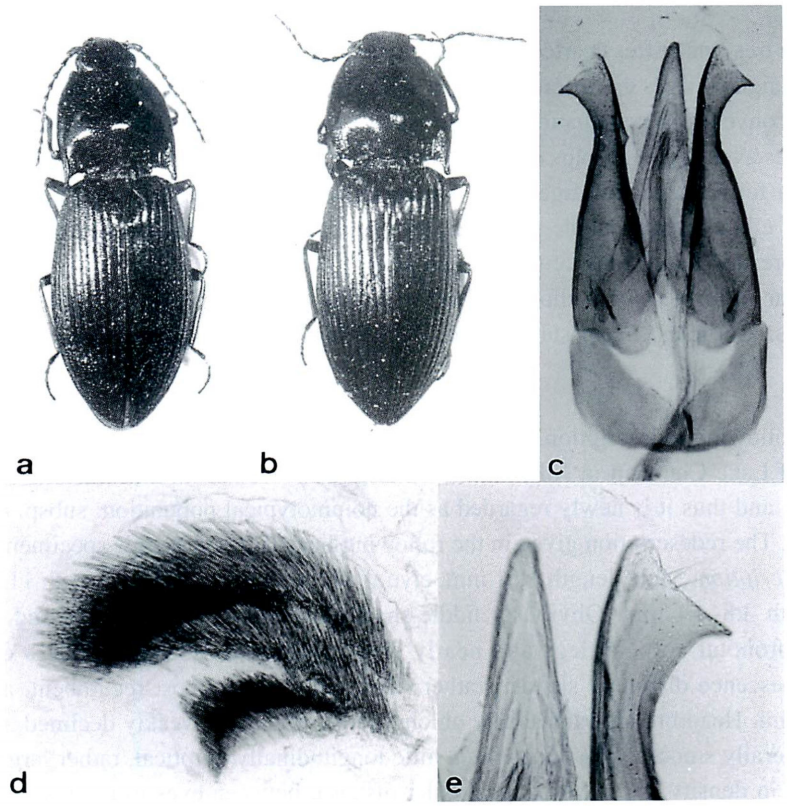


Fig. 1. *Homotechnes motschulskyi motschulskyi* (FLEUTIAUX, 1902), Mt. Hangetsu-san, south side of Chûzenji Lake, Nikkô City, Tochigi Pref. —— a, Habitus, ♂ (7695), 10.1 mm; b, ditto, ♀ (7676), 11.0 mm; c, aedeagus in dorsal view (7695); d, thorny plates of female bursa copulatrix (7676); e, apex of aedeagal paramere (7695).

Homotechnes motschulskyi motschulskyi (FLEUTIAUX, 1902)

[Miyamahisago-kometsuki]

(Fig. 1 and Map 1)

Corymbites Motschulskyi FLEUTIAUX, 1902: 22 (Japon central).

Corymbites (*Selatosomus*) *motschulskyi*: SCHENKLING, 1927: 379; MIWA, 1934: 121 (Tokugo-toge and Kamikochi).

Hypolithus motschulskyi: NAKANE and KISHII, 1955: 14 (Kamikochi); and others.

Hypolithus motschulskyi motschulskyi: KISHII and OHIRA, 1956: 81; and others.

Hypolithus (*Hypnoidus*) *motschulskyi motschulskyi*: OHIRA, 1968: 11; and others.

Homotechnes motschulskyi motschulskyi: KISHII, 1993: 8.

Homotechnes motschulskyi subsp. 1: KISHII, 2004: 6–15, part. (Mt. Hangetsu-san, Tochigi).

Original description *by* FLEUTIAUX (*Bull. Mus. d'Hist. nat. Paris*, 1902, **8**: 22).

Corymbites Motschulskyi n. sp. 10 millimètres. Oblong, subdéprimé, d'un noir brillant sur la tête et le pronotum, subopaque sur les élytres; pubescence obscurre. Tête plane, arrondie en avant, couverte d'une fine ponctuation peu serrée. Antennes d'un brun noirâtre, peu comprimées, ne dépassant pas la base du thorax; 2e article subegal au 4e; 3e un peu plus long. Pronotum à

ponctuation très fine et très écartée, aussi long que large; côtés sinués et rétrécis en avant; angles postérieurs aigus dirigés en arrière. Écusson subcirculaire. Élytres ovales, finement striés, intervalles peu convexes, à ponctuation à peine visible, très clairsemée. Dessous de même couleur. Pattes brunes avec les tarses plus clairs. — Japon central.

Par sa forme générale large, cette espèce rappelle *C. aeneus* L. et quelques autres similaires, mais elle est remarquable par la finesse et l'espacement de sa ponctuation qui lui donne un aspect presque lisse. Sous ce rapport, on peut la comparer à *C. laevicollis* MANN.; elle s'en distingue par sa forme moins allongée, l'aspect moins brillant, les antennes plus courles, moins comprimées, à articles 2 et 4 subégaux et 3^{e} plus long, et aussi par la sinuosité des côtés du pronotum.

The following redescription is based on the specimens from Mt. Hangetsu-san standing on the south of Lake Chûzenji in Nikkô, because of good fitness of their characters to the original description, and thus it is newly regarded as the nominotypical population: subsp. *motschulskyi* sensu strict. The redescription given in the following lines is based on this specimens.

Redescription. Male, length 10.1 mm, elytral width 3.8 mm; female, length 11.0–11.2 mm, elytral width 3.8–4.1 mm. Obviously fiddle-shaped in outline, a little depressed, black, with antennae, pronotal corners, legs and nearly elytral posterior 1/3 more or less dark reddish brown; pubescence distinctly slender, rather short and dense, almost recumbent, and pale fulvous with tint. Head broad, transversely oblong, rather flattened, weakly declined antero-inferiad, and generally smooth with punctures a little longitudinally elliptical, rather large, and plainly irregular in density; the ratio of interocular distance between eyes to the dorsal width of an eye about 101:18 (ca. 5.6 times); frontal margin entire, feebly marginate, a little obscure at the middle and thickened before eyes. Antennae much shorter than combined length of head and pronotum including hind angles; relative length/width from basal segment to 5th as 42/17, 26.5/12, 28.5/13, 27/15.5 and 24.5/15.3 in male, and 50.5/18, 27.5/13.3, 30/16.7, 27.5/16.7 and 27.2/16.5 in female respectively; basal segment rather cylindrical and a little roundly expanded at anterior side, 2nd and 3rd nearly triangular, 4th to 10th ill-serrate, and 11th rhombic, slightly wider and much longer than the preceding. Pronotum simply, roundly and convex dorsally towards the middle, without any median longitudinal line nor impression; median length/width 83/100 in both sexes; lateral sides rather parallel in the middle, and feebly curved inwards at the base of hind angles; hind angles straightly extending posteriad, distinctly thick, rather short and obtusely pointed at apices, each with a short plain carina at outer side, and with a remarkable and shallow basal furrow on posterior side near angle; surface obviously smooth all over, with punctures clearly minute, simple, even and sparse on the median area, but more or less becoming larger and denser laterad, and their interstices conspicuously wider than puncture diameters in the middle. Scutellum nearly circular, flattened entirely, declivous antero-inferiad, narrowly marginate at frontal margin, with punctures minute, dense and distinctly irregular in size and density. Elytra almost suboval or rather navicular, distinctly and roundly expanded mid-laterad, much narrowed at humeri and entirely rounded at the humeral angles, and posterior ends moderate; striae distinct, finely and smoothly canaliculate, without any punctures; intervals slightly elevated longitudinally and generally smooth, with punctures rather finer and rather denser than those of pronotum. Prosternum oblong, not so broad and a little narrower than pleural median width, parallel-sided, longitudinally convex ventrally, evenly mingled with two-sized (plainly large and moderately small) punctures all over, generally much denser and more uneven than

those of pronotum; anterior lobe enlarged antero-inferiad, transversely hemicircular, and grooved at base, with large and dense punctures. Prosterno-pleural sutures linear, thinly marginate at pleural sides, simple and entirely closed at anterior ends. Prosternal process elongate, rather narrow, almost straight extending posteriad, with a longitudinal furrow on each lateral side, and obtusely pointed at hind apex. Propleural punctures generally similar to prosternal ones, but distinctly larger and denser. Mesosternal cavity broad, oblong, rather horizontal and feebly concave at the middle. Mesosternal punctures smaller, feebly denser and more even than propleural ones. Punctures on abdominal sternites more or less similar to those of mesosternum. Sternites and legs moderate. Male genitalia as figured (Figs. 1c and 1e: 7695: No. of genital preparation, and so forth), rather broad in dorsal view; median lobe elongate triangular, with apex obtusely pointed; each paramere narrow, with apical hook-like expansion triangular, rather rounded at apex, and acutely produced laterad at apex of hook. Thorny plates of female bursa copulatrix as figured (Fig. 1d: 7676); a pair of large thorny plates rather broad and a little arcuate; a single small thorny plate rather thick, obviously broadened apically, and sharpened laterad.

Specimens examined. Mt. Hangetsu-san, south side of Lake Chûzenji, Nikkô City, Tochigi Pref., 1♂ (7695), 2♀♀ (incl. 7676), 25. V. 1999, H. OHKAWA leg.

Notes. The nominotypical subspecies is similar to the following subspecies in body size, coloration and general appearance at a glance: subsp. *babai* (KISHII, 1957) (Mt. Iide-san in Niigata Pref.), subsp. *kuratai* (KISHII, 1968) (Mt. Shiomi-dake in Nagano Pref.), and subsp. *fleutiauxi* (OHIRA, 1968) (Kamikochi in Nagano Pref.) etc.

Homotechnes motschulskyi ondai (KISHII, 1990)

[Niseyamizo-miyamahisago-kometsuki]

(Fig. 2 and Map 2)

Hypolithus motschulskyi ondai KISHII, 1990: 3–4 (Osawa-rindo, Tochigi).

Homotechnes motschulskyi ondai: KISHII, 1993: 8; KISHII, 2004: 6-15, (Ohsawa-rindô, Tochigi).

Redescription. Male, length 10.5–11.0 mm, elytral width 3.5–3.7 mm; female, length 10.9–12.1 mm, elytral width 3.5–3.8 mm. Differs from the nominotypical subspecies as follows: body narrower and rather parallel-sided; coloration of antennae, pronotal corners and legs more or less brighter; antennal basal segment larger and well expanded anteriad; pronotal punctures sparser; pronotal hind angles distinctly divergent postero-laterad; elytral striae more or less wider and deeper; prosternal punctures sparser; propleural large-sized punctures plainly larger and shallowly impressed; male genitalia as figured (Figs. 2c and 2e: 7924), rather narrower in dorsal view, median lobe more acutely projecting, each paramere narrow with apical hook-like expansion triangular and rather broad and rounded at apex, and lateral projection rather short and acutely pointed at apex; thorny plates of female bursa copulatrix as figured (Fig. 2d: 7925), a pair of large plates thick and clearly arcuate, and a single small plate slender and distinctly broadened apically. In the general profile it has also many similarities to the following subsp. *yamizo*, but the pronotal basal furrows of this subspecies are distinct and elongate.

Specimens examined. Ôsawa-rindô, Karasuyama Town, Tochigi Pref., 1♀ (holotype, 5503), 9. IV. 1990, K. ONDA leg.; ditto, 5♂♂ (incl. 7923 and 7924), 10♀♀ (incl. 7925 and 7926), 20. V. 2000, H. OHKAWA leg.

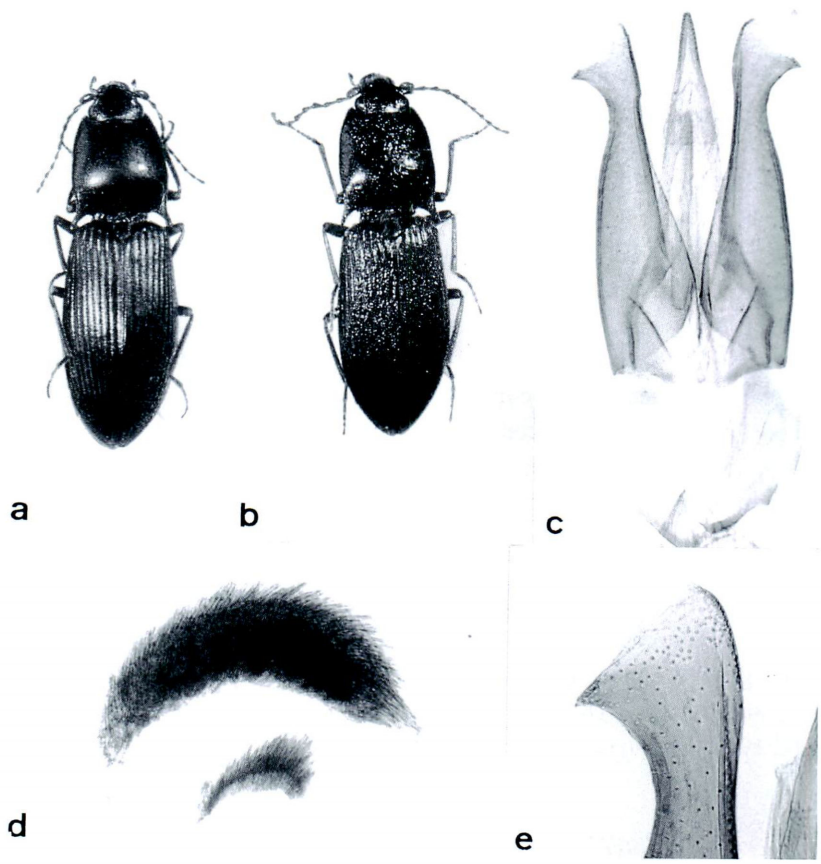


Fig. 2. *Homotechnes motschulskyi ondai* (KISHII, 1990), Ôsawa-rindô, Karasuyama Town, Tochigi Pref. —— a, Habitus, ♂ (7923), 10.4 mm; b, ditto, holotype, ♀ (5503), 10.4 mm; c, aedeagus in dorsal view (7924); d, thorny plates of female bursa copulatrix (7925); e, apex of aedeagal paramere (7924).

Homotechnes motschulskyi yamizo (KISHII, 1989)

[Yamizo-miyamahisago-kometsuki]

(Fig. 3 and Map 3)

Hypolithus motschulskyi yamizo KISHII, 1989: 99–100 (Mt. Yamizo-san, Fukushima).

Homotechnes motschulskyi yamizo: KISHII, 1993: 8; KISHII, 2004: 6–15, (Mt. Yamizo-san, Fukushima).

Redescription. Male unknown. Female, length 11.1–11.2 mm, elytral width 3.7–4.1 mm. The pronotal sparse and fine punctures of this subspecies from Mt. Yamizo-san is closely allied to those of the nominotypical subspecies, but differs from it in the following points: body rather parallel-sided and obviously narrower; head broadly and triangularly depressed; head punctures distinctly sparser; pronotal hind angles narrower, longer and slightly divergent postero-laterad; basal furrows of pronotal hind margin almost obsolescent, distinctly smaller and shorter; scutellum almost circular; thorny plates of bursa copulatrix as figured (Fig. 3b: 5121), two large plates remarkably elongate and weakly arcuate, and a single small plate rather broad and triangular. Moreover, in many structures it resembles also subsp. *ohkawai* (KISHII, 1986) from the south-

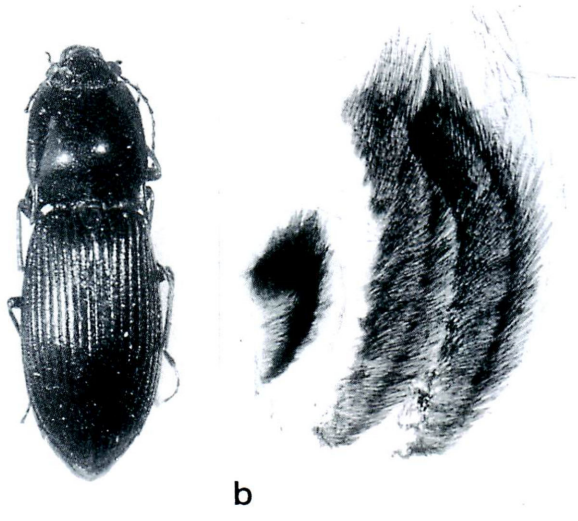


Fig. 3. *Homotechnes motschulskyi yamizo* (KISHII, 1989), holotype, ♀ (5121), Mt. Yamizo-san, Tanagura Town, Fukushima Pref. —— a, Habitus, 11.1 mm; b, thorny plates of female bursa copulatrix.

west region of Tochigi Pref., but discriminated from the subspecies as follows: size a little smaller; pronotal punctures plainly smaller and sparser; basal furrows of pronotal hind margin almost obsolescent.

Specimens examined. Mt. Yamizo-san, Tanakura Town, Fukushima Pref., 2♀♀ (holotype: 5121 and a paratype), 20. V. 1988, alt. 1,000 m, H. OHKAWA leg.

Notes. This subspecies has been collected only from the locality mentioned above, but it will be found from the eastern slope of Mt. Yamizo-san in Tochigi Prefecture in the future.

Homotechnes motschulskyi aizu KISHII, 1994

[Aizu-miyamahisago-kometsuki]

(Fig. 4 and Map 4)

Homotechnes motschulskyi aizu KISHII, 1994: 2 (Mt. Futamata, Fukushima); KISHII, 2004: 6–15, (Mt. Futamata, Fukushima and Ôhkawa-rindô, Tochigi).

Redescription. Male, length 11.4–11.8 mm, elytral width 3.7–4.1 mm; female, length 11.0–12.9 mm, elytral width 3.7–4.6 mm. Most closely allied to subsp. *hiromasai* (OHIRA, 1968) (type locarity: Mt. Tanigawa-dake, Gumma Pref.), but is distinguishable from that subspecies as follows: more clearly fiddle-shaped; antennae much slender and rather longer; head punctures larger and denser; pronotal punctures rather smaller and sparser; pronotal hind angles thicker and less shorter, and clearly divergently extending postero-laterad; basal furrows of pronotal hind margin generally effaced or obviously faint; male genitalia as figured (Figs. 4c and 4e: 6154), median lobe more narrowly triangular, apico-lateral expansion of each paramere a little elongate and lateral projection more longer; thorny plates of female bursa copulatrix as figured (Fig. 4d: 6471), with a pair of large plates thick, broadened apically and feebly arcuate, and with a single small plate distinctly broad and short. From the nominotypical subspecie, this subspecies is discriminated by a little larger body, narrower pronotum with much divergent hind

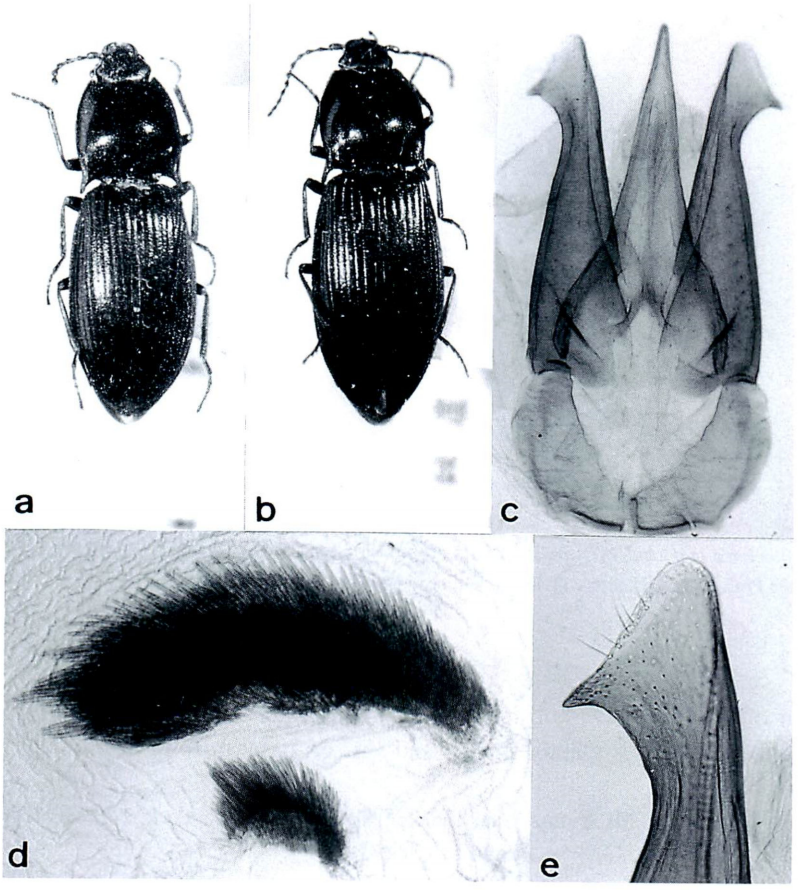


Fig. 4. *Homotechnes motschulskyi aizu* KISHII, 1994. —— a, Habitus, holotype, ♂ (6154), Mt. Futamata-san, Ten-ei Vil., Fukushima Pref., 11.8 mm; b, ditto, ♀ (6471), Ôkawa-rindô, Kuroiso City, Tochigi Pref., 13.0 mm; c, aedeagus in dorsal view (6154); d, thorny plates of female bursa copulatrix (6471); e, apex of aedeagal paramere (6154).

angles, and effaced basal furrows of pronotal hind margin. More, from subsp. *yamizo* it is easily distinguished by the broad and fiddle-shaped body and apically broadened thorny plates of female bursa copulatrix.

Specimens examined. Mt. Futamata-san, Ten-ei Vil., Fukushima Pref., 1♂ (holotype, 6154), 12. VIII. 1993, alt. 1,500 m, H. OHKAWA leg.; Ôkawa-rindô, Kuroiso City, Tochigi Pref., 1♂ (6473), 2♀♀ (6471 and 6472), 29. V. 1994, H. OHKAWA leg.; ditto, 2♂♂ (incl. 6633), 3♀♀ (incl. 6632), 18. VI. 1995, H. OHKAWA leg.; ditto, 1♂ (8462), 9♀♀ (incl. 8460 and 8461), 26. V. 2002, H. OHKAWA leg.

Homotechnes motschulskyi shimotsuke (KISHII, 1986)

[Shimotsuke-miyamahisago-kometsuki]

(Fig. 5 and Map 5)

Hypolithus motschulskyi shimotsuke KISHII, 1986: 39 (Yunishi-gawa, Tochigi).

Homotechnes motschulskyi shimotsuke: KISHII, 1993: 8; KISHII, 2004: 6–15, (Yunishigawa and Yasuga-

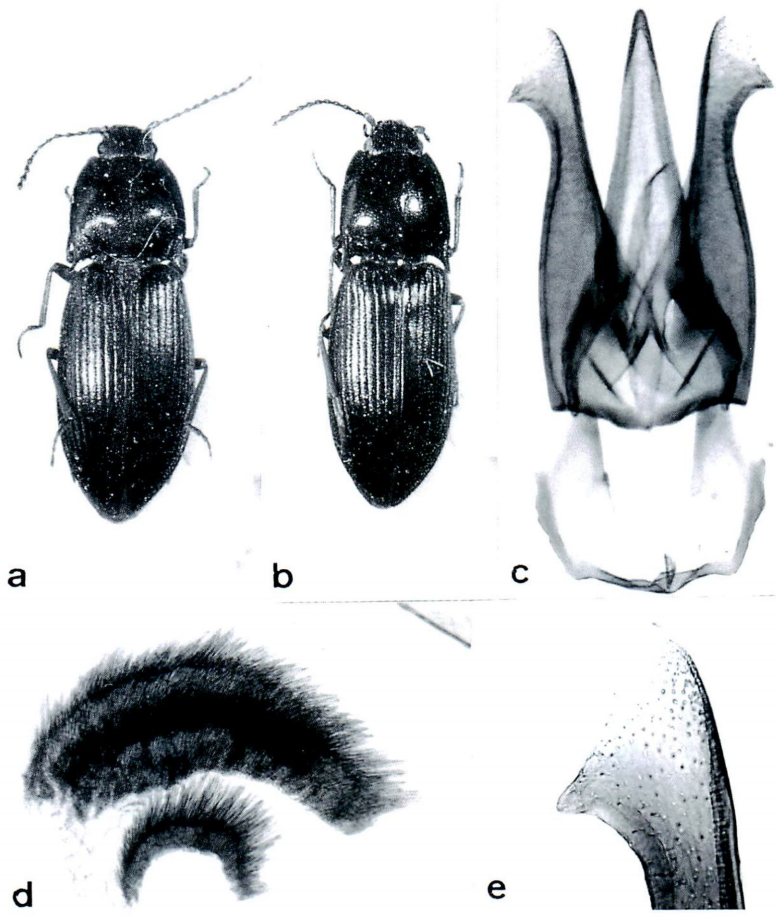


Fig. 5. *Homotechnes motschulskyi shimotsuke* (KISHII, 1986). —— a, Habitus, ♂ (6629), Yasuga-mori, Kuriyama Vil., Tochigi Pref., 11.0 mm; b, ditto, holotype, ♀ (4572), Yunishi-gawa, Kuriyama Vil., Tochigi Pref., 11.0 mm; c, aedeagus in dorsal view (6628), Yasuga-mori; d, thorny plates of female bursa copulatrix (6631), ditto; e, apex of aedeagal paramere (6628), ditto.

mori, Tochigi).

Redescription. Male, length 10.8–10.9 mm, elytral width 3.8–3.9 mm; female, length 10.6–12.2 mm, elytral width 3.8–4.3 mm. Somewhat resembling the nominotypical subspecies, subsp. *nyohou* nov. and subsp. *hiromasai* (OHIRA, 1968), but differs from them as follows. From the nominotypical subspecies: larger in size and rather parallel-sided; antennae rather thick and less shorter; head punctures more or less denser and larger; pronotal disc simple, but sometimes with a medio-longitudinal smooth line or weak elevation; pronotal punctures much denser and less larger; pronotal hind angles well divergently extending postero-laterad; male genitalia as figured (Figs. 5c and 5e: 6628), with apico-lateral projection of each paramere obtusely pointed; thorny plates of female bursa copulatrix as figured (Fig. 5d: 6631), with a pair of large plates thick and plainly arcuate, and a single small plate rather elongate and distinctly arcuate roundly. From subsp. *nyohou* and subsp. *hiromasai*: head and pronotal punctures larger and denser; strial intervals of elytra plainly flattened; aedeagal paramere with apico-lateral projection obtusely pointed.

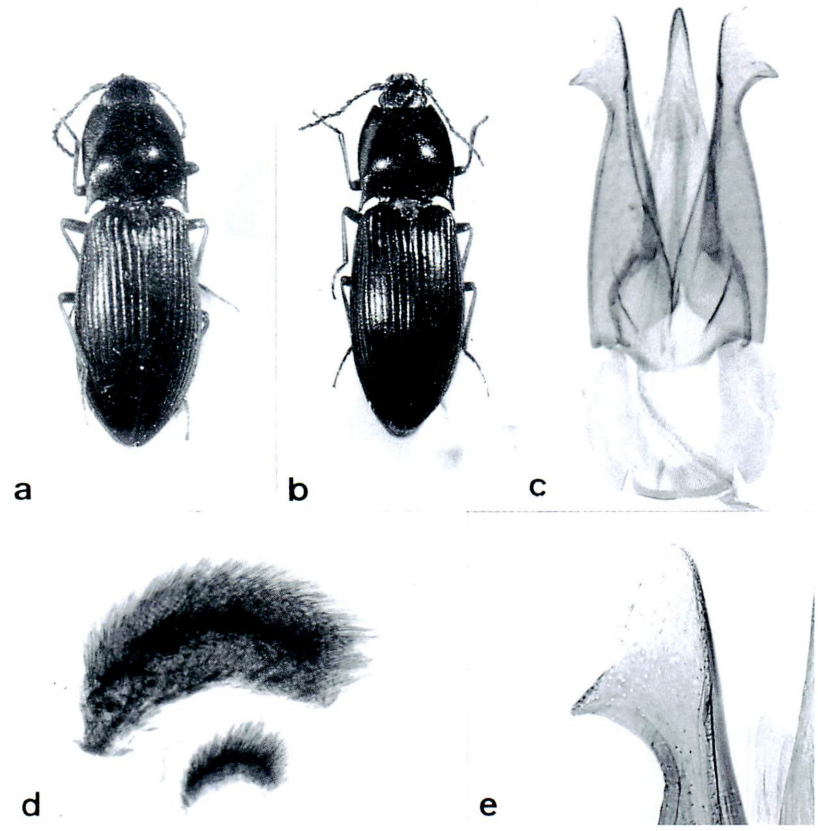


Fig. 6. *Homotechnes motschulsky shiobarensis* KISHII, subsp. nov., Shimo-shiobara, Shiobara Town, Tochigi Pref. —— a, Habitus, holotype, ♂ (7927), 9.2 mm; b, ditto, paratype, ♀ (7930), 12.1 mm; c, aedeagus in dorsal view (7927); d, thorny plates of female bursa copulatrix (7929), ditto; e, apex of aedeagal paramere (7927).

Specimens examined. Yunishi-gawa, Kuriyama Vil., Tochigi Pref., 1♀ (holotype, 4572), 10. VI. 1984, H. OHKAWA leg.; Yasuga-mori, ditto, 5♂♂ (incl. 6628 and 6629), 3♀♀ (incl. 6630 and 6631), 10. VII. 1995, H. OHKAWA leg.

Homotechnes motschulskyi shiobarensis KISHII, subsp. nov.

[Shiobara-miyamahisago-kometsuki]

(Fig. 6 and Map 6)

Homotechnes motschulskyi subsp. 2: KISHII, 2004: 6–15 (Shimoshiobara, Tochigi).

Description. Male, length 9.3–9.5 mm, elytral width 3.1–3.5 mm; female, length 9.9–12.0 mm, elytral width 3.8–3.9 mm. Different from nominotypical subspecies as follows: size plainly smaller and coloration more brighter, especially antennae wholly, pronotal lateral sides broadly, ventral surface mostly, and legs bright yellowish orange; head punctures larger; pronotal hind angles distinctly divergent postero-laterad; basal furrows of pronotal hind margin more narrower and shorter; elytral punctures on strial intervals more or less denser and larger; male genitalia as figured (Figs. 6c and 6e: 7927), with median lobe narrower, and apico-lateral expansion of

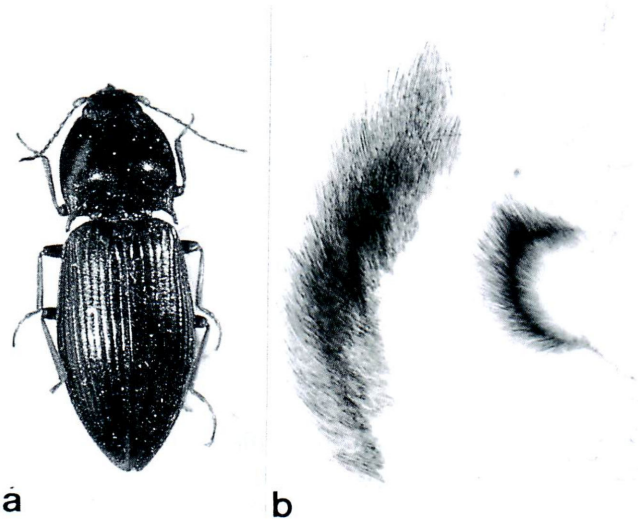


Fig. 7. *Homotechnes motschulsky kengoi* KISHII, subsp. nov., Koyasudo, Imaichi City, Tochigi Pref. —— a, Habitus, holotype, ♀ (5377), 10.9 mm; b, paratype, thorny plates of female bursa copulatrix (5175).

each paramere more elongate; thorny plates of female bursa copulatrix as figured (Fig. 6d: 7929), with two large plates rather short, thick and distinctly arcuate, and a single small plate broad and a little arcuate. External structures, especially in body size and bright coloration of this subspecies, are closely allied to the subsp. *alpicola* (KISHII, 1968) (type locality: Mt. Asahi-dake, Niigata Pref.), but the present subspecies is differentiated from it in the following points: pronotal hind angles distinctly divergent postero-laterad; elytral punctures on strial intervals more or less denser and larger; apico-lateral expansion of each aedeagal paramere broader; a single small thorny plate of female bursa copulatrix broader and a little longer.

Type series. Holotype, ♂ (7927), Shimo-shiobara, Shiobara Town, Tochigi Pref., 10. VI. 2000, H. OHKAWA and K. ONDA leg. Paratypes: 1♀ (5378), the same locality as holotype specimen, 16. XI. 1989, K. ONDA leg.; 5♂♂ (incl. 7928), 3♀♀ (incl. 7929 and 7930), the same data as holotype specimen.

Etymology. The subspecific name of the present new subspecies is named after "Shiobara", the type locality.

Homotechnes motschulskyi kengoi KISHII, subsp. nov.

[Kinugawa-miyamahisago-kometsuki]

(Fig. 7 and Map 7)

Homotechnes motschulskyi subsp. 3: KISHII, 2004: 6–15 (Koyasudo and Mitsuiwasawa, Tochigi).

Description. Male unknown. Female, length 11.0–12.0 mm, elytral width 4.0–4.1 mm. In the distinct fiddle-shaped body this new subspecies most closely allied to the nominotypical subspecies, but discriminated from it by the following characters: body almost dark reddish

brown all over; head and pronotal punctures much sparser; pronotal hind angles well-divergently extending postero-laterad; prosternal punctures obviously faint and much sparser; thorny plates of bursa copulatrix as figured (Fig. 7b: 5175), with a pair of large plates elongate, narrow and less arcuate, and a single small plate also narrow and plainly arcuate.

Type series. Holotype, ♀ (5377), Koyasudo, Imaichi City, Tochigi Pref., 3. XII. 1988, alt. 1,000 m, H. OHKAWA leg. Paratype: 1♀ (5175), 24. V. 1989, Mitsuiwa-sawa, Shimo-koami, Fujiwara Town, Tochigi Pref., K. ONDA leg.

Etymology. The present new subspecies is named in honor of Mr. Kengo ONDA (Tochigi), who is an enthusiastic collector of beetle, and has been cooperated with Mr. H. OHKAWA as a good collaborator in the field.

Homotechnes motschulskyi nyohou KISHII, subsp. nov.

[Nyohô-miyamahisago-kometsuki]

(Fig. 8 and Map 8)

Homotechnes motschulskyi subsp. 1: KISHII, 2004: 6–15, part. (Mt. Nyohô, Tochigi).

Description. Male, length 10.6 mm, elytral width 3.7 mm; female, length 10.0–11.2 mm, elytral width 3.7–4.1 mm. Allied to the nominotypical subspecies, but discriminated from it by the following structures: coloration of antennae, pronotal corners, legs and elytral posterior 1/3 much paler; pronotal punctures finer and sparser; pronotal hind angles divergently extending postero-laterad, distinctly narrow, elongate and rather acutely pointed at apices; elytral intervals much more elevated above longitudinally, with punctures smaller; male genitalia as figured (Figs. 8c and 8e: 7691), with apico-lateral projection of each paramere a little shorter; thorny plates of female bursa copulatrix as figured (Fig. 8d: 7694), with a pair of large plates elongate, rather broad and less arcuate, a single small plate plainly longer, narrower and obviously arcuate.

Type series. Holotype, ♂ (7691), Foot of Mt. Nyohô-san, Nikkô City, Tochigi Pref., 8. VII. 1999, H. OHKAWA leg. Paratypes: 4♀♀ (7677, 7692 to 7694), the same data as holotype specimen.

Etymology. The subspecific name of the present new subspecies is named after "Mt. Nyohô-san", the type locality.

Homotechnes motschulskyi yashu KISHII, subsp. nov.

[Okukinu-miyamahisago-kometsuki]

(Fig. 9 and Map 9)

Homotechnes motschulskyi subsp. 4: KISHII, 2004: 6–15 (Kawamata and Mt. Sannôbôshi to Mt. Tarô, Tochigi).

Description. Male, length 9.8–10.4 mm, elytral width 3.5–3.7 mm; female, length 10.7–12.0 mm, elytral width 3.8–4.1 mm. This new subspecies fairly allied to subsp. *ondai* in many structures, but definitely discriminated from it by the characters as follows: antennae rather shorter; head and pronotal punctures denser; pronotum a little wider; pronotal disc sometimes with a medio-longitudinal smooth line or feeble elevation; apical hook-like expansion of each aedeagal paramere (Figs. 9c and 9e: 7689) much elongate; thorny plates in female bursa

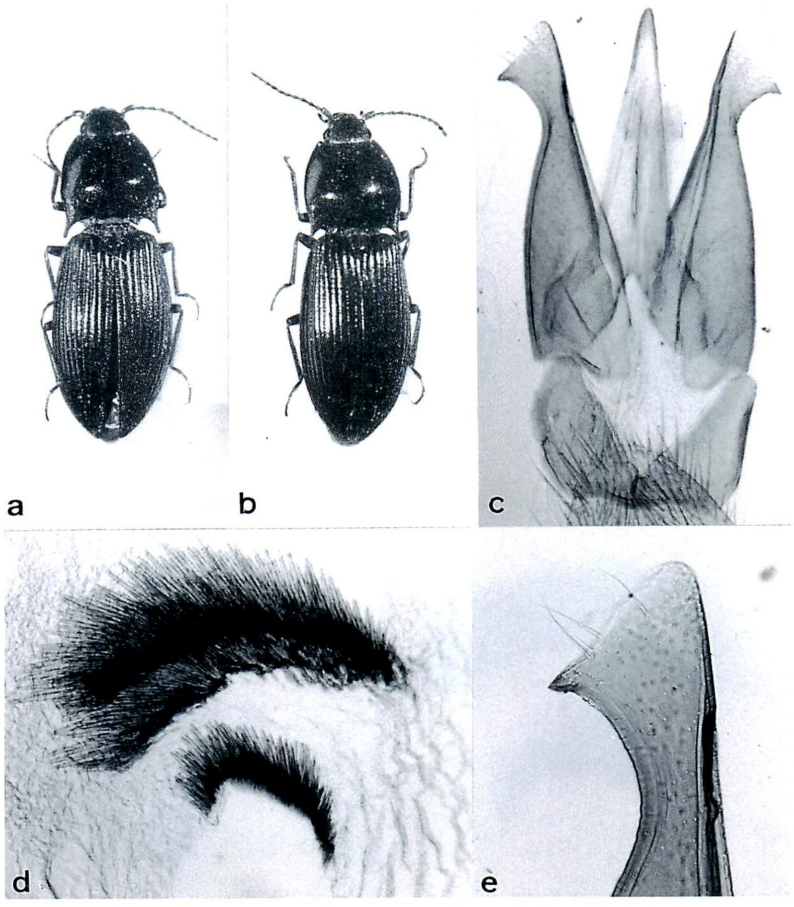


Fig. 8. *Homotechnes motschulskyi nyohou* KISHII, subsp. nov. Mt. Nyohô-san, Nikkô City, Tochigi Pref. —— a, Habitus, holotype, ♂ (7691), 10.6 mm; b, ditto, paratype, ♀ (7694), 11.3 mm; c, aedeagus in dorsal view, holotype (7691); d, thorny plates of female bursa copulatrix, paratype (7694); e, apex of aedeagal paramere, holotype (7691).

copulatrix (Fig. 9d: 5376) with two large plates generally broad, elongate and thick, a single small plate broad and distinctly arcuate. Moreover in the general appearance the present subspecies closely similar to the subsp. *hiromasai* (OHIRA, 1968), but differs from it in the following structures: coloration of antennae and legs brighter; frons almost simple without any impression, whereas in *hiromasai* irregularly impressed longitudinally; pronotal punctures more sparser and smaller; elytral punctures on strial intervals distinctly finer and slightly denser.

Type series. Holotype, ♂ (7689), Mt. Sannôbôshi-san to Mt. Tarô-san, Kuriyama Vil., Tochigi Pref., 6. VI. 1999, H. OHKAWA leg. Paratypes: 3♂♂ (incl. 7690), 3♀♀ (incl. 7687 and 7688), the same data as holotype specimen; 1♀ (5376), Kawamata, Kuriyama Vil., Tochigi Pref., 3. V. 1989, alt. 1,000 m, H. OHKAWA leg.

Etymology. The new subspecific name comes from "Yashû", the old name of Tochigi Prefecture.

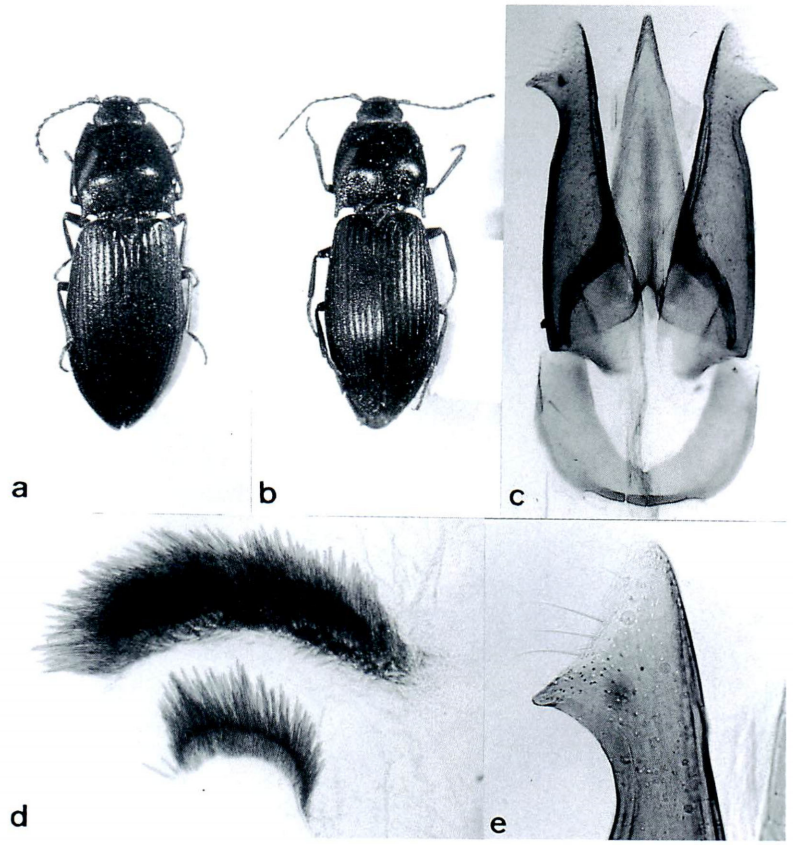


Fig. 9. *Homotechnes motschulskyi yashu* KISHII, subsp. nov., Kuriyama Vil., Tochigi Pref. —— a, Habitus, holotype, ♂ (7689), Mt. Sannôbôshi-san to Mt. Tarô-san, 9.8 mm; b, ditto, paratype, ♀ (5376), Kawamata, 11.8 mm; c, aedeagus in dorsal view, holotype (7689); d, thorny plates of female bursa copulatrix (5376), Kawamata; e, apex of aedeagal paramere, holotype (7689).

Homotechnes motschulskyi kohshin KISHII, subsp. nov.

[Ashio-miyamahisago-kometsuki]

(Fig. 10 and Map 10)

Homotechnes motschulskyi subsp. 5: KISHII, 2004: 6–15 (Mt. Kohshin-zan, Tochigi).

Description. Male, length 9.2–10.3 mm, elytral width 3.2–3.7 mm; female, length 10.7–11.9 mm, elytral width 3.8–3.9 mm. Allied to the nominotypical subspecies, but the new subspecies differs from it by the characters as follows: antennal basal segment conspicuously robuster and larger; pronotal punctures on lateral borders obviously sparser and smaller; pronotal hind angles narrower and more divergent postero-laterad; prosternal punctures much sparser and minuter; male genitalia as figured (Figs. 10c and 10e: 7909), with apico-lateral expansion of each paramere a little longer, and lateral acute projection feebly shorter; thorny plates of female bursa copulatrix as figured (Fig. 10d: 7912), with two large plates narrow and a little arcuate, and a single small plate smaller and narrower.

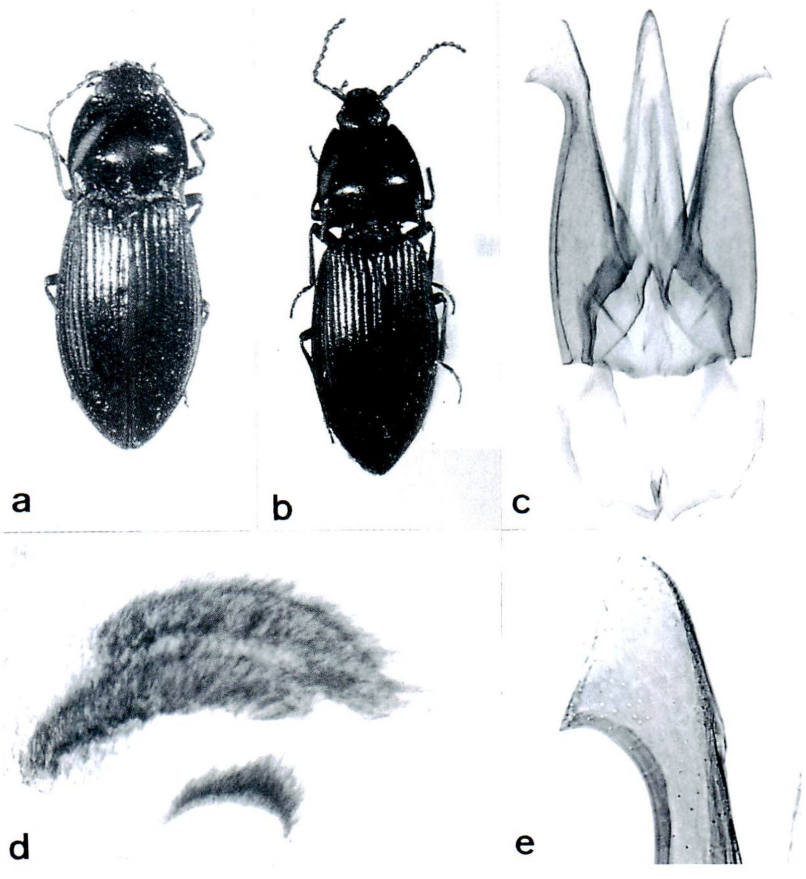


Fig. 10. *Homotechnes motschulskyi kohshin* KISHII, subsp. nov., Mt. Kôshin-zan, Ashio Town, Tochigi Pref. —— a, Habitus, holotype, ♂ (7909), 9.2 mm; b, ditto, paratype, ♀ (7911), 11.5 mm; c, aedeagus in dorsal view, holotype (7909); d, thorny plates of female bursa copulatrix, paratype (7912), ditto; e, apex of aedeagal paramere, holotype (7909).

Type series. Holotype, ♂ (7909), Mt. Kôshin-zan, Ashio Town, Tochigi Pref., 16. VII. 2000, alt. 1,500–1,600 m, H. OHKAWA leg. Paratypes: 2♂♂ (incl. 7910), 2♀♀ (7911 and 7912), the same data as holotype specimen.

Etymology. The subspecific name of the present new subspecies is named after "Mt. Kôshin-zan", the type locality.

Homotechnes motschulskyi ozaku KISHII, subsp. nov.

[Ozaku-miyamahisago-kometsuki]

(Fig. 11 and Map 11)

Homotechnes motschulskyi subsp. 6: KISHII, 2004: 6–15 (Mt. Ozaku-san, Tochigi).

Description. Male, length 8.3–9.8 mm, elytral width 3.4–3.7 mm; female, length 9.7–11.3 mm, elytral width 3.7–4.3 mm. Most closely allied to the subsp. *kohshin* nov., but the new sub-

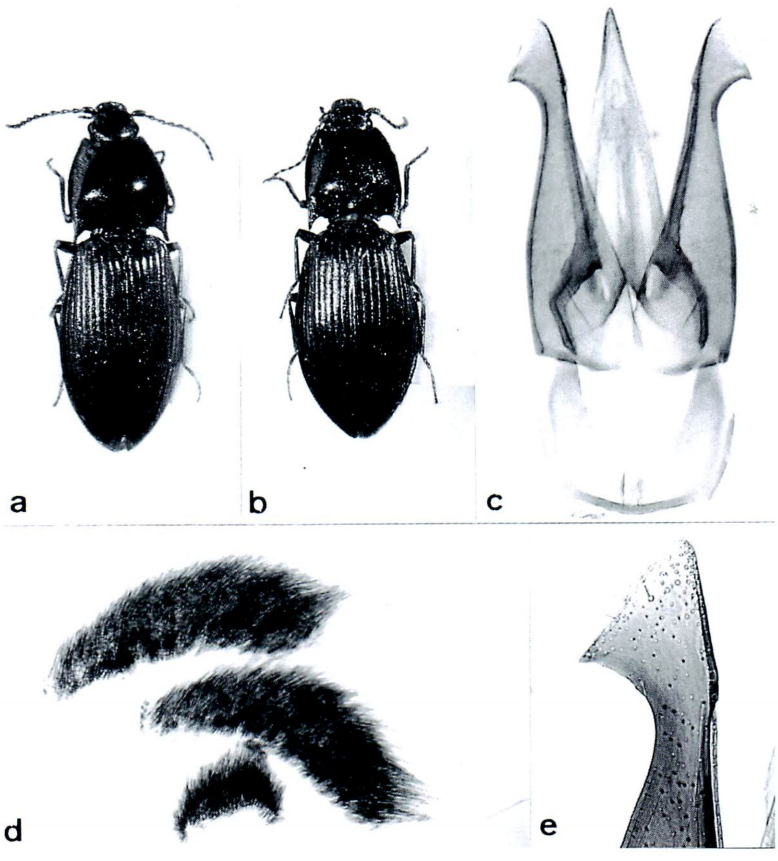


Fig. 11. *Homotechnes motschulskyi ozaku* KISHII, subsp. nov., Mt. Ozaku-san, Kanuma City, Tochigi Pref. —— a, Habitus, holotype, ♂ (7931), 9.4 mm; b, ditto, paratype, ♀ (7934), 11.4 mm; c, aedeagus in dorsal view, holotype (7931); d, thorny plates of female bursa copulatrix, paratype (7934), ditto; e, apex of aedeagal paramere, holotype (7931).

species differs from it by the characters as follows: size a little smaller; coloration of antennae, pronotal lateral borders, ventral surface and legs more brightly reddish brown; head and pronotal punctures more sparser and finer; scutellum a little narrower; elytral punctures on intervals distinctly finer and less sparser; elytral basal part microscopically, transversely and rather densely rugose; male genitalia as figured (Figs. 11c and 11e: 7931), with apico-lateral expansion of each paramere rather equilateral triangular and lateral projection acutely pointed; thorny plates of female bursa copulatrix as figured (Fig. 11d: 7934), with two large plates thick, broadened apically and feebly arched, and a single small plate thick and a little broad.

Type series. Holotype, ♂ (7931), Mt. Ozaku-san, Kanuma City, Tochigi Pref., 7. V. 2000, H. OHKAWA leg. Paratypes: 7♂♂ (incl. 7932), 5♀♀ (incl. 7933 and 7934), the same data as the holotype specimen.

Etymology. The new subspecies is named after "Mt. Ozaku-san", the type locality.

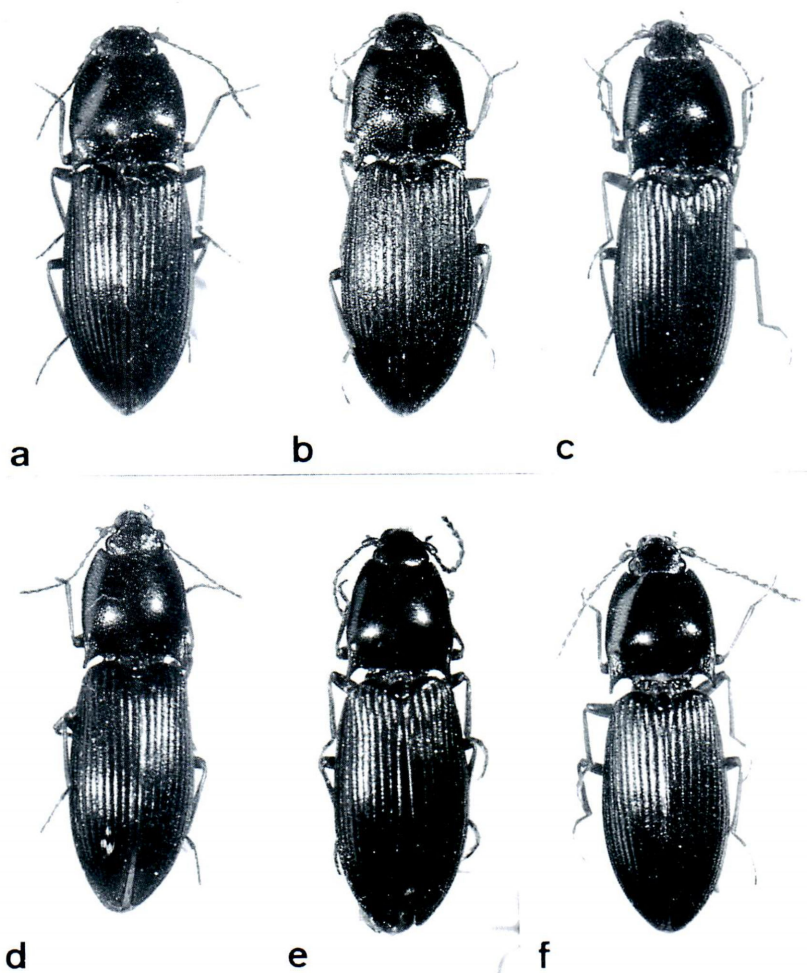


Fig. 12. *Homotechnes motschulskyi ohkawai* (KISHII, 1986), habitus. —— a, Paratype, ♂, Iwakiri-sawa, Ashikaga City, Tochigi Pref., 10.4 mm; b, ditto, holotype, ♀ (4574), ditto, 11.6 mm; c, ♂ (7920), Kami-ôto, Tanuma Town, Tochigi Pref., 12.0 mm; d, ♀ (7921), ditto, 12.1 mm; e, ♂ (7913), Mt. Izuru-san, Tochigi City, Tochigi Pref., 9.6 mm; f, ♀ (7914), ditto, 10.7 mm.

Homotechnes motschulskyi ohkawai (KISHII, 1986)

[Ashikaga-miyamahisago-kometsuki]

(Figs. 12, 13 and Map 12)

Hypolithus motschulskyi ohkawai KISHII, 1986: 38–39 (Iwakiri-sawa and Mt. Narabe-yama, Tochigi).
Homotechnes motschulskyi ohkawai: KISHII, 1993: 8; KISHII, 2004: 6–15 (Iwakiri-sawa, Mt. Narabe-yama, Mt. Izuru-san, and Kami-ôto, Tochigi).

Redescription. Male, length 9.9–12.0 mm, elytral width 3.2–4.3 mm; female, length 10.7–12.0 mm, elytral width 3.3–4.2 mm. In the general external aspect, this subspecies has most close appearance to the subspp. *aizu* and *shimotsuke*, but distinguished from them by the following structures: antennal basal segment rather larger and more expanded anteriad; frontal

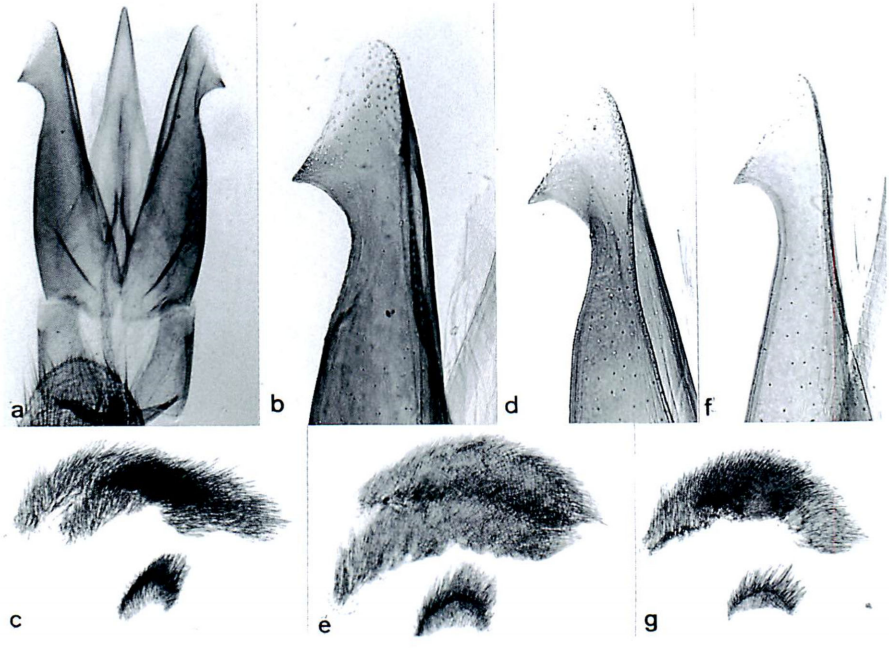


Fig. 13. *Homotechnes motschulskyi ohkawai* (KISHII, 1986). —— a, Aedeagus in dorsal view, paratype, ♂ (4575), Iwakiri-sawa, Ashikaga City, Tochigi Pref.; b, apex of aedeagal paramere (4575), ditto; c, thorny plates of female bursa copulatrix (4576), Mt. Narabe-yama, Tanuma Town, Tochigi Pref.; d, apex of aedeagal paramere (7920), Kami-ôto, Tanuma Town, Tochigi Pref.; e, thorny plates of female bursa copulatrix (7921), ditto; f, apex of aedeagal paramere (7913), Mt. Izuru-san, Tochigi City, Tochigi Pref.; g, thorny plates of female bursa copulatrix (7914), ditto.

margin of head more or less marginate in middle; head punctures smaller and sparser; pronotal latero-anterior punctures plainly larger and denser; pronotal basal furrows rather smaller and shorter; scutellum a little wider; elytral punctures on intervals larger and denser; male genitalia as figured (Figs. 13a and 13b: 4575, 13d: 7920 and 13f: 7913); thorny plates of female bursa copulatrix as figured (Figs. 13c: 4576, 13e: 7921 and 13g: 7914), with a pair of large plates generally narrow, elongate and more or less arcuate, and single small plate generally shorter and arcuate near apex.

Specimens examined. Iwakiri-sawa, Ashikaga City, Tochigi Pref., 1♀, (holotype, 4574), 8. V. 1984, H. OHKAWA leg. Paratypes: 1♂ (4575), 1♀ (4573), the same data as holotype specimen; Mt. Narabe-yama, Tanuma Town, Tochigi Pref., 1♂ (4577), 1♀ (4576), 6. V. 1977, H. OHKAWA leg. Other specimens: Mt. Izuru-san, Tochigi City, Tochigi Pref., 1♂ (7913), 1♀ (7914), 4. V. 2000, alt. 450 m, H. OHKAWA leg.; Kami-ôto, Sakuhara, Tanuma Town, Tochigi Pref., 2♂♂ (7919 and 7920), 4♀♀ (incl. 7921 and 7922), 19. V. 2000, alt. 400 m, H. OHKAWA leg.

Notes. Though having a slight difference in the shape of hook-like apex of each aedeagal paramere and a single small thorny plate in female bursa copulatrix as figured (Fig. 13), populations from Kami-ôto and Mt. Izuru-san are identifiable as the subsp. *ohkawai* on the basis of the homogeneous external structures. This subspecies may be widely distributed in the southwest mountainous region of Tochigi Prefecture.

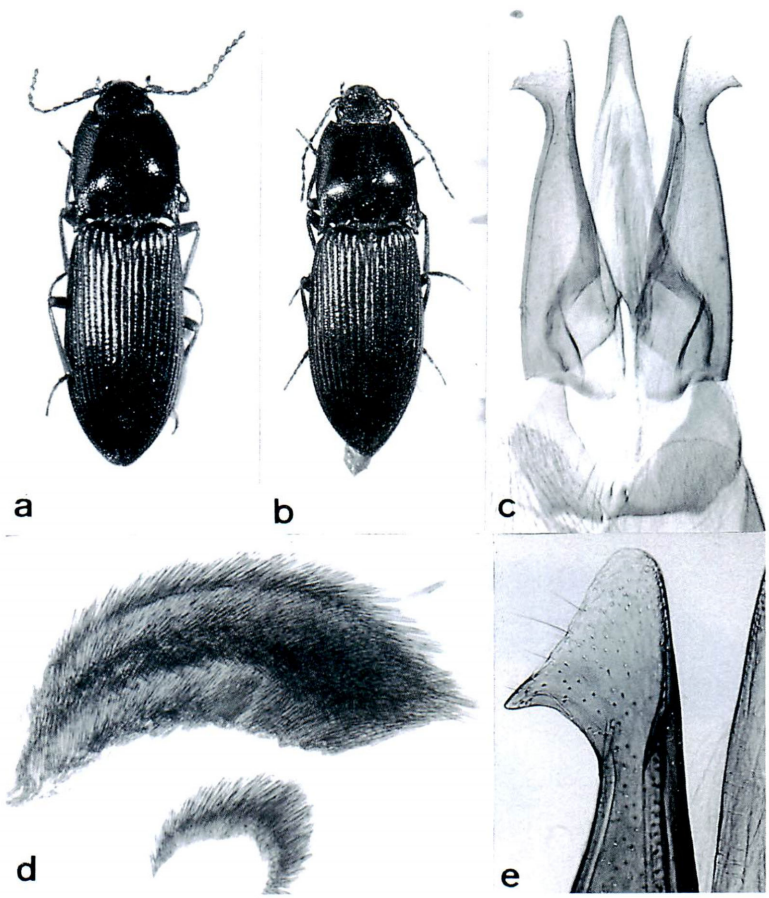


Fig. 14. *Homotechnes motschulskyi gyoudou* KISHII, subsp. nov. —— a, Habitus, holotype, ♂ (7936), Mt. Gyôdô-san, Ashikaga City, Tochigi Pref., 10.7 mm; b, ditto, paratype, ♀, Ôfune, Ashikaga City, Tochigi Pref., 13.6 mm; c, aedeagus in dorsal view, holotype (7936); d, thorny plates of female bursa copulatrix, paratype (7937), Mt. Gyôdô-san; e, apex of aedeagal paramere (8475), Upper stream of Matsuda-gawa river, Ashikaga City.

Homotechnes motschulskyi gyoudou KISHII, subsp. nov.

[Gyodo-miyamahisago-kometsuki]

(Fig. 14 and Map 13)

Homotechnes motschulskyi subsp. 7: KISHII, 2004: 6–15 (Mt. Gyôdô-san and Ôfune, Tochigi).

Description. Male, length 10.8–11.5 mm, elytral width 3.3–3.8 mm; female, length 10.9–13.7 mm, elytral width 3.3–4.4 mm. Elongate and parallel-sided body of this new subspecies most closely resembles that of subsp. *ondai*, but the new subspecies definitely differs from it by the characters as follows: antennal basal segment larger; head punctures plainly denser and larger, sometimes reticulate at lateral sides; pronotal punctures remarkably larger and denser, specially distinct along lateral borders; male genitalia as figured (Figs. 14c and 14e: 7936), rather broader in dorsal view, with apical hook-like expansion of each paramere rather equilateral triangular and acutely pointed laterad; thorny plates of female bursa copulatrix as figured (Fig. 14d: 7937), with large plates thick and clearly arcuate, and a single small plate obvi-

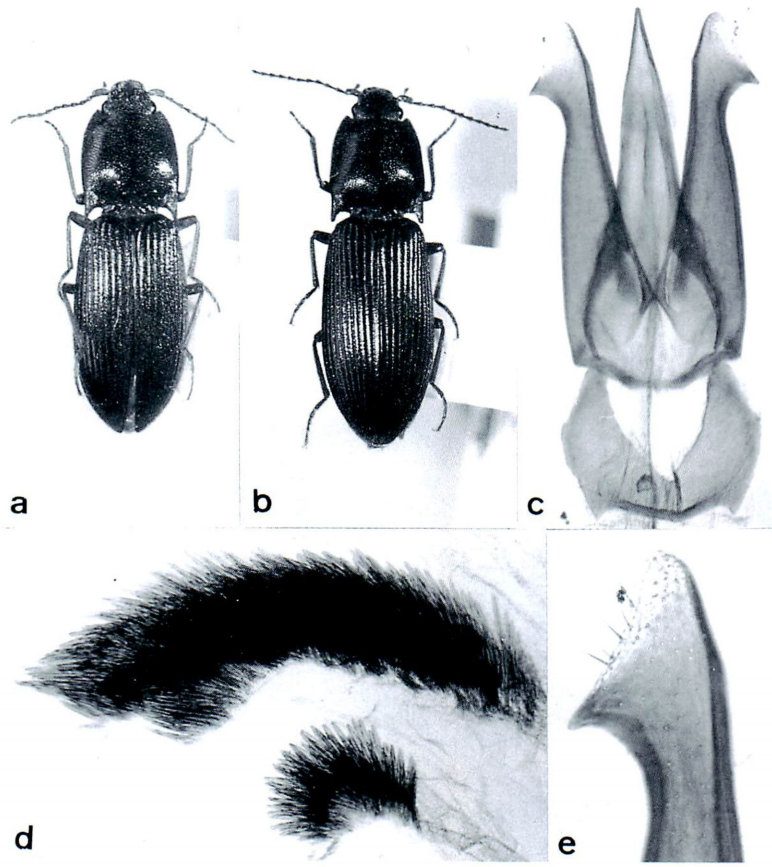


Fig. 15. *Homotechnes motschulskyi karasawa* KISHII, 1999, Mt. Karasawa-san, Sano City, Tochigi Pref. —— a, Habitus, holotype, ♂ (7464), 11.5 mm; b, ditto, paratype, ♀, 13.4 mm; c, aedeagus in dorsal view, paratype (7475); d, thorny plates of female bursa copulatrix, paratype (7465); e, apex of aedeagal paramere, paratype, (7475).

ously arcuate and narrower. General appearance of this subspecies has some similarities to the subsp. *yamizo*, but easily differenciated from it by dense pronotal punctures and distinct pronotal basal furrows of this subspecies.

Type series. Holotype, ♂ (7935), Mt. Gyôdô-san, Ashikaga City, Tochigi Pref., 30. IV. 2000, alt. 200 m, H. OHKAWA leg. Paratypes: 2♂♂ (incl. 7936), 8♀♀ (incl. 7937 and 7938), the same data as holotype specimen; Ôfune, Tochigi Pref., 12♂♂ (incl. 7674 and 7675), 8♀♀ (incl. 7972 and 7973), 1. V. 1999, H. OHKAWA leg.; 9♂♂ (incl. 8474 and 8475), 2♀♀ (incl. 8472 and 8473), Upper stream of Matsuda-gawa river, Ashikaga City, Tochigi Pref., 12. III. 2003, alt. 300 m, H. OHKAWA leg.

Etymology. This subspecies is named after "Mt. Gyôdô-san", the type locality.

Homotechnes motschulskyi karasawa KISHII, 1999

[Karasawa-miyamahisago-kometsuki]

(Fig. 15 and Map 14)

Homotechnes motschulskyi karasawa KISHII, 1999: 21–23 (Mt. Karasawa-yama, Tochigi); KISHII, 2004: 6–15 (Mt. Karasawa, Tochigi).

Redescription. Male, length 11.3–11.5 mm, elytral width 3.4–3.7 mm; female, length 12.1–13.3 mm, elytral width 3.8–4.2 mm. External structures are almost alike to the preceding subspecies *gyoudou* nov., but readily discriminated from it in structures of the genitalia as figured (Figs. 15c-15e: 7475 and 7465) in both sexes as follows: male genitalia narrower in dorsal view (Fig. 15c: 7475), with median lobe much acutely projecting apically, and apical hook-like expansion of each paramere distinctly longer; a pair of large thorny plates of female bursa copulatrix narrower and longer (Fig. 15d: 7465), and a single small plate shorter and clearly broader.

Specimens examined. Mt. Karasawa-yama, Sano City, Tochigi Pref., 1♂, (holotype, 7464), 24. V. 1998, alt. ca. 200 m, H. OHKAWA leg. Paratypes: 1♂ (7475), 3♀♀ (incl. 7463 and 7465), the same data as holotype specimen.

要　　約

岸井　尚：栃木県のミヤマヒサゴコメツキ．——FLEUTIAUX (1902) が日光周辺と見られる地域からの本種を記載後，本州と四国の高所に広く分布することが分かり，下翅の退化と高地山頂部近くに生息する特異性のため，形態変異が明瞭で多くの亜種に分けられている．栃木県では特にこの傾向が強く，足利市の大川秀雄氏はこれまでに極めて多くの資料を広範な山地から採集され，今回その検討の結果計14亜種群が見出された．この中で中禅寺湖東南岸個体群が原名亜種に相当する特徴を持つと見なし，既知の７亜種と共に以下の７亜種群を新しく記載した．それぞれの新名，和名と分布地は次の通りである（和名のうちミヤマヒサゴコメツキを省略）：ssp. *nyohou* ニョホウ（女峰山），ssp. *shiobarensis* シオバラ（下塩原），ssp. *kengoi* キヌガワ（小休戸，三岩沢），ssp. *yashu* オクキヌ（山王帽子山～太郎山，川俣），ssp. *kohshin* アシオ（庚申山），ssp. *ozaku* オザク（石裂山），ssp. *gyoudou* ギョウドウ（行道山，大船）．

References

CANDÈZE, E. C. A., 1882. Élatérid nouveaux 3. *Mémoires de la Société royale des Sciences de Liège*, (2)9: 1–117.

FLEUTIAUX, Ed., 1902. Deuxième liste des Cicindelidae, Elateridae et Melasidae (Eucnemidae), recueillis au Japon par M. J. HARMAND. *Bulletin du Muséum d'Histoire naturelle Paris*, **8**: 18–25.

KISHII, T., 1968. Some new forms of Elateridae in Japan (V). *Bulletin of the Heian High School, Kyoto*, **13**: 1–15.

KISHII, T., 1986. Some new forms of Elateridae in Japan (XVIII). *Bulletin of the Heian High School, Kyoto*, **30**: 37–56.

KISHII, T., 1987. A taxonomic study of the Japanese Elateridae (Coleoptera), with the keys to the subfamilies, tribes and genera. Kyoto: 1–262.

KISHII, T., 1989 a. On a new subspecies of *Hypolithus motschulskyi* from Mt. Yamizo-san in Fukushima Prefecture (Coleoptera, Elateridae). *The Entomological Review of Japan, Osaka*, **44**: 99–100.

KISHII, T., 1989 b. *Hypolithus motschulskyi* (FLEUTIAUX, 1902) from Mt. Norikura-dake in Gifu Prefecture, Japan (Col.: Elateridae). *Entomological Journal of Fukui, Fukui*, 5: 9–12. (In Japanese.)

KISHII, T., 1990. Notes on Elateridae from Japan and its adjacent Area (9) (Coleoptera). *Bulletin of the Heian High School, Kyoto*, **34**: 1–16.

KISHII, T., 1993. Notes on Elateridae from Japan and its adjacent Area (12) (Coleoptera). *Bulletin of the Heian High School, Kyoto*, **37**: 1–19.

KISHII, T., 1994. Notes on Elateridae from Japan and its adjacent Area (13) (Coleoptera). *Bulletin of the Heian High School, Kyoto*, **38**: 1–35.

KISHII, T., 1996. Notes on Elateridae from Japan and its adjacent Area (14) (Coleoptera). *Bulletin of the Heian High School, Kyoto*, **39**: 1–40.

KISHII, T., 1999. A new subspecies of *Homotechnes motschulskyi* (FLEUTIAUX, 1902) (Elateridae, Coleoptera) from Tochigi Prefecture. Some new forms of Elateridae in Japan (XXX). *The Entomological Review of Japan, Osaka*, **54**: 21–23.

KISHII, T., 2004. On the *Homotechnes motschulskyi* (FLEUTIAUX, 1902) from Tochigi Prefecture. *Nejirebane, Osaka*, (108): 6–15. (In Japanese.)

KISHII, T. and S. H. JIANG, 1994. Notes on the Chinese Elateridae, I (Coleoptera). *The Entomological Review of Japan, Osaka*, **49**: 87–102.

KISHII, T. and H. OHIRA, 1956. Snappers of Niigata Prefecture, esprcially on the collection by Dr. Kintaro BABA, with the descriptions of some new forms. *Akitu, Kyoto*, **5**(3): 71–84. (In Japanese with English summary.)

NAKANE, T., 1963. New or little known Coleoptera from Japan and its adjacent regions, XXV. *The Scientific Reports of Kyoto Prefectural University (Natural Science and Living Science), Kyoto*, **3**(5): 7–12.

NAKANE, T. and T. KISHII, 1955. Elateridae. Coloured Illustrations of the Insects of Japan, Coleoptera: 12–15, Hoikusha, Osaka. (In Japanese.)

OHIRA, H., 1968 a. New or little known Elateridae from Japan. XI (Coleoptera). *Bulletin of the Japan entomological Academy, Nagoya*, **4**(3): 9–12.

OHIRA, H., 1968 b. Notes on *Hypolithus* (*Hypnoidus*) *motschulskyi* (FLEUTIAUX, 1902) (I) (Coleoptera: Elateridae). *The Entomological Review of Japan, Osaka*, **21**: 25–32. (In Japanese with English summary.)

SCHENKLING, S., 1927. Elateridae II. *Coleopterorum Catalogus auspiciis et auxilio W. JUNK. Berlin*, **88**: 264–636.

(Received April 25, 2006; Accepted October 7, 2006)

Ent. Rev. Japan, **61** (2): 119–126, December 21, 2006

Three New Click Beetles from Japan (Coleoptera: Elateridae)
"Some New Taxa of Elateridae in Japan (XLI)"

Takashi KISHII

1–10 6–410, Kamihamuro, Takatsuki, Osaka, 569–1044 Japan

Abstract Three elaterid-species, *Ampedus* (*Ampedus*) *hinakurai* from Nagano Prefecture, *Ectamenogonus takumii* from Tsushima Is. and *Dalopius peninsularis* from the Kii Peninsula are newly described.

In this paper, I am going to describe three new elaterid species belonging to the subfamily Elaterinae: *Ampedus* (*Ampedus*) *hinakurai* (Ampedini) from Chino City and Mugikusa-tôge Pass in Nagano Prefecture, *Ectamenogonus takumii* (Megapenthini) from Tsushima Is. in Nagasaki Prefecture, and *Dalopius peninsularis* (Agriotini) from the Daikô mountainous area of the Kii Peninsula in Mie and Nara Prefectures.

The holotype specimens will be deposited in the collection of the Osaka Museum of Natural History (OMNH) and paratypes will be preserved mainly in my private collection. Concerning preparation of the genital organs, see KISHII (1987: 4).

Before going into further details, I wish to express my cordial thanks for their kind supplies of rich and useful material as following: Messrs. Hisayuki ARIMOTO (Osaka City), Masato HINAKURA (Tokyo Met.), Hiroyoshi HIRAMATSU (Wakayama City), Futoshi ICHIKAWA (Komono Town, Mie Pref.), Tateo ITO (Yawata City), Takumi KATÔ (Sakai City, Osaka Pref.), Kôzô MIZUNO (Uji City), Nobuyuki NARUKAWA (Suzuka City), Masahiro SAITÔ (Sakai City, Fukui Pref.), and Hideyuki YOKOZEKI (Yokkaichi City).

Subfamily **Elaterinae** LEACH, 1815
Tribe **Ampedini** GISTEL, 1856
Ampedus* (*Ampedus*) *hinakurai KISHII, sp. nov.

(Fig. 1)

The general appearances of the present small black *Ampedus*-species is somewhat allied to some congener species, especially resembles *A.* (*A.*) *aureovestitus* KISHII, but this new species is plainly slenderer, pubescence denser and longer, and the 3rd antennal segments obviously broader, and differs from it in the following description.

Description. Male, 7.4–10.7 mm in length, 2.1–2.8 mm in width. Distinctly slender, more or less flattened above as well as below, parallel-sided and remarkably shining all over. Black with 2nd antennal segments and legs a little dark brownish. Pubescence plainly long, dense, rather thick, straight, suberect and pale ferrugineous with distinct luster.

Head broad, feebly and roundly convex between eyes, then abruptly and rather perpendic-

ularly declivous antero-inferiad, with frons nearly triangular, and clearly marginate at anterior edge; the ratio of interocular distance across eyes to the width of an eye in dorsal view about 60:19 (ca. 3.2 times); frontal groove almost obsolescent at the middle, but clearly and elliptically hollowed transversely before each antennal sulcus, and the surface entirely polished; labrum faced anteriad, transversely hemicircular, covered with fine transverse creases on whole surface with large, sparse and irregular punctures; vertical surface smooth with punctures rather simple and sparse at the medio-anterior area, then becoming denser, larger and clearly ocellate laterad, but usually irregular in size and density, and their average distance between them a little narrower than diameter of puncture on lateral sides, but more or less wider medianly.

Antennae plainly thick, elongate, and distal two segments or more exceeding apices of prothoracic hind angles; relative length/width from basal segment to 5th as 21/12, 11/10, 16/12.5, 25.5/13.4 and 24/15.5 respectively; basal segment voluminous and roundly expanded anteriad, 2nd smallest and subglobular, 3rd triangular, 4th to 10th rather serrated and gently becoming less narrower and longer apically, 11th longer than 10th, elongate and spindly.

Pronotum distinctly trapezoidal, widest at apices of posterior angles, then gradually and weakly archedly narrowed anteriad, feebly and simply convex above, without any medio-longitudinal line or impression; relative dorsal and maximum length/width as 75/100; hind angles rather thick and elongate, moderately divergent postero-laterad at apices, each angle rather obtusely pointed apically, with an acute carina, which is divergently extending from apex to base of angle; discal surface plainly smooth all over, with punctures clearly fine, simple and more sparser medianly, but uneven in density, and their interstices exceedingly wider than diameter of puncture.

Scutellum elongate, nearly tongue-shaped, a little declivous antero-inferiad, feebly rounded and distinctly marginate at frontal margin, widest at anterior angles, rather parallel-sided medianly and then roundly narrowed posteriad, with hind apex rounded, and surface weakly convex above and smooth with a few very faint and sparse punctures.

Elytra elongate, parallel-sided, rather scarcely elevated, and hind apices obtusely mucronate; striae fine and partly furrowed, with elliptic discontinuous punctures; strial intervals rather flattened and generally smooth, with punctures very minute and sparse.

Prosternum nearly trapezoidal, medio-longitudinally elevated below, narrowest before procoxal cavities, then gently and rather linearly extending divergently anteriad; frontal lobe roundly dilated antero-inferiad, distinctly marginate at anterior edge, and deeply and transversely furrowed along edge with large dense and umbilical punctures; surface entirely smooth with small, sparse and simple punctures, but a little larger than those on pronotum, and generally uneven in density. Prosterno-pleural sutures broadly marginate at pleural sides, flattened and lustrous, and shallowly furrowed at antero-pleural ends, then clearly open apically between sternum and pleuron. Prosternal process elongate, thick, roundly bent interiad behind procoxal cavities, then arcuately protruding posteriad, obtusely pointed at hind apex, with a plain emargination on ventral surface before posterior apex, and inside surface obviously expanded dorsally near the middle. Propleural punctures longitudinally elliptical, larger and denser than those on prosternum. Mesosternal cavity narrow, nearly spindle-shaped, rather horizontal at anterior 3/4 and slightly declivous inferiad near posterior 1/4. Metasternum with microscopical shagreen-like sculptures and minute sparse punctures on whole surface. Sternites and legs moderate.

Male genitalia narrow and as figured (Figs. 1b and 1c: 7497, reference number of genital preparation, and so forth); median lobe elongate, distinctly narrowed, parallel-sided in middle,

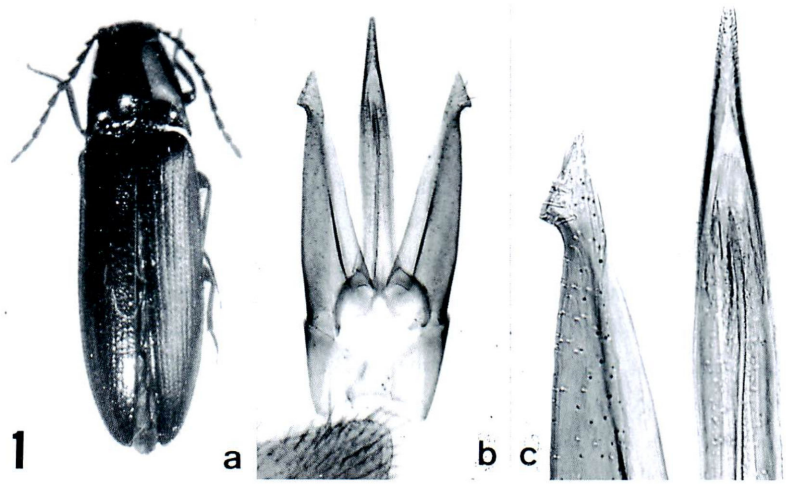


Fig.1. *Ampedus* (*Ampedus*) *hinakurai* KISHII, sp. nov., holotype, ♂ (7497). —— a, Habitus, 7.6 mm; b, aedeagus in dorsal view; c, ditto, apical part.

and tapered straight towards apex in distal 1/3; each paramere also narrow, with an apical hook-like expansion triangular and acutely pointed at apex, having a basal small hook rather right-angled; basal pieces short and entirely arched. Female unknown.

Distribution. Honshu (Nagano Prefecture).

Type series. Holotype: ♂ (7497), Kikkô-ike, Chino City, Nagano Pref., 12. VI. 1998, M. HINAKURA leg. Paratype: 1♂, Mugikusa-tôge Pass, Yachiho-son, Nagano Pref., 21. VII. 2001, Yutaka ISHIKAWA leg., in coll. Mr. Hisayuki ARIMOTO.

Etymology. The specific name of the present new species is dedicated to Mr. Masato HINAKURA in expressing my sincere gratitude for offering precious example.

Remarks. As noted at the outest, apparently this new species belongs to the same kind of congeners having small black body, but it is easy to distinguish from them by the following points: 1, antennae entirely black except 2nd segment only dark brown; 2, legs almost dark brown; 3, pubescence ferruginous, plainly long and dense; 4, antennae obviously elongate; 5, 3rd antennal segment broadly triangular; 6, trapezoidal pronotum; 7, apico-lateral projection of aedeagal paramere orthogonal.

Subfamily **Elaterinae** LEACH, 1815
Tribe **Megapenthini** GURJEVA, 1973
Ectamenogonus takumii KISHII, sp. nov.

(Fig. 2)

Homotechnes? *plebejus* (CANDÈZE): KISHII, 1961: 42 (Sasu Pass in Is. Tsushima).

Description. Male, 11.8 mm in length, 3.4 mm in width; female, 12.4 mm in length, 3.5 mm in width. In general appearance and coloration, this new species is closely related to such *Ectamenogonus*-species from Japan as *E. plebejus* (CANDÈZE, 1873) and *E. robustus* (KISHII, 1966). But the present new species may be separable from them by the combination of following structures, especially by the different characteristics of genital organs in both sexes as follows: body relatively a little broader; frontal margin of head evenly rounded (subtriangularly

expanded in *plebejus* and *robustus*); vertical punctures sparser, finer and distinctly more irregular in size and density; relative length/width from basal to 5th segments of antenna as 40/19, 18/13, 21/12.5, 40/20.5 and 38.5/19 in male, and 37.5/17, 17.5/12, 18.5/12, 41/18.5 and 39/18 in female, respectively; basal segment of antenna voluminous and roundly expanded anteriad, with an acute carina at antero-apical side, 2nd smallest and subtriangular, 3rd rather clubbed, 4th to 9th plainly serrated and gently becoming less narrower and shorter apically (10th and 11th lost in holotype); pronotal punctures denser, smaller and evener; male genitalia as figured (Figs. 2c and 2d: 8306, holotype), rather narrow (distinctly broad in *robustus*, Fig. 3: 0363, Aburakawa in Aomori City, 29. VII. 1944, T. KISHII leg.; plainly narrow in *plebejus*, Fig. 4a: 3054, Aose in Is. Shimokoshiki-jima, 4-14. VIII. 1967, a member of Biological Club of Heian High School leg.); female bursa copulatrix as figured (Fig. 2e: 3055, paratype) with about 100 prickles (in *plebejus*: Fig. 4b: 3056, Izumiyama in Kyoto City, 20. VIII. 1956, S. NIIMURA leg.: about 160 and each prickles obviously longer).

Distribution. Tsushima Island (Nagasaki Prefecture).

Type series. Holotype: ♂ (8306), Mine, Tsushima Is., Nagasaki Pref., 11. VIII. 2001, Takumi KATÔ leg. Paratype: 1♀ (3055), Sasu Pass, Izuhara-chô, Tsushima Is., Nagasaki Pref., 22–28. VII. 1959, T. KISHII leg.

Etymology. The new specific name is dedicated to Mr. Takumi KATÔ who collected and kindly offered the holotype specimen.

Remarks. MIWA (1933: 29) reported *Neotrichophorus plebejus* (CANDÈZE) from Komoda in Tsushima Is. (28. VII. 1930, HORI and CHÔ leg.), but this specimen seems to be the present new species.

Subfamily **Elaterinae** LEACH, 1815
Tribe **Agriotini** CHAMPION, 1896
Dalopius peninsularis KISHII, sp. nov.

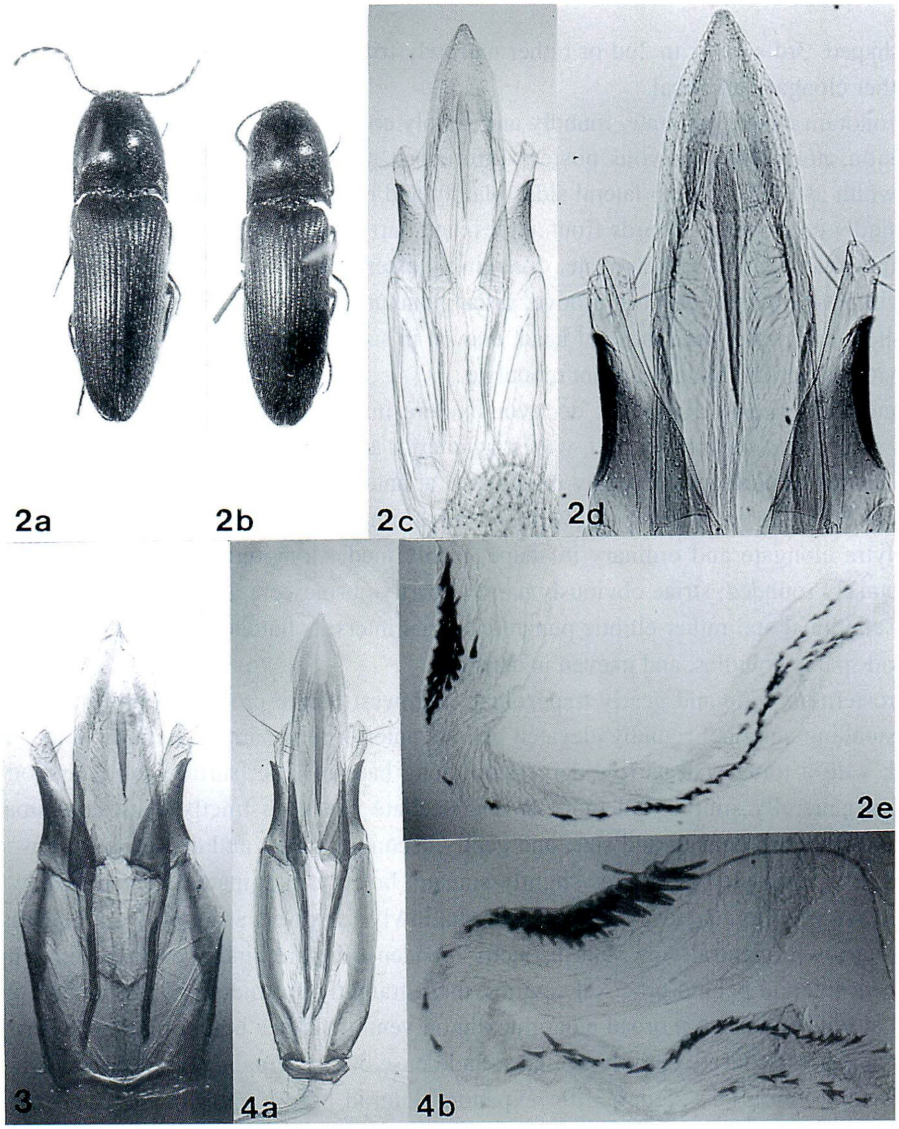
(Fig. 5)

Dalopius tamui (KISHII): KISHII, 1998a: 2–3, part. (Mie).

Dalopius sp.: KISHII, 2001a: 9 (Myojin-dake in Mie); KISHII, 2001b: 11 (Mt. Mayoi-dake and Myojindaira in Mie).

Description. Male, 4.6–6.0 mm in length, 1.3–1.6 mm in elytral width; female 4.9–5.9 mm in length, 1.4–1.7 mm in elytral width. Narrow, plainly slender, rather less cylindrical, parallel-sided, slightly elevated above medio-longitudinally, and rather shining all over. Wholly fuscous to some castaneous brownish, with antennae, pronotal anterior and posterior margins, prosternal process, and legs more or less yellowish brown, sometimes 5th to 7th erytral interstices more or less elongately brownish yellow and usually paler in female. Pubescence rather tender, dense, long, straight, recumbent and more or less golden whitish with some tint.

Head broad, roundly and rather perpendicularly declined antero-inferiad from posterior margin, with a shallow medio-longitudinal depression; the ratio of interocular distance across eyes to the width of an eye in dorsal view about 49:13 (ca. 3.8 times); frons triangularly projecting medianly and entirely united with median part of frontal groove; frontal margin perfectly interrupted at the middle, but both sides distinctly marginated straight; frontal groove perfectly absent medianly, but triangularly and deeply concave before antennal sulci; vertical surface



Figs. 2–4. *Ectamenogonus* spp. —— 2, *E. takumii* KISHII, sp. nov.: a, holotype, ♂ (8306), habitus, 11.8 mm; b, paratype, ♀ (3055), habitus, 12.4 mm; c, aedeagus (8306), holotype; d, ditto, apical part; e, prickles of female bursa copulatrix. 3, *E. robustus* (KISHII, 1966): aedeagus(0363), Aburakawa in Aomori City. 4, *E. plebejus* (CANDÈZE, 1873): a, aedeagus(3054), Aose in Is. Shimo-koshiki-jima; b, prickles of female bursa copulatrix (3056), Izumiyama in Kyoto City.

entirely covered with large and ocellate punctures, which are rather irregular in size, and their margins entirely reticulate each other.

Antennae rather thick and elongate, longer than combined length of head and prothorax including hind angles by three distal segments in male or two in female; relative length/width from basal to 5th segments as 24/8.5, 11/6, 11/5.8, 18/10.5 and 17/10 (male, holotype), and 26.5/9.5, 11.5/6.5, 12.5/7.3, 17.5/8.3 and 17.5/8.2 (female), respectively; basal segment cylindrical and less expanded medianly with a feeble short carina at apico-anterior side, 2nd rather

barrel-shaped, 3rd similar to 2nd or rather narrowly triangular, 4th to 10th weakly serrate, and 11th rather elongate-elliptical.

Pronotum nearly quadrate, roundly and simply convex above, without any median line or impression, normally declivous postero-inferiad at hind slope, and relative dorsal median length/width as 80/87; antero-lateral sides plainly and roundly expanded laterad behind angles, then roundly convergent towards front angles, and narrowest before bases of hind angles; each hind angle triangular, rather elongate, divergingly extending postero-laterad, acutely pointed at apex, without carination or basal groove; discal punctures rather pock-like and clearly shallower, smaller and sparser than those of head, uneven in size and density, and their interstices visible, obviously narrow but always not reticulate.

Scutellum nearly triangular, declivous antero-inferiad, scarcely elevated above, with a shallow impression on anterior half, widest at anterior angles, then converged straight posteriad, roundly ended at hind apex, broadly marginated at anterior angles, a little excavated at antero-median margin, and surface smooth, with punctures simple, sparse and small.

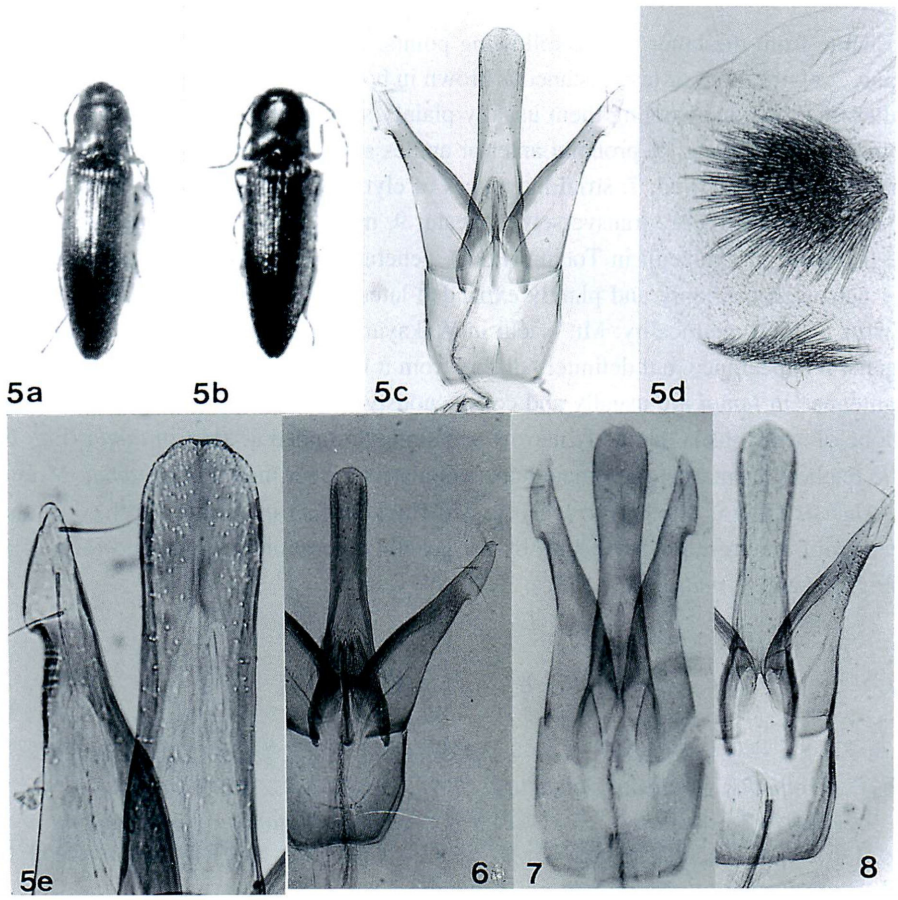
Elytra elongate and ordinary in shape, feebly medio-longitudinally convex above; each apex obtusely rounded; striae obviously narrow, partly obsolescent and intermittently furrowed, with discontinual and rather elliptic punctures; strial intervals flattened and smooth, with rather small and sparse granules, and uneven in density.

Prosternum wide and nearly trapezoidal, narrowest before procoxal cavities, then sublinearly extending anteriad, roundly elevated bellow; anterior lobe narrow, roundly dilated antero-inferiad, with a transverse narrow depression along base of lobe; surface rather smooth, with punctures generally simple, but more or less ocellate partly, distinctly dense and small, but medianly uneven in density and size, and gently becoming larger and denser laterad as well as anteriad. Prosterno-pleural sutures slightly sinuate, broadly marginated at pleural side, rather flattened with some coarse punctures, and shallowly furrowed at anterior ends. Prosternal process narrow in ventral view, but distinctly broadened before hind apex in profile, elongate, feebly bent interiad behind procoxal cavities, then straightly protruding posteriad, and obtusely pointed at hind end, with a broad emargination on ventral surface before hind apex. Propleural punctures generally large, entirely ocellated and dense. Mesosternal cavity deep medianly, narrow, elongate, parallel-sided, a little expanded laterad before anterior end, and shallowly grooved at hind end, with medio-lateral sides roundly enlarged below having many small notches. Metasternum minutely shagreened, with punctures rather simple, small and sparse. Sternites and legs moderate.

Male genitalia as figured (Fig. 5c: 8075; 5e: 8074, holotype) rather broad; median lobe nearly parallel-sided and hardly enlarged laterad behind apex, generally rounded but barely emarginated at apical end; paramere narrow, spread out with apico-lateral expansion feebly enlarged laterad. Female bursa copulatrix as figured (Fig. 5d: 8078), with a pair of semicircular thorny radiative bundles and an elliptic feathery formation.

Distribution. Honshu (Mie and Nara Prefs.).

Type series. Holotype: ♂ (8074), Myôjin-daira, Iidaka-chô, Mie Pref., 22. V. 1999, Hideyuki YOKOZEKI leg. Paratypes: 2♂♂ (8072), 3♀♀ (8071), the same data as holotype specimen; 2♂♂, ditto, 22. V. 1999, N. NARUKAWA leg.; 1♂ (8073), 1♀, ditto, 22. V. 2000, H. YOKOZEKI leg.; 1♂ (8079), 1♀ (8078), ditto, 20. VI. 1998, N. NARUKAWA leg.; 3♂♂ (8075), 2♀♀, ditto, 10. VI. 1999, H. YOKOZEKI leg.; 1♀, Nishitani, Miyagawa-son, Mie Pref., 5. V. 1994, N. NARUKAWA leg.; 1♂ (8080), Kuritani, Miyagawa-son, Mie Pref., 9. VII. 1994, N.



Figs. 5–8. *Dalopius* spp. —— 5, *D. peninsularis* KISHII, sp. nov.: a, paratype, ♂, habitus, 6.0 mm, Myôjin-daira in Mie Pref.; b, paratype, ♀, habitus, 4.6 mm, ditto; c, aedeagus (8075), paratype, ditto; d, thorny radiative bundles on female bursa copulatrix (8078), paratype, ditto; e, aedeagus (8074), holotype. 6, *D. tamui* KISHII, 1957, aedeagus (2117), holotype, Nachi in Wakayama Pref. 7, *D. niponensis* OHIRA, 1970, aedeagus (3622), Lake Chûzenji-ko in Tochigi Pref. 8, *D. mutsuensis* OHIRA, 1989, aedeagus (5786), Jyogakura in Aomori City.

NARUKAWA leg.; 4♂♂, Nunobiki Fall, Kiwa-chô, Mie Pref., 11. V. 1996, F. ICHIKAWA leg.; 1♂, ditto, 25. V. 1996, H. YOKOZEKI leg.; 1♀ (4464), Mt. Ohdaigahara, Kamikitayama-son, Nara Pref., 27. V. 1973, H. HIRAMATSU leg.; 1♂ (2281), ditto, 15. VI. 1974, K. MIZUNO leg.; 1♂, ditto, 23. VII. 1977, K. MIZUNO leg.; 1♂, ditto, 1. VII. 1984, M. SAITÔ leg.; 1♀, ditto, 3. VII. 1977, K. MIZUNO leg.; 1♀, Mt. Wasamata, Kamikitayama-son, Nara Pref., 28–29. IX. 1999, K. MIZUNO leg.; 3♂♂, ditto, 4–5. VI. 2002, K. MIZUNO leg.; 1♀ (8081), Mt. Ohmine-Misen (1400m), Tenkawa-mura, Nara Pref., 9. VII. 1984, K. MIZUNO leg.; 1♂, Mt. Inamura-dake, Tenkawa-son, Nara Pref., 3. VI. 1990, K. MIZUNO leg.; 1♂, ditto, 23. VI. 1990, K. MIZUNO leg.; 4♀♀, Mt. Kunimi, Higashiyoshino-mura, Nara Pref., 2. VI. 1985, K. MIZUNO leg.; 1♀, Mt. Kôjin, Nosakogawa-mura, Nara Pref., 2. V. 1968, Tateo IT Ô leg.

Etymology. The specific name of the present new species is based on the geographical location of the type localities, which are wholly included within the Kii Peninsula.

Remarks. In the fuscous coloration and long antennae, this new *Dalopius*-species resembles *D. niponensis* OHIRA, 1970 (type locality: Mt. Amagi in the Izu Peninsula). But it may be

distinguishable from the latter by the following points: in *niponensis*, 1, body size generally a little larger; 2, elytra more or less castaneous brown in both sexes; 3, head punctures less sparser and smaller, their distance among them usually plainly separated each other and not reticulate; 4, pronotum a little oblong; 5, pronotal anterior angles scarcely expanded; 6, elytral striae narrowly and regularly furrowed; 7, strial interstices of elytra with granules less denser and rather even; 8, elytral apices feebly transversely truncate; 9, male genitalia as figured (Fig. 7: 3622, from the lake-side of Chûzenji in Tochigi Pref.), generally a little narrower, with median lobe distinctly narrowed medianly and plainly expanded laterad near apex. This is also allied to *D. tamui* KISHII, 1957 (type locality: Mt. Nachi in Wakayama Pref.) in having the small body and similar general appearance, but definitely differs from it in the fuscous or castaneous brown elytra, the antennae in *tamui* are usually and conspicuously shorter than those of *peninsularis*, the median lobe of aedeagus is distinctly narrow and simply rounded at apex in *tamui* (Fig. 6), and an elliptic feathery formation on female bursa copulatrix longer than that of *tamui*. More allied to *D. mutsuensis* OHIRA, 1989 (type locality: Mt. Hakkôda-san in Aomori Pref.), but also discriminated from the present new species by the general coloration of elytra and form of aedeagus (cf. Figs. 5c and 8: *mutsuensis*, 5786).

要　　約

岸井 尚：コメツキ亜科の3新種．――長野県茅野市及び麦草峠産の触角と雄生殖器に著しい特徴を持つ *Ampedus* (*Ampedus*) *hinakurai* カイヒメクロコメツキ，本土産コナガコメツキと似るが，両性生殖器構造の違いなどで対馬固有種と見られる *Ectamenogonus takumii* ツシマコナガコメツキ，および紀伊半島山地に分布する細型黒褐色で上翅の黄色縦条が殆ど消失する *Dalopius peninsularis* ホソクロヒメコメツキを記載した．

References

KISHII, T., 1961. Elateridae of Is. Tsushima. The snappers of island (II). *Bulletin of the Heian High School, Kyoto*, **5**: 1–56.

KISHII, T., 1987. A taxonomic study of the Japanese Elateridae (Coleoptera), with the keys to the subfamilies, tribes and genera. pp. 1–262, Kyoto.

KISHII, T., 1998. A report of elaterid-beetles from Mie Prefecture (3). *Nejirebane, Osaka*, (80): 1–6. (In Japanese.)

KISHII, T., 1999. A check-list of the family Elateridae from Japan (Coleoptera). *Bulletin of the Heian high school, Kyoto*, **42**: 1–144.

KISHII, T., 2001 a. A report of elaterid-beetles from Mie Prefecture (6). *Nejirebane, Osaka*, (93): 3–12. (In Japanese.)

KISHII, T., 2001 b. A report of elaterid-beetles from Mie Prefecture (8). On the collection by Mr. Hideyuki YOKOZEKI. *Nejirebane, Osaka*, (95): 9–12. (In Japanese.)

MIWA, Y., 1933. Elateridae in the collection of the Entomological Laboratory, Kyushu Imperial University. *Mushi, Fukuoka*, **6**: 25–31. (In Japanese.)

MIWA, Y., 1934. The fauna of Elateridae in the Japanese Empire. *Report of the Department of Agriculture, Government research Institute, Formosa, Taihoku*, **65**: 1–289.

OHIRA, H., 1989. Notes on *Dalopius*-species from Japan (Coleoptera: Elateridae). *Transactions of Essa entomological Society, Niigata*, **68**: 59–79. (In Japanese with English summary.)

(Received April 25, 2006; Accepted October 7, 2006)

Ent. Rev. Japan, **61** (2): 127–130, December 21, 2006

Taxonomic Report of the Genus *Nipponemadus* (Coleoptera: Leiodidae: Cholevinae)

Hideto HOSHINA
Department of Regional Environment, Faculty of Education & Regional Studies, Fukui University, Fukui City, 910–8507 Japan,

Michel PERREAU
Université Paris 7, 2, place Jussieu, F–75251 Paris cedex 05 France

and

Yasuhiko HAYASHI
Suimeidai 3–1–73, Kawanishi City, Hyôgo Pref., 666–0116 Japan

Abstract *Catops torigaii* NAKANE, 1956 is transferred to the genus *Nipponemadus* PERREAU, 2004. *N. yanoi* PERREAU, 2004 is synonymized with *C. torigaii*.

In Japan, five genera of the tribe Anemadini HATCH, 1928 of the subfamily Cholevinae had been known to occur (PERREAU, 1996, 2000, and 2004a; Newton, 1998), and *Nipponemadus* was added recently by PERREAU (2004b) from Yodogawa, Osaka Prefecture. Recently, we examined holotypes of *Catops torigaii* NAKANE, 1956 and *Nipponemadus yanoi* PERREAU, 2004, and concluded that those are the same species. In this report, we will transfer *C. torigaii* to the genus *Nipponemadus* and treat *N. yanoi* as a junior synonym of *C. torigaii*. Before going further, we are very grateful to Drs. Maxwell BARCLAY (The Natural History Museum, London) and Masahiro ÔHARA (Hokkaido University, Sapporo) who kindly loaned us the holotypes. We also owe thanks to Mr. Koji ARAI (Saitama Prefecture, Japan) for his kind help in offering valuable specimen for this study.

Nipponemadus torigaii (NAKANE, 1956), comb. nov.

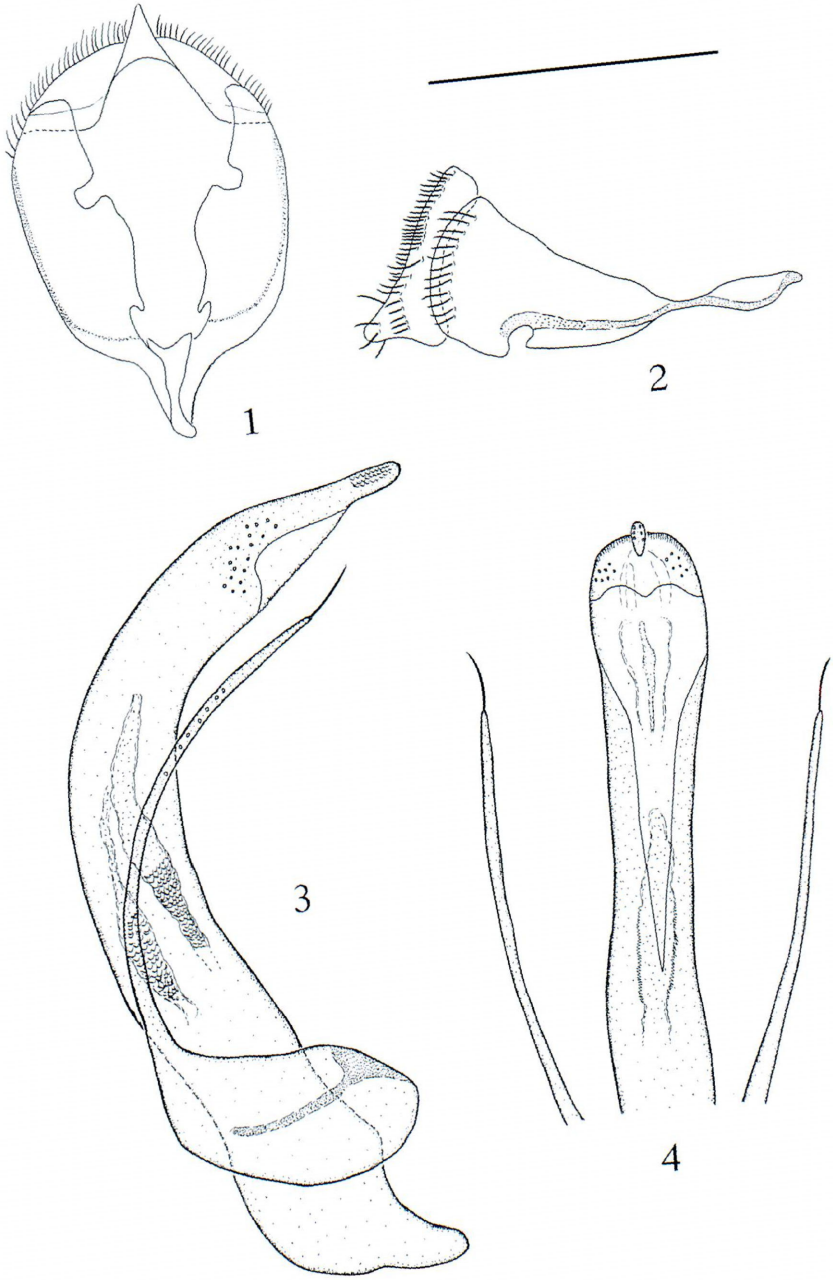
[Japanese name: Sesuji-chibishide-mushi]

(Figs. 1–4)

Catops torigaii NAKANE, 1956: 29; PERREAU, 2000: 134; PERREAU, 2004a: 139; IMASAKA and OHTSUKA, 2006: 24.

Nipponemadus yanoi PERREAU, 2004b: 200. **syn. nov.**

Specimens examined. Holotype of *Catops torigaii*, ♂, Futatsuya, Kawai, Hida, Honshu, Japan, 23. V. 1954, H. TORIGAI leg. (preserved in the Collection of The Hokkaido University Museum, Sapporo). Holotype of *Nipponemadus yanoi*, ♀, Yodogawa, Osaka, Japan, 25. IV. 1934, YANO leg. (preserved in the Collection of The Natural History Museum, London). 1 ♂, Kinchakuda, Komagawa, Hidaka City, Saitama



Figs. 1–4. *Nipponemadus torigaii* (NAKANE), comb. nov. —— 1, Genital segment, ventral view. 2, ditto, lateral view. 3, aedeagus, lateral view. 4, ditto, ventral view. Scale: 0.5 mm for Figs. 1–4.

Pref., Honshu, 28. I. 2006, K. ARAI leg.; 1♂, Yodogawa River, Osaka Pref., Honshu, 28. IX. 1958, T. TOMIWA leg.; 1♀, Makino, Osaka Pref., Honshu, 28. IX. 1958, T. TOMIWA leg.; 1♀, Numata, Gunma Pref., Honshu, 11. V. 1965, T. TAKEI leg.; 4♂♂, 4♀♀, Narito, Kaidu-chô, Kaidu City, Gifu Pref., Honshu, 11. XII. 2005, J. INAGAKI leg.

Distribution. Japan: Honshu and Kyushu.

Notes. *Nipponemadus yanoi* was described by PERREAU (2004b) based on only one female. We examined both holotypes of *N. yanoi* and *Catops torigaii* NAKANE, 1956, and concluded that important morphological female characters, spermatheca, female genitalia, abdominal sternite VIII, and others are almost the same in two species. Thus, we transfer *C. torigaii* to the genus *Nipponemadus* and designate *N. yanoi* as a new synonym of *C. torigaii*. In the original description of *C. torigaii*, NAKANE (1956) gave only three figures, antenna, male fore legs, and apex of aedeagus, which are insufficient for identification. Therefore, we show four figures of male characters in this report.

The question arises here whether to keep the genus valid or not. In the present state of knowledge, it seems that it should not be conserved, based on the lack of accurate delimitation of the genus. In a next future, however, revisions of the genus *Catops* which is clearly not monophyletic, will inevitably lead to the splitting into several genera (this trend was partially started by ZWICK (1968)). For this reason, we keep here the genus as valid waiting further investigations about its true status.

In all specimens used for this study, two specimens collected from Yodogawa and one from Hidaka City were caught from river beds. *N. torigaii* comb. nov. must inhabit grassy environments.

要　　約

保科 英人・Michel PERREAU・林　靖彦：日本産タマキノコムシ科チビシデムシ亜科に関する分類学的報告．——— *Nipponemadus yanoi* は，PERREAU (2004b) によって，雌1個体のみをタイプシリーズとして記載された種である．著者らが，この種の基準標本と，*Catops torigaii* NAKANE, 1956 のそれとを比較したところ，これらは同種であることがわかった．これに伴い，本稿では，*C. torigaii* を *Nipponemadus* 属に移し，*N. yanoi* を *C. torigaii* のシノニムとして処置した．なお，今までに得られている本種の標本は，河川敷で得られている物が少なくなく，野外では草地環境に生息している可能性が高い．

References

IMASAKA, S. and K. OHTSUKA, 2006. *Catops torigaii* in the galleries of moles. *Gekkan-Mushi*, (428): 24–26. (In Japanese.)

NAKANE, T., 1956. New or little known Coleoptera from Japan and its adjacent regions, XIII. *The Scientific Reports of Saikyo University (Natural Science and Living Science)*, **2**: 29–44.

NEWTON, A. F. Jr., 1998. Phylogenetic problems, current classification and generic catalog of world Leiodidae (including Cholevinae). *In*: Phylogeny and evolution of subterranean and endogean Cholevidae (=Leiodidae Cholevinae), proceedings of XX international congress of Entomology, Firenze, 1996. *Atti del Museo regionale di Scienze naturali, Torino*, **1998**: 41–178.

PERREAU, M., 1996. Contribution à la connaissance des Cholevidae du Japon et de Taiwan (Coleoptera). *Revue suisse de Zoologie*, **103**: 283–297.

PERREAU, M., 2000. Catalogue des Coléoptères Leiodidae Cholevinae et Platypsyllinae. *Mémoires de la Société entomologique de France*, (4). 460 pp.

PERREAU, M., 2004a. The family Leiodidae. 133–203. *In*: LÖBL, I. and A. SMETANA (Eds.). Catalogue of Palaearctic Coleoptera, vol. 2. 942 pp. Apollo Books. Stenstrup.

PERREAU, M., 2004b. Contribution à la connaissance des Leiodidae (Coleoptera). *Mitteilungen der Schweizerischen entomologischen Gesellschaft*, **77**: 197–212.

ZWICK, P., 1968. Zwei neue Catopiden-Gattungen aus Europa (Auflösung der *nigrita*-Gruppe in der Gattung *Catops*. *Entomologische Blätter für Biologie und Systematik der Käfer*, **64**: 1–16.

(Received April 30, 2006; Accepted October 9, 2006)

Ent. Rev. Japan, **61** (2): 131–142, December 21, 2006

Collection Records of Canadian Donaciinae (Coleoptera: Chrysomelidae) with Ecological Notes

Masakazu HAYASHI
Hoshizaki Green Foundation, Okinoshima, Sono, Izumo, 691–0076 Japan

and

Teiji SOTA
Department of Zoology, Graduate School of Science, Kyoto University,
Sakyo, Kyoto, 606–8502, Japan

Abstract Twenty-two species of Nearctic Donaciinae were collected in southeast Manitoba (near Winnipeg) and southeast Ontario (near Guelph), Canada, between May 23 and May 30, 2006. In Manitoba, eight species of *Plateumaris*, seven species of *Donacia*, and *Neohaemonia nigricornis* were recorded from three sites. At these sites, *P. germari*, *P. pusilla*, and *D. distincta* were abundant on *Carex* plants. In Ontario, eight species of *Plateumaris*, six species of *Donacia*, and two species of *Neohaemonia* were collected at eight sites. At some sites, *P. metallica*, *P. nitida*, and *P. pusilla* were abundant on *Carex* plants. We report collection data with notes on host plants and habitats of these donaciine species.

Key words: Donaciinae, Chrysomelidae, habitat, host plant, Nearctic

The Nearctic region is an area with a highly diversified fauna of chrysomelid beetles belonging to the subfamily Donaciinae, which includes 57 species in five genera (ASKEVOLD, 1991a), in which some species are closely related to Palearctic species. On the basis of morphological studies, ASKEVOLD (1991b) recognized several sister lineages from North America and Japan. Since we previously investigated the biogeography of Japanese Donaciinae, using molecular phylogeny and fossil records (e.g., SOTA and HAYASHI, 2004), the North American species are thus important to clarify the hypothesized relationships between Nearctic and Palearctic species.

In May 2006, we visited Manitoba and Ontario, Canada, and collected 22 species in three genera (*Plateumaris*, *Donacia*, and *Neohaemonia*) for molecular phylogenetic studies. The 10 sites we investigated incorporated several different habitat types. Here we report collection data with notes on ecology and habitat conditions based on our observations.

Collection and observation sites

We investigated three sites in Manitoba and seven sites in Ontario between May 23 and May 30, 2006 (Figs. 1–30). Names of our study sites are as follows:

[Manitoba]

Brokenhead R.: Brokenhead River, which crosses Highway 15, 20 km east of Anola.

Hazel C.: Hazel Creek, which crosses Highway 15, 30 km east of Anola.

Agassiz P. F.: Small marshes and creeks along "Trail 1 North" in Agassiz Provincial Forest, north of Highway 15, 35 km east of Anola.

[Ontario]

Salem: Small marsh near Salem, along Route 18, Wellington County.

Wellington C. F.: Small marshes in Wellington County Forest, near the Speed River, Wellington County.

Mallard Pond: Large pond at the eastern end of Luther Marsh (Luther Lake), Wellington/ Dufferin Counties.

Luther Marsh: Small marshes and creeks along the road, southern portion of Luther Marsh (Lake), Dufferin County.

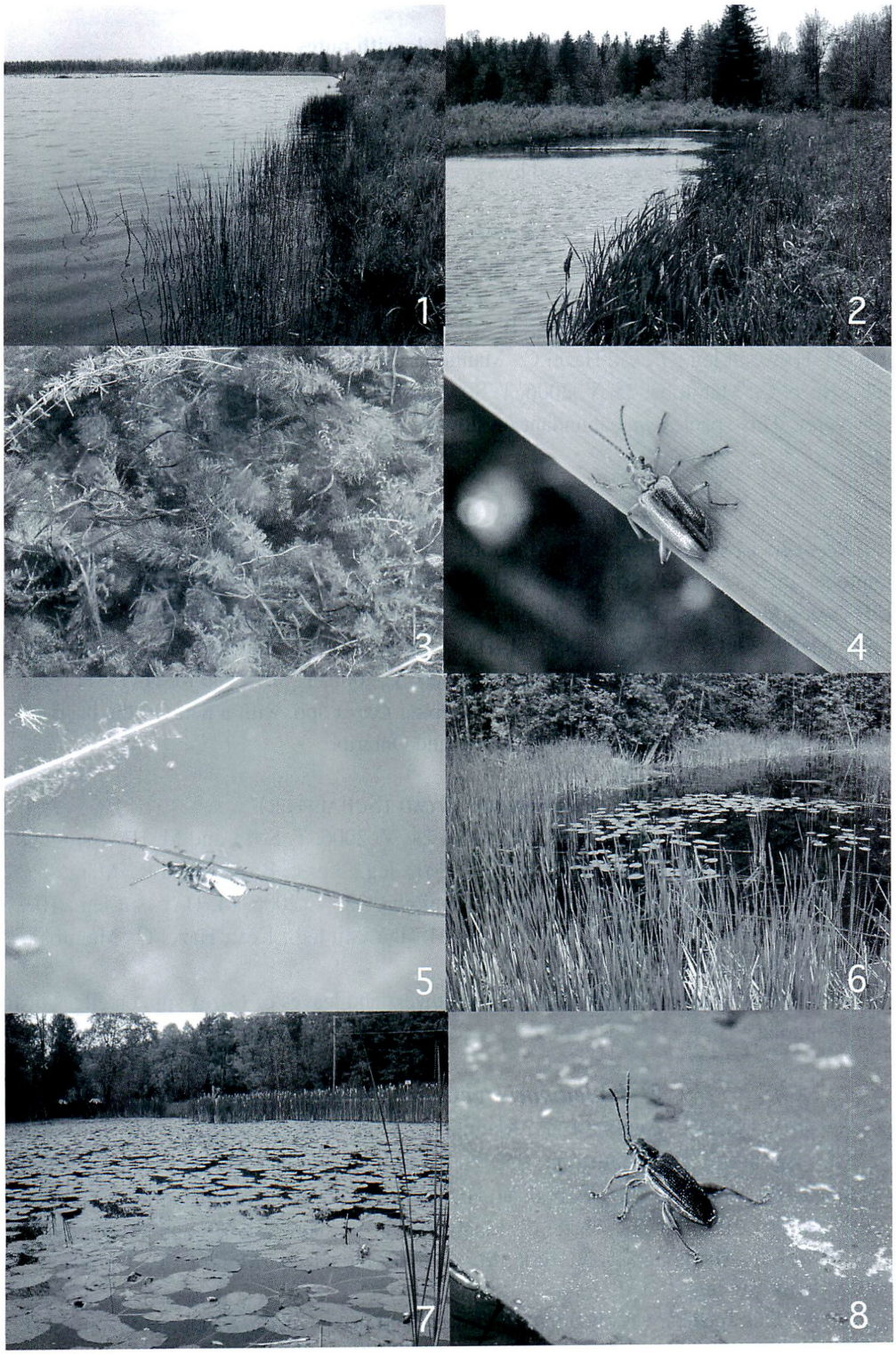
Mono C. P.: Small marshes and creeks in and around Mono Cliffs Park, Dufferin County.

Primrose: Small marshes along Third Road, Primrose, Dufferin County.

Downey Road: Marsh and ponds along Downey Road, south of Guelph, Wellington County.

Table 1. Total numbers of donaciine beetles collected from each site. —— BR, Brokenhead River; HC, Hazel Creek; APF, Agassiz Provincial Forest; SA, Salem; WCF, Wellington County Forest; MP, Mallard Pond; LM, Luther Marsh; MCP, Mono Cliffs Park; PR, Primrose; DRm, marsh along Downey Road; DRp, ponds along Downey Road.

Sites	BR	HC	APF	SA	WCF	MP	LM	MCP	PR	DRm	DRp
Types of habitat	C	C	D	E	F	A	D	D	E	D	B
Species											
P. aurifera	1										
P. flavipes	2	9	64								
P. fulvipes		3	3			1	1	3			
P. frosti	3	12	78								
P. germari	6	74	321					1			
P. metallica				13	7		36	8	16		
P. nitida			2	16	6	1	53	42	41	5	
P. pusilla	44	25	133			36	512	8			
P. rufa				27	30		1	13	26		
P. shoemakeri		12					1		1		
D. biimpressa	21	28	125							49	
D. cazieri	17	8	68								
D. confluenta		1									
D. distincta	11	92	88						3		
D. hirticollis	1	19				12	4				
D. subtilis	23	5				8	57	5		7	
D. (*Donaciomima*) sp.			39								
D. proxima											27
D. (*Donacia*) sp.											1
N. melsheimeri						172					
N. minnesotensis						27					
N. nigricornis		4									



Figs. 1–5, Habitat type A (Mallard Pond). —— 3, *Myriophillum* sp. and *Potamogeton* sp.; 4–5, *N. melsheimeri* (4, on a blade of grass around the pond; 5, in the water grasping a leaf of *Potamogeton* sp.).
Figs. 6–8, Habitat type B (ponds along Downey Road). —— 6–7, Floating leaves of *Nuphar* sp.; 8, *D. proxima*).

Collection records with notes

1. *Plateumaris aurifera* (LECONTE)

Record. 1 ex., Brokenhead R., Manitoba, 24. V. 2006, T. SOTA leg.

Notes. This species was collected by sweeping grasses along the river with a net.

2. *Plateumaris flavipes* (KIRBY)

Records. 18 exs., Agassiz P. F., Manitoba, 24. V. 2006, T. SOTA and M. HAYASHI leg.; 46 exs., Agassiz P. F., Manitoba, 25. V. 2006, T. SOTA and M. HAYASHI leg.; 11 exs., Agassiz P. F. and Hazel C., Manitoba, 25. V. 2006, T. SOTA leg.; 2 exs., Brokenhead R., Manitoba, 23. V. 2006, M. HAYASHI leg.; 7 exs., Hazel C., Manitoba, 24. V. 2006, T. SOTA and M. HAYASHI leg.; 2 exs., Hazel C., Manitoba, 25. V. 2006, T. SOTA and M. HAYASHI leg.

Notes. This species was abundant on flowers and leaves of *Carex* spp. in Manitoba (Fig. 21).

3. *Plateumaris fulvipes* (LACORDAIRE)

Records. 1 exs., Agassiz P. F., Manitoba, 24. V. 2006, T. SOTA leg.; 2 exs., Agassiz P. F., Manitoba, 25. V. 2006, T. SOTA and M. HAYASHI leg.; 1 ex., Hazel C., Manitoba, 23. V. 2006, M. HAYASHI leg.; 2 exs., Hazel C., Manitoba, 24. V. 2006, T. SOTA and M. HAYASHI leg.; 1 ex., Luther Marsh, Ontario, 28. V. 2006, M. HAYASHI leg.; 1 ex., Mallard Pond, Ontario, 28. V. 2006, T. SOTA leg.; 3 exs., Mono C. P., Ontario, 29. V. 2006, T. SOTA and M. HAYASHI leg.

Notes. This species was collected by sweeping *Carex* spp. with a net. On the basis of our observations, it was relatively rare in Manitoba and Ontario.

4. *Plateumaris frosti* (SCHAEFFER)

Records. 42 exs., Agassiz P. F., Manitoba, 24. V. 2006, T. SOTA and M. HAYASHI leg.; 36 exs., Agassiz P. F., Manitoba, 25. V. 2006, T. SOTA leg.; 3 exs., Brokenhead R., Manitoba, 23. V. 2006, M. HAYASHI leg.; 1 ex., Hazel C., Manitoba, 23. V. 2006, M. HAYASHI leg.; 10 exs., Hazel C., Manitoba, 24. V. 2006, T. SOTA and M. HAYASHI leg.; 1 ex., Hazel C., Manitoba, 25. V. 2006, M. HAYASHI leg.

Notes. This species was abundant on the flowers and leaves of *Carex* spp. on edges of forest in Manitoba.

5. *Plateumaris germari* (MANNERHEIM)

Records. 129 exs., Agassiz P. F., Manitoba, 24. V. 2006, T. SOTA and M. HAYASHI leg.; 192 exs., Agassiz P. F., Manitoba, 25. V. 2006, T. SOTA and M. HAYASHI leg.; 3 exs., Brokenhead R., Manitoba, 23. V. 2006, M. HAYASHI leg.; 3 exs., Brokenhead R., Manitoba, 24. V. 2006, T. SOTA leg.; 65 exs., Hazel C., Manitoba, 24. V. 2006, T. SOTA and M. HAYASHI leg.; 9 exs., Hazel C., Manitoba, 25. V. 2006, M. HAYASHI leg.; 1 ex., Mono C. P., Ontario, 29. V. 2006, M. HAYASHI leg.

Notes. This species was abundant on flowers and leaves of *Carex* spp. in Manitoba (Figs. 13, 22).

Figs. 9–16, Habitat type B (9, 10, Brokenhead River; 11–16, Hazel Creek). —— 12, *Nuphar* sp.; 13, *Plateumaris germari*; 14, *Donacia distincta* on a *Carex* sp. flower; 15, *Donacia hirticollis* on a floating leaved plant; 16, *Neohaemonia nigricornis*.

6. ***Plateumaris metallica*** (AHRENS)

Records. 11 exs., Luther Marsh, Ontario, 28. V. 2006, T. SOTA and M. HAYASHI leg.; 25 exs., Luther Marsh, Ontario, 30. V. 2006, M. HAYASHI leg.; 8 exs., Mono C. P., Ontario , 29. V. 2006, M. HAYASHI leg.; 16 exs., Primrose, Ontario, 29. V. 2006, T. SOTA and M. HAYASHI leg.; 13 exs., Salem, Ontario, 27. V. 2006, T. SOTA and M. HAYASHI leg.; 7 exs., Wellington C. F., 27. V. 2006, T. SOTA and M. HAYASHI leg.

Notes. This species was found on flowers and leaves of *Carex* spp. in Ontario.

7. ***Plateumaris nitida*** (GERMAR)

Records. 2 exs., Agassiz P. F., Manitoba, 24. V. 2006, T. SOTA and M. HAYASHI leg.; 5 exs., Downey Road, Ontario, 30. V. 2006, T. SOTA leg.; 37 exs., Luther Marsh, Ontario, 28. V. 2006, T. SOTA and M. HAYASHI leg.; 16 exs., Luther Marsh, Ontario, 30. V. 2006, T. SOTA leg.; 1 ex., Mallard Pond, Ontario, 28. V. 2006, M. HAYASHI leg.; 42 exs., Mono C. P., Ontario, 29. V. 2006, T. SOTA and M. HAYASHI leg.; 41 exs., Primrose, Ontario, 29. V. 2006, T. SOTA and M. HAYASHI leg.; 16 exs., Salem, Ontario, 27. V. 2006, T. SOTA and M. HAYASHI leg.; 4 exs., Wellington C. F., 27. V. 2006, T. SOTA and M. HAYASHI leg.; 2 exs., Wellington C. F., 30. V. 2006, T. SOTA leg.

Notes. This species was abundant on flowers and leaves of *Carex* spp. in Ontario but was rare in Manitoba.

8. ***Plateumaris pusilla*** (SAY)

Records. 62 exs., Agassiz P. F., Manitoba, 24. V. 2006, T. SOTA and M. HAYASHI leg.; 71 exs., Agassiz P. F., Manitoba, 25. V. 2006, T. SOTA and M. HAYASHI leg.; 27 exs., Brokenhead R., Manitoba, 23. V. 2006, M. HAYASHI leg.; 17 exs., Brokenhead R., Manitoba, 24. V. 2006, T. SOTA leg.; 19 exs., Hazel C., Manitoba, 24. V. 2006, T. SOTA and M. HAYASHI leg.; 6 exs., Hazel C., Manitoba, 25. V. 2006, M. HAYASHI leg.; 315 exs., Luther Marsh, Ontario, 28. V. 2006, T. SOTA and M. HAYASHI leg.; 197 exs., Luther Marsh, Ontario, 30. V. 2006, T. SOTA and M. HAYASHI leg.; 36 exs., Mallard Pond, Ontario, 28. V. 2006, T. SOTA and M. HAYASHI leg.; 8 exs., Mono C. P., Ontario , 29. V. 2006, T. SOTA and M. HAYASHI leg.

Notes. This species was abundant on flowers and leaves of *Carex* spp. and *Eleocharis* spp. in Manitoba and Ontario (Fig. 23).

9. ***Plateumaris rufa*** (SAY)

Records. 1 ex., Luther Marsh, Ontario, 30. V. 2006, M. HAYASHI leg.; 13 exs., Mono C. P., Ontario , 29. V. 2006, T. SOTA and M. HAYASHI leg.; 26 exs., Primrose, Ontario, 29. V. 2006, T. SOTA and M. HAYASHI leg.; 27 exs., Salem, Ontario, 27. V. 2006, T. SOTA and M. HAYASHI leg.; 10 exs., Wellington C. F., 27. V. 2006, T. SOTA and M. HAYASHI leg.; 20 exs., Wellington C. F., 30. V. 2006, T. SOTA and M. HAYASHI leg.

Notes. This species was found on flowers and leaves of *Carex* spp. and on flowers of *Caltha* sp. in Ontario (Figs. 28, 30).

10. ***Plateumaris shoemakeri*** (SCHAEFFER)

Records. 12 exs., Hazel C., Manitoba, 24. V. 2006, T. SOTA and M. HAYASHI leg.; 1 ex., Luther Marsh, Ontario, 28. V. 2006, T. SOTA leg.; 1 ex., Primrose, Ontario, 29. V. 2006, T. SOTA leg.

Notes. This species was relatively rare in Manitoba and Ontario.

Figs. 17–24, Habitat type D (17, 21, 22, 24, Agassiz Provincial Forest; 18, 23, Luther Marsh; 19, Mono Cliffs Park; 20, mash along Downey Road). —— 21, *Plateumaris flavipes* on a *Carex* sp. leaf; 22, *Plateumaris germari* on a *Carex* sp. flower; 23, *Plateumaris pusilla* on an *Eleocharis* sp. flower; 24, *Donacia cazieri* on a *Carex* sp. flower.

11. *Donacia* (*Donaciomima*) *biimpressa* MELSHEIMER

Records. 67 exs., Agassiz P. F., Manitoba, 24. V. 2006, T. SOTA and M. HAYASHI leg.; 58 exs., Agassiz P. F., Manitoba, 25. V. 2006, T. SOTA and M. HAYASHI leg.; 8 exs., Agassiz P. F. and Hazel C., Manitoba, 25. V. 2006, T. SOTA leg.; 14 exs., Brokenhead R., Manitoba, 23. V. 2006, M. HAYASHI leg.; 7 exs., Brokenhead R., Manitoba, 24. V. 2006, M. HAYASHI leg.; 22 exs., Hazel C., Manitoba, 24. V. 2006, T. SOTA and M. HAYASHI leg.; 6 exs., Hazel C., Manitoba, 25. V. 2006, M. HAYASHI leg.; 49 exs., Downey Road, Ontario, 30. V. 2006, T. SOTA and M. HAYASHI leg.

Notes. This species was abundant on flowers and leaves of *Carex* spp. in Manitoba and Ontario.

12. *Donacia* (*Donaciomima*) *cazieri* MARX

Records. 27 exs., Agassiz P. F., Manitoba, 24. V. 2006, T. SOTA and M. HAYASHI leg.; 41 exs., Agassiz P. F., Manitoba, 25. V. 2006, T. SOTA and M. HAYASHI leg.; 5 exs., Brokenhead R., Manitoba, 23. V. 2006, M. HAYASHI leg.; 12 exs., Brokenhead R., Manitoba, 24. V. 2006, M. HAYASHI leg.; 4 exs., Hazel C., Manitoba, 24. V. 2006, T. SOTA and M. HAYASHI leg.; 4 exs., Hazel C., Manitoba, 25. V. 2006, M. HAYASHI leg.

Notes. This species was found on flowers and leaves of *Carex* spp. in Manitoba (Fig. 24).

13. *Donacia* (*Donaciomima*) *confluenta* SAY

Record. 1 ex., Hazel C., Manitoba, 24. V. 2006, M. HAYASHI leg.

Notes. This species was collected by sweeping grasses with a net. We have no ecological information about this species.

14. *Donacia* (*Donaciomima*) *distincta* LECONTE

Records. 50 exs., Agassiz P. F., Manitoba, 24. V. 2006, T. SOTA and M. HAYASHI leg.; 38 exs., Agassiz P. F., Manitoba, 25. V. 2006, T. SOTA and M. HAYASHI leg.; 1 ex., Agassiz P. F. and Hazel C., Manitoba, 25. V. 2006, T. SOTA leg.; 11 exs., Brokenhead R., Manitoba, 24. V. 2006, T. SOTA leg.; 82 exs., Hazel C., Manitoba, 24. V. 2006, T. SOTA and M. HAYASHI leg.; 10 exs., Hazel C., Manitoba, 25. V. 2006, M. HAYASHI leg.; 3 exs., Primrose, Ontario, 29. V. 2006, T. SOTA leg.

Notes. This species was abundant on flowers and leaves of *Carex* spp. in Manitoba (Fig. 14).

15. *Donacia* (*Donaciomima*) *hirticollis* KIRBY

Records. 5 exs., Agassiz P. F. and Hazel C., Manitoba, 25. V. 2006, T. SOTA leg.; 1 ex., Brokenhead R., Manitoba, 23. V. 2006, M. HAYASHI leg.; 9 exs., Hazel C., Manitoba, 24. V. 2006, M. HAYASHI leg.; 10 exs., Hazel C., Manitoba, 25. V. 2006, M. HAYASHI leg.; 4 exs., Luther Marsh, Ontario, 30. V. 2006, T. SOTA leg.; 12 exs., Mallard Pond, Ontario, 28. V. 2006, T. SOTA and M. HAYASHI leg.

Notes. This species was found on the floating leaves of *Sparganium* sp. in creeks and ponds (Fig. 15).

Figs. 25–28, Habitat type E (25, 26, 28, Salem; 27, Primrose). —— 26, *Caltha* sp.; 28, *Plateumaris rufa* on a *Caltha* sp. leaf.

Figs. 29–30, Habitat type F (Wellington County Forest). —— 29, Marsh on forest floor; 30, *Plateumaris rufa* on a *Carex* sp. flower.

16. ***Donacia* (*Donaciomima*) *subtilis*** KUNZE

Records. 19 exs., Brokenhead R., Manitoba, 23. V. 2006, M. HAYASHI leg.; 4 exs., Brokenhead R., Manitoba, 24. V. 2006, T. SOTA and M. HAYASHI leg.; 5 exs., Hazel C., Manitoba, 24. V. 2006, M. HAYASHI leg.; 7 exs., Downey Road, Ontario, 30. V. 2006, T. SOTA and M. HAYASHI leg.; 5 exs., Luther Marsh, Ontario, 28. V. 2006, T. SOTA leg.; 52 exs., Luther Marsh, Ontario, 30. V. 2006, T. SOTA and M. HAYASHI leg.; 8 exs., Mallard Pond, Ontario, 28. V. 2006, T. SOTA and M. HAYASHI leg.; 5 exs., Mono, C. P., Ontario, 29. V. 2006, M. HAYASHI leg.

Notes. This species was abundant on flowers and leaves of *Carex* spp.

17. *Donacia* (*Donaciomima*) sp.

Records. 3 exs., Agassiz P. F., Manitoba, 24. V. 2006, M. HAYASHI leg.; 36 exs., Agassiz P. F., Manitoba, 25. V. 2006, T. SOTA and M. HAYASHI leg.; 8 exs., Agassiz P. F. and Hazel C., Manitoba, 25. V. 2006, T. SOTA leg.

Notes. This species resembles *Donacia cazieri* in external morphology, but the median process of the endophallus differs between the two species.

18. *Donacia* (*Donacia*) *proxima* KIRBY

Records. 27 exs., Downey Road, Ontario, 30. V. 2006, T. SOTA and M. HAYASHI leg.

Notes. This species was found on the floating leaves of *Nuphar* sp. in a pond (Fig. 8).

19. *Donacia* (*Donacia*) sp.

Record. 1 ex., Downey Road, Ontario, 30. V. 2006, M. HAYASHI leg.

Notes. This species was found on the floating leaves of *Nuphar* sp. in a pond.

20. *Neohaemonia melsheimeri* (LACORDAIRE)

Records. 27 exs., Mallard Pond, Ontario, 28. V. 2006, T. SOTA and M. HAYASHI leg.; 145 exs., Mallard Pond, Ontario, 29. V. 2006, T. SOTA and M. HAYASHI leg.

Notes. This species was collected from submerged plants, *Myriophyllum* sp. and *Potamogeton* sp., in a pond. When disturbed, adults rose to the surface from the water, glided on the surface, and crawled down the stems of aquatic plants into the water (Fig. 5). Several individuals were found resting on leaves around the pond (Fig. 4).

21. *Neohaemonia minnesotensis* ASKEVOLD

Records. 8 exs., Mallard Pond, Ontario, 28. V. 2006, T. SOTA and M. HAYASHI leg.; 19 exs., Mallard Pond, Ontario, 29. V. 2006, T. SOTA and M. HAYASHI leg.

Notes. This species was collected from submerged plants, *Myriophyllum* sp. and *Potamogeton* sp., in a pond. Similar to *N. melsheimeri*, adults rose to the surface from the water when disturbed, glided on the surface, and crawled down the stems of aquatic plants into the water.

22. *Neohaemonia nigricornis* (KIRBY)

Records. 4 exs., Hazel C., Manitoba, 25. V. 2006, T. SOTA and M. HAYASHI leg.

Notes. This species rose to the surface of the water near *Nuphar* plants in a creek (Figs. 12, 16).

Habitats of Canadian Donaciinae

In this paper, we classified habitats into six types on the basis of the vegetation and surrounding environments (Figs. 1–30). Table 1 shows the number of donaciine beetles collected at each site.

Type A (Figs. 1–3): ponds with an abundance of submerged plants of *Myriophyllum* sp. and *Potamogeton* sp.; Mallard Pond in Ontario.

Type B (Figs. 6, 7): ponds with abundant plants with floating-leaves, e.g., *Nuphar* sp.;

ponds along Downey Road in Ontario.

Type C (Figs. 9–12): deep streams and open marshes with *Carex* spp.; Brokenhead River and Hazel Creek in Manitoba.

Type D (Figs. 17–20): partly open marshes with *Carex* spp. along forest edges, with areas of still, shallow water; Agassiz Provincial Forest in Manitoba; Luther Marsh, Mono Cliffs Park, and marshes along Downey Road in Ontario.

Type E (Figs. 25–27): partly open marshes with *Carex* spp. along forest edges, lacking areas of still water; Salem and Primrose in Ontario.

Type F (Fig. 19): marshes with *Carex* spp. along the forest floor; Wellington Country Forest in Ontario.

In Manitoba, we investigated two types of habitats, C and D: *Plateumaris germari*, *P. pusilla*, *Donacia biimpressa*, *D. cazieri*, and *D. distincta* were commonly found in both types of habitat; *P. flavipes*, *P. frosti*, and *D.* (*Donaciomima*) sp. were mainly found in type D; and *Neohaemonia nigricornis*, *P. shoemakeri*, *D. hirticollis*, and *D. confluenta* were collected mostly from Hazel Creek (type C). Most species of the genera *Plateumaris* and *Donacia* (except *D. hirticollis*) used sedges (Cyperaceae) as host plants. *Neohaemonia nigricornis* and *D. hirticollis* occurred in deep creeks, where the former used *Potamogeton* sp. (ASKEVOLD, 1988) and the latter used floating-leaved *Sparganium* sp. (our observations).

In Ontario, all habitat types except C were investigated: *N. minnesotensis* and *N. melsheimeri* were found in Type A; *D. proxima* and *D.* (*Donacia*) sp. in Type B; *D. subtilis* in Type D; *P. metallica* in types D, E and F; most *P. rufa* in types E and F; and *P. nitida* in all five types. *Plateumaris pusilla* were collected in abundance from Luther Marsh (Type D). Most species in the genera *Plateumaris* and *Donacia*, except *D. hirticollis*, *D. proxima*, and *D.* (*Donacia*) sp., used Cyperaceae as their host plants. *Plateumaris rufa* occurred in marshes on the forest floor, which is a habitat similar to that used by a Japanese species, *P. constricticollis* (JACOBY). Note that these species are recognized as sister species on the basis of a morphological analysis by ASKEVOLD (1991 b).

Acknowledgments

We thank R. E. ROUGHLEY and S. MARSHALL for helping with the field survey and L. LESAGE for kind advice. This study was supported by a Grant-in-Aid from the Japan Society of the Promotion of Science (No. 17405007). We dedicate this paper to the memory of the late Dr. Yoshiaki KOMIYA, who was a well-known specialist of Chrysomelidae in Japan and who described two donaciine beetles, *Donacia hirtihumeralis* and *D. akiyamai* from Japan.

要　　約

林　成多・曽田 貞滋：カナダ産ネクイハムシ亜科の採集記録と生態に関する知見．——2006年5月23～30日にカナダ中央部のマニトバ州（ウイニペグ近郊）および東部のオンタリオ州（グエルフ近郊）において，ネクイハムシ亜科甲虫類の採集および生態の観察を行った．その結果，ウイニペグ近郊の3地点とゲルフ近郊の6地点から合計3属22種が採集された．各地点の生息環境を植生と周囲の環境から6つのタイプに区分し，それぞれの環境に出現する種の構成を検討した．

References

ASKEVOLD, I. S., 1988. The genus *Neohaemonia* SZEKESSY in north America (Coleoptera: Chrysomelidae: Donaciinae): systematics, reconstructed phylogeny and geographic history. *Transactions of the American Entomological Society*, **113**: 360–430.

ASKEVOLD, I. S., 1991a. An annotated list of Nearctic Donaciinae (Coleoptera: Chrysomelidae): the generic classification and type specimens of the New World species. *Psyche*, **98**: 165–192.

ASKEVOLD, I. S., 1991b. Classification, Reconstructed Phylogeny, and Geographic history of the New World members of *Plateumaris* THOMSON, 1859 (Coleoptera: Chrysomelidae: Donaciinae). *Memoirs of the Entomological Society of Canada*, (157): 5–175.

SOTA T. and M. HAYASHI, 2004. A molecular phylogenetic analysis of the genus *Donacia* (Coleoptera, Chrysomelidae) in Japan based on mitochondrial gene sequences. *In* JOLIVET, P. *et al.* (eds.), New developments in the Biology of Chrysomelidae: 105–116.

(Received September 28, 2006; Accepted October 9, 2006)

Ent. Rev. Japan, **61** (2): 143–161, December 21, 2006

Tenebrionid Beetles (Coleoptera) from the Palau Islands Collected by Keiichi TAKAHASHI

Kimio MASUMOTO

Institute of Human Living Sciences, Otsuma Women's University,
Tokyo, 102–8357 Japan

Abstract The tenebrionid beetles collected by Keiichi TAKAHASHI in the Palau Islands are dealt with. Thirty-four species are identified from these islands. Of these nine species are new to science and eight species are recorded for the first time. The new species to be named are as follows: *Micropedinus takahashii* sp. nov., *Dioedus bremeri* sp. nov., *Uloma sonsorolae* sp. nov., *Diphyrrhynchus keiichii* sp. nov., *Menimus yasutakei* sp. nov., *Bradymerus schawalleri* sp. nov., *Apterophenus merkli* sp. nov., *Chariotheca barclayi* sp. nov., and *Strongylium palauense* sp. nov.

Dr. Keiichi TAKAHASHI, one of my friends in entomology, energetically collected insects in deep forests on various islands of the Palau Islands during 2002–2003. He gave me the opportunity of studying tenebrionid beetles from these islands. In 2003, I reported fourteen species collected by him from the Palau Islands. I was surprised to find such sylvicolous species in TAKAHASHI's materials as those belonging to *Amarygmus* and *Strongylium*; particularly the latter is known for the first time from the Palau Islands.

KULZER (1957) recorded thirty-five tenebrionid species from the Palau Islands, which are mostly seaside inhabitants. KASZAB (1985) recorded twenty-eight species from the Palau Islands, of which eight species are endemic. Later, Hans J. BREMER (2004) made a detailed study concerning the genus *Amarygmus* collected by K. TAKAHASHI from these islands and recorded three species including a new species.

As the final part of the present studies, I am going to record thirty-four species including nine new species and eight new records from the Palau Islands.

Before going into further details, I deeply thank Dr. Keiichi TAKAHASHI, ex-consultant of the Bureau of Agriculture, Palau, for offering invaluable materials. I also thank Dr. Ottó MERKL, the Hungarian Natural History Museum, Budapest, Dr. Wolfgang SCHAWALLER, Staatliches Museum für Naturkunde, Stuttgart, Emeritus Prof. Hans J. BREMER, Wellingholzhausen, Germany, and Dr. Roland GRIMM, Tübingen, Germany, for taking trouble of confirming determination. Special gratitude should be expressed to Dr. Makoto KIUCHI, Tsukuba City, for taking very clear photographs inserted in this paper. Finally, my deepest thanks should be expressed to Emeritus curator, Dr. Shun-Ichi UÉNO, National Science Museum (Nat. Hist.), Tokyo, for constant guidance in my taxonomic studies.

All the materials except for a part of *Amarygmus*-species are deposited in the National Science Museum (Nat. Hist.), Tokyo (NSMT). The remaining *Amarygmus*-species will be deposited in the Zoologische Staatssammlung, München through Emeritus Prof. Dr. Hans J. BREMER in near future.

Subfamily **Lagriinae** LATREILLE, 1825

Tribe **Lupropini** ARDOIN, 1958

Micropedinus takahashii sp. nov.

(Figs. 1, 10 and 11)

Dark reddish brown, with antennae, ventral side of mouth parts and legs lighter in colour; dorsal surface moderately shining and almost glabrous, ventral surface weakly shining and sparsely, finely haired. Body oblong-ovate; weakly convex above.

Head semicircular, scattered with punctures, which become closer in anterior and lateral parts, and are sometimes connected with one another; clypeus rather small and subelliptical, with apical margin weakly produced, fronto-clypeal border neither sulcate nor defined from frons but with a row of punctures; genae (areas before eyes) weakly dilated antero-laterad, not defined from frons and clypeus, feebly raised above, with gently rounded outer margins; frons wide, feebly convex medially, diatone about 3 times the width of transverse diameter of an eye. Eyes gently convex laterad, roundly inlaid into head. Antennae subclavate, feebly becoming bolder apicad, reaching basal parts of elytra, with segments VIII to X dilated towards each apex, the terminal one rounded, ratio of the length of each segment from base to apex: 0.28, 0.12, 0.26, 0.12, 0.12, 0.13, 0.17, 0.16, 0.18, 0.15, 0.23.

Pronotum wider than long (4 : 3), rounded laterad, widest at the middle, very weakly sinuous before base on both side; apex weakly, widely produced in medial part, weakly sinuous and bordered in lateral parts; base widely triangular, sinuous in lateral parts, wholly, finely bordered and rimmed; sides gently inclined laterad, with lateral margins wholly, finely bordered and rimmed; front angles feebly produced anteriad with rounded corners, hind angles subrectangular; disc gently convex, scattered with punctures, each with a minute bent scale. Scutellum widely subcordate, punctulate in medio-basal part, with shallow longitudinal impression along the median line.

Elytra suboblong-ovate, 1.65 times as long as wide, 3.13 times the length and 1.34 times the width of pronotum, widest at apical 5/11; dorsum gently convex, highest at the middle; disc rather closely punctate, the punctures larger than those on pronotum, with a minute scale in each, and intermixed with minute punctures, whose diameter are about 1/5–1/10; humeri gently swollen; apices feebly produced.

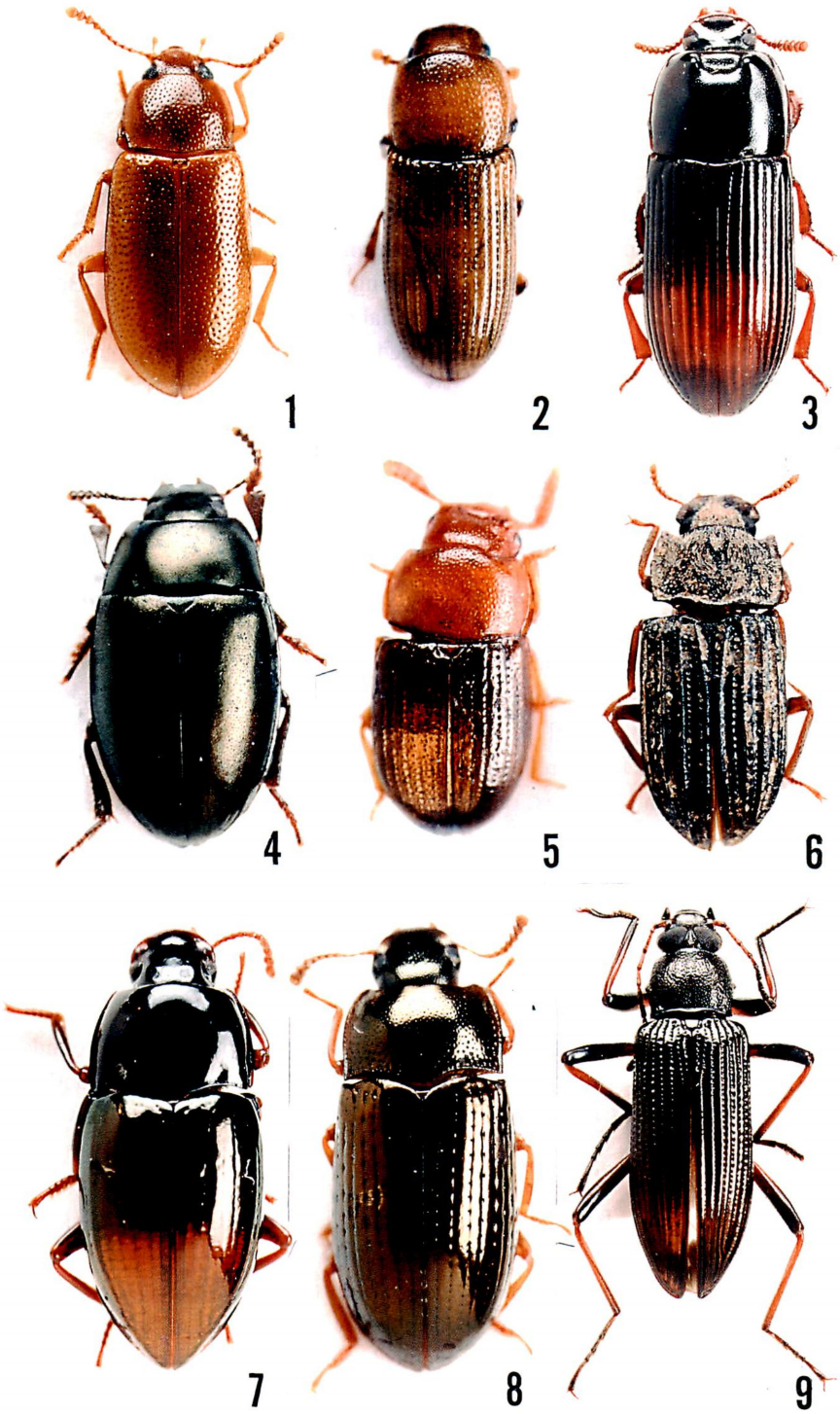
Basal parts of abdominal segments IV and V depressed. Legs stout; penultimate segments of tarsi dilated apicad. Male genitalia slender, 0.62 mm in length, 0.07 mm in width, basal piece curved in lateral view; fused lateral lobes suboblong-ovate, 0.15 mm in length, narrower than basal piece at base.

Body length: 3.3–3.5 mm.

Holotype: ♂, Babeldaob Is., Palau Is., W. Caroline Is., 3. IX. 2003, K. TAKAHASHI leg. (NSMT). Paratypes: 9 exs., same data as for the holotype; 1 ex., 23. VII. 2003, 1 ex., 16. VIII. 2003, 8 exs., 19. VIII. 2003, 1 ex., 25. IX. 2003, same locality and collector as the holotype; 2 exs., Ulong Is., Palau Is., 24. IX. 2003, same collector as the holotype.

Notes. This new species somewhat resembles *Micropedinus pallidipennis* LEWIS, 1894, widely distributed in Japan, Ryukyu Islands, Taiwan, North Vietnam, etc., but can be distinguished from the latter by the body smaller and a little slenderer, with the eyes more strongly produced laterad, the apex of the pronotum not emarginate, punctures on the elytra more evenly set, and the legs not stout and fore tarsi not so strongly widened.

This specific name is given in honor of Dr. Keiichi TAKAHASHI, who collected the type materials.



Figs. 1–9. Habitus of species. —— 1, *Micropedinus takahashii* sp. nov., holotype, male; 2, *Dioedus bremeri* sp. nov., holotype, female; 3, *Uloma sonsorolae* sp. nov., holotype, male; 4, *Diphyrrhynchus keiichii* sp. nov., holotype, male; 5, *Menimus yasutakei* sp. nov., holotype, male; 6, *Bradymerus schawalleri* sp. nov., holotype, male; 7, *Apterophenus merkli* sp. nov., holotype, male; 8, *Chariotheca barclayi* sp. nov., holotype, male, 9, *Strongylium palauense* sp. nov., holotype, male.

Subfamily **Phrenapatinae** SOLIER, 1834

Tribe **Phrenapatini** SOLIER, 1834

Dioedus bremeri sp. nov.

(Fig. 2)

Brownish yellow, with lateral and basal margins of pronotum, lateral margins of elytra, antennal segments I to X, mandibles and legs dark brown, eyes black; dorsal surface moderately shining, ventral surface moderately, vitreously shining, each surface glabrous. Body oblong-ovate, gently convex dorsad, weakly flattened in medial part.

Head transversely elliptical, gradually inclined apicad, rather closely punctate; clypeus subquadrate, feebly produced anteriad, with apex sinuous in lateral parts, fronto-clypeal border not defined from frons; genae subquadrate, inclined laterad, bordered from clypeus by rows of punctures, not defined from frons; frons wide, diatone about 7 times the width of transverse diameter of an eye. Eyes medium-sized among members of the genus *Dioedus*, moderately convex laterad, weakly, roundly inlaid into head. Antennae clavate, reaching apical 1/4 of pronotum, 1st segment bold, 9th small and subtriangular, 10th trapezoidal and much larger than the preceding segment, 11th rounded and very large, ratio of the length of each segment from base to apex: 0.23, 0.14, 0.09, 0.06, 0.07, 0.07, 0.07, 0.08, 0.10, 0.24, 0.27.

Pronotum subquadrate, 1.30 times wider than long, widest at the middle; apex feebly produced in middle, weakly sinuous in lateral parts, neither bordered nor rimmed; base very weakly produced, finely rimmed; sides gently declined to lateral margins, which are gently produced laterad, clearly bordered, and feebly reflexed dorsad; front angles weakly and roundly produced, hind angles obtuse; disc gently convex, rather coarsely punctate, the punctures becoming larger and ovate in lateral parts. Scutellum semicircular, almost smooth, weakly raised posteriad.

Elytra 1.76 times as wide as long, 2.07 times the length and slightly wider than pronotum; dorsum gently convex, weakly flattened in antero-medial part; disc with rows of strong punctures, which are rather densely set and connected by shallow striae; intervals rather strongly convex, each with a row of minute punctures, which are sparsely set; humeri gently swollen; apices rounded.

Anal sternite strongly punctate, with apical margin finely rimmed and rounded. Legs medium-sized; protibia rather strongly widened apicad with an acute terminal tooth; ratios of the lengths of pro-, meso- and metatarsi: 0.18, 0.12, 0.12, 0.11, 0.39; 0.19, 0.13, 0.12, 0.48; 0.22, 0.12, 0.11, 0.48.

Body length: 2.2 mm.

Holotype: ♀, Babeldaob Is., Palau Is., W. Caroline Is., 23. XII. 2003, K. TAKAHASHI leg. (NSMT).

Notes. KULZER (1957) recorded three *Dioedus* from the Micronesia, *D. gossi*, *D. dybasi* and *D. angustus*. Of those, the present new species somewhat resembles *D. dybasi* from Peleliu and Koror Islands by the peculiar shape of three apical segments of antennae, but can easily distinguished from the latter by the smaller body (3.2–3.4 mm in *D. dybasi*), with the head and pronotum a little wider, the head with interior sides of eyes moderately raised, the pronotum almost of the same width at the apex and base (obviously narrower in *D. dybasi*), and the elytra more slender, with rows of punctures denser.

The specific name is given after Emeritus Prof. Dr. Hans J. BREMER, who has been assisting me about the present study.

Subfamily **Tenebrioninae** LATREILLE, 1802

Tribe **Toxicini** LACORDAIRE, 1859

Toxicum quadricorne (FABRICIUS, 1801)

Trogosita quadricornis FABRICIUS, 1801, Syst. Eleuth. **1**: 153.
Toxicum quadricorne: KULZER, 1957, Ins. Micronesia, Honolulu, **17**: 237; KASZAB, 1985, Folia Ent. hung., **46**: 60.

Specimens examined: 17 exs., Babeldaob Is.; 4 exs., Sonsorol Is.; 1 ex., Koror Is.

Distribution: Caroline Is. (Palau Is., Yap Is., Caroline Atolls, Truck Is., Ponape Is., Kusaie Is.), Marshall Is., India to New Guinea.

Tribe **Bolitophagini** KIRBY, 1837

Rhipidandrus speculifrons (GEBIEN, 1922)

Cherostus speculifrons GEBIEN, 1922, Tr. Linn. S. Lond., **18**: 1.
Rhipidandrus dybasi KULZER, 1957, Ins. Micronesia, Honolulu, **17**: 204.
Rhipidandrus sodalist KULZER, 1957, ditto, **17**: 206.
Rhipidandrus scolytoides M. T. CHÛJÔ, 1985, Esakia, **23**: 62.

Specimens examined: 13 exs., Babeldaob Is.; 4 exs., Merir Is. **[new record]**.

Distribution: Seychell Is., S. Mariana Is., Palau Is., Caroline Is.

Tribe **Alphitobiini** REITTER, 1917

Alphitobius laevigatus (FABRICIUS, 1781)

Opatrum laevigatum FABRICIUS, 1781, Spec. Ins., **1**: 90.
Alphitobius laevigatus: KULZER, 1957, Ins. Micronesia, Honolulu, **17**: 229.

Specimens examined: 5 exs., Babeldaob Is.; 1 ex., Peleliu Is.; 11 exs., Helen Reef.

Distribution: Ogasawara Is., S. Mariana Is., Caroline Is. (Palau Is., Truck Is., Ponape Is.), Cosmopolitan.

Tribe **Tribolini** MULSANT, 1854

Tribolium castaneum (HERBST, 1797)

Colydium castaneum HERBST, 1797, Natursyst. Ins. Käfer, **7**: 282.
Tribolium castaneum: MACLEAY, 1825, Annul. Java. London, **4**: 17; Kulzer, 1957, Ins. Micronesia, Honolulu, **17**: 218.

Specimens examined: 2 exs., Babeldaob Is.; 1 exs., Merir Is.; 2 exs., Koror Is.

Distribution: S. Mariana Is., Caroline Is. (Palau Is., Yap Is., Truck Is., Ponape Is.) Marshall Is., Wake Is., Cosmopolitan.

Tribolium cylindricum HINTON, 1948

Tribolium cylindricum HINTON, 1948, Bull. Entom. Res., **39**: 52.
Specimens examined: 29 exs., Peleliu Is. **[new record]**.
Distribution: Caroline Is. (Palau Is.), Malay Peninsula.

Tribe **Ulomini** BRANCHARD, 1845

Uloma hageni KULZER, 1957

Uloma hageni KULZER, 1957, Ins. Micronesia, Honolulu, **17**: 226; KASZAB, 1985, Folia Ent. hung., **46**: 59.
Specimens examined: 4 exs., Babeldaob Is., 1 ex., Peleliu Is.
Distribution: Caroline Is. (Palau Is.).

Uloma sonsorolae sp. nov.

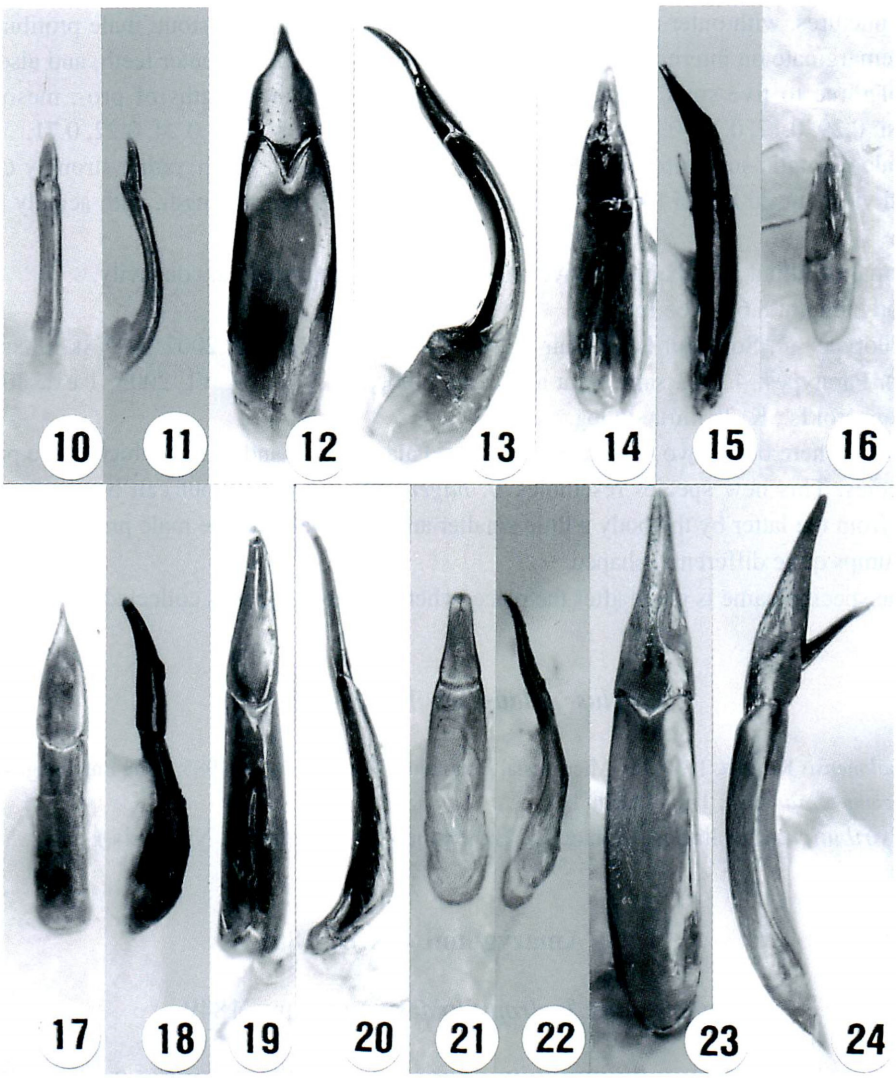
(Figs. 3, 12 and 13)

Piceous with feeble brownish tinge, antennae, mouth parts, major ventral parts and legs dark reddish brown; dorsal surface of head and pronotum strongly shining, scutellum and elytra moderately, feebly sericeously shining, ventral surface moderately shining in major medial parts, weakly, somewhat alutaceously shining in lateral parts; each surface almost glabrous. Body oblong ovate, slightly narrowed between pronotum and elytra; gently convex dorsad.

Head transversely suboctagonal, rather flattened; clypeus gently, transversely convex, truncate at apex, the area of convex part covered with isodiametric microsculpture, fronto-clypeal border not defined; genae obliquely ridged, noticeably inclined to areas before eyes, rather closely scattered with small punctures, with major portions of outer margins oblique, and roundly narrowed before eyes; frons depressed in somewhat Y-shape, sparsely scattered with punctures, ridged on each side, the ridges continuing to clypeo-genal ridges, diatone about three times the width of transverse diameter of an eye; vertex strongly raised. Eyes medium-sized, gently convex laterad, a little transversely, roundly inlaid into head. Antennae subclavate, reaching apical 1/4 of pronotum, with segments in apical parts noticeably, symmetrically widened, 9th widest, ratio of the length of each segment from base to apex: 0.58, 0.17. 0.20, 0.22, 0.23, 0.24, 0.26, 0.30, 0.33, 0.32, 0.37.

Pronotum subquadrate, 1.25 times wider than long; apex feebly emarginate, very weakly sinuous in lateral parts near front angles, finely rimmed; base feebly produced, weakly sinuous on each side, not bordered; sides gently declined to lateral margins, which are roundly produced laterad, strongly grooved and rimmed; disc gently, broadly convex, rather closely scattered with shallow, irregular-sized punctures, weakly impressed close to base, with a semicircular concavity at the middle of apical 1/3; the concavity with the bottom rather flattened and scattered with shallow, large punctures, with posterior slope more closely scattered with smaller punctures, and with lateral margin provided a protuberance, whose interior slope is steep and exterior slope is mild. Scutellum widely pentagonal, weakly convex, almost smooth, punctulate medially.

Elytra 2.12 times as long as wide, 2.19 times the length and 1.09 times the width of pronotum, widest at apical 3/7, feebly narrowed basad, weakly sinuous at basal 2/7, rounded in apical



Figs. 10–24, Male genitalia. —— 10, *Micropedinus takahashii* sp. nov., dorsal view, 11, ditto, lateral view; 12, *Uloma sonsorolae* sp. nov., dorsal view, 13, ditto, lateral view; 14, *Diphyrrhynchus keiichii* sp. nov., dorsal view, 15, ditto, lateral view; 16, *Menimus yasutakei* sp. nov., dorsal view; 17, *Bradymerus schawalleri* sp. nov., dorsal view, 18, ditto, lateral view; 19, *Apterophenus merkli* sp. nov., dorsal view; 20, ditto, lateral view; 21, *Chariotheca barclayi* sp. nov., dorsal view, 22, ditto, lateral view; 23, *Strongylium palauense* sp. nov., dorsal view, 24, ditto, lateral view.

parts; dorsum gently convex longitudinally; disc rather strongly punctato-striate, the punctures in striae notching intervals, those in interior part small and closely set, and those exterior parts becoming larger and sparser; intervals moderately convex, scattered with microscopic punctures, very weakly, somewhat transversely aciculate; humeri gently swollen; apices moderately roundly produced.

Mentum subhexagonal, glabrous, longitudinally grooved along midline, with a pair of oblique impressions in lateral parts. Anal sternite feebly convex, smooth, scattered with micro-

scopic punctures, with outer margin rounded and finely rimmed. Legs stout; male protibia only weakly emarginate on internal side near basal part, with seven to nine outer teeth, and also with a row of three to five small teeth on ventral side; ratios of the lengths of pro-, meso- and metatarsi: 0.29, 0.17, 0.18, 0,20, 0.67; 0.65, 0.22, 0.21, 0.18, 0.68; 0.97, 0.24, 0.22, 0.71.

Male genitalia subfusiform, 1.85 mm in length, 0.47 mm in width, rather strongly curved in lateral view; fused lateral lobes somewhat hexagonal, 0.88 mm in length, with acutely pointed apex.

Female without a Y-shaped groove on frons, and without pronotal concavity.

Body length: 8.62–9.65 mm.

Holotype: ♂, Sonsorol Is., Parlau Is., W. Caroline Is., 23. XII. 2002, K. TAKAHASHI leg. (NSMT). Paratypes: 4 exs., same data as for the holotype; 2 exs., 3. VI. 2003, 1 ex., 30. XII. 2002, Sonsorol Is., K. TAKAHASHI leg.

Notes. There occur two *Uloma* species from Palau Islands and one of which is the present new species. This new species resembles *U. hageni* KULZER, 1957, but can be easily distinguished from the latter by the body a little smaller and narrower, and the male pronotal concavity and humps quite differently shaped.

The specific name is given after the place, where the holotype was collected.

Lorelus palauensis KULZER, 1957

Lorelus palauensis KULZER, 1957, Ins. Micronesia, Honolulu, **17**: 241; KASZAB, 1985, Folia Ent. hung., **46**: 60.

Specimen examined: 1 ex., Peleliu Is.

Distribution: Caroline Is. (Palau Is.: "Babelthuap" Is., Peleliu Is., Ngergi Is.).

Tribe **Amarygmini** GISTEL, 1856

Amarygmus hydrophiloides FAIRMAIRE, 1849

Amarygmus hydrophiloides FAIRMAIRE, 1849, Revue Mag. Zool., II, **1**: 450; BREMER, 2004, Bull. Natun. Sci. Mus. Tokyo, A, **30**: 148.

Platolenes hydrophiloides: GEBIEN, 1943, Katalog, Mitt. Münch. ent. Ges., **33**: 926; KULZER, 1957, Ins. Micronesia, Honolulu, **17**: 255;

Platolenes hydrophiloides samoensis (Haag-RUTENBERG, 1878): KULZER, 1957, ditto, **17**: 255.

Platolenes samoensis (Haag-RUTENBERG, 1878): KASZAB, 1985, Folia Ent. hung., **46**: 63.

Specimens examined: 13 exs., Babeldaob Is.; 2 exs., Merir Is., 1 ex., Pulo Anna Is.,

Distribution: Caroline Is. (Palau Is.), Marshall Is., Polynesia Is., Papuan Region.

Amarygmus iris KULZER, 1957

Amarygmus iris KULZER, 1957, Insects Micronesia, Honolulu, **17**: 256; KASZAB, 1985, Folia Ent. hung., **46**: 62; BREMER, 2004, Bull. Natun. Sci. Mus. Tokyo, A, **30**: 150.

Specimens examined: 12 exs., Babeldaob Is.; 8 exs., Peleliu Is.; 1 ex., Carp Is.; 2 exs., Angaur Is.

Distribution: Caroline Is. (Palau Is.).

Amarygmus palauensis BREMER, 2004

Amarygmus palauensis BREMER, 2004, Bull. Natn. Sci. Mus. Tokyo, A, **30**: 150.
Specimens examined: 17 exs., Babeldaob Is.
Distribution: Caroline Is. (Palau Is.).

Tribe **Opatrini** BRULLÉ, 1832

Subtribe **Heterocheirina** KOCH, 1956

Diphyrrhynchus carolinensis BLAIR, 1940

Diphyrrhynchus carolinensis BLAIR, 1940, B. P. Bishop Mus. occ. Papers, **16**: 136; KULZER, 1957, Ins. Micronesia, Honolulu, **17**: 192.
Specimens examined: 7 exs., Sonsorol Is.; 5 exs., Rock Is.; 1 ex., Merir Is.
Distribution: Caroline Is. (Palau Is.).

Diphyrrhynchus keiichii sp. nov.

(Figs. 4, 14 and 15)

Piceous, with major parts of antennae, mouth parts, femora and tibiae blackish brown, two basal segments of antennae and apical halves of 11th, tarsi lighter in colour; dorsal surface weakly, sericeously shining, anterior part of ventral surface alutaceously shining, posterior part (abdomen) moderately shining; each surface almost glabrous. Body subovate; gently convex dorsad.

Head subtrapezoidal, gently inclined anteriad, covered with isodiametric microsculpture, scattered with minute punctures; clypeus somewhat transversely elliptical, finely rimmed along outer margin, with apex distinctly emarginate and not rimmed in emarginate area, fronto-clypeal border not defined; genae somewhat securiform, gently inclined outwards, with outer margins almost straight; frons broad and simple, borders in posterior parts of eyes finely rimmed; diatone about three times the transverse diameter of an eye. Eyes gently convex laterad, obliquely inlaid into head. Antennae subclavate, reaching the middle of pronotum, ratio of the length of each segment from base to apex: 0.22, 0.14, 0.18, 0.15, 0.14, 0.13, 0.14, 0.15, 0.15, 0.16, 0.24.

Pronotum subquadrate, wider than long (4 : 2), widest at base; apex gently emarginate, very slightly bisinuous, finely bordered and rimmed in lateral parts; base sublinear, weakly produced in middle, neither bordered nor rimmed; sides gently declined to lateral margins, which are narrowed apicad, finely bordered and rimmed; front angles weakly produced anteriad, with rounded apices, hind angles subrectangular; disc broadly and gently convex, covered with isodiametric microsculpture, vaguely and obliquely impressed near base on each side, scattered with microscopic punctures, which are smaller than those on head. Scutellum subpentagonal, weakly convex, covered with isodiametric microsculpture, scattered with microscopic punctures, which are smaller than those on the pronotum.

Elytra subovate, 1.39 times as long as wide, 3.03 times the length and 1.1 times the width of pronotum, widest at basal 1/3; dorsum moderately convex, highest at basal 1/4; disc covered with isodiametric microsculpture, scattered with microscopic punctures, which are almost of the

same size of those on pronotum; sides gently inclined laterad, with lateral margins noticeably grooved from bases to the areas before apices (the grooves disappeared at apical 1/6), and also with ridges along marginal grooves from apical 1/5 to near apices; humeri hardly swollen; apices gently produced.

Male anal sternite with outer margin rounded and finely rimmed. Legs stout; male protibiae strongly widened apicad; male protarsi widened to each apex, particularly noticeable in segments II and III; male mesotarsi widened to each apex, though not so than in protarsi; male metatarsi weakly widened to each apex; ratios of the lengths of pro-, meso- and metatarsi: 0.16, 0.23, 0.21, 0.11, 0.38; 0.22, 0.23, 0.21, 0.12, 0.37; 0.48, 0.23, 0.18, 0.39.

Male genitalia elongated fusiform, 0.90 mm in length, 0.19 mm in width, weakly curved in lateral view; lateral lobes 0. 42 mm in length, weakly bent in middle in lateral view, with prolonged apices, which are not fused with each other.

Body length: 4.10–4.48 mm.

Holotype: ♂, Merir Is., W. Caroline Is., 24. XII. 2002, K. TAKAHASHI leg. (NSMT). Paratype: 1 ex., same data as for the holotype.

Notes. This new species resembles *Diphyrrhynchus carolinensis* BLAIR, 1940, distributed in West Caroline Islands, but can be distinguished from the latter by the smaller body with the dorsal surface more noticeably punctulate, the clypeus less produced apicad, the genae not angulate before the eyes, and the male pro- and mesotibiae less strongly widened.

The specific name is taken after the first name of Dr. Keiichi TAKAHASHI, who collected the type specimens.

Gonocephalum pottsi KULZER, 1957

Gonocephalum pottsi KULZER, 1957, Ins. Micronesia, Honolulu, **17**: 194; KASZAB, 1985, Folia Ent. hung., **46**: 56.

Specimens examined: 4 exs., Sonsorol. Is.; 4 exs., Merir Is.; 16 exs., Helen Reef.; 1 ex., Tobi Is.

Distribution: Ogasawara Is., S. Mariana Is., Caroline Is. (Palau Is., Caroline Atolls, Truck Is.), Marshall Is., Gilbert Is.

Nesocaedius minimus (M. T. CHÛJÔ, 1966)

Caedius minimus M. T. CHÛJÔ, 1966, J. Fac. Agr. Kyushu Univ., **14**: 9.

Specimens examined: 3 exs., Sonsorol. Is. **[new record]**.

Distribution: Kyushu, Ryukyu Is., Palau Is.

Brachyidium palauense (KULZER, 1957)

Caedius palauensis KULZER, 1957, Ins. Micronesia, Honolulu, **17**: 196; KASZAB, 1985, Folia Ent. hung., **46**: 56.

Specimens examined: 1 ex., Babeldaob Is.; 1ex., Sonsorol Is.

Distribution: Caroline Is. (Palau Is.).

Subfamily **Diaperinae** LATREILLE, 1802

Tribe **Diaperini** LATREILLE, 1802

Platydema townesi KULZER, 1957

Platydema townesi KULZER, 1957, Ins. Micronesia, Honolulu, **17**: 208.

Specimens examined: 19 exs., Babeldaob Is. **[new record]**.

Distribution: Caroline Is. (Yap Is., Palau Is.).

Platydema waterhousei GEBIEN, 1925

Platydema waterhousei GEBIEN, 1925, Philip. J. Sci., **27**: 553; KULZER, 1957, Ins. Micronesia, Honolulu, **17**: 207.

Specimens examined: 24 exs., Babeldaob Is.; 3 exs., Carp Is.; 4 exs., Peleliu Is.

Distribution: Caroline Is. (Yap Is., Palau Is.), Indonesia, the Philippines.

Tribe **Gnathidiini** GEBIEN, 1921

Menimus adamsi KULZER, 1957

Menimus adamsi KULZER, 1957, Ins. Micronesia, Honolulu, **17**: 212.

Specimens examined: 2 exs., Babeldaob Is. **[new record]**.

Distribution: Caroline Is. (Palau Is., Truck Is., Ponape Is., Kusaie Is.).

Menimus clavatus (KASZAB, 1939)

Neomenimus clavatus KASZAB, 1939, Nova Guinea, n. s. **3**: 190; KASZAB, 1985, Folia Ent. hung., **46**: 57.

Specimen examined: 1 ex., Peleliue Is, Palau Is., W. Caroline Is., 19. IV. 2003, K. TAKAHASHI leg. (NSMT).

Distribution: Palau Is., S. Mariana Is., Yap Is., Kusaie Is., New Guinea.

Menimus yasutakei sp. nov.

(Figs. 5 and 16)

Brownish yellow, with basal margin of pronotum and elytra dark reddish brown, eyes black; dorsal surface moderately, somewhat vitreously shining, ventral surface rather alutaceous; each surface almost glabrous. Body oblong ovate, subparallel-sided, gently convex dorsad.

Head transversely subelliptical, weakly depressed in medial part, inclined laterad, rather closely punctate; clypeus transversely hexagonal, transversely, gently raised, weakly produced apicad, with outer margin very feebly rimmed, fronto-clypeal border widely curved and finely sulcate; genae before eyes subquadrate, feebly raised, with outer margins obtuse, those behind eyes weakly produced laterad; frons wide, inclined towards fronto-clypeal border in medial part,

diatone about eight times the width of transverse diameter of an eye. Eyes rather small, somewhat of a quarter circle shape in dorsal view. Antennae strongly clavate, reaching apical 1/3 of pronotum, four apical segments noticeably large and transverse, ratio of the length of each segment from base to apex: 0.36, 0.16, 0.18, 0.14, 0.13, 0.15, 0.36, 0.33, 0.34, 0.49.

Pronotum transversely subquadrate (5 : 3), widest at the middle; apex weakly produced widely in middle, very feebly sinuous on each side, finely rimmed in lateral parts; base widely, gently produced, very slightly sinuous in lateral parts, wholly bordered and rimmed; sides gently declined to lateral margins, which are distinctly grooved, and feebly reflexed; front angles obtuse, with rounded and rimmed corners, hind angles obtusely angulate, though the corners are indented and not rimmed; disc moderately evenly convex, obliquely, weakly impressed close to base on each side, rather closely punctate, the punctures sparsely intermixed with very small punctures. Scutellum semicircular, sparsely punctulate, weakly covered with isodiametric microsculpture in medial part.

Elytra 1.15 times as long as wide, 2.14 times the length and 1.08 times the width of pronotum; dorsum moderately convex, highest at basal 1/3; disc finely, longitudinally punctato-striate, the striae connected with fine transverse striae; intervals feebly convex, with rows of punctures, which are divided by the fine transverse striae with one another, sparsely with trichobothriae; humeri weakly swollen; apices rounded.

Anal sternite slightly elongate, smooth, sparsely punctulate, with rounded apex. Male genitalia subfusiform in dorsal view, fattened, 0.52 mm in length, 0.12 mm in width; fused lateral lobes subequilateral triangular, 0.32 mm in length, gently bent ventrad in apical 1/5, with acutely hooked apices.

Legs without any modification; ratios of the lengths of pro-, meso- and metatarsi: 0.11, 0.08, 0.07, 0.08, 0.31; 0.11, 0.08, 0.07, 0.09, 0.32; 0.12, 0.10, 0.11, 0.37.

Body length: 2.10 mm.

Holotype: ♂, Peleliue Is, Palau Is., W. Caroline Is., 19. IV. 2003, K. TAKAHASHI leg. (NSMT).

Notes. This new species somewhat resembles *Menimus clavatus* (KASZAB, 1939), but can distinguished from the latter by the wide and less parallel-sided body, with the head depressed in medial part, and the pronotum obviously transverse and more clearly and densely punctate.

The specific name is given after Mr. Yasutake TSUNOKA of the Japan Overseas Cooperative Volunteer, who assisted Dr. K. TAKAHASHI when he collected the specimen materials in the Palau Islands.

Tribe **Trachyscelini** BLANCHARD, 1845

Trachyscelis suturalis KULZER, 1957

Trachyscelis suturalis KULZER, 1957, Ins. Micronesia, Honolulu, **17**: 197.

Specimens examined: 8exs., Babeldaob Is.; 5 exs., Sonsorol Is.; 2 exs., Helen Is.,

Distribution: Caroline Is. (Palau Is.), Gilbert Is.

Tribe **Hypophlaeini** BILLBERG, 1820

Corticeus (s. str.) *maehler* KULZER, 1957

Corticeus (s. str.) *maehler* KULZER, 1957, Ins. Micronesia, Honolulu, **17**: 233.

Specimens examined: 6 exs., Babeldaob Is.; 1 ex., Carp Is.; 4 exs., Peleliu Is.

Distribution: S. Mariana Is., Caroline Is. (Palau Is., Caroline Atolls, Truck Is., Ponape Is., Kusaie Is.), Hawaii Is., the Philippines, Taiwan, Malayan Peninsula to Borneo.

Corticeus (*Cnemophloeus*) *sumatrensis* PIC, 1914

Corticeus (*Cnemophloeus*) *sumatrensis* PIC, 1914, Mél. exot.-ent., (11): 16.

Specimens examined: 3 exs., Babeldaob Is.; 2 exs., Peleliu Is. **[new record]**.

Distribution: Palau Is., Oriental Region, Moluccas, New Guinea, N. Australia.

Notes. Dr. H. J. BREMER kindly informed me that *Hypophloeus filum* FAIRMAIRE, 1893 recorded by KULZER (1957) from the Pacific Islands might be this species.

Subfamily **Stenochiinae** KIRBY, 1937

Tribe **Cnodalonini** GISTEL, 1856

Bradymerus acuticostis GEBIEN, 1925

Bradymerus acuticostis GEBIEN, 1925, Philip. J. Sci., **26**: 563; KULZER, 1957, Ins. Micronesia, Honolulu, **17**: 199; KASZAB, 1985, Folia Ent. hung., **46**: 56.

Specimens examined: 8 exs., Peleliu Is.; 1 ex., Merir Is.; 4 exs., Sonsorol Is.; 6 exs., Angaur Is.; 2 exs., Carp Is.; 1 ex., Pulo Anna Is.

Distribution: S. Mariana Is., Caroline Is. (Palau Is., Caroline Atolls), the Philippines.

Bradymerus schawalleri sp. nov.

(Figs. 6, 17 and 18)

Black with brownish feeble tinge, antennae, mouth parts, gula and legs yellowish brown; major parts of dorsal surface somewhat mat, ridges and protuberances on dorsal surface moderately shining, ventral surface except for abdomen rather alutaceous, abdomen moderately shining; dorsal surface often covered with a grayish earthy matter, ventral surface rather sparsely covered with short bent hairs. Body oblong ovate, gently convex dorsad.

Head transversely subelliptical, raised in posterior part, flattened in outer part; clypeus granulate and rugulose, slightly emarginate at apex, fronto-clypeal border not making be clear due to an earthy matter, clypeo-genal borders finely sulcate; genae somewhat securiform, granulate and rugulose, depressed in areas before eyes, with outer margins obtusely angulate laterad; frons almost covered with a grayish earthy matter, rather longitudinally wrinkled, deeply sulcate along interior borders of eyes, with a pair of ridges in lateral parts, diatone about four times the width of transverse diameter of an eye. Eyes roundly produced laterad, obliquely inlaid into

head. Antennae subclavate, reaching middle of pronotum, ratio of the length of each segment from base to apex: 0.20, 0.11, 0.19, 0.12, 0.14, 0.15, 0.16, 0.16, 0.17, 0.17, 0.30.

Pronotum subquadrate, wider than long (10 : 7), widest at the middle; apex widely emarginate, not bordered, weakly produced in medial part, feebly sinuous on each side; base bisinuate, rimmed; sides gently declined to lateral margins, which are roundly produced laterad, weakly reflexed above, and feebly crenulate; front angles produced anteriad, hind angles subrectangular; disc gently convex, shallowly grooved along median line in anterior part, covered with isodiametric microsculpture, partly covered with a grayish earthy matter, provided with three pairs of somewhat longitudinal protuberances at apical 1/4, also with a pair of protuberance at the middle set far distant with each other, and with one more pair of indistinct tubercles at basal 1/5, coarsely punctate, the punctures fused with one another and becoming grooves in anterior part, areas between grooves forming fine ridges. Scutellum widely triangular with rounded sides, rather closely and coarsely punctate.

Elytra subovate, 1.59 times as long as wide, 3.03 times the length and 1.19 times the width of pronotum; dorsum gently convex, softly flattened in medio-basal part (around basal 1/5); disc partly covered with a grayish earthy matter, with rows of punctures; intervals with 1st, 3rd, 5th, 7th and 8th intervals noticeably ridged, and 6th and 9th weakly ridged, the 8th ridge extended to elytral apices, each ridge somewhat finely serrate; humeri weakly swollen; apices weakly and roundly produced.

Anal segment closely punctate in apical part, with outer margin rounded. Legs without any modification; ratios of the lengths of pro-, meso- and metatarsi: 0.17, 0.10, 0.11, 0.12, 0.64; 0.19, 0.11, 0.10, 0.12, 0.61; 0.26, 0.13, 0.14, 0.69.

Male genitalia elongated fusiform, 0.86 mm in length, 0.14 mm in width, basal piece rather noticeably curved in lateral view; fused lateral lobes a little elongated equilateral triangular, weakly curved medially in lateral view, 0.34 mm in length, with acutely pointed apices.

Body length: 4.67–5.35 mm.

Holotype: ♂, Peleliu Is., Palau Islands, W. Caroline Is., 14. VIII. 2003, K. TAKAHASHI leg. (NSMT). Paratype: 1 ex., same data as for the holotype.

Notes. This new species somewhat resembles *Bradymerus kondoi* KULZER, 1957, from "Bonin Islands", but can be distinguished from the latter by the smaller body with the outer margins of head not notched at the border between the clypeus and genae, the pronotum rugosopunctate, finely ridged, with several small protuberances, the front angles more acute, and the elytra more strongly ridged.

The specific name is in honor of Dr. Wolfgang SCHAWALLER, for his kind assistance to the present study and long-term and fruitful cooperation.

Apterophenus dybasi KULZER, 1957

Apterophenus dybasi KULZER, 1957, Ins. Micronesia, Honolulu, **17**: 242; KASZAB, 1985, Folia Ent. hung., **46**: 62.

Specimens examined: 2 exs., Babeldaob Is.

Distribution: Caroline Is. (Palau Is.: "Babelthaup Is.", Peleliu Is., Koror Is.).

Apterophenus merkli sp. nov.

(Figs. 7, 19 and 20)

Piceous, with antennae, mouth parts, and legs lighter in colour; dorsal surface with coppery tinge and strongly, metallically shining, ventral surface rather strongly, partly alutaceously shining; each surface almost glabrous. Body slightly oblong-ovate, strongly convex above.

Head semicircular, feebly covered with isodiametric microsculpture, scattered with minute punctures; clypeus somewhat widely hexagonal, gently inclined anteriad, rounded at apex, transversely impressed before the fronto-clypeal border; fronto-clypeal border feebly sulcate, widely straight in medial part, bent anteriad in lateral parts, weakly sinuous and reaching outer margins; genae oblique, inclined outwards, with outer margins obtusely angulate, smoothly continuing with outer margins of clypeus, and subparallel-sided before eyes; frons broadly convex, deeply sulcate along intero-posterior parts of eyes, with a pair of indistinct impressions in posterior part in male. Eyes medium-sized, weakly convex laterad, gently and roundly inlaid into head. Antennae somewhat clavate, reaching beyond the middle of pronotum in male (slightly shorter in female), ratio of the length of each segment from base to apex: 0.24, 0.18, 0.27, 0.31, 0.25, 0.23, 0.30, 0.32, 0.31, 0.33, 0.38.

Pronotum subtrapezoidal, wider than long (10 : 7), widest at base; apex almost straight widely in middle, curved anteriad in lateral parts, not bordered; base bisinuous, weakly ridged; sides gently declined to lateral margins, which are rather strongly grooved and rimmed; front angles acute, hind angles subrectangular with rounded corners; disc moderately convex, sparsely scattered with microscopic punctures, with a pair of vague impressions close to base. Scutellum triangular, weakly covered with isodiametric microsculpture, sparsely scattered with minute punctures.

Elytra rather oblong-ovate, 1.49 times as long as wide, 2.38 times the length and 1.18 times the width of pronotum, widest at basal 2/5; dorsum rather strongly convex, highest at basal 1/3; disc with rows of small punctures, which are shallowly striate, the striae and punctures becoming stronger in the lateral and posterior parts; intervals gently convex, feebly covered with isodiametric microsculpture in part, sparsely scattered with minute punctures and often shallowly, transversely aciculate; humeri reduced; apices feebly produced; hind wings almost degenerated.

Male anal sternite roundly flattened in apical part. Legs stout, without any special modification; ratios of the lengths of pro-, meso- and metatarsi: 0.76, 0.27, 0.21, 0.23, 0.22; 0.28, 0.25, 0.23, 0.21, 0.72; 0.63, 0.32, 0.28, 0.79.

Male genitalia slender, 1.31 mm in length, 0.19 mm in width, rather strongly curved in basal part of basal piece in lateral view; fused lateral lobes 0.55 mm in length, rather equilateral triangular with prolonged apices, gently curved in lateral view.

Body length: 6.4–6.6 mm.

Holotype: ♂, Babeldaob Is., Palau Is., Western Caroline Is., 17. III. 2002, K. TAKAHASHI leg. (NSMT). Paratype: 1 ♀., same data as for the holotype.

Notes. This new species somewhat resembles *Apterophenus dybasi* KULZER, 1957, from "Babelthuap" and Koror Islands, but can be distinguished from the latter by the body smaller (7–9 mm in *A. dybasi*) and slenderer with the elytra obviously punctate and striate.

Schizomma minor KULZER, 1957

Schizomma minor KULZER, 1957, Ins. Micronesia, Honolulu, **17**: 248; KASZAB, 1985, Folia Ent. hung., **46**: 61.

Specimens examined: 28 exs., Babeldaob Is.; 3 exs., Ngerekebesang Is.; 1 ex., Angaur Is.; 1 ex., Peleliu Is.; 1 ex., Koror Is.

Distribution: Caroline Is. (Palau Is.).

Chariotheca barclayi sp. nov.

(Figs. 8, 21 and 22)

Brownish black, six basal segments of antennae, legs, mouth parts and ventral side dark reddish brown; dorsal surface strongly shining with rather coppery tinge, ventral surface vitreously, partly alutaceously shining; each surface almost glabrous. Body rather oblong, gently convex above.

Head semicircular, gently raised in posterior part, rather closely punctate; clypeus transversely hexagonal, weakly convex medially, rather widely truncate at apex, with apical margin finely rimmed; fronto-clypeal border finely sulcate, transverse in medial part, gently bent in lateral parts, and reaching outer margins; genae somewhat trapezoidal, not defined from frons, weakly raised in middle, with outer margins slightly produced; frons wide and simple in shape, diatone about four times the width of transverse diameter of an eye. Eyes medium-sized, weakly produced laterad, obliquely inlaid into head. Antennae subclavate, reaching the middle of pronotum, ratio of the length of each segment from base to apex: 0.24, 0.12, 0.17, 0.15, 0.16, 0.14, 0.15, 0.18, 0.19, 0.26.

Pronotum subquadrate, wider than long (8 : 5), widest at the middle, slightly sinuous before base; apex widely emarginate in middle, bordered only in lateral parts; base bisinuous, not bordered but with a row of punctures; sides gently declined to lateral margins, which are weakly bordered and clearly rimmed, the rim scattered with minute punctures; front angles gently produced anteriad and a little acute, hind angles subrectangular; disc moderately convex, scattered with small punctures, which are slightly sparser and smaller than those on head. Scutellum triangular with rounded apex, feebly depressed than elytra, almost fattened, sparsely scattered with microscopic punctures.

Elytra elongated subovate, 1.43 times as long as wide, 2.55 times the length and 1.20 times the width of pronotum; dorsum gently convex, highest at the basal 1/3; disc punctato-striate, the punctures in striae sparsely set, those in lateral parts becoming larger and sparser; intervals gently convex, sparsely scattered with minute punctures; humeri gently swollen; apices rounded.

Anal sternite rather closely punctulate, each puncture with a microscopic hair. Legs without any modification; ratios of the lengths of pro-, meso- and metatarsi: 0.13, 0.11, 0.10, 0.13, 0.47; 0.18, 0.13, 0.11, 0.12, 0.48; 0.49, 0.18, 0.12, 0.61.

Male genitalia elongated fusiform, 0.81 mm in length, 0.17 mm in width, curved medially in lateral view; fused lateral lobes 0.32 mm in length, with spatulate apices.

Body length: 4.76 mm.

Holotype: ♂, Babeldaob Is., Palau Is., W. Caroline Is., 13. IV. 2002, K. TAKAHASHI leg.

References

BLAIR, K. G., 1940. Coleoptera from the Caroline Islands. – Occasional Papers of the Bishop Museum Honolulu, **16**: 131–157.

BREMER, H., 2004. Revision of genus *Amarygmus* DALMAN, 1823 and related genera. Part 26. The *Amarygmus* species (Coleoptera, Tenebrionidae, Amarygmini) of the Palau Islands (West Caroline Inlands) collected by K. TAKAHASHI. *Bulletin of the National Science Museum, Tokyo, A*, **30**: 147–154.

GEBIEN, H., 1922, The Percy Sladen trust Expedition to the Indian Ocean in 1905. No. V. – Coleoptera, Heteromera: Tenebrionidae. *Transactions of the Linnean Society of London, Series 2, Zoology* **18** [1922–1925]: 261–323, pl. 23.

GEBIEN, H., 1925. Die Tenebrioniden (Coleoptera) des indomalayischen Gebietes, unter Beruecksichtigung der benachbarten Faunen, VII. Die Gattung *Platydema* CASTELNAU und BRULLÉ. *Philippine Journal of Science, Manila*, **27**: 539–595.

KASZAB, Z., 1977. Die Tenebrioniden des papuanischen Gebietes I. Strongyliini (Coleoptera: Tenebrionidae). *Pacific Insects Monograph, Honolulu*, **33**: 1–219.

KASZAB, Z., 1982. Die papuanisch-pazifischen Arten der Gattung Lorelus Sharp, 1876 (Coleoptera, Tenebrionidae). *Annales historico-naturales Musei nationalis hungarici*, **74**: 151–191.

KASZAB, Z., 1985 Beitrage zur Kenntnis der pazifischen Tenebrioniden (Coleoptera). *Folia Entomologica Hungarica*, **46**: 23–63.

KASZAB, Z., 1988. Katalog und Bestimmungstabelle der Gattung *Promethis* PASCOE, 1869 (Coleoptera, Tenebrionidae). *Acta zoologica Hungarica*, **34**: 67–170.

KULZER, H., 1957. Coleoptera: Tenebrionidae. *Insects of Micronesia, Honolulu*, **17**: 185–256, 1 map.

MASUMOTO, K., 2003. Tenebrionid beetles (Coleoptera) from Palau Islands collected by Keiichi TAKAHASHI (1). *Elytra, Tokyo*, **31**: 383–384.

SCHAWALLER, W., 2006. Revision of the Oriental species of the genus *Bradymerus* PERROUD, with descriptions of 29 new species (Coleoptera: Tenebrionidae). *Stuttgarter Beiträge zur Naturkunde*, A (694): 1–64.

(Received October 1, 2006; Accepted October 9, 2006)

(NSMT). Paratypes: 2 exs., 13. I. 2002; 2 exs., 5. VII. 2002; 2 exs., 25. IX. 2003; 1 ex., 22. VI. 2002; 1 ex., 18. VI. 2003; 1 ex., 23. III. 2003; 1 ex., 10. X. 2003; 1 ex., 16. XI. 2002; 1 ex., 5. VII. 2002; 1 ex., 28. IX. 2002; 1 ex., 20. VII. 2003; 1 ex., 6. IV. 2003; the same locality and collector as the holotype.

Notes. This new species somewhat resembles *Chariotheca striatipennis* BLAIR, 1940, from the Caroline Islands, but can be distinguished from the latter by the body wider, shorter, and more strongly shining dorsad, with apices of the elytra not produced but rounded, the head less strongly convex in the posterior part, the pronotum more strongly but a little sparsely punctate, and the elytra less clearly striated with the strial punctures stronger and sparsely set.

The specific name is dedicated to Mr. Maxwell V. L. BARCLAY, who assisted me to examine the type materials in the Natural History Museum, London.

Promethis punctulator (FAIRMAIRE, 1883)

Nyctobates punctulator FAIRMAIRE, 1883, Annls. Soc. ent. Belg., **27**: 26.

Specimens examined: 2 exs., Sonsorol Is. **[new record]**.

Distribution: Caroline Is. (Palau Is.), Aru Is., Biak Is., Korido Is., Normanby, Bismarck Arch., New Guinea, Australia (Queensland), Philippines (Luzon).

Notes. This species is widely distributed in the Indo-Australian Regions. *Promethis sulcigera* (BOISDUVAL, 1835) is also widely distributed from Taiwan, the Philippines, Molukka Islands, to New Guinea and Australia (Queensland), and KULZER (1957) and KASZAB (1985) recorded it from Palau Islands.

Tribe **Stenochiini** KIRBY, 1837

Strongylium palauense sp. nov.

(Figs. 9, 23 and 24)

Piceous, five basal segments of antennae, basal parts of femora, tibiae and gula brownish; head, pronotum and scutellum weakly, sericeously shining, elytra moderately, somewhat vitreously shining, ventral surface rather alutaceously shining; dorsal surface almost glabrous, ventral surface sparsely clothed with fine hairs. Body elongated fusiform, longitudinally convex, weakly depressed in medio-basal parts of elytra.

Head somewhat transversely elliptical, weakly covered with isodiametric microsculpture, rather closely, finely punctulate; clypeus semicircular, rather noticeably projected apicad, flattened in basal part, gently inclined anteriad and truncate in front, fronto-clypeal border curved and clearly impressed; genae gently, obliquely raised outwards, with rounded outer margins; frons somewhat T-shaped, gently inclined anteriad, longitudinally impressed in posterior part, diatone about 1/7 times the width of transverse diameter of an eye. Eyes very large, convex laterad, roundly inlaid into head. Antennae subfiliform, reaching basal 1/5 of elytra, ratio of the length of each segment from base to apex: 0.39, 0.18, 0.49, 0.43, 0.41, 0.38, 0.37, 0.35, 0.33, 0.32, 0.38.

Pronotum subhexagonal, wider than long (4 : 3), bordered along each outer margin, cov-

ered with isodiametric microsculpture; apex finely ridged, the ridge tapering laterad, slightly sinuous and bordered in lateral parts; base gently sinuous on each side, clearly bordered and ridged, the border almost straight in medial part and sinuous in lateral parts, the ridge rather bold in medial part, becoming finer laterad; sides rather steeply declined to lateral margins, which are produced laterad, weakly sinuous before base, and armed with a tooth at middle; front angles obtuse with rounded corners, hind angles obtusely angulate; disc gently convex, rather closely, irregularly punctate, impressed along the median line, with a pair of oblique impressions close to base. Scutellum sublinguiform, gently elevated, covered with isodiametric microsculpture, sparsely scattered with microscopic punctures.

Elytra subfusiform, 2.25 times as long as wide, 4.00 times the length and 1.33 times the width of pronotum; dorsum moderately convex, weakly depressed in basal 1/6 of medial part; disc punctato-striate, the punctures in interior and posterior parts small and closely set, those in antero-exterior parts become larger and somewhat foveolate, each puncture often weakly, transversely impressed; intervals rather strongly convex, sparsely scattered with microscopic punctures, very weakly, somewhat transversely aciculate; humeri gently swollen; apices moderately, roundly produced.

Male anal sternite very weakly depressed in apical part, covered with isodiametric microsculpture and finely pubescent. Legs medium-sized; male protibia nearly straight, with ventral face haired in apical 2/5; male metatibia weakly twisted, with interior face haired in apical 2/3; ratios of the lengths of pro-, meso- and metatarsi: 0.24, 0.17, 0.19, 0.18, 0.84; 0.64, 0.52, 0.39, 0.31, 1.09; 0.88, 0.52, 0.39, 1.06.

Male genitalia elongated fusiform, 2.47 mm in length and 0.44 mm in width, evenly curved in lateral view; fused lateral lobes 1.08 mm in length, strongly prolonged apicad, with dorsal surface minutely punctulate.

Body length: 11.3 mm.

Holotype: ♂, Ngerekebesang Island, Palau Is., W. Caroline Is., 2. IV. 2003, K. TAKAHASHI leg. (NSMT).

Notes. This new species somewhat resembles *Strongylium mondiglianii* MASUMOTO, 2001 from Sumatra, in having the pronotum with a tooth on each lateral margin, but can be distinguished from the latter by the larger and slenderer body with the dorsal surface not metallically shining, the male metatibia twisted and differently shaped male genitalia.

The specific name is taken after the place where the holotype was collected.

要　　約

益本 仁雄：高橋敬一博士採集のパラオ諸島産ゴミムシダマシ科甲虫について．——— 高橋敬一博士は，2002～2003年にパラオ諸島で精力的に昆虫を採集され，そのうちゴミムシダマシ科の甲虫について筆者に検討を託された．筆者は，この3年間にヨーロッパの各分野の専門研究者の協力を仰ぎ，また，主要な博物館所蔵のタイプと詳細に比較検討した結果，34種を記録した．そのうち，9種は新種として記載し，8種の新分布を記録した．命名した新種は次の通りである．*Micropedinus takahashii* sp. nov., *Dioedus bremeri* sp. nov., *Uloma sonsorolae* sp. nov., *Diphyrrhynchus keiichii* sp. nov., *Menimus yasutakei* sp. nov., *Bradymerus schawalleri* sp. nov., *Apterophenus merkli* sp. nov., *Chariotheca barclayi* sp. nov. および *Strongylium palauense* sp. nov.

Ent. Rev. Japan, **61** (2): 163–168, December 21, 2006

Cholevid Beetles from Shanghai, China (Coleoptera: Leiodidae)

Yasuhiko HAYASHI
Suimeidai 3–1–73, Kawanishi City, Hyôgo, 666–0116 Japan

and

Li-Zhen LI
Department of Biology, Shanghai Normal University,
100 Guilin Road, Shanghai, 200234 China

Abstract Three species of Cholevinae were collected in Shanghai District, China. One of them is *Catops angustipes angustipes* PIC and the other two are new species, so that we describe them under the names *Mesocatops chinensis* and *Catops shanghaiensis*.

Faunal study of Cholevinae of China is just now started. Up to the present, about thirtysix species are recorded from China (PERREAU, 2000), and no species of Cholevinae have been known from Shanghai district.

The specimens captured by LI, one of the authors from Jiangwan in Shanghai by bate trap include three species consisting of the genera *Mesocatops* and *Catops*. As a result of careful examination, it becames clear that one of them is *Catops angustipes angustipes* PIC, and the other two are new to science. Therefore we are going to describe these two new species under the names *Mesocatops chinensis* and *Catops shanghaiensis*, and to discuss their systematic position in this paper. All the type specimens are deposited in the Insect Collections of Department of Biology, Shanghai Normal University, Shanghai, China.

Before going into further details we wish to express our cordial thanks to Dr. Katsura MORIMOTO for his critically reading this manuscript.

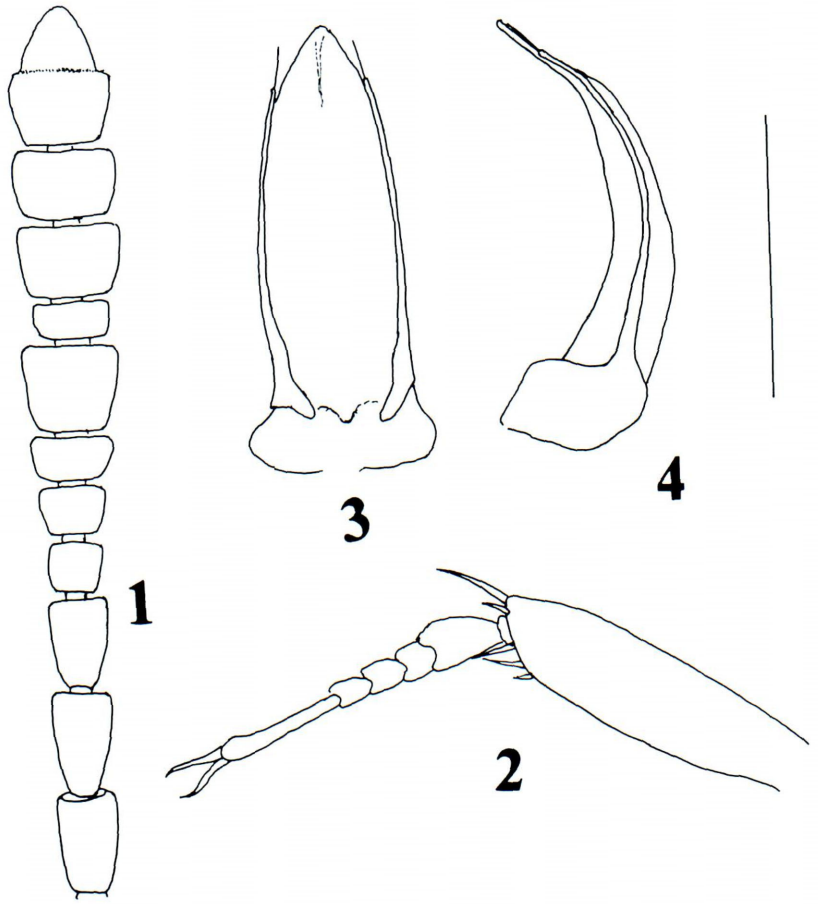
Mesocatops chinensis sp. nov.

(Figs.1–4)

Body oval, weakly shiny, with dense brownish recumbent pubescence, and elytra weakly opalescent; colour nearly black, mouth organs brownish, antennae with basal 2 segments yellowish brown, the following 3 dark brown and the rest blackish; legs blackish brown, with tarsi pale brown.

Length: 2.2–2.8 mm. Width: 1.75–2.2 mm.

Head a little less than 1.5 times as wide as long, a little less than two-thirds as wide as and nearly three-fourths as long as pronotum; dorsum strongly convex, rather coarsely and densely punctured, without microsculpture. Eyes pubescent narrowly along posterior margins. Antennae



Figs. 1–4. *Mesocatops chinensis* sp. nov., male. —— 1, Antenna; 2, left fore leg; 3, genitalia, dorsal view; 4, ditto, right lateral view. Scale: 0.25 mm.

(Fig. 1) short, not reaching basal angles of pronotum; basal 3 and terminal segments longer than wide, and 4th to 10th more or less wider than long; 1st segment nearly as long as 2nd; 3rd slightly shorter than 2nd and nearly as long as 7th; 4th much shorter than 3rd and subequal in length to 5th; 6th a little shorter than 5th and twice as wide as long; 7th nearly twice the length of 6th; 8th the shortest and more than twice as wide as long; 9th and 10th nearly equal in size and shape, and a little shorter than 7th; 11th pear-shaped and the longest; each segment with the following relative length (width) from base to apex: 7.0 (4.5) : 7.0 (4.0) : 6.0 (4.0) : 3.5 (4.0) : 3.5 (5.0) : 3.0 (6.0) : 6.0 (7.0) : 2.5 (5.5) : 5.0 (7.5) : 5.0 (7.5) : 10.0 (7.0).

Pronotum strongly convex, more than 1.5 times as wide as long, widest near base, largely rounded at sides and strongly narrowed anteriad; anterior angles widely rounded, and posterior ones nearly rectangular; disc finely and densely asperate-punctate, devoid of microsculpture. Scutellum flat, punctured as on pronotum.

Elytra suboval, a little wider than pronotum (41 : 37), about 2.5 times as long as pronotum, a little less than 1.4 times as long as wide, widest at basal fourth, feebly arcuate at sides

and gently narrowed posteriad; upper surface coarsely and densely asperate-punctate, with obscure, transversely striate microsculpture, and parasutural sulcus effaced in basal fourth.

Legs rather short and slender; protibiae (Fig. 2) weakly thickened apicad from base, with inner margin feebly arcuate; male protarsi (Fig. 2) very weakly dilated in basal three segments, so that , sometimes it is difficult to discliminate the male and the female; female protarsi slender as usual; 1st segment of mesotarsi simply slender in both sexes.

Male genitalia (Figs. 3, 4) symmetrical and rather wide and short; penis very thin and roundly curved ventrad in lateral view, fusiform in dorsal view, with subacute apex; parameres curved along penis, nearly as long as penis including apical seta, which is rather short.

Holotype: ♂, Jiangwan, Shanghai, 20. IV. 2003, Li-Zhen Li leg. Paratypes: 5♂♂, 16♀♀, same data as the holotype.

Remarks. The present species is similar in general appearance to *Sciodrepoides pluvialis* Nishikawa rather than the other *Mesocatops* species at first sight, but is closely allied to *M. imitator* Schweiger from Fukien, Szechwan, China and Taiwan because of similar structures of female 5th (visible) abdominal sternite, antennae and male fore legs. The present new species is easily distinguishable from the latter by the blackish body colour, much slender male protarsi and shape of the male genitalia.

Etymology. Specific name is derived from the type locality of species.

Catops angustipes angustipes Pic

Specimens examined: 10♂♂, 10♀♀, Jiangwan, Shanghai, 20. IV. 2003, Li-Zhen Li leg.; 5♂♂, 7♀♀, same locality, 6. IV. 2003, Hu and Tang leg.

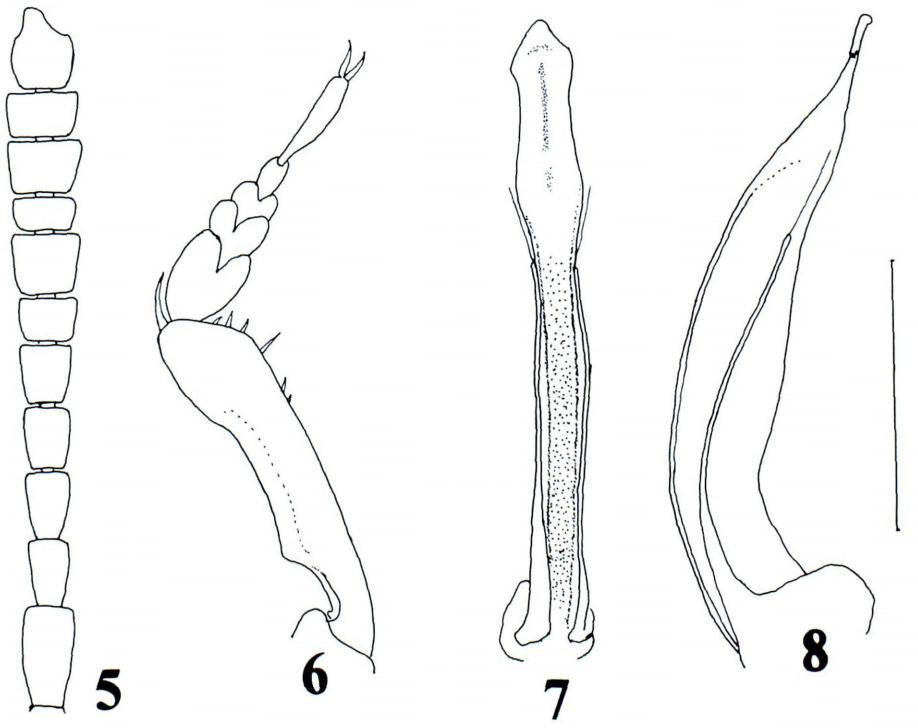
Catops shanghaiensis sp. nov.

(Figs. 5–8)

Body oval, weakly shining, with brownish recumbent pubescence, and elytra moderately opalescent overall; colour nearly black, elytra tinged with reddish brown to brown; mouth organs yellowish brown, antennae dark brown with basal three or four segaments pale brown, and protarsi yellowish brown.

Length: 3.85–4.25 mm. Width: 1.9 mm.

Head three-fourths as long as wide, a little wider than a half width of pronotum, rather finely and sparsely punctured, with fine striate microsculpture; eyes moderate in size, with very fine, short and sparse pubescence only at posterior margin. Antennae (Fig. 5) thick, rather short, barely reaching at the middle of pronotum; 6th to 10th segments bearing a small depression or a fovea on each under side, the depression of 6th very weak and no special structure, the fovea on 7th to 9th remarkable, with reticulocribrate microsculpture, and that of 10th small, with same sculpture only in the basal part; basal five and terminal segments more or less longer than wide, 1st segment about 1.5 times as long as 2nd; 2nd as long as 3rd and slightly longer than 4th, which is nearly as long as 5th; 5th not transverse, slightly longer and narrower than 6th; 6th nearly as long as 10th; 7th nearly as long as 5th, slightly wider than 6th, much longer and slightly wider than 8th, which is twice as wide as long; 9th slightly shorter than 7th but longer than



Figs. 5–8. *Catops shanghaiensis* sp. nov., male. —— 5, Antenna; 6 right fore leg;7, genitalia, dosal view; 8, ditto, left lateral view. Scale: 0.5 mm.

10th; 11th pear-shaped and a little shorter than 1st; each segment with the following relative length (width) from base to apex: 15.0 (8.0) : 10.0 (6.0) : 10.0 (7.0) : 9.0 (7.0) : 9.0 (8.0) : 7.0 (9.5) : 9.0 (11.0) : 5.0 (10.0) : 8.0 (11.5) : 7.0 (11.0) : 13.0 (10.0).

Pronotum two-thirds as long as wide, a little narrower and less than half as long as elytra (6 : 7 and 9 : 22), widest at about basal third, strongly narrowed anteriad, largely rounded at sides, with anterior angles widely rounded; anterior margin nearly straight, posterior one weakly arcuate, and posterior angles obtuse, with blunt tips; disc finely and rather sparsely asperate-punctate, with fine subreticulate microsculpture. Scutellum flat, densely and finely asperate-punctate.

Elytra suboval, a little more than 1.4 times as long as wide, widest at basal third; surface finely and rather sparsely asperate-punctate, with distinct transversely striate microsculpture; sutural striae distinct, and sutural space convex in posterior fourth.

Mesosternum glabrous and remarkably coriaceous. Metasternum shallowly, rather coarsely and sparsely asperate-punctate, with fine subreticulate microsculpture except inner posterior parts.

Abdominal sternites very finely, densely punctured with fine striate microsculpture and dense pale brownish pubescence.

Legs thick and short; profemora bearing a thin and short carina-like tubercle at apical third

of the under side; protibiae (Fig. 6) nearly straight, very thick except base and markedly sinuate at inner margin; basal three segments of protarsus and basal one of mesotarsus rather weakly dilated; metafemora not depressed on apical portion of under side.

Male genitalia (Figs. 7, 8) symmetrical, slender and long, strongly curved ventrad, straight in dorsal view, nearly parallel-sided except apical portion, which is weakly dilated, slightly reflexed and rapidly convergent to rounded apex, with the ventral side shallowly depressed; dorsum flattened, faintly depressed medially and ridged at sides in basal two-thirds, thence weakly convex and shallowly grooved in apical fourth. Parameres moderate in length, with a rather short setae at apex.

Female: Antennae with 2nd segment slightly shorter than 3rd, protibiae simple, not thickened, protarsomeres and 1st mesotarsomeres not dilated.

Holotype: ♂, Jiangwan, Shanghai, 6. IV. 2003, Li-Zhen LI leg. Paratypes: 2♂♂, 6♀♀, same data as the holotype.

Remarks. The present species belongs to the *hilleri*-group by sharing a tubercle on the profemora and a modified fovea on several antennomeres in common. The present species is closely allied to *C. nomurai* HAYASHI from Japan in similar structures of the protibiae and the male genitalia. In the latter species the male protibiae are much more strongly sinuate at inner margin, the male antennae have modified fovea on the 3rd to 9th segments respectively, with the 4th segment transverse, and the penis is wider, more strongly dilated in apical portion.

Etymology. The specific name is derived from the type locality of China.

要　　約

林　靖彦・李　利珍：中国・上海産チビシデムシ．——中国のチビシデムシ相は概略さえほとんど判明していない．筆者の一人，李は上海・江弯地区においてベイトトラップ採集を試みたところ，かなりの数のチビシデムシを得ることが出来た．詳細に調べた結果３種を含み，うち２種は未記載種と考えられたので，それぞれ *Mesocatops chinensis, Catops shanghaiensis* と命名，記載した．*Mesocatops chinensis* は一見したところ，日本の *Sciodrepoides pluvialis* NISHIKAWA に極めてよく似ている．他の *Mesocatops* からは，全体に黒い体色と，非常に細い雄の前付節，短く，幅広の雄交尾器によって容易に区別できる．*Catops shanghaiensis* は外見などから *Catops nomurai* HAYASHI によく似ており，実際，雄交尾器もよく似ていて近縁種とみなされるが，雄の触角，交尾器，前脛節の形態などによって容易に区別できる．

References

HAYASHI, Y., 1969. Catopidae from Amami Oshima Is., Japan (Col.) *The Entomological Review of Japan, Osaka*, **12**: 1–6.

HAYASHI, Y., 1988. Notes on Catopidae from Taiwan (I). *The Entomological Review of Japan, Osaka*, **43**: 107–114.

JEANNEL, R., 1936. Monographie des Catopidae. *Mémoires du Muséum national d'Histire naturelle (n.s)*, **1**: 433 pp.

NISHIKAWA, M., 1992. New lowland *Sciodrepoides* (Coleoptera, Cholevidae) from the Kwantô plains, Central Japan. *Elytra, Tokyo*, **20**: 197–201.

PERREAU, M., 1990. Nouvelles espèces de Cholevidae de Chine. *Bulletin de la Société entomologique de France*, **94**: 273–281.

PERREAU, M., 2000. Catalogue des Coléoptères Leiodidae Cholevinae et Platypsylinae. *Mémpires de la SEF*, **4**: 460 pp.

SCHWEIGER, H., 1956. Neue Catopiden aus Fukien (Coleoptera: Catopidae). *Beiträge zur Entomologie*, **6**: 535–543.

SZYMCZKOWSKY, W., 1964. Analyse systématique et zoogéographique des Catopidae (Coleoptera) de la région orientale. *Acta Zoologica cracoviensia*, **9**: 55–283.

(Received October 9, 2006; Accepted October 12, 2006)

Ent. Rev. Japan, **61** (2): 169–180, December 21, 2006

Notes on the Coprophagous Scarab-beetles (Coleoptera: Scarabaeidae) from Southeast Asia (XII). Six New Speices of *Onthophagus* (*Indachorius*) from Borneo

Teruo OCHI
Kohudai 5–21–6, Toyono-cho, Toyono-gun, Osaka, 563–0104 Japan

and

Masahiro KON
School of Environmental Science, The University of Shiga Prefecture,
Hassaka-chô 2500, Hikone, Shiga, 522–8533 Japan

Abstract Six new species of *Onthophagus* (*Indachorius*) are described from Borneo under the names of *O.* (*I.*) *liwagensis* sp. nov., *O.* (*I.*) *hikidai* sp. nov., *O.* (*I.*) *yumotoi* sp. nov., *O.* (*I.*) *cheyi* sp. nov., *O.* (*I.*) *uedai* sp. nov. and *O.* (*I.*) *woroae* sp. nov.

Up to the present, two species of *Onthophagus* (*Indachorius*) have been recorded from Borneo; i.e., *O.* (*I.*) *aereopictus* BOUCOMONT and *O.* (*I.*). *masaoi* OCHI (BALTHASAR, 1963; OCHI, 1992). In the course of our taxonomic studies on the Bornean *Onthophagus*, we have found six undescribed species belonging to the subgenus *Indachorius*, and describe them in the present paper.

Onthophagus (*Indachorius*) *liwagensis* sp. nov.

(Figs. 1, 7)

Length: 3.8–4.3 mm; width: 2.2–2.4 mm (n=13).

Male. Body small-sized, moderately convex; dorsal side weakly shining to subopaque, sparsely clothed with erect, long, and yellowish hairs; ventral side weakly shining, partly clothed with hairs similar to those on dorsum. Colour blackish brown to chocolate brown, elytra sometimes a little paler; each elytron with two indefinite yellowish brown patches, the basal transverse one extending from 2nd interval to lateral margin and frequently constricted at 5th, and the outer small one on the middle of 7th and 8th intervals; anterior margin of head, legs, mouth parts and palpi somewhat reddish; antennae with foot-stalks blackish brown, club segments reddish brown.

Head clearly narrow, strongly produced forwards; clypeus subtrapezoidal in outline, with clypeal margin distinctly bordered and slightly reflexed, apex mostly briefly truncate, rarely slightly rounded; genae a little produced laterad, gently rounded at the middle; clypeo-frontal suture strongly carinate and well curved; clypeo-genal sutures also carinate and conjointed with

clypeo-frontal one far from margin, and then the carinae extending to the pair of vertexal tubercles which are widely separated and a little pointed; surface strongly micro-granulose, though a little transversely wrinkled on clypeus, rather sparsely covered with strong and a little uneven setiferous punctures, the punctures becoming denser and smaller towards apex. Eyes ordinary in size.

Pronotum simple, not so strongly convex, 1.41–1.54 times as wide as long (n=3), without a median longitudinal impression along midline; anterior margin emarginate, with a fine marginal line; lateral margins well produced laterad and rounded at the middle, straight or weakly sinuate in front, and very slightly sinuate behind, with fine marginal line; anterior angles strongly and sharply produced forwards, rounded at the tip; posterior angles obtuse; basal margin rounded, with fine marginal line; surface weakly micro-granulose, densely and evenly covered with strong setiferous punctures.

Elytra moderately convex, 1.15–1.20 times as wide as long (n=3), each with eight striae, of which one is along epipleural margin; each stria distinctly impressed, with fine ridges on both sides, strial punctures sparse, small, and weak; 7th stria clearly curved near base; intervals a little convex along midline, fairly uneven and strongly rugose, distinctly shining, with suture bearing a single longitudinal row of small setiferous punctures, 2nd to 7th intervals bearing somewhat irregularly arranged double longitudinal rows of strong but ill-defined setiferous punctures, 8th bearing three or four irregular longitudinal rows of similar punctures.

Pygidium weakly convex, carinate at base, shining, densely covered with strong setiferous punctures. Prothorax with anterior angles clearly and somewhat shallowly excavated inwards on the ventral side, the excavation distinctly defined by a strong carina. Protibiae rather slender, weakly curved near apex, with three sharp external teeth; 1st tooth a little longer than 2nd, 3rd small; the remaining external margin finely and regularly denticulate.

Aedeagus elongate. Phallobase about 0.7–0.8 mm in length (n=3), about 0.4 mm in apical width (n=3). Parameres fairly large and elongate, about 0.7 mm in length (n=3), almost simple in dorsal and ventral views.

Female. Head with clypeus more strongly produced forwards than in male; clypeo-frontal suture more strongly carinate and more distinctly curved; two tubercles on vertex a little larger; surface more coarsely and more densely punctate, transverse wrinkles on clypeus stronger. Protibiae with three external teeth stronger than in the male.

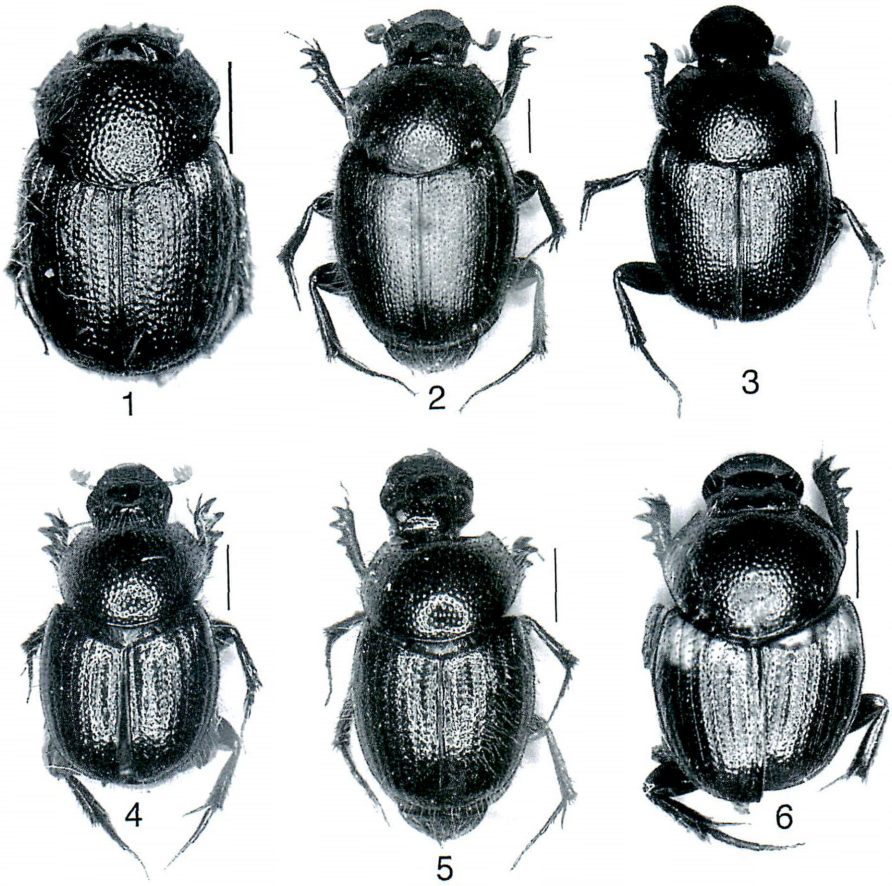
Type series. Holotype; ♂, Liwagu near Headquarter, 1,400 m, Sabah State, Malaysia, 6. IV. 1995, T. KIKUTA leg. Paratypes: 3♂♂, 8♀♀, the same data as the holotype; 1♀, Sayap, 1,100 m, near Mt. Kinabalu, Sabah State, Malaysia, 25. III. 1995, T. KIKUTA leg; 1♀, Headquarter, Mt. Kinabalu, 1,450 m, ditto, 2. II.1995.

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

Distribution: Sabah State, Malaysia (Northern Borneo).

Etymology. This species is named after the place, Liwagu, Mt. Kinabalu, Sabah, Malaysia.

Notes. The present new species is closely related to the following new species and the diagnosis is written in the following notes.



Figs. 1–6. *Onthophagus* (*Indachorius*) spp., habitus, dorsal views. —— 1, *O.* (*I.*) *liwagensis* sp. nov., male; 2, *O.* (*I.*) *hikidai* sp. nov., male; 3, *O.* (*I.*) *yumotoi* sp. nov., male; 4, *O.* (*I.*) *cheyi* sp. nov., female; 5, *O.* (*I.*) *uedai* sp. nov., male; 6, *O.* (*I.*) *woroae* sp. nov., male. Scales 1 mm.

Onthophagus* (*Indachorius*) *hikidai sp. nov.

(Figs. 2, 8)

Length: 5.2–6.3 mm; width: 2.4–3.4 mm (n=45).

Male. Body rather small, moderately convex; dorsal side a little shining to subopaque, rather sparsely clothed with erect, long, and yellowish hairs; ventral side weakly shining, partly clothed with similar hairs as those on dorsum. Colour black to brownish black, frequently elytra and anterior margin of head somewhat reddish; elytra black, each with two indefinite vague dark reddish patches, the basal one between 6th and 7th intervals, and the lateral one between 7th and 8th at the middle; legs, mouth parts and palpi somewhat reddish; antennae with foot-stalks reddish brown, club segments yellowish brown, sometimes a little darker.

Head parabolic in front; clypeus well produced forwards, with clypeal margin distinctly bordered and slightly reflexed, apex usually rounded, rarely subtruncate; genae slightly produced laterad, gently rounded at the middle; clypeo-frontal suture distinctly carinate and well curved; clypeo-genal sutures also carinate and conjointed with clypeo-frontal one far from mar-

gin, and then the carinae extending to the pair of vertex tubercles which are widely separated and slightly pointed; surface obviously micro-granulose though a little transversely wrinkled on clypeus, sparsely covered with strong and a little uneven setiferous punctures, which become denser and smaller towards apex. Eyes ordinary in size.

Pronotum simple, moderately convex, 1.38–1.47 times as wide as long (n=3), without a median longitudinal impression along midline; anterior margin emarginate, finely bordered; lateral margins strongly produced outwards and rounded at the middle, almost straight or weakly sinuate in front, not distinctly sinuate behind, finely bordered; anterior angles strongly and sharply produced forwards, with apex very slightly expanded laterad; posterior angles distinctly obtuse; basal margin rounded, finely bordered; surface weakly micro-granulose, densely and evenly covered with strong setiferous punctures, which are becoming coarser and a little denser towards sides.

Elytra moderately convex, 1.12–1.13 times as wide as long (n=3), each with eight striae, of which one is along epipleural margin; each stria strongly impressed, with fine ridges on both sides, strial punctures sparse, small, and weak, slightly notching both margins of intervals; 7th stria strongly curved near base; intervals almost flat, slightly uneven and weakly wrinkled, clearly micro-granulose, with suture bearing a single longitudinal row of small setiferous punctures, 2nd to 7th intervals bearing two or three irregular longitudinal rows of strong and rather small setiferous punctures, 8th bearing three or four irregular longitudinal rows of similar punctures; the wrinkles and punctures becoming stronger and larger towards outer intervals and also each apex.

Pygidium slightly convex, carinate at base, a little shining, densely covered with strong setiferous punctures. Prothorax with anterior angles clearly and somewhat shallowly excavated inwards on the ventral side, the excavation distinctly defined by a strong carina. Protibiae elongate, weakly curved near apex, with three sharp external teeth; 1st and 2nd teeth almost the same in length, 3rd small; the remaining external margin finely and regularly denticulate. Mesotibiae distinctly curved in lateral view. Metatibiae with basal segment fairly elongate, slightly longer than the remaining four ones combined together.

Aedeagus somewhat robust. Phallobase about 1.1–1.2 mm (n=3) in length, 0.6 mm in apical width. Parameres about 0.9–1.0 mm (n=3) in length, distinctly constricted at the middle; apices strongly produced laterad and almost symmetrical in dorsal view, and fringed with twenty or so yellowish hooked hairs on apical margin.

Female. Head with clypeal margin more strongly produced forwards, clypeus more strongly rugose. Protibiae with three external teeth stronger than in the male.

Type series. Holotype: ♂, Headquarter, 1,600 m, Mt. Kinabalu, Sabah State, Malaysia, 3. IV. 1995, T. KIKUTA leg. Paratypes: 1♂, the same data as for the holotype; 12♂♂, 19♀♀, ditto, 1,450 m, 2. II. 1995; 1♂, ditto, 1,600 m; 5♂♂, 2♀♀, ditto, 1,550 m, 4. IV. 1995; 2♂♂, 2♀♀, Liwagu near Headquarter, 1,400 m, Sabah State, Malaysia, 6. IV. 1995, T. KIKUTA leg.; 1♂, Tahuban, near Mt. Kinabalu, Sabah State, Malaysia, 19. IV. 1995, T. KIKUTA leg.

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

Distribution. Sabah State, Malaysia (Northern Borneo).

Etymology. The species name is dedicated to Dr. Tsutomu HIKIDA, Department of Zoology, Graduate School of Science, Kyoto University, Japan.

Notes. The present new species is closely related to the preceding species, but can be dis-

tinguished from the latter by the following characters: 1) body is clearly larger; 2) head is a little broader, whereas in *O liwagensis*, it is distinctly narrower; 3) elytral intervals are distinctly micro-granulose and covered with rather small punctures, whereas in *O. liwagensis*, they are distinctly shining and covered with strong but ill-defined punctures; 4) male genitalia are clearly larger and different in shape.

Onthophagus* (*Indachorius*) *yumotoi sp. nov.

(Figs. 3, 9)

Length: 5.1–5.8 mm; width: 3.0–3.1 mm (n=4)

Male. Body rather small, moderately convex; dorsal side weakly shining, a little sparsely clothed with erect, long, and yellowish hairs; ventral side shining, partly clothed similar hairs as those on dorsum. Colour black to brownish black; elytra brownish black to reddish black, each with three indefinite vague dark reddish to dark yellowish patches, the basal inner one extending from 2nd to 4th intervals, the basal outer one between 6th and 7th, and the lateral one between 7th and 8th at the middle, the basal inner patch distinct in female and indistinct in male; legs, mouth parts and palpi somewhat reddish; antennae with foot-stalks reddish brown, club segments yellowish brown.

Head a little widely parabolical in front than in the preceding species; clypeus well produced forwards, with clypeal margin distinctly bordered and slightly reflexed, apex rounded; genae a little produced laterad, gently rounded at the middle; clypeo-frontal suture distinctly carinate and well curved, the carina clearly longer than the preceding species; clypeo-genal sutures also carinate and conjointed with clypeo-frontal one far from margin, the carinae almost straight extending to the pair of pointed vertex tubercles which are a little widely separated than in *O. liwagensis*; surface distinctly to strongly micro-granulose though a little transversely wrinkled on clypeus, sparsely covered with strong and a little uneven setiferous punctures, which become denser and smaller towards apex. Eyes ordinary in size.

Pronotum simple, more strongly convex than in the preceding species, 1.45–1.47 times as wide as long (n=2), without a median longitudinal impression; anterior margin emarginate, finely bordered; lateral margins strongly produced outwards and rounded at the middle, nearly straight or weakly sinuate in front, not distinctly sinuate behind, finely bordered; anterior angles strongly and sharply produced forwards, with apex very slightly expanded laterad; posterior angles distinctly obtuse; basal margin rounded, finely bordered; surface weakly micro-granulose, densely and evenly covered with strong setiferous punctures, which become coarser and a little denser towards sides.

Elytra moderately convex, 1.14–1.18 times as wide as long (n=2), each with eight striae, of which one is along epipleural margin; each stria strongly impressed, with fine ridges on both sides, strial punctures sparse, small and weak, slightly notching both margins of intervals; 7th stria strongly curved near base; intervals weakly convex, shining, fairly uneven, strongly wrinkled, with suture bearing a single longitudinal row of rather small setiferous punctures, 2nd to 7th intervals bearing two or three irregular longitudinal rows of strong setiferous punctures, 8th bearing three or four irregular longitudinal rows of similar punctures; the wrinkles and punctures becoming stronger towards outer intervals.

Pygidium weakly convex, carinate at base, clearly shining, fairly densely and rugosely

covered with strong setiferous punctures. Prothorax with anterior angles clearly and somewhat shallowly excavated inwards on the ventral side, the excavation distinctly defined by a strong carina. Protibiae elongate, weakly curved near apex, with three sharp external teeth; 1st teeth a little longer than 2nd, 3rd small; the remaining external margin finely and regularly denticulate. Mesotibiae distinctly curved in lateral view. Metatibiae with basal segment elongate, very slightly longer than the remaining four ones combined.

Aedeagus a little slender. Phallobase about 1.2 mm (n=1) in length, 0.7 mm in apical width. Parameres about 1.1 mm (n=1) in length, strongly constricted at the middle; apices strongly produced laterad and slightly asymmetrical in dorsal view, the left paramere a little longer than the right one, and fringed with about twenty yellowish hooked hairs on apical margin.

Female. Head with clypeal margin more strongly produced forwards, clypeus more strongly rugose, clypeo-frontal suture more strongly carinate. Protibiae with three external teeth stronger than in the male.

Type series. Holotype: ♂, Headquarter, 1,800 m, Mt. Kinabalu, Sabah State, Malaysia, 12. II. 1995, T. KIKUTA leg. Paratypes: 1 ♂, the same data as the holotype; 1 ♀, ditto, 1,600 m, 3. IV. 1995; 1 ♀, Sayap, near Mt. Kinabalu, Sabah State, Malaysia, 11. V. 1995, T. KIKUTA leg.

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

Distribution. Sabah State, Malaysia (Northern Borneo).

Etymology. The species name is dedicated to Prof. Takakazu YUMOTO, the Research Institute of Humanity and Nature, Kyoto, Japan.

Notes. The present new species is closely related to *O.* (*Indachorius*) *hikidai* sp. nov., but can be distinguished from the latter by the following characters: 1) elytral intervals are shining, densely and rugosely covered with strong and coarse puntures, whereas in *O. hikidai*, they are clearly micro-granulose and sparsely covered with small punctures; 2) pygidium is fairly densely and rugosely covered with coarse punctures, whereas in *O. hikidai*, it is somewhat densely covered with a little smaller punctures; 3) parameres of male genitalia are a little asymmetrical in dorsal view, whereas in *O. hikidai*, they are almost symmetrical in dorsal view.

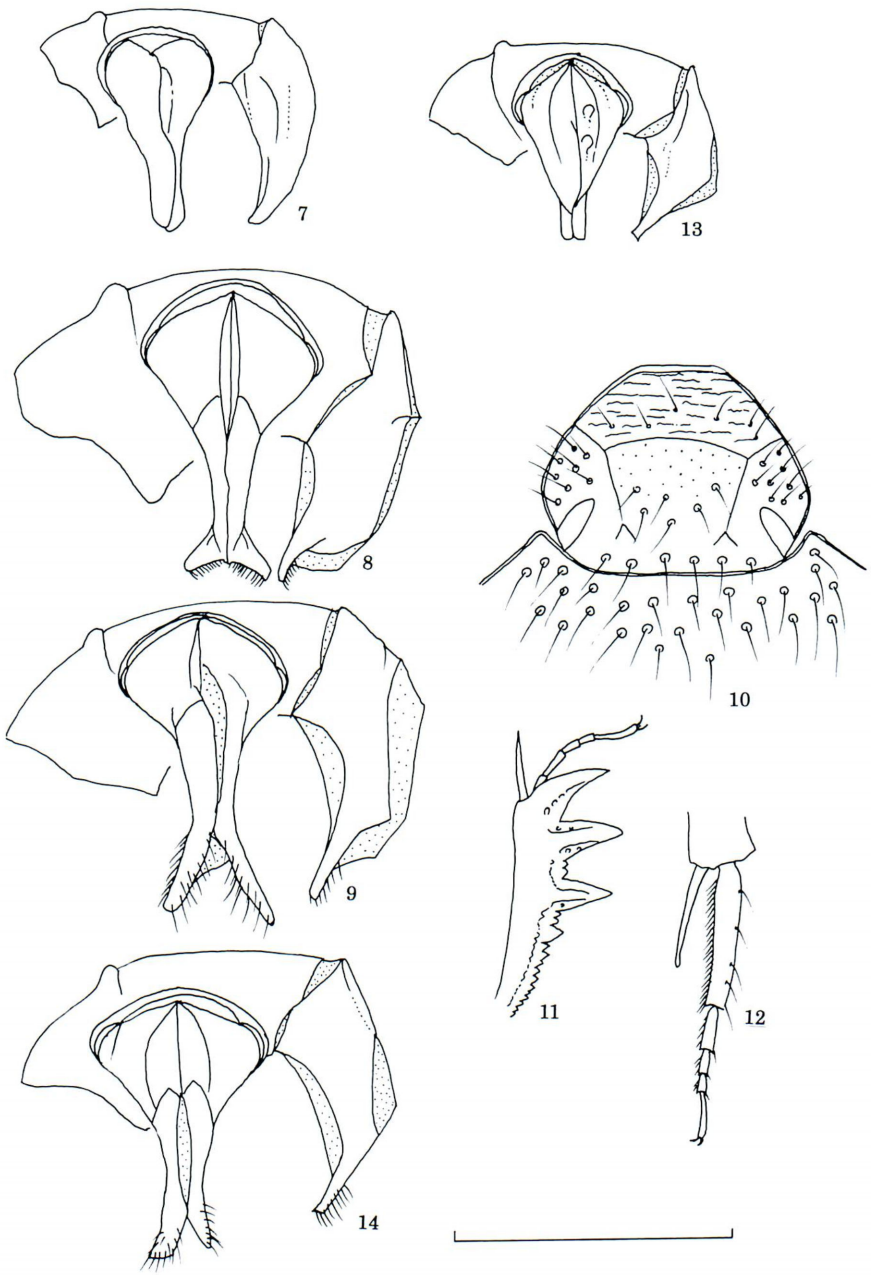
Onthophagus* (*Indachorius*) *cheyi sp. nov.

(Figs. 4, 10, 11, 12)

Length: 4.8–5.2 mm; width: 2.5–2.8 mm (n=3)

Female. Body rather small-sized, moderately convex; dorsal side shining to weakly shining, sparsely clothed with erect, long, and yellowish hairs; ventral side also shining, partly clothed with similar hairs as those on dorsum. Colour black, head and pronotum tinged with slight cupreous lustre; elytra black, each with one or two dark yellowish patches, the inner one extending from 2nd to 5th intervals at base which is entirely vanished in one specimen, and the outer one on 6th and 7th at base; legs, mouth parts and palpi somewhat reddish; antennae with foot-stalks reddish brown, club segments dirty yellowish brown.

Head subhexagonal; clypeus well produced forwards and subtrapezoidal in outline, with clypeal margin distinctly bordered and slightly reflexed, apex slightly truncate or gently rounded; genae relatively narrow, a little produced laterad, gently rounded at the middle; clypeo-



Figs. 7–14 *Onthophagus* (*Indachorius*) spp. —— 7, *O.* (*I.*) *liwagensis* sp. nov., aedeagus, dorsal and lateral views; 8, *O.* (*I.*) *hikidai* sp. nov., aedeagus, dorsal and lateral views; 9, *O.* (*I.*) *yumo*toi sp. nov., aedeagus, dorsal and lateral views; 10, *O.* (*I.*) *cheyi* sp. nov., female, head and anterior part of pronotum, dorsal view; 11, ditto, right protibia, dorsal view; 12, ditto, apical part of metatibia, dorsal view; 13, *O.* (*I.*) *uedai* sp. nov., aedeagus, dorsal and lateral views; 14, *O.* (*I.*) *woroae* sp. nov., aedeagus, dorsal and lateral views.

frontal suture distinctly carinate and feebly curved; clypeo-genal sutures also carinate and conjointed with clypeo-frontal one far from margin, and then the carinae becoming obsolete posteriad; vertex with a pair of slight tubercles; surface weakly micro-granulose though a little transversely wrinkled on clypeus, sparsely covered with strong and a little uneven setiferous punctures, which become denser and smaller towards apex. Eyes ordinary in size.

Pronotum simple, somewhat strongly convex, 1.35–1.44 times as wide as long (n=3), without a median longitudinal impression along midline; anterior margin emarginate, finely bordered; lateral margins strongly produced laterad and rounded at the middle, nearly straight or weakly sinuate in front, not distinctly sinuate behind, finely bordered; anterior angles well produced forwards, with apex rounded and very slightly expanded at outside; posterior angles distinctly obtuse; basal margin rounded, finely bordered; surface shining to very slightly micro-granulose, a little densely covered with strong setiferous punctures, which partly become shallower or annular.

Elytra moderately convex, 1.35–1.38 times as wide as long (n=3), each with eight striae, of which one is along epipleural margin; each stria strongly impressed, with fine ridges on both sides, strial punctures sparse, small but distinct, slightly notching both margins of intervals; 7th stria strongly curved near base; intervals weakly convex, shining, with suture bearing a single longitudinal row of small indefinite setiferous punctures, 2nd to 7th intervals bearing two or three irregular longitudinal rows of strong setiferous punctures, 8th bearing three or four irregular longitudinal rows of similar punctures.

Pygidium well convex, finely carinate at base, shining, densely covered with strong shallow setiferous punctures. Prothorax with anterior angles obviously and a little shallowly excavated inwards on the ventral side, the excavation distinctly defined by a strong carina. Protibiae rather robust, weakly curved, with four external teeth; 1st teeth a little shorter than the 2nd, 3rd a little small, 4th fairly small; the remaining external margin finely and regularly denticulate. Mesotibiae distinctly curved in lateral view. Metatibiae with basal segment elongate, slightly longer than the remaining four ones combined together.

Male. Unknown.

Type series. Holotype: ♀, Gomantong, near Sandakan, Sabah State, Malaysia, 21–23. II. 2005, A. KASHIZAKI leg. Paratypes: 1♀, the same data as the holotype; 1♀, Batu Tulug, near Sandakan, ditto, 22–23. II. 2005, A. KASHIZAKI leg.

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

Distribution. Sabah State, Malaysia (Northern Borneo).

Etymology. The specific name is dedicated to Dr. Chey Vun Khen, the chief of Entomology Section, Sandakan Forest Reserch Center.

Notes. The present new species is closely related to *O.* (*Indachorius*) *aereopictus* BOUCOMONT from the Philippines (Palawan, Luzon), but can be distinguished from the latter by the following characters: 1) frontal margin of clypeus is truncate or rounded, whereas in *O. aereopictus*, it is distinctly emarginate at the middle; 2) punctures on pronotum are a little sparser, stronger, and partly annular, whereas in *O. aereopictus*, they are denser, smaller, and not distinctly partly annular; 3) elytra are black, with one or two yellowish patches, whereas in *O. aereopictus*, they have four or five well developed yellowish patches.

Onthophagus* (*Indachorius*) *uedai sp. nov.

(Figs. 5, 13)

Length: 4.5–5.7 mm; width: 2.5–3.4 mm (n=4)

Male. Body rather small, moderately to strongly convex; dorsal side shining, a little sparsely clothed with long, erect and yellowish white hairs; ventral side shining, partly clothed with similar hairs as those on dorsum. Colour black, head and pronotum tinged with distinct dark greenish lustre; elytra uniformly black, with very slight greenish tinge; legs, mouth parts and palpi somewhat reddish; antennae with foot-stalks reddish brown, club segments yellowish brown.

Head subhexagonal; clypeus not strongly produced forwards, rather widely subtrapezoidal in outline, with clypeal margin distinctly bordered and slightly reflexed, apex rounded or briefly truncate; genae slightly produced laterad, gently rounded at the middle; clypeo-frontal suture distinctly carinate and well curved; clypeo-genal sutures also carinate and conjointed with clypeo-frontal one far from margin, the carinae extending almost straight to both sides of vertexal tranverse carina which is clearly shorter than the clypeo-frontal one; surface shining, sparsely covered with strong setiferous punctures, which become denser and smaller, though a little transversely wrinkled on clypeus. Eyes fairly large, interspace between them about 3.3 times as wide as the width of eye (n=1).

Pronotum simple, moderately convex, 1.43–1.50 times as wide as long (n=3), without a median longitudinal impression along midline; anterior margin emarginate, finely bordered; lateral margins strongly produced laterad and rounded at the middle, almost straight in front, not distinctly sinuate behind, finely bordered; anterior angles strongly produced forwards, with tip rather sharp, very slightly expanded laterad; posterior angles distinctly obtuse; basal margin rounded, finely bordered; surface shining, a little densely covered with strong setiferous punctures which become denser and stronger towards sides.

Elytra moderately convex, 1.25–1.28 times as wide as long (n=3), each with eight striae, of which one is along epipleural margin; each stria strongly impressed, with fine ridges on both sides throughout, strial punctures sparse, small, and slightly notching both margins of intervals; 7th stria strongly curved near base; intervals weakly convex, shining, with suture bearing a single longitudinal row of small asperate setiferous punctures, 2nd to 7th intervals bearing two or three irregular longitudinal rows of small asperate setiferous punctures, 8th bearing three or four irregular longitudinal rows of similar punctures.

Pygidium slightly convex, finely carinate at base, obviously shining, a little sparsely covered with strong annular setiferous punctures. Prothorax with anterior angles clearly and somewhat shallowly excavated inwards on the ventral side, the excavation distinctly defined by a strong carina. Protibiae somewhat elongate, weakly curved near apex, with four sharp external teeth; 1st and 2nd teeth almost the same in length, 3rd a little smaller, 4th very small; the remaining external margin finely and regularly denticulate. Mesotibiae distinctly curved in lateral view. Metatibiae with basal segment fairly elongate, a little longer than the remaining four ones combined.

Aedeagus slender. Phallobase about 0.8 mm (n=1) in length, 0.4 mm in apical width. Parameres about 0.6 mm (n=1) in length, gradually constricted towards apices in dorsal view; apices almost parallel, not produced laterad, and almost symmetrical in dorsal view.

Female. Head with clypeal margin more strongly produced forwards, clypeus more

strongly rugose; clypeo-frontal suture more strongly catrinate; surface more strongly punctate. Pronotum more strongly convex than in male. Protibiae with four external teeth stronger than in the male.

Type series. Holotype: ♂, Sungai Wain, near Balikpapan, E. Kalimantan, Indonesia, 3. I. 2006, A. UEDA leg. Paratypes: 2♂♂, 1♀, the same data as the holotype.

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

Distribution. East Kalimantan, Indonesia (Southern Borneo).

Etymology. The species name is dedicated to Dr. Akira UEDA, Hokkaido Research Center, Forestry and Forest Products Research Institute, Japan.

Notes. The present new species is somewhat similar to *O.* (*Indachorius*) *trochilus* ARROW from Myanmar, but can be easily distinguished from the latter by the following characters: 1) eyes are fairly large, and the interspace between them about 3.3 times as wide as the width of eye (n=1), whereas in *O. trochilus*, they are ordinary in size; 2) head arms with a straight transverse carina on vertex which is not strongly raised, whereas in *O. trochilus*, it is very strongly rased on vertex; 3) elytral intervals are asperately punctate instead of being simply punctate; 4) 7th striae on elytra are distinctly curved near base, whereas in *O. trochilus*, they are almost parallel to the 6th striae.

Onthophagus (***Indachorius***) ***woroae*** sp. nov.

(Figs. 6, 14)

Length: 4.4–6.0 mm; width: 2.4–3.3 mm (n=7).

Male. Body moderate-sized, a little convex above; dorsal side weakly shining, a little sparsely clothed with erect, fairly long, and yellowish white hairs; ventral side shining, partly clothed with similar hairs as those on dorsum. Colour black, head and pronotum tinged with weak cupreous to greenish lustre; elytra black, each with a yellowish brown transverse band extending from 2nd to 7th intervals at base; legs, mouth parts and palpi somewhat reddish; antennae with foot-stalks reddish brown, club segments dark yellowish brown.

Head parabolic in front; clypeus well produced forwards, with clypeal margin distinctly bordered and slightly reflexed, apex rounded; genae a little produced laterad, gently rounded at the middle; clypeo-frontal suture distinctly and sharply carinate and well curved; clypeo-genal sutures also carinate and conjointed with clypeo-frontal one far from margin, and then the carinae becoming obsolete though the sutures are distinct; vertex with a pair of slight obtuse swelling; surface weakly micro-granulose, fairly sparsely covered with strong setiferous punctures, the punctures becoming finer and slightly wrinkled on clypeus near margin.

Pronotum simple, moderately convex, 1.36–1.40 times as wide as long (n=2), without a median longitudinal impression along midline; anterior margin emarginate, finely bordered; lateral margins strongly produced laterad and rounded at the middle, almost straight or feebly sinuate in front, weakly sinuate behind, finely bordered; anterior angles strongly produced forwards, rounded at tip, very slightly expanded at outside; posterior angles distinctly obtuse; basal margin rounded, finely bordered; surface weakly shining and slightly micro-granulose, a little densely covered with strong setiferous punctures, which become denser and stronger towards sides.

Elytra moderately convex, 1.28–1.29 times as wide as long (n=2), each with eight striae, of which one is along epipleural margin; each stria strongly and a little widely impressed, with fine ridges on both sides, strial punctures sparse, small, and slightly invading both margins of intervals; 7th stria strongly curved near base; intervals a little convex, somewhat shining, with suture bearing a single longitudinal row of small asperate setiferous punctures, 2nd to 7th intervals bearing two or three irregular longitudinal rows of small asperate setiferous punctures, 8th bearing three or four irregular longitudinal rows of similar punctures, the punctures partly becoming slightly asperate.

Pygidium weakly convex, finely carinate at base, shining, a little sparsely covered with strong annular setiferous punctures. Prothorax with anterior angles clearly and somewhat shallowly excavated inwards on the ventral side, the excavation distinctly defined by a strong carina. Protibiae a little elongate, weakly curved near apex, with four sharp external teeth; 1st and 2nd teeth almost the same in length, 3rd a little smaller, 4th very small; the remaining external margin finely and regularly denticulate. Mesotibiae distinctly curved in lateral view. Metatibiae with basal segment fairly elongate, a little longer than the remaining four ones combined.

Aedeagus a little slender. Phallobase about 1.2 mm (n=1) in length, 0.6 mm in apical width. Parameres about 0.9 mm (n=1) in length, strongly constricted at the middle; apices strongly produced laterad and slightly asymmetrical in dorsal view, the right paramere a little longer than the left one, and fringed with about twenty yellowish hooked hairs on apical margin.

Female. Head with clypeal margin more strongly produced forwards, clypeus more strongly rugose, clypeo-frontal suture more strongly catrinate and less curved, vertex with a pair of small tubercles, surface more strongly punctate. Protibiae with four external teeth stronger than in the male.

Type series. Holotype: ♂, Sungai Wain, near Balikpapan, E. Kalimantan, Indonesia, 3. I. 2006, A. UEDA leg. Paratypes: 2♂♂, 4♀♀, the same data as the holotype.

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

Distribution. East Kalimantan, Indonesia (Southern Borneo).

Etymology. The species name is dedicated to Dr. Woro Anggraitoningsih NOERDJITO, Division of Zoology, Research Center for Biology, LIPI, Indonesia.

Notes. The present new species is closely related to *O.* (*Indachorius*) *aereopictus* BOUCOMONT from the Philippines (Palawan, Luzon), but can be distinguished from the latter by the following characters: 1) elytron has a yellowish transverse band only at base, whereas in *O. aereopictus*, it has four large yellowish patches; 2) clypeal margin is rounded instead of being emarginate at apex; 3) head is fairly sparsely covered with strong setiferous punctures, whereas in *O. aereopictus*, it is rather sparsely to closely covered with strong setiferous punctures; 4) head and pronotum are weakly but distinctly micro-granulose, whereas in *O. aereopictus*, they are clearly shining; 5) in the female, head has no tubercles on frons, whereas in *O. aereopictus*, it has a pair of distinct tubercles on frons.

Acknowledgments

We wish to express our cordial thanks to Toru KIKUTA, Akira KASHIZAKI and Akira UEDA for giving us the opportunities to examine invaluable specimens. This study was supported in

part by a Grant-in-Aid from the Japan Society for the Promotion of Science (No. 17405011).

要　　約

越智 輝雄・近　雅博：東南アジア産コガネムシ科甲虫（第12報）．ボルネオ産エンマコガネ属の６新種．——— ボルネオ産コガネムシ科甲虫として，ヤンバルエンマコガネ亜属の６新種，*Onthophagus* (*Indachorius*) *liwagensis* sp. nov., *O.* (*I.*) *hikidai* sp. nov., *O.* (*I.*) *yumotoi* sp. nov., *O.* (*I.*) *cheyi* sp. nov., *O.* (*I.*) *uedai* sp. nov., *O.* (*I.*) *woroae* sp. nov. を記載した．

References

BALTHASAR, V., 1963. Monographie der Scarabaeidae und Aphodiidae der palaearktischen und orientalische Region, Coleoptera: Lamellicornia, Band 2. 628 pp. Tschechoslowakischen Akademie der Wissenschaften, Prag.

OCHI, T. 1992. A new scarabaeid species of the genus *Onthophagus* from Borneo (Coleoptera, Scarabaeidae). *The Entomological Review of Japan, Osaka*, **47**: 1–4

(Received October 11, 2006; Accepted October 21, 2006)

Ent. Rev. Japan, **61** (2): 181–194, December 21, 2006

Notes on the Coprophagous Scarab-beetles (Coleoptera: Scarabaeidae) from Southeast Asia (XIII). Seven New Species of *Onthophagus* (*Onthophagus*) from Borneo

Teruo OCHI
Kohudai 5–21–6, Toyono-cho, Toyono-gun, Osaka, 563–0104 Japan

and

Masahiro KON
School of Environmental Science, The University of Shiga Prefecture,
Hassaka-chô 2500, Hikone, Shiga, 522–8533 Japan

Abstract Seven new species of *Onthophagus* (*Onthophagus*) are described from Borneo under the names of *O.* (*O.*) *sepilokensis* sp. nov., *O.* (*O.*) *semipacificus* sp. nov., *O.* (*O.*) *megapacificus* sp. nov., *O.* (*O.*) *otai* sp. nov., *O.* (*O.*) *matsuii* sp. nov., *O.* (*O.*) *azusae* sp. nov., and *O.* (*O.*) *simboroni* sp. nov.

Recently, we have been studying the taxonomy of *Onthophagus* (*Onthophagus*) from Borneo (OCHI and KON, 2005, 2006). Additionally, in the present paper, we describe seven new species of *Onthophagus* (*Onthophagus*) from Borneo.

Onthophagus (*Onthophagus*) *sepilokensis* sp. nov.

(Figs. 1, 8)

Length: 5.0–7.2 mm: width: 2.6–3.8 mm (n=86).

Male. Body moderate-sized, oval, fairly strongly convex above; dorsal side strongly shining, entirely glabrous; pygidium almost glabrous except for sparsely setiferous lateral narrow portions; ventral side also shining, partly clothed with yellowish brown hairs. Colour uniformly black, without metallic lustre; abdomen with 3rd, 4th, and 5th sternites bearing a pair of reddish brown patches on each side, 6th sternite wholly pale reddish-brown; legs more or less reddish; mouth parts and palpi reddish brown; antennae with foot-stalks reddish brown, club segments yellowish brown, sometimes a little darkened.

Head distinctly transverse, with anterior margin widely semicircular; clypeus rather broadly bordered and slightly reflexed; genae strongly produced laterad, obtusely angulate at the middle; clypeo-frontal suture weakly carinate, well curved, but not raised; clypeo-genal sutures finely carinate, conjointed with clypeo-frontal one far from margins; frons with a strongly raised transverse carina which is almost straight, situated at or a little before the level of eyes; surface shining except for weakly micro-granulose vertex, transversely and slightly wrinkled on

clypeus, a little densely covered with indefinite small punctures, the punctures becoming denser and coarser towards genae.

Pronotum almost simple, fairly strongly convex, 1.37-1.41 times as wide as long (n=3), with a very weak longitudinal impression along midline in basal half; anterior margin emarginate, broadly bordered; lateral margins gently rounded in front, clearly sinuate behind, finely bordered; anterior angles a little produced forwards, rectangular, and rounded at tip; posterior angles obtuse; basal margin obtusely angulate at the middle, almost unbordered; disc slightly and transversely depressed behind anterior margin; surface shining, sparsely and finely punctate, the punctures becoming denser and coarser towards sides.

Elytra strongly convex, 1.36–1.40 times as wide as long (n=3), each with eight striae, of which one is along epipleural margin; striae rather widely and distinctly impressed, finely ridged on both sides throughout; strial punctures distinct, transverse, a little sparse, clearly notching both margins of intervals; 7th stria not curved but almost parallel to 6th near base; intervals weakly convex, shining, sparsely and finely punctate.

Pygidium well convex, carinate at base, shining, a little sparsely and evenly covered with rather small and strong punctures except for narrowly impunctate median longitudinal portion. Protibiae somewhat stout, with four external teeth; terminal spurs sharp, clearly decurved near each apex. Meso- and metatibiae fairly short and stout.

Aedeagus rather elongate. Phallobase about 1.3–1.4 mm in length (n=3), about 0.5–0.6 mm in apical width (n=3). Parameres about 0.7–0.8 mm in length (n=3), gradually narrowing towards apices in dorsal view, with each apex a little expanded laterad as a quadrate lateral lobe in dorsal view.

Female. Head with anterior margin slightly truncate at the middle; clypeo-frontal suture more strongly carinate; frons with a transverse carina which is mostly slightly post-curved and situated a little behind than in male; surface more strongly punctate, with transverse wrinkles on clypeus stronger and denser. Protibiae with four external teeth stronger than in male, with terminal spurs longer and more elongate.

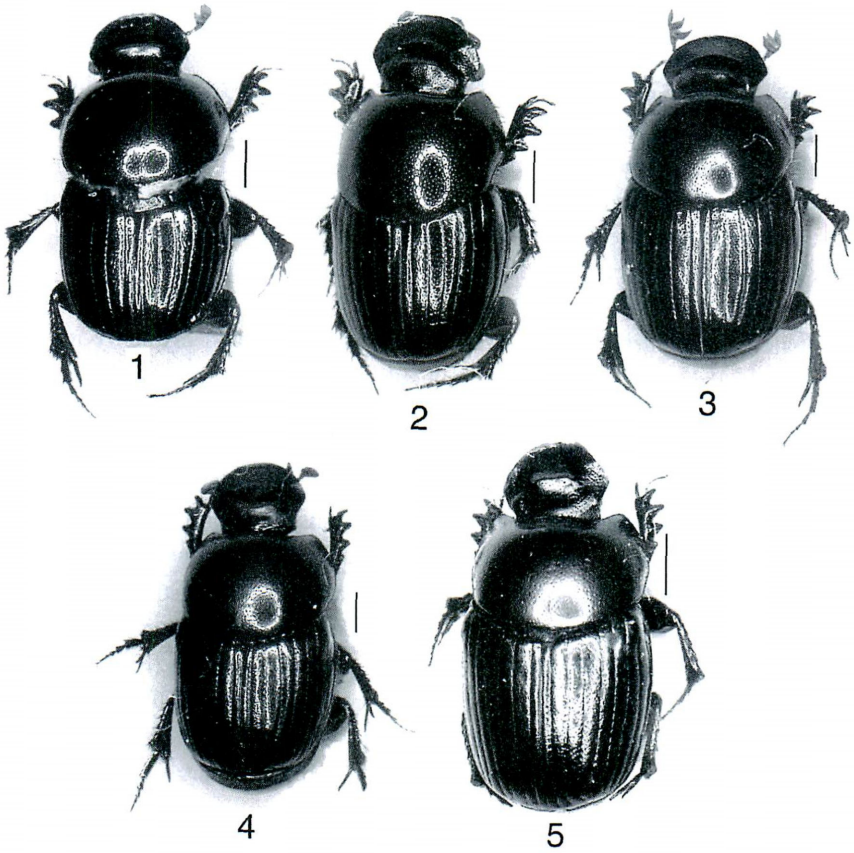
Type series. Holotype: ♂, Sepilok, Sabah State, Malaysia, 7. VIII. 1987, M. KON leg. Paratypes: 12♂♂, 14♀♀, the same data as the holotype; 5♂♂, 8♀♀, ditto, 8. VIII. 1987; 8♂♂, 6♀♀, ditto, 1. VIII. 1986; 11♂♂, 13♀♀, ditto, 4. VIII. 1986; 1♂, ditto, 15. I. 1985; 3♂♂, 4♀♀, ditto, 6. VIII. 1987.

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

Distribution. Sabah State, Malaysia (Northern Borneo).

Etymology. This species is named after the place, Sepilok, near Sandakan.

Notes. The present new species is closely related to *O.* (*Onthophagus*) *pacificus* LANSBERGE described from Java, but can be distinguished from the latter by the following characters: 1) frons bears a strong transverse carina situated at the level of eyes, whereas in *O. pacificus*, the carina is situated in the middle between eyes; 2) genae are obtusely angulate at the middle, whereas in *O. pacificus*, they are obtusely angulate a little before the middle; 3) in the male, head is covered a little sparsely with indefinite small punctures, whereas in *O. pacificus*, it is densely covered with distinct strong punctures; 4) in the male genitalia, parameres are distinctly shorter and lateral lobes differently shaped in dorsal view.



Figs. 1–5. *Onthophagus* (*Onthophagus*) spp., males, habitus, dorsal views. —— 1, *O.* (*O.*) *sepilokensis* sp. nov.; 2, *O.* (*O.*) *semipacificus* sp. nov.; 3, *O.* (*O.*) *megapagificus* sp. nov.; 4, *O.* (*O.*) *otai* sp. nov.; 5, *O.* (*O.*) *matsuii* sp. nov. All scales 1 mm.

Onthophagus* (*Onthophagus*) *semipacificus sp. nov.

(Figs. 2, 9)

Length: 5.3–7.0 mm: width: 2.8–3.6 mm (n=46).

Male. Body moderate-sized, oval, strongly convex; dorsal side strongly shining, entirely glabrous; pygidium almost glabrous except for sparsely setiferous lateral narrow portions; ventral side partly clothed with reddish brown hairs. Colour uniformly black, without metallic lustre; abdomen with 3rd, 4th, and 5th sternites bearing a pair of reddish brown patches on each side, 6th sternite wholly pale reddish-brown; legs more or less reddish; mouth parts and palpi reddish brown; antennae with foot-stalks reddish brown, club segments yellowish brown, sometimes a little darkened.

Head a little wider than the preceding species, with anterior margin broadly semicircular; genae clearly wide, fairly strongly produced laterad, with genal corners obtusely angulate at the middle; clypeo-frontal suture distinctly carinate, the carina distinctly procurved; clypeo-genal sutures finely carinate; vertex with a strongly raised transverse carina which is straight, and situ-

ated at or a little behind the level of eyes; surface rather shining, weakly wrinkled on clypeus, and a little densely covered with small punctures, the punctures becoming finer towards apex.

Pronotum strongly convex, 1.32–1.33 times as wide as long (n=3), without a median longitudinal impression along median line; anterior margin emarginate, broadly bordered; lateral margins gently and evenly rounded in front, clearly sinuate behind, and finely bordered; anterior angles a little produced forwards, rectangular, more broadly rounded at tip than in the preceding species; base obtusely angulate at the middle, almost unbordered; surface shining, sparsely and a little finely puncate, the punctures becoming denser and coarser towards sides.

Elytra strongly convex, 1.40–1.42 times as wide as long (n=3), each with eight striae, of which one is along epipleural margin; striae somewhat widely and distinctly impressed, with fine ridges on both sides throughout; strial punctures distinct, transverse, slightly sparse, distinctly notching both margins of intervals; 7th stria well curved at the middle, and almost parallel to 6th near base; intervals almost flat, shining, sparsely and finely punctate.

Pygidium fairly transverse, carinate at base, slightly convex, shining, a little densely covered with coarse punctures which are partly becoming transverse. Protibiae distinctly broad and stout, curved near apices, each with four strong external teeth, the 1st tooth well curved, the 2nd almost the same as the 1st, the 3rd short though fairly broad, the 4th small; terminal spurs not so sharp, weakly decurved near each apex. Meso- and metatibiae clearly short and stout.

Aedeagus rather elongate. Phallobase about 1.0–1.1 mm in length (n=3), about 0.5 mm in apical width (n=3). Parameres about 0.6 mm in length (n=3), gradually narrowing towards apices in dorsal view, with each apex simple, lateral lobes not well visible in dorsal view.

Female. Head more transverse than in male, with anterior margin a little truncate at the middle; surface more strongly punctate, with transverse wrinkles on clypeus stronger and denser. Protibiae with four external teeth stronger than in male, with terminal spurs longer and more elongate, often a little curved near base.

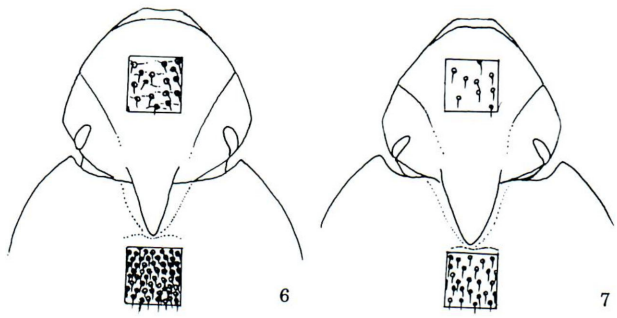
Type series. Holotype: ♂, Mt. Bawang, Kalimantan, Indonesia, VIII. 1990. Paratypes: 18 ♂♂, 21 ♀♀, the same data as the holotype; 4 ♂♂, 2 ♀♀, ditto, VIII. 1991.

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

Distribution. E. Kalimantan, Indonesia (Southern Borneo).

Etymology. The specific name means that the present new species is similar to *Onthophagus* (*Onthophagus*) *pacificus* LANSBERGE.

Notes. The present new species is also closely related to *O.* (*Onthophagus*) *pacificus* LANSBERGE described from Java, but can be distinguished from the latter by the following characters: 1) clypeo-frontal carina of head is situated a little behind the middle between apex and vertexal carina, whereas in *O. pacificus*, it is situated at the middle between apex and vertexal carina; 2) genae are obtusely angulate at the middle, whereas in *O. pacificus*, they are obtusely angulate a little before the middle; 3) clypeus is more transverse and broadly truncate at apex, whereas in *O. pacificus*, it is less transverse and a little narrowly truncate at apex; 4) in the male genitalia, parameres are obviously shorter in dorsal and lateral views.



Figs. 6–7. *Onthophagus* (*Onthophagus*) spp.—— 6, *O.* (*O.*) *azusae* sp. nov., male, head and anterior part of pronotum, dorsal view; 7, *O.* (*O.*) *simboroni* sp. nov., male, head and anterior part of pronotum, dorsal view. Scale 1 mm.

Onthophaguis* (*Onthophagus*) *megapacificus sp. nov.

(Figs. 3, 10)

Length: 7.0–8.8 mm: width: 3.8–4.9 mm (n=157).

Male. Body moderate-sized, oval, fairly strongly convex; dorsal side strongly shining, entirely glabrous; pygidium almost glabrous except for sparsely setiferous lateral narrow portions; ventral side partly clothed with reddish brown hairs. Colour uniformly black, without metallic lustre; abdomen with 3rd, 4th, and 5th sternites bearing a pair of vague reddish brown patches on each side, 6th sternite wholly or partly pale reddish-brown; legs more or less reddish; mouth parts and palpi reddish brown; antennae with foot-stalks reddish brown, club segments pale yellowish brown, often darkened.

Head distinctly transverse, with anterior margin broadly semicircular; genae wide, fairly strongly produced laterad, with genal corners obtusely angulate at the middle; clypeo-frontal suture strongly carinate, the carina well raised at the middle, and distinctly procurved; clypeo-genal sutures finely carinate; vertex with a strongly raised transverse carina which is straight, a little shorter than the clypeo-frontal one, and situated a little behind the level of eyes; surface almost shining except for weakly micro-granulose vertex, clearly transversely wrinkled on clypeus, and a little densely covered with strong punctures which become coarser and denser towards genae.

Pronotum strongly and evenly convex, 1.33–1.45 times as wide as long (n=3), with a very weak median longitudinal impression along median line in basal 2/3; anterior margin emarginate, broadly bordered; lateral margins gently and almost evenly rounded in front, weakly sinuate behind, and finely bordered; anterior angles a little produced forwards, rectangular, rounded at tip; base obtusely angulate at the middle, without a distinct marginal line; surface shining though slightly micro-granulose, sparsely and a little finely puncate, the punctures becoming denser and coarser towards sides.

Elytra strongly convex above, 1.24–1.28 times as wide as long (n=3), each with eight striae, of which one is along epipleural margin; striae a little widely and distinctly impressed, finely ridged on both sides throughout; strial punctures distinct, transverse, slightly sparse, weakly notching at both margins of intervals; 7th stria well curved at the middle, and almost parallel to

6th near base; intervals slightly convex, shining, sparsely and finely punctate.

Pygidium well convex, carinate at base, weakly micro-granulose, a little sparsely covered with coarse transverse punctures. Protibiae rather stout, well curved, each with four strong external teeth; terminal spurs spatulate in lateral view, weakly decurved near each apex. Meso- and metatibiae fairly short and stout.

Aedeagus rather elongate. Phallobase about 2.1–2.2 mm in length (n=3), about 0.8–0.9 mm in apical width (n=3). Parameres about 1.1–1.2 mm in length (n=3), a little gently narrowing towards apices in dorsal view, with each apex bearing a slight lateral lobe in dorsal view.

Female. Head with clypeus more strongly produced forwards, and distinctly longer than in male, apical margin sometimes a little truncate at the middle; surface more strongly punctate, with transverse wrinkles on clypeus stronger and denser. Protibiae with four external teeth stronger than in male, with terminal spurs longer, and more pointed at tip.

Type series. Holotype: ♂, Headquarter, 1,500 m, Mt. Kinabalu, Sabah, Malaysia, 3. III. 1995, T. KIKUTA leg. Paratypes: 31♂♂, 24♀♀, the same data as the holotype, 1,600 m, 3. IV. 1995; 7♂♂, 8♀♀, ditto, 1,700 m; 8♂♂, 6♀♀, ditto, 2. V. 1995; 3♂♂, 4♀♀, ditto, 12. X. 1997; 6♂♂, 5♀♀, Bukit Ular, Mt. Kinabalu, Sabah State, Malaysia, 23. XII. 1998, T. KIKUTA leg; 11♂♂, 10♀♀, Liwagu, near Mt. Kinabalu, Sabah State, Malaysia, 30. X. 1998, T. KIKUTA leg; 15♂♂, 18♀♀, Tahubang, Sabah State, Malaysia, 1995, T. KIKUTA leg.

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

Distribution. Sabah State, Malaysia (Northern Borneo).

Etymology. The specific name means that the present new species is similar to *Onthophagus* (*Onthophagus*) *pacificus* LANSBERGE and much larger.

Notes. The present new species is somewhat closely related to *O.* (*Onthophagus*) *pacificus* LANSBERGE described from Java, but can be distinguished from the latter by the following characters: 1) body is clearly larger; 2) genae are obtusely angulate at the middle, whereas in *O. pacificus*, they are obtusely angulate a little before the middle; 3) pronotum is weakly shining and slightly micro-granulose in the middle, whereas in *O. pacificus*, it is usually strongly shining in the middle; 4) in the male genitalia, parameres are clearly larger and differently shaped in lateral view.

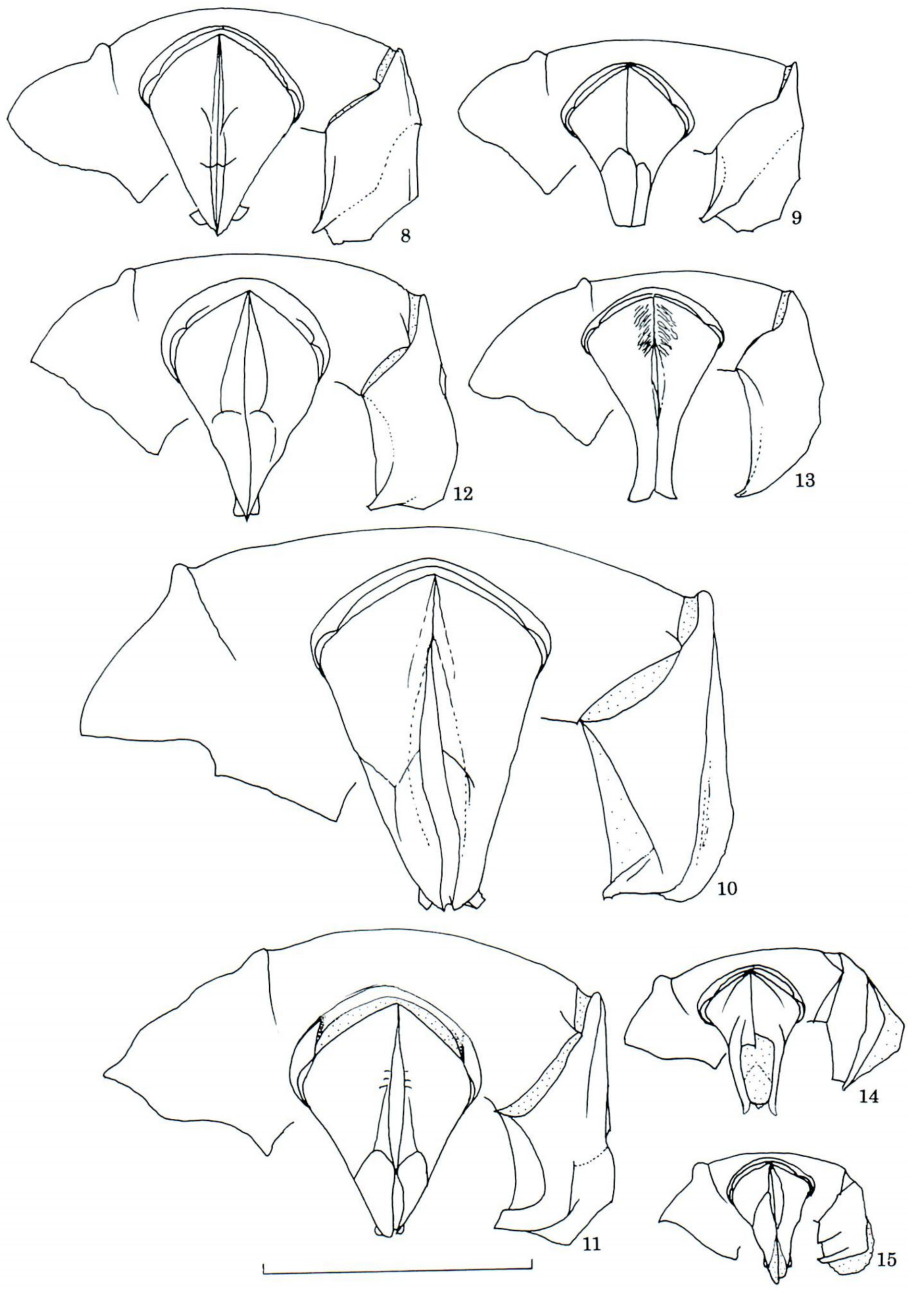
Onthophagus* (*Onthophagus*) *otai sp. nov.

(Figs. 4, 11)

Length: 6.7–8.5 mm; width: 3.6–4.4 mm (n=40).

Male. Body a little large-sized, oval, strongly convex above; dorsal side strongly shining, entirely glabrous; pygidium almost glabrous except for sparsely setiferous lateral narrow portions; ventral side partly clothed with reddish brown hairs. Colour uniformly black, without metallic lustre; abdomen with 3rd, 4th, and 5th sternites bearing a pair of vague reddish brown patches on each side, 6th sternite wholly or partly pale reddish-brown; legs dark reddish brown; mouth parts and palpi reddish brown; antennae with foot-stalks reddish brown, club segments pale yellowish brown, often darkened.

Head relatively smaller than that of *O. pacificus*, distinctly transverse, with anterior margin broadly semicircular; genae wide, fairly strongly produced laterad, with genal corners



Figs. 8–15. *Onthophagus* (*Onthophagus*) spp., aedeagus, dorsal and lateral views. —— 8, *O.* (*O.*) *sepilokensis* sp. nov.; 9, *O.* (*O.*) *semipacificus* sp. nov.; 10, *O.* (*O.*) *megapagificus* sp. nov.; 11, *O.* (*O.*) *otai* sp. nov.; 12, *O.* (*O.*) *pacificus* LANSBERGE; 13, *O.* (*O.*) *matsuii* sp. nov.; 14, *O.* (*O.*) *azusae* sp. nov.; 15, *O.* (*O.*) *simboroni* sp. nov. Scale 1 mm.

obtusely angulate at the middle; clypeo-frontal suture strongly carinate, the carina well raised at the middle, and distinctly procurved; clypeo-genal sutures finely carinate; vertex with a strongly raised transverse carina which is straight, a little shorter than the clypeo-frontal one, and situated a little behind the level of eyes; surface almost shining except for weakly micro-granulose vertex, clearly transversely wrinkled on clypeus, and a little densely covered with strong punctures, which become coarser and denser towards genae.

Pronotum not so convex, 1.37–1.45 times as wide as long (n=3), with a very weak median longitudinal impression along median line in basal half; anterior margin emarginate, broadly bordered; lateral margins gently rounded in front, distinctly sinuate behind, and finely bordered; anterior angles a little produced anteriad, rectangular, rounded at tip; base obtusely angulate at the middle, without a distinct marginal line; surface weakly shining and slightly micro-granulose, sparsely and a little finely puncate, the punctures becoming denser and coarser towards sides.

Elytra strongly convex above, 1.25–1.33 times as wide as long (n=3), each with eight striae of which one is along epipleural margin; striae somewhat widely and distinctly impressed, finely ridged on both sides throughout; strial punctures distinct, transverse, slightly sparse, weakly notching both margins of intervals; 7th stria well curved at the middle, and almost parallel to 6th near base; intervals a little convex, shining, sparsely and finely punctate.

Pygidium well convex, carinate at base, weakly micro-granulose, a little sparsely covered with coarse transverse shallow punctures. Protibiae stout, well curved, each with four strong external teeth; terminal spurs a little spatulate in lateral view, weakly decurved near each apex, not so strongly pointed. Meso- and metatibiae fairly short and stout.

Aedeagus rather elongate. Phallobase about 1.9–2.1 mm in length (n=3), about 0.7 mm in apical width (n=3). Parameres about 0.8–0.9 mm in length (n=3), gradually narrowing towards apices in dorsal view, with each apex bearing a small lateral lobe in dorsal view.

Female. Head with apical margin briefly truncate at the middle; surface more strongly punctate, with transverse wrinkles on clypeus stronger and denser. Protibiae with four external teeth stronger than in male, and with terminal spurs longer, and more distinctly decurved near apices.

Type series. Holotype: ♂, Sayap, 1,100 m, Mt. Kinabalu, Sabah State, Malaysia, 25. III. 1995, T. KIKUTA leg. Paratypes: 12♂♂, 14♀♀, the same data as the holotype; 5♂♂, 8♀♀, ditto, 12. V. 1995.

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

Distribution. Sabah State, Malaysia (Northern Borneo).

Etymology. The species name is dedicated to Prof. Hidetoshi OTA, Tropical Biosphere Research Center, University of the Ryukyus, Japan.

Notes. The present new species is closely related to *Onthophagus* (*Onthophagus*) *pacificus* LANSBERGE described from Java, but can be distinguished from the latter by the following characters: 1) body is clearly larger; 2) head is relatively smaller; 3) genae are obtusely angulate at the middle, whereas in *O. pacificus*, they are angulate a little before the middle; 4) clypeus is more strongly produced forwards; 5) pronotum is not so strongly convex, whereas in *O. pacificus*, it is strongly and evenly convex; 6) terminal spurs of protibiae are slightly longer, not strongly decurved near apex, and not so pointed; 7) in the male genitalia, the phallobase and the parameres are clearly larger, and the latter are quite different in shape in lateral view.

Onthophagus* (*Onthophagus*) *matsuii sp. nov.

(Figs. 5, 13)

Length: 5.7–6.3 mm; width: 3.0–3.5 mm (n=21).

Male. Body moderate-sized, oval, strongly convex; dorsal side a little shining, entirely glabrous; pygidium glabrous; ventral side partly clothed with reddish brown hairs. Colour uniformly black, without metallic lustre; abdomen with 6th sternite a little reddish; legs somewhat reddish brown, often darkened; mouth parts and palpi reddish brown; antennae with foot-stalks reddish brown, club segments pale yellowish brown.

Head distinctly transverse and clearly small, with anterior margin subtrapezoidal in outline; genae wide, strongly produced laterad, with genal corners obtusely angulate at the middle; clypeo-frontal suture strongly carinate and well raised, the carina weakly procurved or almost straight; clypeo-genal sutures finely defined, not carinate; vertex with a transverse carina which is clearly shorter and lower than the clypeo-frontal one, a little post-curved, and situated a little behind the level of eyes; surface weakly shining or slightly micro-granulose, with vertex and genae rather densely covered with shallow and a little small punctures, clypeus finely punctate in the middle, weakly wrinkled along clypeal margin. Eyes relatively large, the interspace between them about 4.3–4.4 times as the width of eye.

Pronotum strongly convex, 1.46–1.50 times as wide as long (n=3), with a very weak median longitudinal impression along median line in basal half; anterior margin emarginate, rather broadly bordered; lateral margins gently rounded at the middle, almost straight in front, not distinctly sinuate behind, and finely bordered; anterior angles a little produced forwards, rectangular, rounded at tip; base obtusely angulate at the middle, with a fine marginal line throughout; disc steeply declivous in anterior 1/4, with the declivity strongly depressed; in smaller males, the declivity becoming very weak and almost simple; surface weakly shining and slightly micro-granulose, sparsely to rather sparsely covered with fine to small punctures, which become denser and coarser towards sides.

Elytra strongly convex above, 1.20–1.21 times as wide as long (n=3), each with eight striae of which one is along epipleural margin; striae a little widely and distinctly impressed, finely ridged on both sides throughout; strial punctures weak, sparse, and very weakly notching both margins of intervals; 7th stria almost parallel to 6th, slightly curved near base; intervals almost flat or slightly convex, weakly shining and slightly micro-granulose, sparsely and finely punctate.

Pygidium weakly convex, carinate at base, distinctly transverse, clearly shining, a little sparsely covered with rather strong punctures. Protibiae somewhat elongate, well curved, each with four strong external teeth; terminal spurs weakly decurved near each apex, and pointed apically. Meso- and metatibiae rather short and stout.

Aedeagus rather elongate. Phallobase about 1.1–1.2 mm in length (n=2), about 0.5 mm in apical width (n=2). Parameres about 0.7–0.8 mm in length (n=2), distinctly narrowing towards apices, with each apex slightly and sharply produced laterad in dorsal view.

Female. Head with apical margin more briefly truncate at the middle; clypeus with a transverse carina a little before the clypeo-frontal carina, which is very slightly longer and lower than the clypeo-frontal one; vertexal transverse carina weaker and often obtuse; surface more strongly punctate, with transverse wrinkles on clypeus stronger and denser. Pronotum with anterior declivity smaller. Protibiae with four external teeth stronger than in male, with terminal spurs a

little slenderer.

Type series. Holotype: ♂, Head Quarter, Mt. Kinabalu, Sabah Sate, Malaysia, 2. II. 1995, T. KIKUTA leg. Paratypes: 11 ♂♂, 9 ♀♀, the same data as the holotype.

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

Distribution. Sabah State, Malaysia (Northern Borneo).

Etymology. The species name is dedicated to Prof. Masafumi MATSUI, Graduate School of Human and Environmental Studies, Kyoto University, Japan.

Notes. The present new species is closely related to *Onthophagus* (*Onthophagus*) *drescheri* PAULIAN, 1939 described from Java, but can be distinguished from the latter by the following characters: 1) body is much smaller; 2) eyes are smaller, and the interspace between them about 4.3–4.4 times as the width of eye (n=3), whereas in *O.* (*O.*) *drescheri*, eyes are clearly larger, and the interspace between them is about 3.2–3.5 times as the width of eye (n=2); 3) lateral margins of pronotum are not distinctly sinuate behind, whereas in *O.* (*O.*) *drescheri*, they are weakly but distinctly sinuate; 4) in the male, head is weakly wrinkled only along clypeal margin, whereas in *O.* (*O.*) *drescheri*, it is widely and strongly wrinkled.

Onthophagus (***Onthophagus***) ***azusae*** sp. nov.

(Figs. 6, 14)

Length: 3.8–4.6 mm: width: 2.0–2.5 mm (n=4).

Male. Body small-sized, oval, somewhat strongly convex; dorsal side shining, a little densely covered with erect, rather long, and yellowish white hairs; pygidium rather densely clothed with a little long hairs; ventral side partly clothed with similar hairs as those on dorsum. Colour black, head and pronotum tinged with distinctly greenish to purplish lustre; elytra black, each with two yellowish transverse bands at base and at apex, the basal one extending from 2nd interval to lateral margin which is constricted or interrupted at 5th interval, and the apical one extending from 2nd to 7th intervals; pygidium reddish brown, often partly becoming paler; protibiae a little reddish; mouth parts and palpi, and antennae reddish brown though club segments frequently darkened.

Head fairly strongly produced forwards, subparabolic, with apex reflexed and weakly emarginate at the middle; in smaller males, clypeus less strongly produced forwards; genae narrow, weakly produced laterad, with genal corners very obtusely angulate behind the middle; clypeo-frontal suture completely effaced; clypeo-genal sutures finely defined, not carinate; vertex with a horn inclined backwards, which is flat at base and gradually narrows towards pointed apex; surface shining, a little densely and weakly rugosely covered with strong setiferous punctures.

Pronotum strongly convex, 1.38–1.43 times as wide as long (n=3), with a very weak median longitudinal impression along midline in basal half; anterior margin emarginate, broadly bordered at the middle and finely laterad; lateral margins gently rounded in front, not distinctly sinuate behind, and finely bordered; anterior angles strongly produced forwards, rather sharp; base obtusely angulate at the middle, not distinctly bordered; disc steeply declivous in anterior 1/4, with the declivity strongly and longitudinally depressed in the middle for receiving cephalic horn; in smaller males, the declivity becoming weaker and almost simple; surface clearly shin-

ing, fairly densely and evenly covered with strong setiferous punctures, except for near posterior angles where the surface is depressed and almost impunctate, the punctures becoming denser and coarser towards sides, each puncture bearing a slightly long hair, the hair becoming conspicuously long and reflexed towards the smooth depression of posterior angle.

Elytra moderately convex above, 1.27–1.36 times as wide as long (n=3), each with eight striae of which one is along epipleural margin; striae a little widely and distinctly impressed, with fine ridges on both sides throughout; strial punctures distinct, sparse, and slightly notching both margins of intervals; 7th stria slightly curved near base; intervals flat, strongly shining, and a little wrinkled, with suture bearing a single longitudinal row of fine setiferous punctures, 2nd to 7th intervals bearing two or three irregular rows of rather small setiferous punctures, 8th rather densely and evenly covered with similar punctures.

Pygidium weakly convex, carinate at base, shining, a little closely covered with strong setiferous punctures. Protibiae slightly elongate, a little broadened towards apices, and well curved, each with four strong external teeth, 1st to 3rd teeth strong, though the 3rd a little smaller, 4th very small and indistinct; the remaining external margin finely denticulate; terminal spurs weakly decurved near each apex, and pointed apically. Meso- and metatibiae ordinary, neither short nor stout.

Aedeagus rather elongate. Phallobase about 0.8 mm in length (n=1), about 0.3 mm in apical width (n=1). Parameres about 0.4 mm in length (n=1), strongly narrowing towards the middle and gently so towards apices, with each apex slightly and sharply produced laterad in dorsal view.

Female. Head with anterior margin subtrapezoidal in outline, with clypeus less produced forwards as well as the minor males; clypeus with apical margin clearly truncate at the middle and slightly reflexed; clypeo-frontal suture finely carinate, the carina a little curved and occupying the median half; vertex simple; surface more strongly and more coarsely punctate, with wrinkles more distinct. Pronotum simple. Protibiae with four external teeth stronger than in male, with terminal spurs a little slenderer.

Type series. Holotype: ♂, Head Quarter, Mt. Kinabalu, Sabah Sate, Malaysia, 2. II. 1995, T. KIKUTA leg. Paratypes: 1 ♂, Sayap, 1,000 m, near Mt. Kinabalu, Sabah State, Malaysia, 7. XI. 1994, T. KIKUTA leg.; 1 ♂, ditto, 12. V. 1995, T. KIKUTA leg; 1 ♀, Tahubang, 1,200 m, near Mt. Kinabalu, Sabah State, Malaysia, 20. IV. 1995, T. KIKUTA leg.

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

Distribution. Sabah State, Malaysia (Northern Borneo).

Etymology. The species name is dedicated to Dr. Azusa AMANO, Department of Zoology, Graduate School of Science, Kyoto University, Japan.

Notes. The present new species is somewhat similar to *Onthophagus* (*Onthophagus*) *singhaakhomus* MASUMOTO from Thailand, but can be easily distinguished from the latter by the following characters: 1) head is a little densely and weakly rugosely covered with strong and coarse punctures, whereas in *O. singhaakhomus*, it is sparsely covered with small punctures and almost impunctate in the middle; 2) pronotum is less strongly punctate instead of being fairly strongly punctate in *O. singhaakhomus*; 3) elytral intervals are flat, simply punctate, whereas in *O. singhaakhomus,* they are a little convex, mostly arranged with two of small granulo-punctures.

Onthophagus (*Onthophagus*) *simboroni* sp. nov.

(Figs. 7, 15)

Length: 4.0–4.8 mm: width: 2.2–2.5 mm (n=4).

Male. Body small-sized, oval, a little strongly convex; dorsal side shining, rather densely covered with erect, relatively short, and yellowish white hairs; pygidium rather densely clothed with a little long hairs; ventral side partly clothed with similar hairs as those on dorsum. Colour black, head and pronotum tinged with distinctly greenish to purplish lustre; elytra black, each with three yellowish patches or transverse band at base and at apex, the basal inner patch extending from 2nd to 4th intervals, the basal outer one on 6th and 7th intervals, the apical transverse band extending from 2nd to 7th intervals; protibiae a little reddish; pygidium almost yellowish brown; mouth parts and palpi reddish brown; antennae with foot-stalks reddish brown, club segments a little darkened.

Head fairly strongly produced forwards and subparabolic as well as the preceding species, with apex reflexed and weakly emarginate at the middle; genae narrow, weakly produced laterad, with genal corners very obtusely angulate at the middle; clypeo-frontal suture completely effaced; clypeo-genal sutures finely defined, not carinate; vertex with a horn inclined backwards, which is flat at base and gradually narrows towards pointed apex; surface shining, a little irregularly and sparsely covered with strong setiferous punctures, though the punctures slightly smaller and clearly sparser than the preceding species.

Pronotum strongly convex, 1.44 times as wide as long (n=1), with a very weak median longitudinal impression along midline in basal half; anterior margin emarginate, broadly bordered at the middle and finely laterad; lateral margins gently rounded in front, not distinctly sinuate behind, and finely bordered; anterior angles strongly produced forwards, somewhat sharp; base obtusely angulate at the middle, not distinctly bordered; disc a little steeply declivous in anterior 1/4, with the declivity strongly and longitudinally depressed in the middle for receiving cephalic horn; surface distinctly shining, a little densely and evenly covered with strong setiferous punctures, except for near posterior angles where the surface is depressed and almost impunctate, the punctures becoming denser and coarser towards sides, each puncture bearing a slightly long hair, the hair becoming conspicuously long and reflexed along the smooth depression of posterior angle.

Elytra moderately convex above, 1.33 times as wide as long (n=1), each with eight striae of which one is along epipleural margin; striae rather widely and distinctly impressed, with fine ridges on both sides throughout; strial punctures distinct, sparse, and slightly notching both margins of intervals; 7th stria slightly curved near base; intervals almost flat, strongly shining, and smooth, with suture bearing a single longitudinal row of fairly fine setiferous punctures, 2nd to 7th intervals bearing two or three almost regular rows of small setiferous punctures, 8th rather densely covered with similar punctures.

Pygidium weakly convex, carinate at base, shining, rather sparsely covered with strong setiferous punctures. Protibiae slightly elongate, a little broadened towards apices, and well curved, each with four strong external teeth, 1st to 3rd teeth strong, though the 3rd a little smaller, 4th very small and indistinct; the remaining external margin finely denticulate; terminal spurs decurved near each apex, and pointed. Meso- and metatibiae ordinary, neither short nor stout.

Aedeagus rather short and small. Phallobase about 0.6 mm in length (n=1), about 0.3 mm

in apical width (n=1). Parameres about 0.3 mm in length (n=1), gradually narrowing towards apices in dorsal view; each apex a little expanded laterad as a slight tooth in dorsal view.

Female. Head with anterior margin subtrapezoidal in outline, with clypeus less produced forwards; clypeus with apical margin truncate at the middle and slightly reflexed; clypeo-frontal suture finely carinate, the carina a little curved and occupying the median half; vertex simple; surface more strongly and more coarsely punctate, except for almost impunctate apical half of clypeus. Pronotum simple. Protibiae with four external teeth stronger than in male, with terminal spurs a little slenderer.

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

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

Distribution. E. Kalimantan, Indonesia (Sothern Borneo).

Etymology. The species name is dedicated to Dr. Herwint SIMBORON, The Research Center for Biology, The Indonesian Institute of Sciences, Bogor, Indonesia.

Notes. The present new species is closely related to *Onthophagus* (*Onthophagus*) *azusae* sp. nov., but can be distinguished from the latter by the following characters: 1) in male, head is a little irregularly and sparsely covered with smaller punctures, whereas in *O. azusae*, it is somewhat densely and weakly rugosely covered with larger punctures; 2) in female, apical half of clypeus is almost impunctate, and the remaining portions rather sparsely punctate, whereas in *O. azusae*, head is evenly, rather densely, and rugosely punctate; 3) pronotum is a little densely punctate instead of being fairly densely punctate in *O. azusae*; 4) elytra are smooth, not entirely rugose, whereas in *O. azusae*, they are not smooth, slightly wrinkled; 5) male genitalia with parameres are clearly smaller and different in shape in dorsal and lateral views.

Acknowledgments

We wish to express our cordial thanks to Toru KIKUTA and Akira UEDA for giving us the opportunities to examine invaluable specimens. This study was supported in part by a Grant-in-Aid from the Japan Society for the Promotion of Science (No. 17405011).

要　　約

越智 輝雄・近　雅博：東南アジア産コガネムシ科甲虫（第13報）．ボルネオ産エンマコガネ属の７新種．——ボルネオ産コガネムシ科甲虫として，エンマコガネ亜属の７新種，*Onthophagus* (*Onthophagus*) *sepilokensis* sp. nov., *O.* (*O.*) *semipacificus* sp. nov., *O.* (*O.*) *megapacificus* sp. nov., *O.* (*O.*) *otai* sp. nov., *O.* (*O.*) *matsuii* sp. nov., *O.* (*O.*) *azusae* sp. nov., *O.* (*O.*) *simboroni* sp. nov. を記載した．

References

MASUMOTO, K., 1992. Coprophagidbeetles from Northwest Thailand (VII) (Coleoptera, Scarabaeidae). *The Entomological Review of Japan*, **47**: 35–41.

OCHI, T. and M. KON, 2005. Notes on the coprophagous scarab-beetles (Coleoptera, Scarabaeidae) from Southeast Asia (IX). A new species of *Onthophagus* (*Onthophagus*) from Borneo. *Kogane, Tokyo*, **6**: 59–64.

OCHI, T. and M. KON, 2006. Notes on the coprophagous scarab-beetles (Coleoptera, Scarabaeidae) from Southeast Asia (X). Four new species of *Onthophagus* (*Onthophagus*) from Borneo. *The Entomological Review of Japan*, **61**: 1–10.

(Received October 11, 2006; Accepted October 21, 2006)

Ent. Rev. Japan, **61** (2): 195–200, December 21, 2006

Two New Species of the Genus *Chydaeus* from China (Coleoptera: Carabidae: Harpalini)

Noboru ITO

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

Abstract Two new species of the genus *Chydaeus* CHAUDOIR are described from Yunnan in China under the names of *Chydaeus* (*Chydaeus*) *shunichii* sp. nov. and *C.* (*C.*) *gaungxiensis* sp. nov. The relationship of former species with *Chydaeus* (*C.*) *kasaharai* is discussed.

The genus *Chydaeus* CHAUDOIR 1854 is endemic in Asian regions including tropic areas, and is highly diversified mainly in high mountainous areas. Through the courtesy of Dr. Shun-Ichi UÉNO, I was able to examine many specimens of *Chydaeus* in a good collection of carabids made by him from China. They are classified into nine species, all new to science, and seven species among them have been described (ITO, 2003, 2004), but two species are left unnamed until now because these are represented only one male each. Upon my recent examination of the congeners, it becomes clear, however, that these two species are easily identified by distinct characteristics, and thus they are described in this paper as: *Chydaeus* (*Chydaeus*) *shunichii* and *C.* (*C.*) *gaungxiensis* from Guangxi, Yunnan. Further, peculiarity of *C. shunichii* is discussed.

Before going further, I wish to express my deep gratitude to Dr. Shuin-Ichi UÉNO of the National Science Museum (Nat. Hist.), Tokyo for his kindly offering invaluable material for my study.

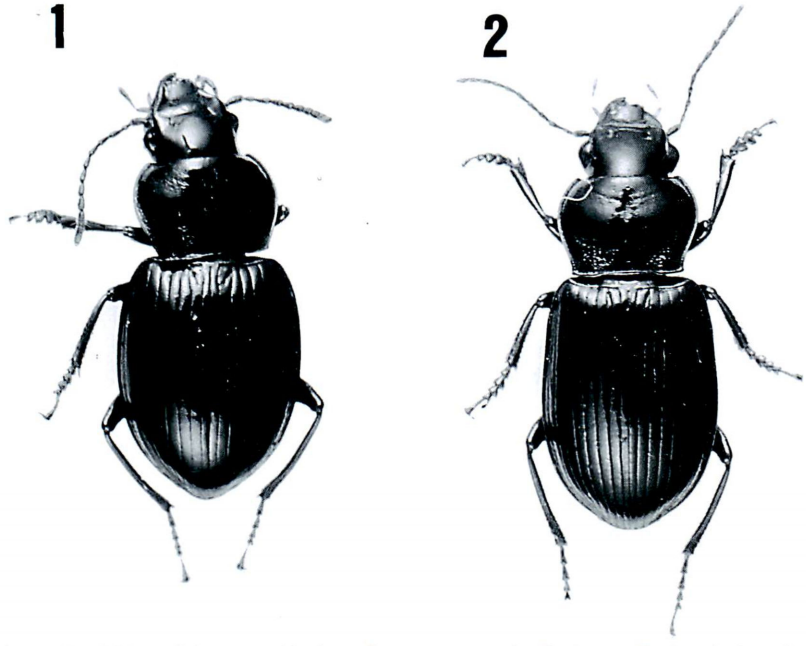
All holotypes are preserved in collection of the National Science Museum (Nat. Hist.), Tokyo. Concerning measurement of body parts, see the author's former paper.

Chydaeus* (*Chydaeus*) *shunichii N. ITO, sp. nov.

(Figs. 1 and 3)

Body similar in shape to that of the Amarine subgenus *Bradytus*, wide, well convex, black, shiny, without iridescent lustre; maxillary and labial palpi, antennae and tarsi somewhat light brown, sutural intervals dark reddish brown, labrum and tibiae dark brown.

Head large, 0.70 times as wide as the pronotal width, wide at interocular space which is one-fifth shorter than the width of head, well convex, sparsely and coarsely punctate and transverse rugosities on frons; labrum subquadrate, rather deeply emarginate at apex; clypeus transversely raised, protruding at apical corners; clypeal suture deep and wide; frontal impressions deep, a little oblique laterad, very short, widely isolated from supraorbital grooves; eyes small; temples short, not tumid; space between buccal fissure and genuine ventral margins of eyes wide; antennae submoniliform, 3rd segment as long as the 4th and a half longer than the 2nd; mandibles short, thick and robust; labial palpi short, apical segments pubescent; ligula weakly



Figs. 1–2. Habitus of the genus *Chydaeus* CHAUDOIR. —— 1, *Chydaeus* (*Chydaeus*) *shunichii* sp. nov.; 2, *C.* (*C.*) *guangxiensis* sp. nov.

expanded apicad; mentum small at median tooth, epilobes narrow; microsculpture clearly visible, consisting of mixture with isodiametric and square meshes.

Pronotum transversely quadrate, a little wider than one and two-fifths as wide as long, steeply declivous apico-laterad, sparsely and minutely punctate on disc, a little more coarsely so laterally and basal foveae; sides arcuate apicad, almost linearly oblique near base; apex shallowly emarginate, almost straight at bottom of the emargination, unbordered in middle; base 1.10 times as wide as apex, feebly emarginate, straight medially, thickly and entirely bordered; apical angles narrowly rounded; basal angles much larger than right angle, angulate, and with a tiny tooth at each tip; lateral furrows narrow, gradually widened basad, fused with basal foveae, each of which is flattened and bears longitudinal and coarse groove at inner side; front and hind transverse impressions obliterated; median line fine, clear, reduced near apex and base; microsculpture weakly and partly impressed, consisting of transverse meshes.

Elytra strongly elevated, oval, very wide, one-fourth wider than the pronotal width and two-sevenths longer than wide, impunctate, with transverse fine wrinkles; sides clearly arcuate, with very shallow preapical sinus; apices not produced, sharp at sutural angles; bases shallowly emarginate, very obtusely meeting with lateral margins; striae fine and shallow, scutellar striole short; intervals almost flattened throughout; marginal series widely interrupted medially, composed of (5 + 8) umbilicate pores; microsculpture clearly observed as square and subtransverse meshes. Hind wings vestigial.

Ventral surface coarsely and rather densely punctate on pro- and metasterna and pro- and metepisterna, pubescent medially on metasternum and 2nd to 6th abdominal sternies; metepisterna short, subquadrate, 0.88 times as long as wide; 6th abdominal sternite of male widely

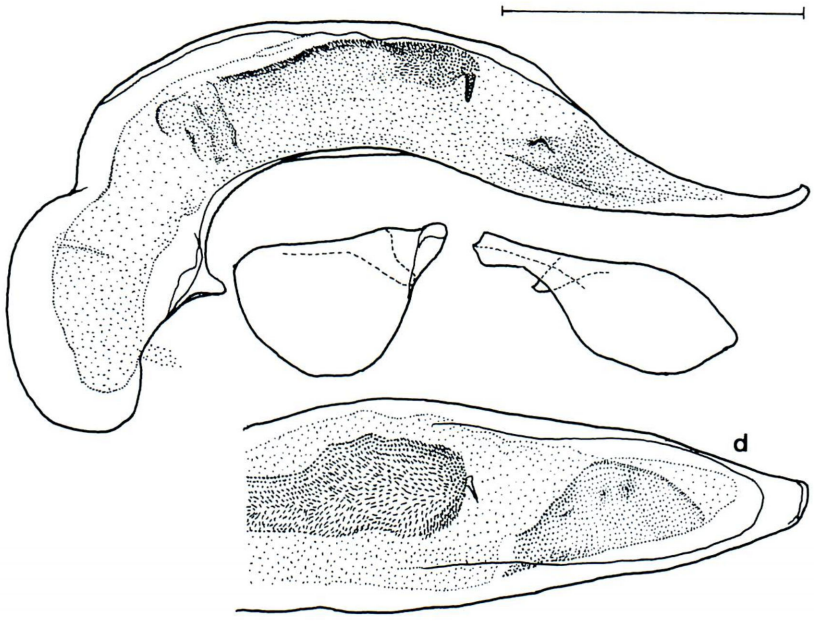


Fig. 3. Male genitalia of *Chydaeus* (*Chydaeus*) *shunichii* sp. nov. —— d, dorsal aspect. Scale: 1 mm.

rounded, bisetose on each side.

Legs short; protibiae bispinous apico-laterally, without sulcus; mid tarsi of male bearing spongy adhesive hairs on ventral surface of 2nd to 4th segments, hind tarsus 0.70 times as long as the width of head including eyes, 1st segment 0.60 times as long as the 2nd and 3rd taken together and one-fifth longer than the 2nd, 3rd two-thirds longer than the 4th, claw segment bisetose along each ventral side.

Aedeagus (Fig. 3) gently arcuate, equally thick in basal two-thirds, thence gradually thinned and arcuately reflected dorsad, weakly hooked at apex and pointed at tip of the hook; apical orifice widely opened, inner sac bearing a large cluster of microtrichia occupying from middle to near base and armed with a small peg-shaped sclerite near apex of the cluster; apical lobe not elongate, widely triangular, and rounded at distal margin which is bordered.

Length: 8.2 mm. Width: 3.8 mm.

Female unknown.

Holotype: ♂, Dakei, alt. 2,430–2,440 m, Mts. Gaoligon Shan, Tengchong Xian, Yunnan, China, 11. X. 1996, S. UÉNO leg.

Remarks: This species is peculiar in the male genitalia with a peg-shaped sclerite on inner sac. All known species have clusters of microtrichia but do not bear such a sclerite. Judging from characteristic of male genitalia as the apical third portion arcuately reflected, this new species is estimated to be related to *Chydaeus kasaharai* N. ITO from Hubei. Because Yunnan is far apart from Hubei, such relationship is interesting in phylogenetic aspect. Maybe, unknown related species must occur in wide area between Yunnan and Hubei. Also, the general appearance of new species is similar to *C. kasaharai*, but the pronotum is not sinuate at sides before

base and less coarsely and more sparsely punctate in basal foveae, and the elytra is more convex above and more strongly arcuate at sides.

Etymology: The specific name "*shunichii*" is dedicated to Dr. Shun-Ichi UÉNO who collected the specimen and kindly offered it to me.

Chydaeus (*Chydaeus*) *guangxiensis* N. ITO, sp. nov.

(Figs. 2 and 4)

Body oblong, moderately convex, black, shiny, without iridescent lustre; maxillary and labial palpi light brown, margins of labrum, antennae and tarsi slightly dark brown.

Head gently convex, very sparsely covered with microscopic punctures, wide, 0.74 times as wide as the pronotal width, with interocular space moderate in width and 0.73 times as wide as the width of head; labrum deeply emarginate; clypeus smooth, depressed along emarginate apex; clypeal suture clear but shallow; frontal impressions deep only near apices, abruptly shallowed and thinned; eyes rather large and more or less prominent; temples not developed, one-fourth of eye length; genuine ventral margin of eyes widely isolated from buccal fissure; antennae fusiform, 3rd segment as long as the 4th, two-third longer than the 2nd; mandibles stout, thick, blunt at apices; ligula wedge-shaped, protruding at apical angles, apex widely triangularly produced; paraglossae narrow, not prolonged beyond ligula; median tooth of mentum regular-triangular, epilobes weakly widened apicad; microsculpture vaguely and partly impressed, composed of transverse meshes.

Pronotum subcordate, widest at apical two-fifths, two-fifths wider than long, fairly convex, smooth on narrow central area, sparsely and somewhat minutely punctuate from apical area to lateral area in apical half, moderately and coarsely so in lateral furrows and basal foveae; sides gently arcuate in apical three-fifths, thence linearly oblique backwards, shallowly sinuate before base, with a single marginal setae in each; apex subtrapezoidally emarginate, unbordered in median third; base 1.12 times as wide as apex, barely rounded at sides, thickly bordered throughout; apical angles narrowly rounded; basal angles a little larger than right angle, minutely toothed at each tip; lateral furrows each narrow lengthwise, isolated from basal fovea by clear hump; basal foveae small, deep and oblong; front transverse impressions fine and very shallow, the hind one short and deeper; median line short and obscure; microsculpture largely absent, visible in punctures of basal foveae as isodiametric meshes.

Elytra widely oblong, approximately a half longer than wide, one-fourth wider than the pronotal width, rather well convex, impunctate; sides clearly arcuate in humeri, almost straight in middle, very shallowly sinuate before apices; apices not produced backwards, narrowly separated to each other, acute at sutural angles; bases each slightly emarginate, angularly and very obtusely contiguous with lateral margin; striae narrow and shallow throughout, finely crenulate, scutellar striole long; intervals slightly raised even near apical and basal portions; marginal series interrupted in middle, composed of 11 + 11 umbilicate pores; microsculpture obscurely visible as transverse meshes on disc, gradually becoming clearer laterad. Hind wings reduced.

Ventral surface coarsely and rather densely punctuate on prosternum and prepisterna, and sparsely so on metasternum and metepisterna; metepisterna elongate, steeply convergent behind, a half longer than wide; 6th abdominal sternite in male bisetose at each side and widely arcuate at apical margin.

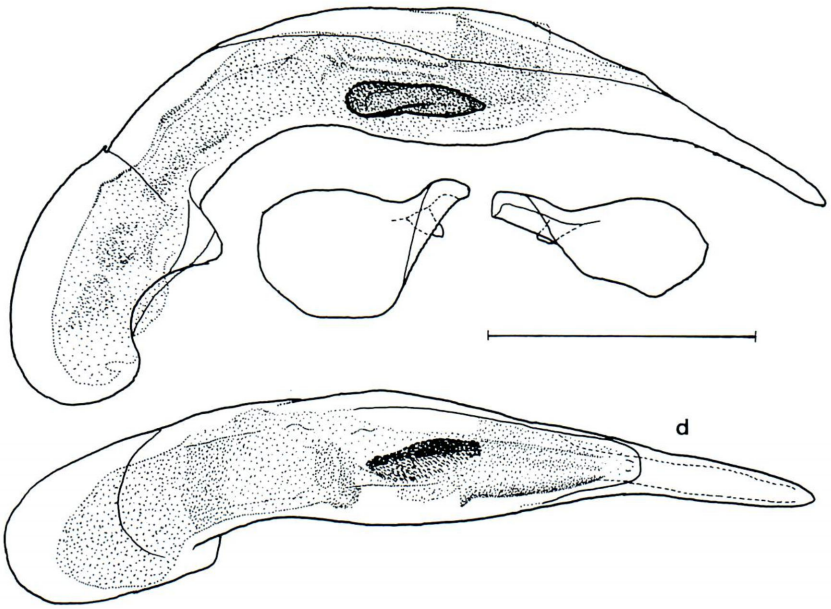


Fig. 4. Male genitalia of *Chydaeus* (*Chydaeus*) *guangxiensis* sp. nov. —— d, dorsal aspect. Scale: 1 mm.

Fore tibiae bearing short and seriate setae dorsally, without sulcus, trispinous along apico-external margin; mid tarsi in male without spongy adhesive hairs ventrally in 1st segment, hind tarsi in male one-fourth shorter than the width of head, 1st segment 0.55 times as long as the 2nd and 3rd taken together and equal in length to the 2nd, 4th one-third shorter than the 3rd, claw segment bisetose along inner ventral margin and trisetose along the external margin.

Aedeagus (Fig. 4) slender, gently arcuate, tumid ventrad in middle, strongly thinned apicad, very minutely serrate on ventral surface; apical orifice wide, inner sac with a cluster of microtrichia in middle; apical lobe very elongate, roundedly angulate at tip.

Length: 10.1 mm. Width: 4.2 mm.

Female unknown.

Holotype: ♂, Below Tienshan Ping, Mt. Miao'er, Shan, Xing'an Xian, Guangxi, Yunnan, China, 25. V. 1996. S. UÉNO leg.

Remarks: This new species is similar to *Chydaeus* (*Chydaeus*) *schaubergeri* JEDLIČKA from Sichuan, but is easily discriminated from the latter by the head smaller and with larger eyes, the pronotum not bearing additional setae to an ordinary marginal seta at each side, and the elytra narrower and not ovate. The new species is allied to *Chydaeus* (*Chydaeus*) *doi-inthanonesis* N. ITO from Mt. Doi Inthanon in north Thailand, but the body is wider, the pronotum is a little more deeply sinuate at sides and more densely and coarsely punctuate, and the aedeagus is open above at apical orifice instead of being done obliquo-dorsad.

Etymology: The specific name "*guanxiensis*" is derived from the type locality of the species.

要　　約

伊藤 昇：中国産 *Chydaeus* 属（フトゴモクムシ属）の２新種．――― 中国云南省の山岳地帯から，*Chydaeus*属の２新種を，*Chydaeus* (*Chydaeus*) *shunichii* sp. nov. および *C.* (*C.*) *guangxiensis* sp. nov. と命名し記載した．*C. shunichii* は，雄交尾器内袋にペグ状骨片を有しており，本属の他の種にはない特徴である．本種は，雄交尾器先端が背面に反る特徴や体型から判断して，*C. kasaharai* N. ITO from Hubeiと近縁と推定されるが，Yunnan（云南省）とHubei（湖北省）とは遠く離れており，この類縁関係は興味深い．恐らくはこの間の地域に両種を結びつける未発見の近縁種が存在するものと推測される．

References

CHAUDOIR, M. de., 1854. Mémoire sur la famille des carabique. 4e partie. *Bulletin de la Société Impériale des Naturaliste de Moscou*, **27**: 112–144, 279–352.

ITO, N., 1992. Study on Asian Carabidae, IV (Coleoptera). *The Entomological Review of Japan, Osaka,* **47**: 43–57.

ITO, N., 2003. Notes on species of the Harpaline subtribe Anisodachtylina (Coleoptera, Carabidae) from China. *"Satonius" Special Bulletin of the Japanses Society of Coleopterology*, **6**: 79–86.

ITO, N., 2004. Three new species of the genus *Chydaeus* (Coleoptera, Carabidae, Harpalini) from China. *Elytra, Tokyo*, **30**: 294–302.

JEDLIČKA, A., 1931. Noví Carabidi ze Sečuan v Čině. (Col.). Neue Carabiden aus China-Szetschuan. *Časopis Československé Společnosti Entomologické*, **28:** 21–30.

LÖBEL, I and A. SMETANA (ed.), 2003. Archostema – Myxophaga – Adephaga. *Catalogue of Palaearctic Coleoptera*, **1**, 819 pp., Apollo Books Publisher, Stenstrup.

SCHAUBERGER, E., 1932. Zur Kentonnis der paléarktischen Harpalinen (Neunter Beitrage). *Koleopterologische Rundschau*, **18**: 49–64.

(Received October 14, 2006; Accepted October 21, 2006)

Ent. Rev. Japan, **61** (2): 201–204, December 21, 2006

A New Species of the Genus *Mycetophagus* from Japan (Coleoptera: Mycetophagidae)

Masahiro SAITÔ

4–3–23–115, Mikunihigashi, Mikuni-chô, Sakai-shi, Fukui Pref., 913–0016 Japan

Abstract A new species of the genus *Mycetophagus* is described under the name, *M. narukawai*, which is the eleventh species of the genus from Japan.

MIYATAKE (1968, 1974) recorded nine species of the genus *Mycetophagus* from Japan. Later, NAKANE (1989) described one species, *Mycetophagus amamianus* from Amami-Ôshima, Ryukyu Archipelago, Southwest Japan. As a result of these works, ten species of this genus have been known to occur in Japan. Recently, I had an oppoturnity to examine about fifty specimens collected from Honshu and the Ryukyus, Japan. My careful examination revealed that a new species was included in those specimens. I am going to describe it under the name *Mycetophagus narukawai* sp. nov. in the present paper.

Before going further, I wish to express my deep gratitude to the late Emer. Prof. Hiroyuki SASAJI (Fukui University) for his continuous advice and encouragement, and to Dr. Hideto HOSHINA (Fukui University) for his kind support of this work. Hearty thanks are also due to Messrs. Katsumi AKITA (Mie), Yukihiko HIRANO (Kanagawa), Koichi HOSODA (Yamanashi), Nobuyuki NARUKAWA (Mie), Hiroshi OTOBE (Mie), and Toshihiro OZAKI (Akita) for their kind help in offering materials. I also owe my thanks to Dr. Masahiro ÔHARA (The Hokkaido University Museum) for his help in loaning the type of *Mycetophagus amamianus* NAKANE.

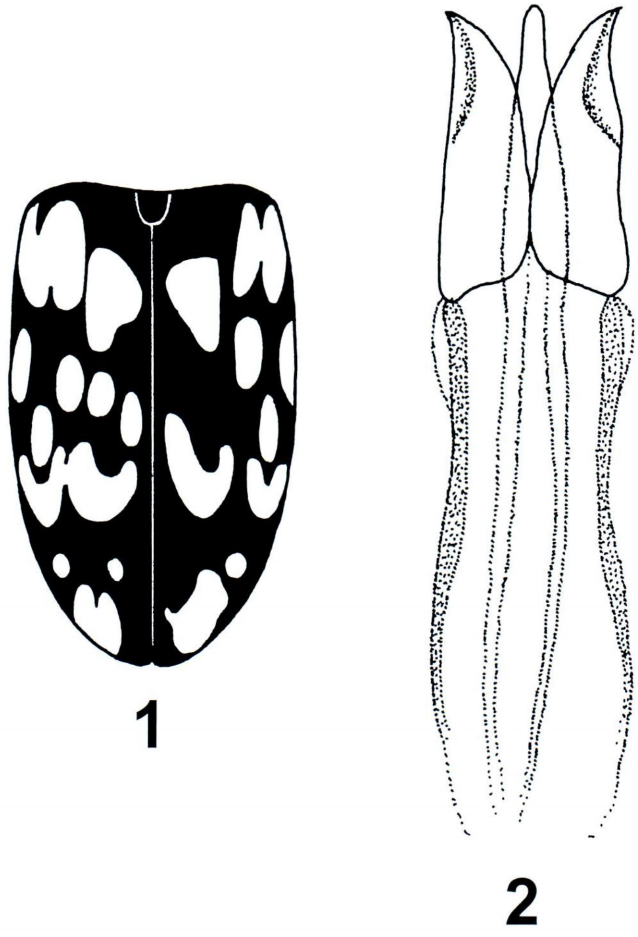
Mycetophagus narukawai M. SAITÔ, sp. nov.

[Japanese name: Tsushima-hireru-kokinoko-mushi]

(Figs. 1, 2)

Description. Male and female. Body elongate-oval, about 2.4 times as long as wide; body subparallel-sided; dorsum moderately convex, a little shining, blackish brown in general, with dense reddish-brown pubescence; mouth parts yellowish brown; antennae brown with basal five segments and apical 2/3 of terminal segment yellowish brown; elytra blackish brown with many small yellowish-brown patches (Fig. 1), which are variable among individuals; legs yellowish brown; ventral surface reddish brown.

Head rectangular and very densely punctate; frons flat, about 3.3 times the width of the eye; front-clypeal furrow very sharp, strongly curved posteriority; eyes prominent laterally in dorsal view and strongly emarginate at anterior margins in dorso-lateral view; clypeus transversely trapezoidal, very densely punctate and almost straight at apical margin; antennae weakly



Figs. 1–2. *Mycetophagus narukawai* M. SAITÔ, sp. nov. —— 1, Elytral maculation, dorsal view; 2, male genitalia.

clavate in four distal segments, almost reaching hind angles of pronotum, longer than wide except for tranverse 8th to 10th segments; terminal segment fusiform; relative length of each segment from base to apex as follows: 0.9; 0.9; 1.0; 0.9; 0.8; 0.7; 0.8; 1.0; 1.0; 1.1; 2.0; terminal segment of maxillary palpus cylindrical, with outer margin slightly longer than the inner one.

Pronotum trapezoidal, about 1.8 times as wide as long, and widest near base; lateral margins simply arcuate and narrowly bordered; hind angles a little rounded; basal margin weakly sinuate near hind angles; disc with dense large and small punctures, and with two deep longitudinal shallow depressions along lateral margins.

Scutellum transverse, and densely punctate, with curved lateral margins.

Elytra rather elongate, about 1.7 times as long as wide, widest at middle, subparallel-sided, shallowly striate, and very weakly convex between striae; disc with dense and minute punctures, but those indistinct in striae.

Propleura, both sides of mesosternum and metepisterna densely punctate. Abdominal sternites very minutely and densely punctate.

Male. First sternite with a pubescent small fovea at the middle; median lobe of male genitalia slender spindle-shaped, rounded at the tip; parameres slender, without apical pubescence.

Length: 3.4–3.7 mm; width: 1.4–1.6 mm.

Type series. Holotype: ♂, Tatera, Tsushima, Nagasaki Pref., 10. VII. 1988, N. NARUKAWA leg. Paratypes: 1♀, same data as holotype; 3♂♂, same data as the holotype. The holotype is preserved in the collection of the Osaka Museum of Natural History, Osaka.

Notes. The present new species is very similar to *Mycetophagus hillerianus* REITTER, but it can be discriminated from the latter by the following points: 1) lateral depressions of pronotum relatively shallow; 2) lateral margins of pronotum relativeiy weakly curved; 3) hind angles of pronotum a little rounded; 4) punctures of pronotum dense and large; 5) striae of elytra relatively distinct. This new species is also similar to *M. livshitzi* NIKITSKY from the Far East of USSR, but is easily distinguished from the latter by having blackish-brown elytral humeri.

Etymology. The specific name is named after the collector of type series, Mr. Nobuyuki NARUKAWA.

要　　約

斎藤 昌弘：日本産コキノコムシ属の１新種．——日本産コキノコムシ属 *Mycetophagus* は計10種が知られていた．筆者は西日本各地の標本を調べ，その結果，１新種を見出だしたので，ツシマヒレルコキノコムシ *M. narukawai* M. SAITÔ として記載した．

References

MIYATAKE, M., 1968. Two new species of Mycetophagidae from Japan (Coleoptera). *The Entomological Review of Japan, Osaka*, **20**: 29–32.

MIYATAKE, M., 1974. Records of Mycetophagid-beetles from the Tsushima islands (Coleoptera). *Transaction of the Shikoku entomological Society, Ehime*, **12**: 62.

MIYATAKE, M., 1985. Mycetophagidae. *In* Kurosawa, Y., *et al.* (eds.), The Coleoptera of Japan in Color, 3: 285–288, pl. 47. Hoikusha, Osaka. (In Japanese.)

NAKANE, T., 1963. Mycetophagidae. *In* NAKANE, T., *et al.* (eds.), Iconographia Insectorum Japonicorum Colore naturali edita, 2: 217–218, pl. 109. Hokuryukan, Tokyo. (In Japanese.)

NAKANE, T., 1989. A review of Japanese Mycetophagidae. *Nature and Insects*, **24**(1): 8–15. (In Japanese.)

NAKANE, T., 1989. Notes on some little-known beetles (Coleoptera) in Japan 4. *Kita Kyûshû no Konchû*, **36**: 1–10, pl. 1. (In Japanese, with English description.)

NIKITSKY, N. B., 1988. New taxa of Coleoptera of the families Mycetophagidae and Salpingidae from the Far East of the USSR. *Zoological Journal, Moscow*, **67**: 1845–1853. (In Russian.)

NIKITSKY, N. B., 1989. New taxa of beetles from the families Mycetophagidae and Tetratomidae of the USSR fauna. *Zoological Journal, Moscow*, **68**: 56–64. (In Russian.)

NIKITSKY, N. B., 1992. Mycetophagidae. *In* LERA, P. A. (ed.), *Opredelitel' Nasekomykh Dal'nego Vostoka SSSR v Shesti Tomakh*, **3**: 408–423. (In Russian.)

PARSONS, C. T., 1975. Revision of Nearctic Mycetophagidae (Coleoptera). *The Coleopterists Bulletin*, **29**: 93–108.

REITTER, E., 1889. Beschreibungen der bekannten Tritomiden Japans mit Berucksichtigung der neuen sammelergebniss der Herrn George LEWIS in dem Jahren 1880 und 1881. *Wiener Entomologische Zeitung*, **8**: 245–249.

(Received October 15, 2006; Accepted October 25, 2006)

Ent. Rev. Japan, **61** (2): 205–213, December 21, 2006

Four New Species of the Genus *Oxyporus* from China (Coleoptera: Staphylinidae: Oxyporinae)

Jia-Jie HUANG, Mei-Jun ZHAO, Li-Zhen LI*
Department of Biology, Shanghai Normal University,
Shanghai, 200234 China

and

Yasuhiko HAYASHI
Suimeidai 3–1–73, Kawanishi City, Hyôgo, 666–0116 Japan

Abstract Four new species of *Oxyporus* collected from China were described under the names of *O. altus* sp. nov., *O. sinicus* sp. nov., *O. humerocroceus* sp. nov. and *O. pulchellus* sp. nov. Their major diagnostic characters were illustrated.

Key words: Staphylinidae; *Oxyporus*; new species; China

The genus *Oxyporus* can be easily distinguished from all the other staphylinids by the extremely elongate mandibles and large crescentic last segments of labial palpi. The genus was established by FABRICIUS in 1775, but he did not designated the type species. Subsequently, LATEREILLE (1810) designated *Staphylinus rufus* LINNÉ as the type species of this genus. In their revision of the Japanese Oxyporinae, NAKANE and SAWADA (1956) proposed the second genus *Pseudoxyporus* for *Oxyporus hoplites* SHARP as the type species. They claimed the different characters compared with *Oxyporus* were as follows: 1) antennae much longer and more cylindrical, 2) labrum without median line separating it into two lamellae, 3) parameres of aedeagus extremely long, extending near the apex of median lobe. CAMPBELL (1969) suggested that the characters pointed out by them should not be enough to separate the species into two genera and he reduced the genus *Pseudoxyporus* to subgeneric rank. HERMAN (2001) followed CAMPBELL's opinion in his world catalog. In this paper, we have accepted the view of CAMPBELL.

Up to the present, at least 97 species of this genus have been known from the world, and 23 from China, in which 16 were from the mainland and 7 from Taiwan.

Among many specimens we collected from China mainland, in the course of study on the Chinese *Oxyporus* we found 4 new species and would like to describe them in the following lines. The type specimens are deposited in the Insect Collections of Department of Biology, Shanghai Normal University, Shanghai, China.

Terminology: fore body = from apical margin of head to elytral apices

Foundation item: The research was supported by Shanghai Municipal Commission (No. 05D227).
*Corresponding author: lizhenli@shnu.edu.cn

Oxyporus (*Oxyporus*) *altus* sp. nov.

(Figs. 1, 2, 8, 12–14)

Body (Figs. 1 and 2) large in size. Length: 9.2–12.0 mm (from front margin of head to anal end); fore body: 6.4–8.1 mm. Color black and shining; elytra and apical parts of each segment of maxillary palpi reddish brown except for blackish apical margins; most of antennae, labrum, distal 5/6 of tibiae, tarsi and 7th to terminal segments of abdomen yellowish brown, but the basal major parts of the 1st antennal segment and apices of metatibiae are tinged with deep brown.

Male. Head oval, wider than pronotum (ratio 1.31); frons bisinuate in the middle, with a remarkable large impression at the middle; surface smooth, with very fine micropunctures and indistinct microsculptures consisting of transverse waves and bearing a small setiferous puncture at inner side behind each eye. Eyes relatively small, convex and about 0.4 times as long as rounded temples. Mandibles elongate, almost as long as head. Labrum with anterior margin broadly and moderately deeply emarginate. Antennae short, reaching near posterior margin of head; each segment with sparse long setae; 5th to 11th segments with dense short pubescence in lateral sides and glabrous in each median part; 6th to 10th strongly transverse, at least 2 times as wide as long; apical segment flat and subtriangular; the relative length of each segment from base to apex: 8.0 : 5.5 : 6.0 : 5.5 : 6.0 : 6.5 : 6.0 : 6.5 : 6.0 : 4.5 : 15.0.

Pronotum nearly quadrate, slightly transverse, 0.92 times as long as wide, widest at anterior 1/3, shorter than sutural length of elytra (ratio 0.81) and slightly arcuate at sides; surface very finely and sparsely punctured, devoid of microsculpture, bearing a pair of transverse foveae at anterior 1/4 and posterior 1/3 of lateral margin respectively; 4 setiferous punctures provided at anterior margin, 2 ones at posterior margin and 4 ones near each lateral margin.

Elytra (Fig. 8) 1.21 times as long as wide, moderately widened apicad; surface of each elytron with 2 longitudinal rows of coarse punctures located in middle and along suture, with some coarse punctures irregularly scattered between the rows; humeri moderately produced forwards, not obviously convex above. Hind wings developed.

Abdomen gradually narrowed apicad; 3rd and 4th tergites each with a pair of small pruinose spots in the middle; surfaces of both tergites and sternites covered with fine and sparse punctures and alutaceous microsculpture; posterior margins of 7th and 8th sternites very slightly and broadly emarginate. Aedeagus (Figs. 12–14) moderately sclerotized; median lobe in ventral view somewhat broadened from base to apex, slightly twisted to right, truncate apically; parameres relatively stout, gradually narrowed apicad, with two tiny setae at each apex.

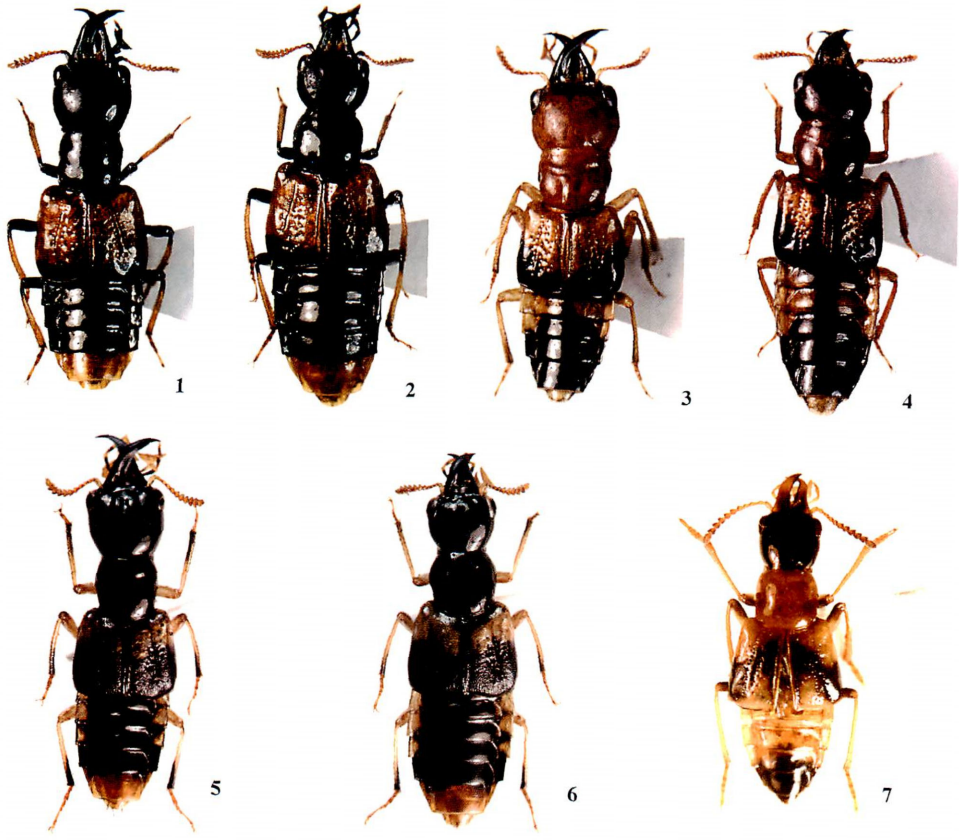
Female. Head smaller and more transverse, mandibles somewhat smaller; pronotum more transverse, nearly hexagonal; posterior margin of 7th sternite not emarginate, and that of 8th slightly produced.

Type series. Holotype: ♂, Mt. Sejila (alt. 3,700 m), Linzhi Coun., Xizang A. R., 5. VIII. 2005, Liang TANG leg. Paratypes: 7♂♂, 9♀♀, same data as the holotype; 1♂, North Duoxiongla (alt. 3,650–3,800m), Milin Coun., Xizang A. R., 29. VIII. 2005, Liang TANG leg.

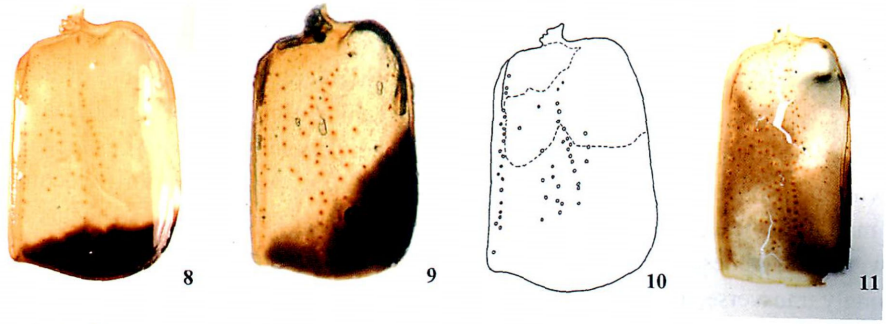
Distribution: China (Xizang Autonomous Region).

Remarks: This species is similar to *Oxyporus nigricollis* ZHENG (1992) from Sichuan in general appearance, but it can easily be distinguished by the following points: head entirely black; coarse punctures on elytra sparser; elytra with larger black areas in posterior margins.

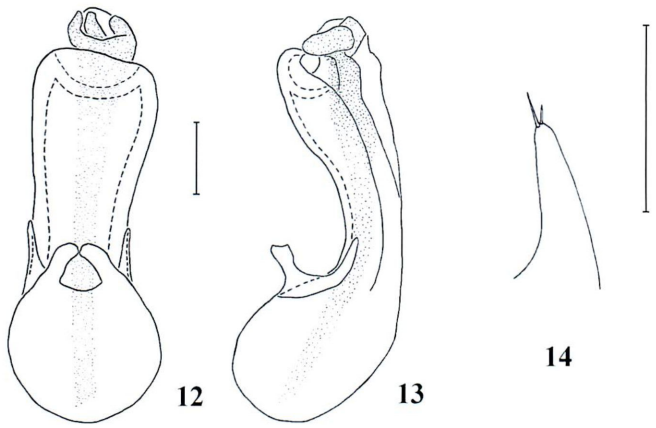
Etymology: It is the first time that the genus *Oxyporus* was found in Xizang Autonomous



Figs. 1–7. *Oxyporus* spp., habitus. —— 1, Male of *O. altus* sp. nov.; 2, female of *O. altus* sp. nov.; 3, male of *O. sinicus* sp. nov.; 4, female of *O. sinicus* sp. nov.; 5, male of *O. humerocroceus* sp. nov.; 6, female of *O. humerocroceus* sp. nov.; 7, male of *O. pulchellus* sp. nov.



Figs. 8–11. Right elytron. —— 8, *O. altus* sp. nov.; 9, *O. sinicus* sp. nov.; 10, *O. humerocroceus* sp. nov.; 11, *O. pulchellus* sp. nov.



Figs. 12–14. Aedeagus of *O. altus* sp. nov. —— 12, Ventral view; 13, lateral view; 14, apex of paramere. Scale: 0.25 mm.

Region (Tibet), where the altitude is very high. The specific name "*altus*" means that the species is distributed in high altitude place.

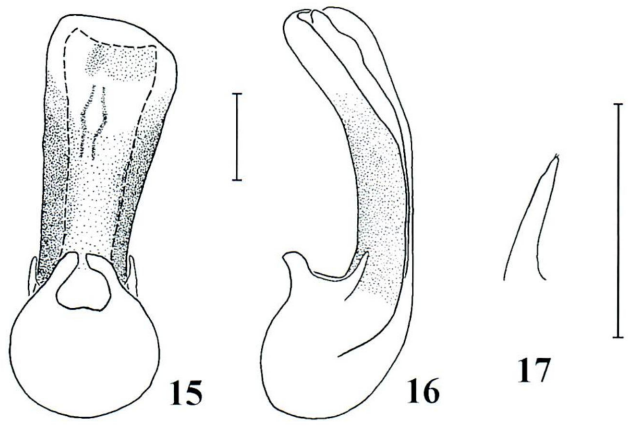
Oxyporus* (*Oxyporus*) *sinicus sp. nov.

(Figs. 3, 4, 9, 15–17)

Body (Figs. 3 and 4) medium in size. Length: 7.8–9.1 mm; fore body: 4.8–5.3 mm. Colour reddish brown to yellowish brown, shining; mandibles and anterior margin of head dark brown, elytron with a black, large subtriangular macula in post-lateral corner, which does not reach suture; abdomen black in median 3/5 of 3rd tergite, median 1/5 of 4th, median 4/5 of 5th, and whole of 6th and 7th; ventral surface almost black except for the sides of 3rd to 5th sternites and apical part of 8th.

Male. Head suboval, wider than pronotum (ratio 1.18); frons bisinuate in the middle; surface smooth, very minutely punctured, with indistinct microsculptures consisting of transverse waves, with a pair of setiferous puncture at inner side behind each eye. Eyes moderate in size, convex, about half times as long as rounded temple. Mandibles elongate, almost as long as head. Labrum with anterior margin broadly and deeply emarginate. Antennae short, reaching near posterior margin of head, each segment with sparse long setae; 5th to 11th segments densely covered with short pubescence in lateral sides, glabrous along median parts; 6th to 10th segments strongly transverse, at least 2 times as wide as long; terminal segment flat and subtriangular; the relative length of each segment from base to apex: 6.0 : 4.0 : 5.0 : 5.0 : 5.5 : 6.0 : 5.5 : 5.5 : 5.5 : 5.0 : 13.0.

Pronotum subhexagonal; slightly transverse, 1.25 times as wide as long, widest at anterior 1/3, slightly shorter than sutural length of elytra (ratio 0.93), and arcuate at sides; disc very finely and sparsely punctured, devoid of microsculpture, with two transverse depressions, one of them located just behind anterior margin, which is widened to both sides, and the other at anteri-



Figs. 15–17. Aedeagus of *O. sinicus* sp. nov. —— 15, Ventral view; 16, lateral view; 17, apex of paramere. Scale: 0.25 mm.

or 1/3, which is narrower and shallower than the former, and additionaly, surface bearing a pair of vague longitudinal depressions in middle just behind the posterior depression, which does not reach to posterior margin, and each lateral side with a fovea in the middle; 4 setaceous punctures bearing at anterior margin, 2 ones at posterior margin, and 2 ones at each lateral margin.

Elytra (Fig. 9) 1.50 times as long as wide, slightly widened apicad; surface of each elytron with a row of coarse punctures at suture, and many coarse irregular punctures scattered in middle; humeri produced forward and convex above. Hind wings developed.

Abdomen gradually narrowed apicad; 3rd and 4th tergites each with a pair of small pruinose spots in the middle; surfaces of both tergites and sternites covered with fine punctures and alutaceous microsculpture; 8th sternite truncate at posterior margin. Aedeagus (Figs. 15–17) elongate; median lobe strongly sclerotized in basal 2/3, dilated from base to apex in ventral view, obviously twisted to the right and rounded apically; parameres very short and slim, gradually narrowed apicad, with two very tiny setae at each apex.

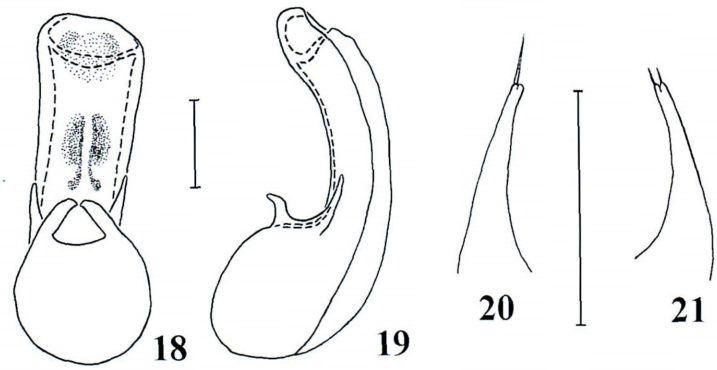
Female. Head smaller and more transverse, mandibles somewhat smaller; pronotum more hexagonal; posterior margin of 8th sternite rounded at posterior margin.

Type series. Holotype: ♂, Baishanzu Conv. (alt. 1,400–1,700 m), Zhejiang Province, 6. V. 2004, Jia-Yao HU, Liang TANG and Li-Long ZHU leg. Paratypes: 1♀, same data as the holotype; 3♂♂, 2♀♀, Baishanzu Conv. (alt. 1,250–1,650 m), Zhejiang Province, 21. VIII. 2004, Jia-Yao HU, Liang TANG and Li-Long ZHU leg.

Distribution: China (Zhejiang Province).

Remarks: This species is very closely allied to *Oxyporus parcuss* SHARP (1889) from Japan in having similar structure of pronotum, but can be easily distinguished by the different coloration of pronotum, viz., head and pronotum entirely black in the latter species.

Etymology: The specific name is derived from its type locality.



Figs. 18–21. Aedeagus of *O. humerocroceus* sp. nov. —— 18, Ventral view; 19, lateral view; 20, apex of left paramere; 21, apex of right paramere. Scale: 0.25 mm.

Oxyporus* (*Oxyporus*) *humerocroceus sp. nov.

(Figs. 5, 6, 10, 18–21)

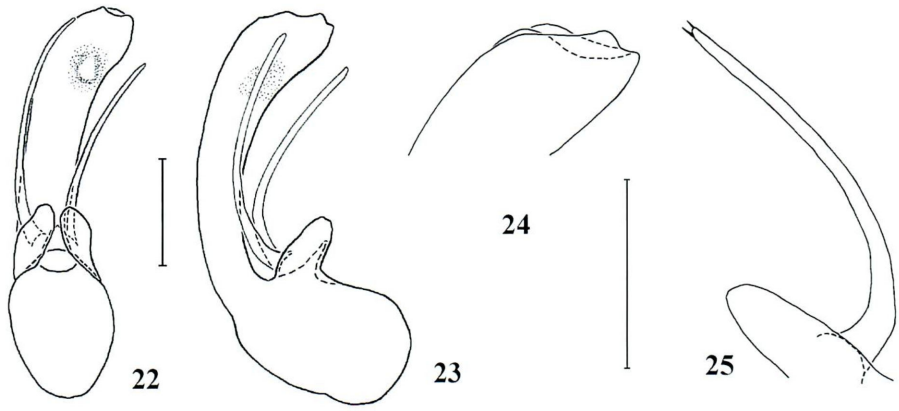
Body (Figs. 5 and 6) medium in size. Length: 6.6–10.5 mm; fore body: 4.1–6.3 mm. Color black and shining; maxillary palpi and labial palpi, antennae, anterior 1/3 of elytra, sides of 3rd to 5th abdominal segments, apical half of 7th and 8th segments and legs reddish yellow, but parascutellar area, coxae and apical parts of tibiae dark brown.

Male. Head oval, wider than pronotum (ratio 1.22); frons bisinuate in the middle, with three distinct impressions behind the middle of frons; surface smooth, with very fine micropunctures and indistinct microsculptures consisting of transverse waves. Eyes relatively small in size, convex, with a setiferous puncture at inner side behind each eye; temple rounded, about 3 times as long as eye. Mandibles elongate, longer than head. Labrum with anterior margin broadly and moderately shallowly emarginate. Antennae short, extending a little beyond the middle of head, each segment sparsely setiferous in various length; 5th to 11th segments densely covered with short pubescence in lateral sides and glabrous along median parts; 6th to 10th strongly transverse, at least 2 times as wide as long; terminal one flat and subtriangular; the relative length of each segment from base to apex: 31.0 : 11.0 : 11.0 : 11.5 : 12.0 : 10.5 : 9.0 : 8.0 : 9.0 : 8.0 : 14.5.

Pronotum nearly quadrate, almost as long as wide, widest at anterior 1/4, slightly longer than sutural length of elytra (ratio 1.10), arcuate at sides; surface smooth, very finely and sparsely punctured, feebly and transversely depressed at anterior 1/4, and the depression nearly reaching anterior angles, with 6 setaceous punctures bearing at anterior margin, 2 ones at posterior margin and 4 ones near each lateral margin.

Elytra (Fig. 10) 1.47 times as long as wide, widened apicad; surface of each elytron with 2 longitudinal rows of coarse punctures located in middle and along suture, and with irregularly scattered sparse punctures; humeri moderately produced forwards and indistinctly convex above. Hind wings developed.

Abdomen gradually narrowed apicad; 3rd and 4th tergites each with a pair of small pru-



Figs. 22–25. Aedeagus of *O. pulchellus* sp. nov. —— 22, Ventral view; 23, lateral view; 24, apex of median lobe; 25, paramere. Scale: 0.25 mm.

inose spots in the middle; surfaces of both tergites and sternites covered with fine punctures and alutaceous microsculpture; 7th and 8th sternites very slightly and broadly emarginate at posterior margins. Aedeagus (Figs. 18, 19, 20 and 21) moderately sclerotized; median lobe broad in ventral view, twisted to the right, very slightly more broadened from base to apex, slanting and truncate apically; parameres relatively long and slender, gradually narrowed apicad, the left lobe with one long seta and the right one with two short setae at each apex.

Female. Head smaller and more transverse, mandibles smaller; pronotum distinctly transverse and hexagonal; posterior margin nearly straight in 7th sternite, but slightly arcuate in 8th sternite.

Type series. Holotype: ♂, Hailuogou Conv. (alt. 3,000 m), Luding Coun., Sichuan Province, 21. VII. 2006, Jia-Yao HU and Liang TANG leg. Paratypes: 5♂♂, 7♀♀, same data as the holotype; 1♂, 3♀♀, same locality and collectors as the holotype, 22. VII. 2006.

Distribution: China (Sichuan Province).

Remarks: This species is similar to *Oxyporus fungalis* ZHENG (1992) from Sichuan in general appearance, but can be easily distinguished by the following points: elytra with larger reddish yellow macula near anterior margins; 3rd and 4th abdominal segments reddish yellow only in sides; parameres of aedeagus with different shape in apices.

Etymology: The specific name is a combination of latin words "*humero*" and "*croceus*", refers to the elytral coloration of the species.

Oxyporus* (*Pseudoxyporus*) *pulchellus sp. nov.

(Figs. 7, 11, 22–25)

Body (Fig. 7) small in size. Length: 6.3–6.9 mm; fore body: 4.8–4.6 mm. Color reddish brown to yellowish brown, shining; head with dorsal surface, abdomen with posterior margin of

6th segment, 7th and 8th segments, and legs dark brown, apical parts of femora black to dark brown; elytra with a fasciculate black macula, which is extending obliquely inwards from post-lateral corners to just behind scutellum, and behind the macula, with a yellowish subtriangular area including posterior margin.

Male. Head oval, narrower than pronotum (ratio 0.84); anterior margin of frons bisinuate; surface smooth, with very fine micropuncture and indistinct microsculpture consisting of transverse waves. Eyes moderate in size, convex; temple rounded, about 3 times as long as eye. Mandibles elongate, almost as long as head. Labrum with anterior margin narrowly and shallowly emarginate. Antennae long, reaching the middle of pronotum; each segment with sparse long setae; 5th to 11th segments densely covered with short pubescence; 6th to 10th slightly transverse, about 1.2 times as wide as long; terminal one subconical, rather thick; the relative length of each segment from base to apex: 21.5 : 7.0 : 11.5 : 10.0 : 9.0 : 9.0 : 9.5 : 9.0 : 9.0 : 9.0 : 18.0.

Pronotum subquadrate, slightly transverse, 0.97 times as long as wide, widest at anterior 1/3, shorter than sutural length of elytra (ratio 0.71), slightly arcuate at sides; disc smooth, very finely and sparsely punctured and without distinct depressions, bearing 4 setaceous punctures at the anterior margin; posterior angles rounded, distinctly produced postero-laterally.

Elytra (Fig. 11) 1.75 times as long as wide, scarcely widened apicad; surface of each elytron with one longitudinal row of coarse punctures along suture and many coarse punctures in middle; humeri produced forward and convex above. Hind wings developed.

Abdomen gradually narrowed apicad; 4th tergite with a pair of small pruinose spots in the middle; 8th sternite slightly emarginate at posterior margin. Aedeagus (Figs. 22–25) very slender, weakly sclerotized; median lobe in ventral view strongly twisted to the right, with the apex narrowly emarginate in the middle; parameres very long and slender, with two setae at each apex.

Female. Unknown.

Type series. Holotype: ♂, Underground forest, Mt. Changbai, Jilin Province, 23. VII. 2004, Li-Zhen LI and Jia-Jie HUANG leg. Paratype: 1 ♂, same data as the holotype.

Distribution: China (Jilin Province).

Remarks: This species is well similar in general appearance and coloration to a variety of *Oxyporus* (*Pseudoxyporus*) *longipes* SHARP (1889), but can easily be distinguished from the latter by the different structure of the pronotum and male genitalia, viz., in the latter pronotum is vaguely and transversely depressed before the middle and median lobe of male genitalia is much thicker.

Etymology: The specific name "*pulchellus*" means beautiful, refers to the pretty appearance of this species.

Acknowledgements

We would like to express our hearty thanks to Dr. Kiyoshi ANDO for critically reading the manuscript, and to Messrs. Jia-Yao HU, Liang TANG and Li-Long ZHU, who collected the specimens used in this study.

要　　約

黄 家傑・趙 梅君・李 利珍・林 靖彦：中国産オオキバハネカクシ属の4新種．——中国各地産のオオキバハネカクシ類を検討した結果，4新種を見い出したので，下記のように，命名，記載した．*Oxyporus* (s. str.) *altus* sp. nov.：本種は四川省産の *O. nigricollis* ZHENG に似るが，頭部と翅鞘後縁が黒色であることで，容易に区別できる．*Oxyporus* (s. str.) *sinicus* sp. nov.：本種は，前胸背板の構造から，日本産の *O. parcus* SHARP に近縁と考えられるが，後者は頭部，前胸が黒色を呈することで区別できる．*Oxyporus* (s. str.) *humerocroceus* sp. nov.：本種は四川省産の *O. fungalis* ZHENG に似るが，翅鞘基部により大きな赤黄色の紋があり，腹部第3，4節は外側のみ赤黄色を呈する．*Oxyporus* (*Pseudoxyporus*) *pulchellus* sp. nov.：本種は日本産の *O.* (*P.*) *longipes* SHARP に非常によく似ているが，後者の翅鞘後半は一様に黒色で，雄交尾器は著しく太い．

References

BERNHAUER, M., 1933. Neuheiten der chinesischen Staphylinidenfauna. *Wiener Entomologischen Zeitung*, **50**: 25–48.

BERNHAUER, M., 1938. Zur Staphylinidenfauna von China und Japan. *Entomologisches Nachrichtenblatt, Troppau*, **12**(1): 17–39.

BERNHAUER, M., 1943. Neuheiten der palaearktischen Staphylinidenfauna. *Mitteilungen der Münchner Entomologischen Gesellschaft*, **33**: 169–188.

CAMPBELL, J. M., 1969. A revision of the New World Oxyporinae. *The Canadian Entomologist*, **101**(3): 225–268.

HAYASHI, Y., 1975. Notes on Staphylinidae from Taiwan (Col.), I. *The Entomological Review of Japan, Osaka*, **28**: 63–68.

HAYASHI, Y., 1984. Notes on Staphylinidae from Taiwan (Col.), IV. *The Entomological Review of Japan, Osaka,* **40**: 81–84.

ITO, T., 1999. A new species of the genus *Pseudoxyporus* from Japan. *Japanese Journal of Systematic Entomology, Ehime*, **5**: 255–258.

NAKANE, T., and K. SAWADA, 1956. A revision of the subfamily Oxyporinae in Japan (Coleoptera: Staphylinidae). *The Scientific Reports of the Saikyo University, (Series A),* **2**(2): 64–74.

SHARP, D. S., 1889. The Staphylinidae of Japan. *The Annals and Magazines of Natural History*, (6) **3**: 406–419.

SHIBATA, Y., 1997. A redescription of *Pseudoxyporus cyanipennis* (KIRSHENBLATT) from Hokkaido, Japan. *Elytra, Tokyo*, **25**: 509–514.

WATABNABE, Y., 1985. Oxyporinae. *In* S.-I. UÉNO, Y. KUROSAWA, and M. SATÔ, The Coleoptera of Japan in Color, Volume II, Hoikusha. First Edition: 276–277.

ZHENG, Fa-Ke., 1992. Three new species of genus *Oxyporus* FABRICIUS from China. *Acta entomologica sinica, Beijin*, **35**: 326–330.

ZHENG, Fa-Ke., 1997. Two new species of genus *Oxypor*us FABRICIUS from Sichuan and Yunnan Province, China. *Acta entomologica sinica, Beijin*, **40**: 195–197.

(Received October 20, 2006; Accepted November 14, 2006)

Ent. Rev. Japan, **61** (2): 215, December 21, 2006

Obituary: Hiroyuki SASAJI (1935–2006)

Dr. Hiroyuki SASAJI, Preseident of the Japan Coleopterological Society, suddenly passed away on July 31, 2006 at the age of 71. He changed his family name from KAMIYA to SASAJI when he married in 1972. SASAJI had made large contributions not only to the systematics of Coccinellidae and other members of Cucujoidea, but also to the recent problems of the biodiversity and conservation, publishing over 830 papers. Of particular value to the coleopterists are on the works of Coccinellidae based upon the comparative morphology of both adults and larvae, and also upon the molecular and genetic analyses. Since the inauguration to the president of the Japan Coleopterological Society in 2000, SASAJI had rendered great services for the development of the Society. SASAJI will be remembered as a kind leader who was always ready to assist colleagues, especially to the amateur entomologists. His early death presents a serious loss to the sciences of entomology and conservation of the biodiversity.

Noboru ITO
Editor of the Entomological Review of Japan

原稿作成の要領

1. 原稿はプリントアウトしたもの２部（１部はコピー可）と，CD，MO，フロッピーディスクに保存したMS-WORD形式またはテキスト形式のデータを提出する．用紙はＡ４判を用い，左右に３cmの余白をあけ，行間はダブルスペースとする．表題，見出し，人名など，いかなる場合も大文字だけでは入力しない．また和文要約および♂♀記号を除いて日本語フォントを用いてはならない．
2. 原稿には表紙をつけ，これに表題，ランニング・タイトル（簡略化した論文表題，欧文50字以内），代表著者名，連絡先（住所，電話番号，E-mail）を明記し，原稿及び図表の枚数，別刷りの必要部数（50部単位），その他連絡事項などを記入する．
3. 本文は，表題，著者名，所属機関とその所在地または住所，E-mail（任意），刷り上がり10行程度まで（約150語）の英文要約（Abstract），本文，和文要約，参考文献，表，図の説明，図の順に配列する．
4. 動植物の属以下の学名，参考文献中の雑誌名などはイタリック体で，人名のうち姓のイニシャル以外はスモールキャピタル体で，雑誌の巻などはボールド体で表記する．それが不可能の場合はローマン体で表記し，イタリック体は下線，スモールキャピタル体は二重下線，ボールド体は波下線で示す．
5. 参考文献は著者名のアルファベット順に並べ，雑誌名は略さずフルタイトルで表記する．

   Blackwelder, R. E., 1936. Morphology of the coleopterous family Staphylinidae. Smithsonian miscellaneous Collections, **94** (13): 1–102

   Blackwelder, R. E., 1952. The generic names of the beetle family Staphylinidae with an essay on genotypy. Bulletin of United States National Museum, **200**: i-iv+1–483.

   Müler, J., 1925. Terzo contributo alla conoscenza del genere Staphylinus L. Bollettino Societa entomologica Italiana, **57**: 40–48.
6. 標本のデータは以下のように表記する．

   （例）3♂♂, 2♀♀, Amaishi, Hyôgo, 28. V. 1995, Y. Hayashi leg.
7. 図（線画）は耐水性黒色インクで鮮明に描き，そのまま印刷出来るようにする．写真はプリントした鮮明なものを台紙に貼り付ける．図の拡大（縮小）率を示したい場合は図中にスケールを入れる．原図には薄紙のカバーをかけ，これに著者名，図の番号，上の方向を示す．もし図中に文字を入れる場合には，カバーの指定位置に赤字で示す．原図の大きさは，台紙を含めてＡ４判（210 mm × 295 mm）以内とする．また原図の返送が必要な場合は，カバーにその旨を記入する．
8. 図をデータ入稿する場合はAdobe Photoshop，Adobe Illustrator，EPS，TIFF，PICT，JPEGなどの各形式にて，写真は350 dpiのグレーまたはカラーモードで，線画は800～1800 dpiのモノクロ２階調モードで作成する．それぞれ刷り上がり希望サイズに調整して作成するが，最終的な縮尺は編集部に一任されたい．図をデータ入稿する場合も，かならずプリントアウトを添付すること．

編集委員からのお願い

最近の投稿原稿には投稿規定を大きく逸脱したものが見受けられます．投稿される原稿については，投稿規定ならびに原稿作成の要領をよく参照したうえで作成してください．いちじるしく不備のある原稿は受け付けません．また，原稿はできる限り英文校閲をお受けになられたうえでお送り下さい．英文のスペルチェック等も著者自身で必ず行っておいて下さい．

参考文献については，59巻より雑誌名を略記せずにフルタイトルで記入するスタイルに変更しております．編集部でチェックできないものもあるので，よくご確認のうえ投稿してください．

人名はイニシャルのみ大文字に，残りは全て小文字で打ち込んで下さい（例：Yasuhiko Hayashi）．編集部でスモールキャピタル化する際，全て大文字で入力されているとスモールキャピタル化できません．中国，韓国，タイなど，日本と同じ順序による姓名表記の場合も，欧米式の姓名表記とします（つまり名，姓の順）．

著者負担について

16ページを超える超過ページの印刷経費，カラー写真の印刷経費は著者負担となります．別刷は全て表紙付きとして，表紙代のみ学会負担とし，他の経費は著者負担とします．

和文要約について

短報を除く原著論文には和文要約を付けて下さい．学術用語で打ち出せない漢字もありますが，できるだけ努力します．