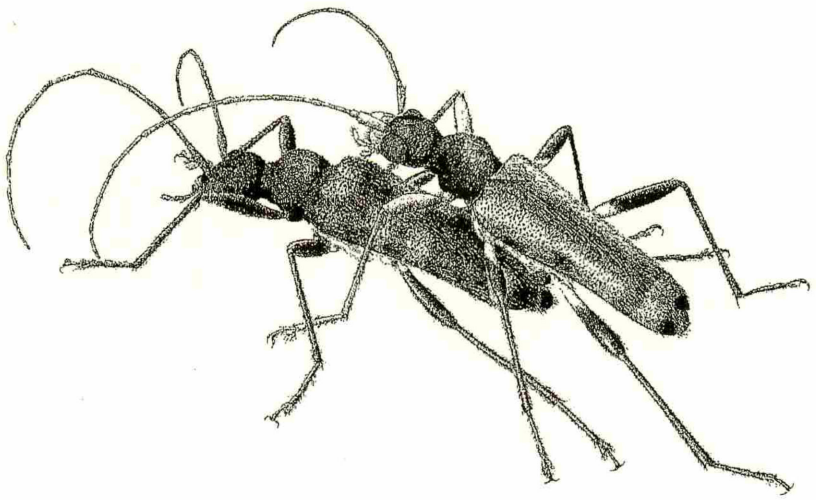
ISSN 0286-9810

Vol. 57 No. 2 Oct. 30, 2002

昆蟲學評論

THE ENTOMOLOGICAL REVIEW OF JAPAN



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THE JAPAN COLEOPTEROLOGICAL SOCIETY
OSAKA

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Annual subscription is ¥5,000 for individual members.

Business Office
The Japan Coleopterological Society
c/o Entomological Labolatory
Osaka Museum of Natural History
Nagai Park 1–23, Higashisumiyoshi-ku
Osaka , 546–0034 JAPAN
URL – http://www.mus-nh.city.osaka.jp/jcs.html

Printed by
Naniwa Insatsu Co. Ltd., Osaka, Japan

Ent. Rev. Japan, 57 (2): 109–117, October 30, 2002

Four New Taxa of the Genus *Ampedus* DEJEAN (Coleoptera: Elateridae) from Japan*

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Abstract Three new species and a new subspecies of the genus *Ampedus* (s. str.) are described: *Ampedus* (*Ampedus*) *kobiki* from Gumma and Tochigi Prefectures, *A.* (*A.*) *otome shikokuanus* from Tokushima Prefecture, *A.* (*A.*) *echizen* from Fukui Prefecture and *A.* (*A.*) *masatoi* from Nagano Prefecture.

Up to the present, approximately 350 species of the genus *Ampedus* DEJEAN, 1833 have been known from the Palaearctic and Oriental Regions. Of these, about 110 species and many subspecies are distributed in Japan. Besides the genus is one of the most annoying groups in the subfamily Ampedinae, since its congeners have almost unicolorous or uniform shape. Especially, the reddish elytral group contains about half the species of them, but their genital organs of both sexes are fortunately specific and most useful for their identification.

In this paper, I am going to describe three new species and a new subspecies of the genus *Ampedus* (s. str.) collected from Honshu and Shikoku, Japan. The holotypes are deposited in the collection of the Osaka Museum of Natural History, and the paratypes are preserved in the author's collection.

Before going into further details, I would like to express my cordial gratitude to Messrs. Masato HINAKURA (Tokyo), Kozo MIZUNO (Uji City), Hideo OHKAWA (Ashikaga City) and Masahiro SAITO (Mikuni Town, Fukui) for their kind offer of many valuable materials and continuous guidance.

Ampedus (*Ampedus*) *kobiki* KISHII, sp. nov.

(Figs. 1–5)

Male, 8.3–10.4 mm in length, 2.4–3.0 mm in width; female, 9.2–11.6 mm in length, 2.6–3.2 mm in width. Elongate, less slender, dorsally convex medio-longitudinally as well as ventrally, medianly subparallel-sided and distinctly shining all over. Black with antennae and legs more or less dark brownish and elytra entirely reddish brown. Pubescence less thick, long, dense, erected and lightly yellowish white.

Head broad, feebly convex above between eyes, then declivous antero-inferiad, with frontal margin very definitely marginated and roundly expanded; relative distance across eyes and each eye width in dorsal view as 81 : 22 (ca. 3.7 times, male, holotype) and 95 : 19 (ca. 5

* Some New Forms of Elateridae in Japan (XXXV)

times, female, paratype); frontal groove plainly narrowed at the middle, but broad, rather deep and triangular before antennal sulci; vertex generally smooth, with punctures simple, rather small and dense, but more or less irregular in size and density, and their average distance among them subequal to their diameter or a little wider at summit and rather narrower at sides.

Antennae ordinary, exceeding pronotal hind angles by apical segment or a little more; relative length/width from basal segment to 5th as 28/13, 13/10, 18/10, 28/16.5 and 25/17 (male, holotype) and 24/13, 13/12, 19/12.5, 28/18 and 22/18 respectively (female, paratype); basal segment voluminous and a little roundly sinuated, 2nd subobconical, 3rd elongate triangular, 4th to 10th plainly serrated and gradually becoming smaller apically, and 11th subrhombical and a little longer than 10th.

Pronotum subtrapezoidal, less roundly expanded laterad near the middle, but the broadest at apices of hind angles, lightly narrowed at each base of hind angles, and gently convergent anteriad from the middle, simply and roundly convex above, without any median line nor impression, and rather strongly declining postero-inferiad at posterior slope; relative dorsal median length/width as 100:112 (male, holotype) and 100:121 (female, paratype); hind angles elongate, rather thick, triangular, each with a clear short and straight carina, which divergently runs from apex to base of angle and rather obtusely pointed apically; surface wholly smooth, with punctures simple, nearly even, small and distinctly sparse, and their interstices conspicuously wider than their diameters in average.

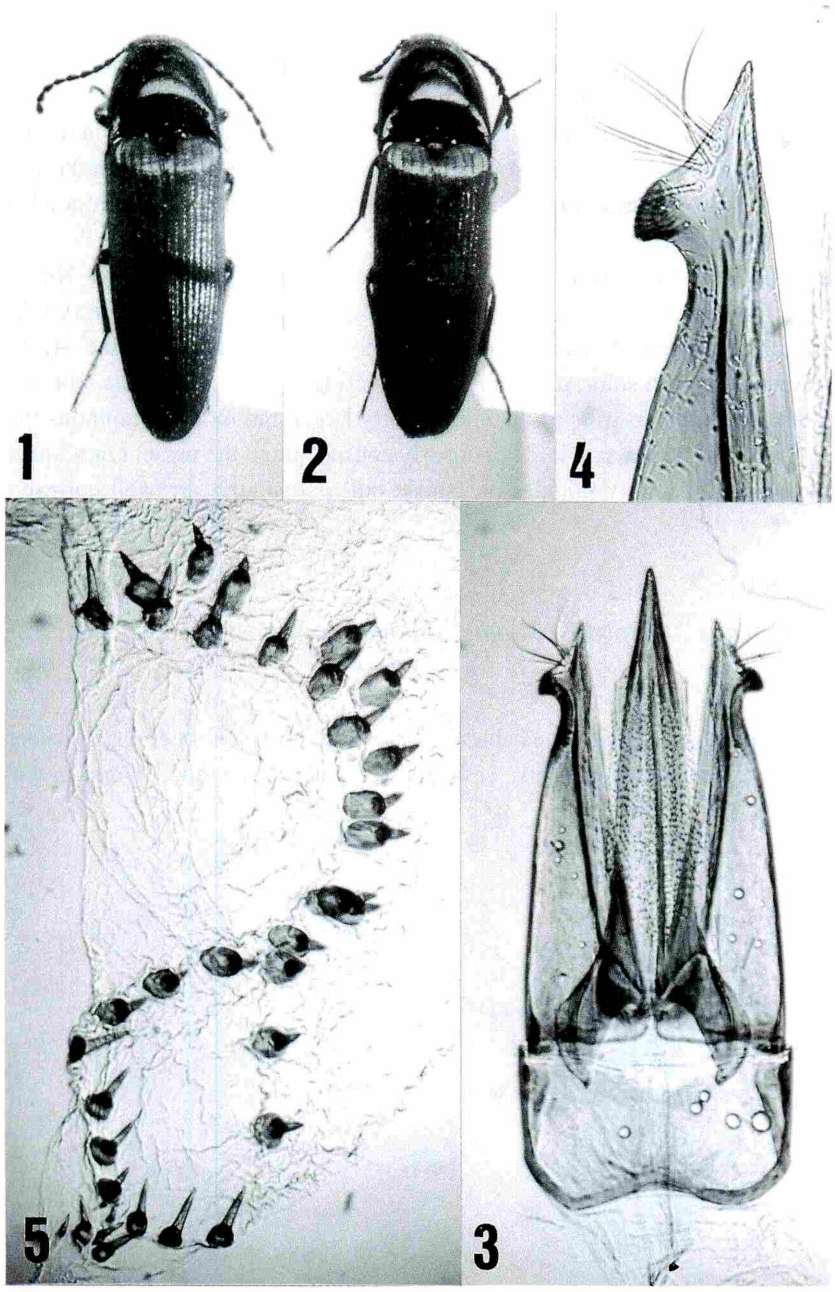
Scutellum rather tongue-shaped, but clearly widened at anterior margin, generally flattened, distinctly longer than wide, clearly declining antero-inferiad, rounded at posterior end, and more roughly and densely punctured than those on pronotum.

Elytra elongate, parallel-sided from near humeri to posterior 1/3, then gently roundly convergent posteriad; apices moderately ended, each with an obscure small mucro at sutural apex; striae conspicuous, narrowly furrowed, with discontinuous and subelliptic punctures; strial intervals weakly elevated and generally smooth, with punctures fine and sparse.

Prosternum oblong, subquadrate, narrowest near the middle, then more or less sinuately divergent anteriad as well as posteriad, clearly and medio-longitudinally elevated beneath, with anterior lobe narrow and feebly declivous antero-inferiad and weakly depressed transversely behind at the base; surface generally smooth, with punctures more or less larger denser and unevener than those of pronotum. Prosterno-pleural sutures generally sinuated, broadly marginated at pleural side, a little furrowed and entirely smooth, and distinctly and widely opened at each anterior end. Prosternal process less elongate, rather thick, a little roundly bent interiad behind procoxal cavities, then straightly protruding posteriad, acutely pointed at posterior end, with a small emargination on ventral surface before hind apex. Propleural punctures generally similar to those of prosternum, but a little smaller and elliptical. Mesosternal cavity elongate, subrhombical and distinctly declivous antero-interiad. Metasternal punctures similar to those of propleura, but more or less sparser. Legs ordinary.

Male genitalia as figured (Figs. 3–4); median lobe gradually narrowed apically, with apex acutely pointed; apico-lateral expansion of each paramere triangular, with outer margin weakly emarginated, clearly and sharply pointed at apical point, and thick and rounded at lateral projection. Female sclerotic thorny prickles on bursa copulatrix as figured (Fig. 5); 33 to 36 and each prickle distinctly thick and short, with basal piece plainly longer and broader than apical thorn in most of prickles.

Distribution. Central Honshu (Gumma and Tochigi Prefectures).



Figs. 1–5. *Ampedus* (*Ampedus*) *kobiki* sp. nov.: 1, habitus, male, holotype, 8.8 mm; 2, ditto, female, paratype, 10.7 mm; 3, male genitalia, dorsal view, holotype; 4, ditto, apical part of paramere, holotype; 5, prickles on bursa copulatrix, female, paratype.

Type series. Holotype: ♂, Mt. Akagi-san (alt. 1300–1400 m), Gumma Prefecture, 20. XI. 1999, H. OHKAWA leg. Paratypes: 3♂♂, 5♀♀, same data as the holotype; 1♀, near Mt. Hiruga-take, Kuroiso City, Tochigi Prefecture, 30. VI. 1996, H. OHKAWA leg.

Etymology. The new specific name is based on an old word "Kobiki" meaning the sawyer

or woodman in Japanese.

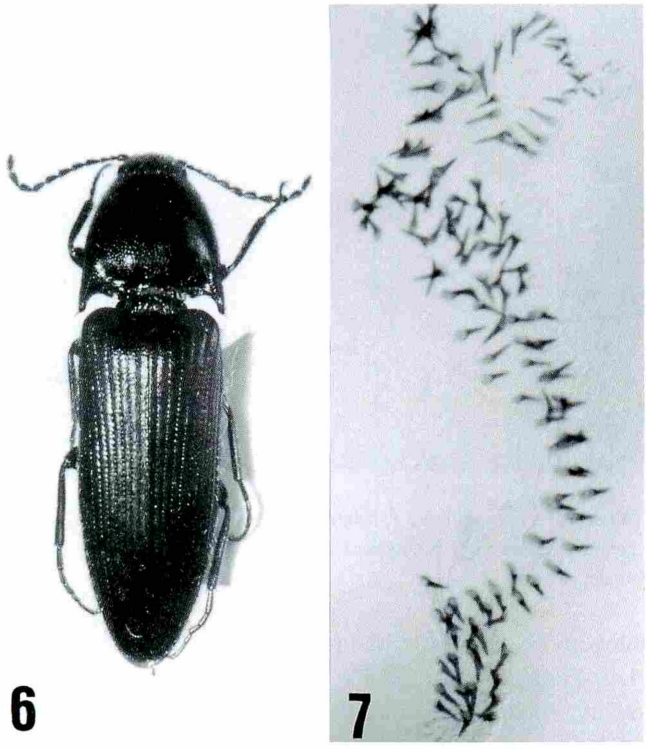
Remarks. This new species somewhat resembles *Ampedus* (s. str.) *ainu hondoensis* KISHII, 1985 (Honshu), which is found from the same habitat of the present new species, but can be distinguished from the latter by the following points: 1) body smaller, narrower and more or less slender; 2) antennae and legs entirely brownish; 3) antennae usually longer than those of the latter in both sexes; 4) pronotum not quadrate and clearly trapezoidal; and 5) pronotal punctures distinctly finer and sparser.

Several years ago, I received a female specimen of this species from Mt. Hiruga-take in Kuroiso City for the determination through the courtesy of Mr. H. OHKAWA in Ashikaga City, who is kindly and continuously offering many valuable elaterid-examples to me. At that time, I identified the specimen with some suspicion as *Ampedus* (*A.*) *ainu hondoensis*, but as the result of my present examination, in spite of the body clearly larger and more voluminous than that of the specimens from Mt. Akagi-san, it is doubtlessly conspecific to the present new species, since the form and number of thorny prickles on female bursa copulatrix are well corresponding to each other.

Ampedus (*Ampedus*) *otome shikokuanus* KISHII, subsp. nov.

(Figs. 6–7)

This new subspecies is distinguishable from the nominotypical one, *A.* (*A.*) *otome* KISHII, 1992 (Honshu), by the following points: 1) female, 12.2 mm in length, 3.4 mm in width, male



Figs. 6–7. *Ampedus* (*Ampedus*) *otome shikokuanus* subsp. nov.: 6, habitus, female, holotype, 12.2 mm; 7, prickles on bursa copulatrix, female, holotype.

unknown; 2) reddish elytral coloration much darker; 3) pronotal punctures more or less larger and denser; 4) prosternal process more elongate; 5) sclerotic thorny prickles on bursa copulatrix as figured (Fig. 7) and the prickles a little longer and greater in number, ca. 120 in stead of ca. 40 to 60 (48, average of 13 examples mean).

Distribution. Shikoku (Tokushima Prefecture).

Type series. Holotype: ♀, Mt. Mitsumine-san in the Tsurugi Mts., Higashi-iyayama-son, Tokushima Prefecture, 12. VI. 1999, K. MIZUNO leg.

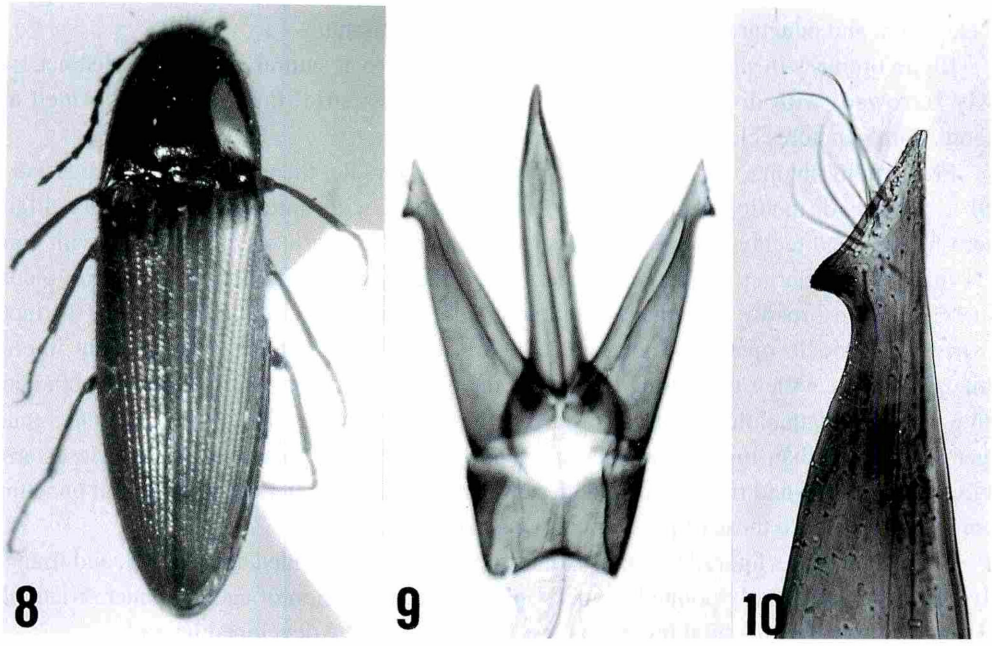
Etymology. The subspecific name is derived from the type locality: Tokushima Prefecture lying in the eastern Shikoku District.

Ampedus* (*Ampedus*) *echizen KISHII, sp. nov.

(Figs. 8–10)

The present new species is very similar to *A.* (*A.*) *geiko* KISHII, 1985, from the Ohdaigahara-san Mts. lying Mie and Nara Prefectures. Probably they have a close relationship, but are distinguishable from each other by the different shape of the male genitalia and by the following characteristics.

Male, 9.96 mm in length, 2.70 mm in width. Very stout, rather navicular, widest at humeral part, then gently and rather roundly convergent posteriad, medio-longitudinally less elevated above, and distinctly shining all over. Black, with elytra entirely dark reddish having basal edge narrowly and apices infuscate, and 2nd and 3rd antennal segments and legs entirely brownish. Pubescence rather tender, straightened, less dense, long, more or less erected and whitish yel-



Figs. 8–10. *Ampedus* (*Ampedus*) *echizen* sp. nov.: 8, habitus, male, holotype, 9.96 mm; 9, male genitalia, dorsal view, holotype; 10, ditto, apex of paramere.

low.

Head broad, simply and roundly convex above between eyes, much declining antero-inferiad and almost perpendicular at frons; relative distance across eyes and each eye width in dorsal view as 92:16 (ca. 5.8 times); anterior margin of frons well-defined, rounded at the middle, feebly sinuated at lateral parts, and distinctly carinated and a little elevated before eyes; frontal groove conspicuously narrowed at the middle and rather obliterated, but plainly broad and triangular before antennal sulci, with much coarse and dense punctures; vertex smooth, with punctures simple, small and rather dense, but more or less uneven in size and density, and their average distance among them subequal to their diameter or a little wider.

Antennae rather thick, hardly exceeding pronotal hind angles by apical segment; relative length/width from basal segment to 5th as 25/14.5, 16/11.5, 18/12, 30/19 and 26.5/20.5, respectively; basal segment very voluminous and roundly sinuated, 2nd obconical, 3rd subtriangular, 4th to 10th clearly serrated and gently becoming narrower and shorter apically, and 11th oblong and subequal in length to the preceding segment.

Pronotum rather trapezoidal, widest at apices of hind angles, then gradually convergent anteriad, but less roundly expanded at near the middle, and weakly narrowed at bases of hind angles, simply and roundly convex above, with the vestige of a weak median impression at summit, and moderately declivous postero-inferiad at hind slope; relative dorsal median length/width as 100:108; hind angles thick, less elongate, triangular, each angle with a distinct, well-defined, straight and rather short carina which divergently runs from apex to base of angle, and obtusely pointed apically; surface plainly smooth all over, with punctures conspicuously fine, sparse and rather even, and their interstices distinctly wider than their diameters.

Scutellum rather tongue-shaped, less widened at frontal margin, subparallel-sided at the middle, rounded at posterior end, feebly declivous antero-inferiad, with a clear medio-longitudinal elevation, and punctures a little denser than those of pronotum.

Elytra ordinary in shape; each apex with a small mucro at sutural apex; striae distinct, narrowly furrowed, with discontinual and elliptic punctures; strial intervals less elevated and smooth, with punctures clearly minute and sparse.

Prosternum oblong, subquadrate, narrowest at the middle, then less divergent anteriad as well as posteriad, medio-longitudinally elevated below, with anterior lobe roundly dilated antero-inferiad and feebly depressed transversely behind at the base; surface smooth, with punctures more or less larger denser and more uneven than those of pronotum. Prosterno-pleural sutures sinuated, broadly marginated at pleural side, flattened and entirely smooth, distinctly furrowed and widely opened at anterior ends. Prosternal process thick, roundly bent interiad behind procoxal cavities, then straightly protruding posteriad, rather acutely pointed at hind end, with a small emargination on ventral surface before posterior apex. Propleural punctures much larger and denser than those of prosternum, and longitudinally oblong in shape. Mesosternal cavity rather narrow and rhombical, and clearly declivous antero-interiad. Metasternal punctures more or less similar to those of prosternum. Legs moderate.

Male genitalia as figured (Figs. 9–10); median lobe parallel-sided at basal 2/3, and triangularly narrowed and acutely pointed at apex; apico-lateral expansion of each paramere triangular and rather elongate with lateral projection less roundly and more developed laterad.

Female unknown.

Distribution. Central Honshu (Fukui Prefecture).

Type series. Holotype: ♂, Taniyama of Uchinami, Ohno City, Fukui Prefecture, 21. V.

1981, M. SAITO leg.

Etymology. The specific name is derived from the old name of Fukui district "Echizen".

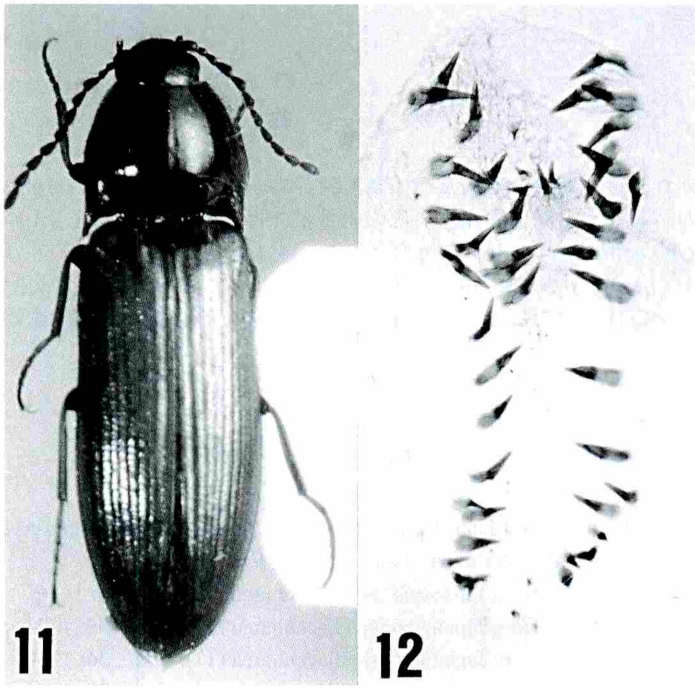
Remarks. This new species somewhat resembles *Ampedus* (s. str.) *geiko* KISHII, 1996 (Honshu) in the shape of the male genitalia, but can be distinguished from the latter by the lateral projection of apico-lateral expansion in paramere much strongly projected laterad. Furthermore, *A. geiko* differs from the present species in the following points: 1) basal area of elytra more or less yellowish brown; 2) antennae and legs more blackish; 3) plainly parallel-sided and rather slender, and 4) scutellum wholly flattened.

Ampedus* (*Ampedus*) *masatoi KISHII, sp. nov.

(Figs. 11–12)

The present new species is closely allied to *A.* (*A.*) *ishikawai* KISHII, 1998, from Mt. Hakusan in Ishikawa Prefecture. Probably they have a close relationship and look like sibling species to each other, but the new species is distinguishable from *A.* (*A.*) *ishikawai* by the different shape of the thorny prickles on bursa copulatrix of female genitalia and by the following characteristics.

Female, 9.7 mm in length, 2.8 mm in width. Body a little broader than that of *ishikawai*. Elytra and legs light yellowish wholly instead of more or less brownish in those of *ishikawai*. Antennae similar to those of *ishikawai*, but a little shorter and relative length/width from basal segment to 5th as 28/11.5, 10.5/10, 16.5/11.5, 23/14 and 22/14.5, respectively; 4th to 10th segments narrower and less elongate than those of *ishikawai*. Elytral striae distinctly obscure, partly



Figs. 11–12. *Ampedus* (*Ampedus*) *masatoi* sp. nov.: 11, habitus, female, holotype, 9.7 mm; 12, prickles on bursa copulatrix, female, holotype.

obsolete or entirely vanished and not grooved at basal and humeral area instead of finely, continuously and entirely grooved ones in *ishikawai*. Sutural ends of elytra generally moderate without small mucro. Prosternal punctures much finer and sparser than those of *ishikawai*. Propleural punctures a little larger and denser than those of *ishikawai*. Apico-ventral excavation of prosternal process plainly small and feeble. Prickles on bursa copulatrix as figured (Fig. 12), clearly sclerotic, rather thick, with basal pieces large and broad, and consisting of large prickles 39 and small ones 5 in number.

Male unknown.

Distribution. Central Honshu (Nagano Prefecture).

Type series. Holotype: ♀, Taki Spa in Yukawa (west of Mts. Yatsugatake), Chino City, Nagano Prefecture, 12. VI. 1998, M. HINAKURA leg.

Etymology. The specific name of the present new species is dedicated to Mr. Masato HINAKURA, in expressing my sincere gratitude for his kindness in offering me the valuable specimen.

Remarks. This new species is closely similar to *Ampedus* (s. str.) *gozaishi* KISHII, 1990, from the alpine region of Kanto and Chubu Districts in the general outline with the exception of the elytral coloration, which is plainly light yellowish instead of dark reddish in the latter, but can be distinguished from the latter by the different form and number of the thorny prickles on bursa copulatrix in female genitalia. In the peculiar coloration of elytra, it is also related to some ampedine species having the yellowish elytra from Honshu: *amakazaricola* KISHII et ÔHIRA, 1956, *babai* KISHII, 1966, *chokai* KISHII, 1985, *tokugoensis* W. SUZUKI, 1985, *echigo* KISHII, 1991 and *mutsu* KISHII, 1991, but the latter have always long, dense and whitish yellow pubescence on both of pronotum and elytra, and the pronotum is more or less trapezoidal.

要　　約

岸井　尚：アカコメツキ類の3新種及び1新亜種．――― 上翅の赤い *Ampedus* 属のコメツキは未記載のものが多く，今回は本州中央部の山地帯で得られた3新種 *A.* (*A.*) *kobiki* コビキアカコメツキ，*A.* (*A.*) *echizen* エチゼンアカコメツキ，*A.* (*A.*) *masatoi* シナノアカコメツキと，四国産の亜種 *A.* (*A.*) *otome shikokuanus* アワオトメアカコメツキを記載した．何れもよく似ているが，このグループの特徴である両性の生殖器構造の明確な形態差で区別は比較的容易である．

References

KISHII, T., 1966. Some new forms of Elateridae in Japan (IV). *Bull. Heian High Sch., Kyoto,* **10**: 1–11.
――, 1985. Some new forms of Elateridae in Japan (XVII). *Ibid,* **29**: 1–30.
――, 1990. Notes on Elateridae from Japan and its adjacent area (9). *Ibid.*, **34**: 1–16.
――, 1991. Notes on Elateridae from Japan and its adjacent area (10). *Ibid.*, **35**: 1–21.
――, 1992. Notes on Elateridae from Japan and its adjacent area (11). *Ibid.*, **36**: 1–30.
――, 1996. Notes on Elateridae from Japan and its adjacent area (14). *Ibid.*, **39**: 1–40.
――, 1998. Notes on Elateridae from Japan and its adjacent area (16). *Ibid.*, **41**: 1–28.
――, 1999. A check-list of the family Elateridae from Japan (Coleoptera). *Ibid.*, **42**: 1–144.

KISHII, T. et H. ÔHIRA, 1956. Snappers of Niigata Prefecture, especially on the collection by Dr. Kintaro BABA, with the descriptions of some new forms. *Akitsu, Kyoto,* **17**: 79–89.

SUZUKI, W., 1985. On some Elateridae of the Far East (Coleoptera). *Trans. Shikoku ent. soc., Matsuyama,* **17**: 79–89.

(Received July 17, 2001: Accepted November 1, 2001)

Ent. Rev. Japan, 57 (2): 119–122, Oct. 30, 2001

The Influence of Temperature on Flash Interval in the Genji-firefly Luciola cruciata (Coleoptera: Lampyridae)

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Abstract Flash intervals of *Luciola cruciata* are measured at various air temperatures at two sites for two years. The results revealed that flash intervals are negatively correlated with air temperatures. The regressions differed significantly between the sites, but not significantly between the years. In the previous studies, flash types of this species are recognized on the basis of flash interval only. However, the present study suggests that flash types of this species should be re-examined on the basis of relationships between flash interval and air temperature.

Introduction

The luminescence of the fireflies has the function as a signal for communication between the sexes, and is species-specific for the flash pattern (e.g. LLOYD, 1973; OHBA, 1983). Though the flash pattern is influenced by the various factors such as the temperature, quality and intensity of light, wind velocity, and rainfall, a few studies have been made on their correlation up to the present. As far as I know, LLOYD (1973) was the first to show the negative correlation between the flash interval and the air temperature in several species of fireflies. The same correlation was tested on Japanese species *Hotaria parvula* by OHBA (1983), which did not show any correlation, but SASAI (1999) obtained the similar result as LLOYD (1973) in *Luciola cruciata*. These observations were, however, made on the same population for each species, and no comparison was made among the plural populations.

The present study is aimed to clarify the influence of temperature in two populations of *Luciola cruciata* on the light pattern. Because this firefly is well known for the synchronous rhythmic flashing in the male and has been divided into three ecological types of the allopatric distribution by their flash patterns of the male, namely, the fast-flash type (flash interval < 3 s.), the intermediate type (flash interval = 3~4 s.) and the slow-flash type (flash interval ≧ 4 s.) (OHBA, 1988; MITSUISHI, 1991), but no consideration has been taken on the influence of temperature.

Materials and Methods

In the present study, flash intervals of the male *L. cruciata* were observed at two sites for two years under the falling temperature at night.

One of the study site is located along a brook near the Tenryu River in Komazawa, Okaya

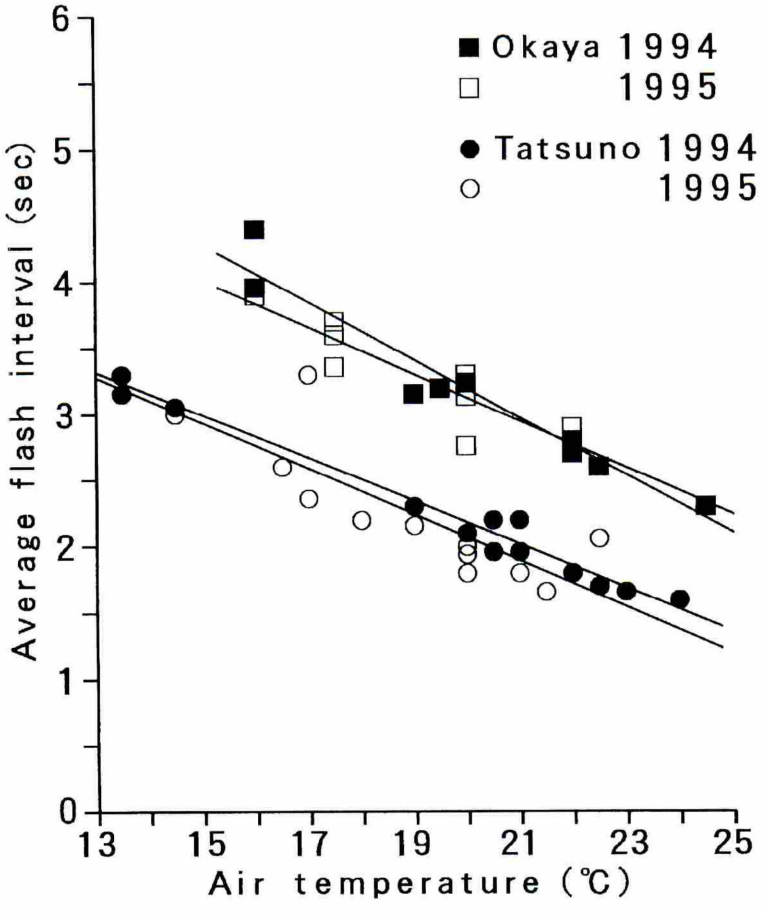

Fig. 1. Relationship between air temperature and flash interval of male *Luciola cruciata* in Okaya and Tatsuno, Nagano Prefecture in 1994 and 1995. Each symbol indicates the average of 30 flash intervals measured during one night. The regression lines are as follows: Okaya, $y = -0.22x + 7.6$ in 1994, $y = -0.18x + 6.6$ in 1995; Tatsuno, $y = -0.16x + 5.4$ in 1994, $y = 0.18x + 5.6$ in 1995.

City, Nagano Prefecture, Japan. Observations were conducted between 20:00 and 21:00 on 9 nights in 1994 and on 8 nights in 1995. While fireflies were flying and flashing synchronously, a flash interval was measured with a stopwatch as the time from the beginning of a flash to the succeeding one. In this way, 30 flash intervals were recorded and the average was calculated. After 15 flash intervals were recorded, air temperature was also measured at a height of ca. 3 m above the water.

The other site is located along a small river near the Tenryu River in Matsuo-kyo, Tatsuno-machi, Kamiina-gun, Nagano Prefecture, Japan. Observations were conducted between 21:00 and 22:00 on 13 nights in 1994 and on 12 nights in 1995. Measurement of flash intervals and air temperatures was also measured as mentioned above.

Result

As a result of my present observations, the correlation between the flash interval and air temperature is shown in fig. 1. In both Okaya and Tatsuno, the regression in both 1994 and 1995 showed significantly negative slopes (Okaya: $t = 10.72$, df = 7 in 1994, $t = 4.79$, df = 6 in 1995; Tatsuno: $t = 19.47$, df = 11 in 1994, $t = 4.46$, df = 10 in 1995; $P < 0.01$ for all. In Okaya, the regression slopes did not differ significantly ($t = 1.07$, df = 13, $P > 0.3$) and it was concluded that the two regression lines coincided (analysis of covariance, $t = 0.97$, df = 14, $P > 0.3$). Similarly, in Tatsuno, the and regression slopes did not differ significantly ($t = 0.35$, df = 21, $P > 0.7$) and it was concluded that the two regression lines coincided (analysis of covariance, $t = 0.98$, df = 22, $P > 0.3$). Consequently, the data for 1994 and 1995 were pooled to compare the males in Okaya and Tatsuno. The result was that the regression slopes for the pooled Okaya and Tatsuno males did not differ significantly ($t = 1.49$, df = 38, $P > 0.1$) and it was concluded that the two regression lines were parallel (analysis of covariance, $t = 15.97$, df = 39, $P < 0.001$).

In the present observations, the average flash interval take a range between 2.6 and 4.4 in Okaya and between 1.6 and 3.3 in Tatsuno, and apparently overlap the criteria of the flash intervals separating the ecological types as already mentioned above. As mentioned in the Introduction, flash patterns of *L. cruciata* have been traditionally divided into 3 ecological types; the fast type (flash interval < 3 s.), the intermediate type (flash interval = 3–4 s.), and the slow type (flash interval ≧ 4 s.). Consequently, the Okaya males showed flashes of the fast, intermediate, and slow types, and the Tatsuno males showed flashes of the fast and intermediate types.

Discussion

The present results indicated that flash intervals of *L. cruciata* was strongly influenced by air temperature. That is, as air temperature fell, flash interval increased. This was consistent with the observation of SASAI (1999) on this firefly. Moreover, the regressions of flash interval on air temperature differed significantly between the sites, but did not significantly between the years. MITSUISHI (1991) concluded that this firefly in both Okaya and Tatsuno showed flashes of the fast type. However, it is concluded from the present study that the Okaya and Tatsuno populations show different flash patterns.

In previous studies, the 3 flash types of this firefly were identified on the basis of the flash interval only (e.g. OHBA, 1988; MITSUISHI, 1991). However, the present study indicates that this criteria are not always correct, because flash interval varies with air temperature. The present result suggest that the flash types and their geographical distribution should be reviewed on taking into the influence of temperature. Previous studies based on flash interval showed that the Itoigawa-Shizuoka tectonic line separates two major flash types, the fast and slow ones (e.g. OHBA, 1988; MITSUISHI, 1991). However, my recent reports based on correlation of flash interval on air temperature pointed out that the separation by the Itoigawa-Shizuoka tectonic line is unclear, and that the Kanto Mountains separate two flash types, the intermediate and slow types (IGUCHI, 2001a, b). This was consistent with the results of recent molecular studies (SUZUKI *et al.*, 2000; TAKEBE *et al.*, 2000; SUZUKI, 2001; YOSHIKAWA *et al.*, 2001).

As mentioned above, no attention has been paid to the influence of air temperature on the

flash patterns in *L. cruciata*. Therefore, in future, it must be necessary to re-examine the geographical variation in flash patterns of this firefly incorporated with the data on air temperature.

要　　約

井口　豊：ゲンジボタルの明滅周期に与える気温の影響．———— 長野県岡谷市駒沢と辰野町松尾峡で，ゲンジボタルの明滅周期と気温の関係を２年間調べた．その結果，明滅周期と気温は明瞭な負の相関を示した．この関係には，年による顕著な差はないが地域間の顕著な差は存在することがわかった．従来の研究では，明滅周期に基づいて，ゲンジボタルは短周期型（周期３秒未満），中間型（周期３－４秒），長周期型（周期４秒以上）の３タイプにわけられてきた．しかしながら，本研究の結果，ゲンジボタルの明滅周期は気温に強く影響されることが判明した．ゲンジボタルの発光タイプを分類し，その地理的変異を論ずるためには，単に明滅周期だけでなく，明滅周期と気温の関係を調べる必要があるだろう．

References

IGUCHI, Y., 1993. Flash patterns of *Luciola cruciata* MOTSCHULSKY in the central part of Nagano Prefecture. *Gekkan-Mushi*, (263): 18–19. (In Japanese).

—— , 2001a. Relationships between flash periods and temperatures in the firefly *Luciola cruciata* (Abstract). *The 61st annual meeting of the Entomological Society of Japan*: **44**. (In Japanese).

—— , 2001b. Geographical variation in flash-interval air-temperature relationships and their evolution in the Genji-firefly *Luciola cruciata* (Abstract). *The 14th annual meeting of the Japanese Society of Coleopterology*: 15. (In Japanese).

LLOYD, J. E., 1973. Fireflies of Melanesia: bioluminescence, mating behavior, and synchronous flashing (Coleoptera: Lampyridae). *Environ Entomol.*, **2**: 991–1008.

MITSUISHI, T., 1991. Genji-firefly (Genji botaru). Shinano Mainichi Shinbunsha, Nagano City, Japan. (In Japanese).

OHBA, N., 1983. Studies on the communication system of Japanese fireflies. *Sci. Rept. Yokosuke City Mus.*, **30**: 1–62, pls. 1–6.

—— , 1988. Genji-firefly (Genji botaru). Bun-ichi Sougo Shuppan, Tokyo. (In Japanese).

SASAI, S., 1999. Relationships between air temperature and flash interval in the Genji-firefly *Luciola cruciata*. *Zenkoku Hotaru Kenkyukaishi* (a year journal of the Japanese Society of Fireflies), **32**: 22–25. (In Japanese).

SUZUKI, H., 2001. Studies on biological diversity of firefly in Japan. *Int. J. Indust. Entomol.*, **2**: 91–105.

—— , Y. SATO & N. OHBA, 2000. Genetic variation and differentiation in populations of *Luciola cruciata* (Coleoptera: Lampyridae) inferred from mitochondrial DNA sequences. *Zenkoku Hotaru Kenkyukaishi* (a yearly journal of the Japanese Society of Fireflies), **33**: 30–34. (In Japanese).

TAKEBE, H., T. YOSHIKAWA, K. IDE, Y. KUBOTA & H. KUSAOKE, 2000. Geographical variation in mitochondrial DNA sequences of *Luciola cruciata*. *Zenkoku Hotaru Kenkyukaishi* (a yearly journal of the Japanese Society of Fireflies), **33**: 27–29. (In Japanese).

YOSHIKAWA, T., K. IDE, Y. KUBOTA, Y. NAKAMURA, H. TAKEBE & H. KUSAOKE, 2001. Intraspecific genetic variation and molecular phylogeny of *Luciola cruciata* (Coleoptera: Lampyridae) inferred from the mitochondrial ND5 gene sequences. *Jpn. J. Ent.* (N. S.), **4**: 117–127. (In Japanese with English abstract).

(Received February 16, 2002; Accepted May 3, 2002)

Ent. Rev. Japan, 57 (2): 123–126, October 30, 2002

A New Species of the Genus *Antibothrus* (Coleoptera: Bothrideridae) from Japan

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Abstract *Antibothrus ichihashii*, a new species of Bothrideridae is described from the Mie Prefecture, Central Japan, with figures of important diagnoses.

In the family Bothrideridae, species of the genus *Antibothrus* are predominant in Africa and Madagascar (ŚLIPIŃSKI *et al.*, 1989), and a few in the Far East. The first species of the genus from the Far East was described by NIKITSKY (1985) as *A. fatalis* on the material taken with the alder and poplar scolytids of the genus *Xyleborus* in Primorye, the second species, *A. morimotoi* was added by SASAJI (1997) from Japan, and the third species is going to be described in this paper under the name of *A. ichihashii* from Mie Pref., Japan on the material inhabiting under the bark of *Castanopsis cuspidata* var. *sieboldii*.

Before going further, I wish to express my hearty thanks to Prof. emeritus Hiroyuki SASAJI of Fukui University, for his kind and valuable advice, and to Assoc. Prof. Masahiro SAKAI of Entomological laboratory, College of Agriculture, Ehime University, for reading the manuscript of this paper.

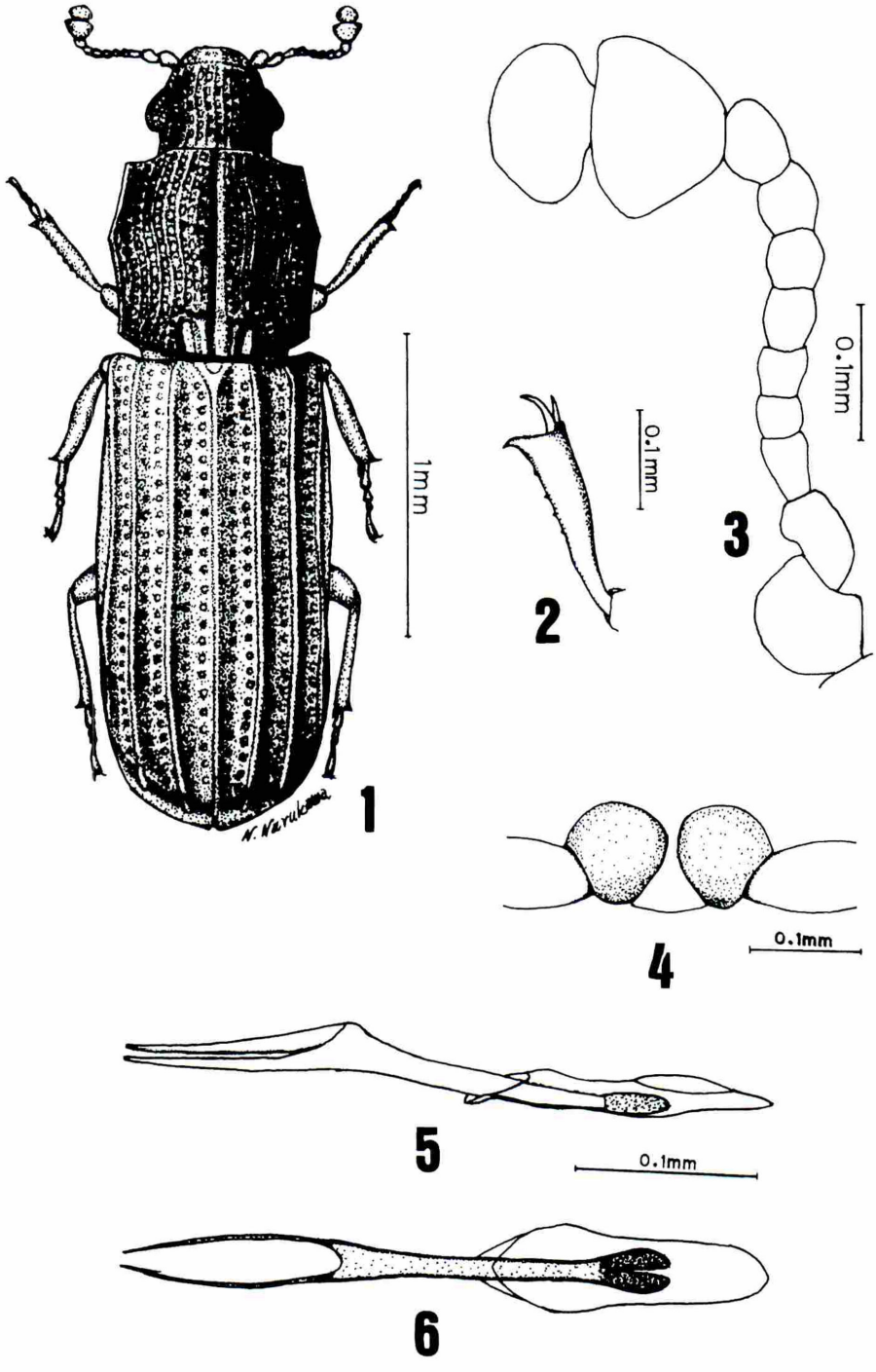
Antibothrus ichihashii sp. nov.

[Japanese name: Ichihashi-hosokatamushi]

Body elongate subcylindrical, about 3.4 times as long as wide, parallel-sided; generally brown, lateral margin of pronotum blackish brown.

Head about 0.7 times as wide as pronotum, longitudinally strigose, with shallow, oblong and umbilicated punctures in striae; clypeus strongly narrowed anteriorly; eyes bulging; frons relatively finely and sparsely punctate, and densely pubescent. Antennae (Fig. 3) 11-segmented, with two terminal segments forming a large club; 1st segment rotundate, with an angulation at the insertion of 2nd, 2nd fairly long, about 1.4 times as long as wide, 3rd about 1.3 times as long as wide, feebly dilated apically, 4th shortest, slightly longer than wide, 5th slightly longer than wide, 6th to 9th roundish, giving a moniliform appearance, 10th extremely large and exceedingly dilated, about 1.3 times as wide as long, 11th transverse-oval, about 1.4 times as wide as long.

Pronotum approximately as long as wide, subhexagonal, with angulated sides, widest at the angulation before the middle; surface provided with broad but shallow medio-longitudinal furrow in entire length which is deepened at base into oval concavity, and with shallower and more vague depression on each side of the concavity; derm similarly sculptured to that of head,



Figs. 1–6. *Antibothrus ichihashii* sp. nov.: 1, habitus; 2, left protibia; 3, right antenna; 4, prosternal process and procoxae; 5, aedeagus, lateral view; 6, aedeagus, dorsal view.

but more confused, and punctures more roundish especially at the center; anterior margin gently arched forward; anterior and posterior corners rectangular; lateral margins clearly marginate and weakly reflexed.

Elytra almost parallel-sided with conjointly rounded apex, about 1.9 times as long as wide, slightly wider than pronotum at base across humeri. Each elytron with 4 longitudinal discal carinae, of which inner three are strongly raised and the lateralmost one ordinarily raised, inner two striae extending from base to near apex; 2nd lateral carina entire, connected with lateralmost carina at posterior corner; suture and lateral margin also weakly carinate; intervals composed of two rows of circular punctures.

Prosternal process (Fig. 4) extremely narrow between procoxae, then strongly dilated apically, with apex nearly truncated.

Protibia (Fig. 2) with a sharp terminal spine and several small but distinct denticles, with two tibial spurs of which the longer one is very stout, recurvate and long, reaching the apex of 1st tarsal segment. Meso- and metatibiae with outer apex sharply spinose.

Aedeagus (Figs. 5–6) slender, gradually narrowed from base to apical 4/5, then distinctly dilated to apex which has a deep slit in dorsal aspect; parameres about 0.7 times the length of median lobe; median strut short, and about 0.6 times the length of median lobe.

Body length: 2.2–2.5 mm; width: 0.6–0.7 mm.

Type series. Holotype: ♂, Nishiki, Kisei-cho, Watarai-gun, Mie Pref., 23. VIII. 1999, N. NARUKAWA leg. (preserved in the collection of the Osaka Museum of Natural History, Type No. OMNH –TI–160). Paratypes: 1♀, same locality as holotype, 29. IV. 2000, N. NARUKAWA leg.; 1♀, 12. V. 2001, N. NARUKAWA leg. (1♀ preserved in the collection of the Osaka Museum of Natural History and 1♀ in my collection).

Distribution. Japan (Honshu).

Remarks. This new species resembles *Antibothrus morimotoi* SASAJI, 1997 and *A. fatalis* NIKITSKY, 1985, but is easily distinguished from the latter by the following characters: head and pronotum longitudinally strigose; 3rd segment of antenna longer than wide; pronotum provided with longitudinal furrow at middle in entire length, angulate at sides and larger punctures, and elytra parallel-sided.

Etymology. The specific name is dedicated to Mr. Hajimu ICHIHASHI, who is constantly leading me into the study of Coleoptera.

要　　約

生川展行：本州からの *Antibothrus* 属の１新種の記載. ——— 三重県からムキヒゲホソカタムシ科の１新種イチハシホソカタムシ *Antibothrus ichihashii* を記載した．本種はイノウエホソカタムシ *Antibothrus morimotoi* SASAJI に似ているが，触角第３節が幅より長く，後者に比べて頭部，前胸背の点刻が大きく，前胸背の中央に基部から前縁まで深い溝があり，側縁が角ばり，上翅が平行である点で区別できる．

References

DAJOZ, R., 1977. Coléoptères Colydiidae et Anommatidae Paléarctiques. *In "Faune de l'Europe et du Bassin Méditerranéen"*, **8**, Paris. 280pp.

NIKITSKY, N. B., 1985. A new species of the genus *Antibothrus* (Coleoptera, Colydiidae) from the South of the Soviet Far East. *Zool. Zhurn.*, **64**: 625–628. (In Russian).

——— , 1992. Sem. Bothrideridae. *In* LER, P. A. (ed.), *Opredelitel' Nasekomykh Dal' nego Vostoka SSSR v Shesti Tomakh*, Nauka, Sankt-Peterburg, 3 (2): 310–313. (In Russian).

SASAJI, H., 1997. A new species of the genus *Antibothrus* (Coleoptera, Bothrideridae) from Japan, with notes on the Japanese Bothriderinae. *Esakia*, (37): 111–116.

ŚLIPIŃSKI, S. A., R. R. POPE and R. J. W. ADRIDGE, 1989. A review of the world Bothriderini (Coleoptera, Bothrideridae). *Bull. entom. Pologne*, **59**: 131–202.

(Received April 9, 2002; Accepted May 2, 2002)

Ent. Rev. Japan, 57 (2): 127–128, October 30, 2002

Further Note on *Liocyrtusa onodai* HOSHINA (Coleoptera: Leiodidae: Leiodinae)

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Abstract *Liocyrtusa onodai* HOSHINA, 1998, is first recorded from Honshu, Japan, with descriptions of female hind legs and spermatheca.

The genus *Liocyrtusa* of the tribe Leiodini was described by DAFFNER (1982) and contains 10 species in the world (HOSHINA, 1998). In Japan, HOSHINA (1998) recorded this genus from Yakushima Is., Kyushu, with description of a new species, *L. onodai* based on only single male specimen. After that, no specimens have been collected. Recently, a junior author, K. KANNÔ took 24 specimens including 16 females of this species by sifting litters from Mie Pref., Honshu. In this paper, we will record this species, from Honshu for the first time, and describe the female features with some figures. Before going further, we are very grateful to Mr. Zdeněk ŠVEC (Czech Republic) for his kind advice.

Liocyrtusa onodai HOSHINA, 1998

[Japanese name: Minami-nagahime-tamakinokomushi]
(Figs. 1–3)

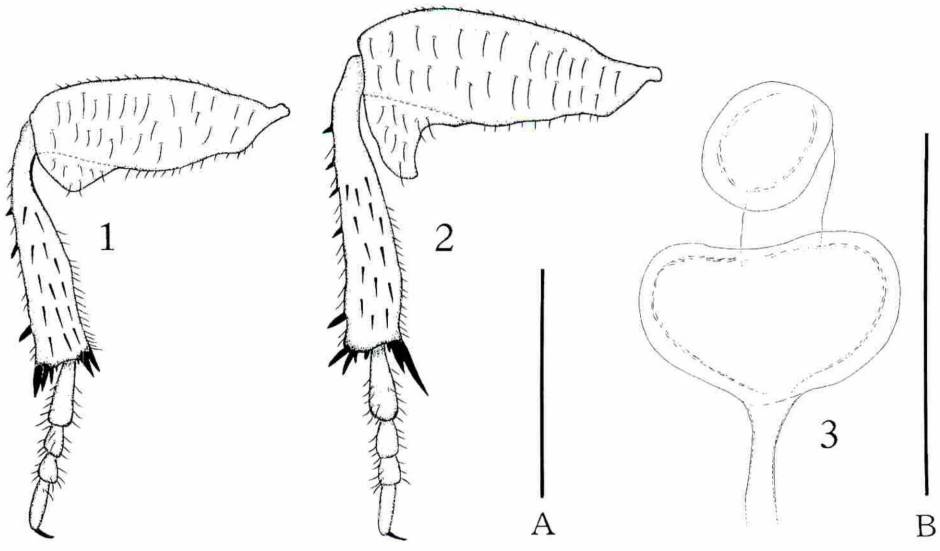
Liocyrtusa onodai HOSHINA, 1998, Ent. Rev. Japan, 53: 10 (Kyushu: Yakushima Is.).

Coloration. Dorsum yellowish brown in the holotype, brown or light brown in the specimens collected from Honshu.

Female. Hind femora (Fig. 1) with a triangular and smaller tooth than that of male specimens (Fig. 2) along posterior margin. Spermatheca divided into two parts in general shape (Fig. 3); the upper part nearly spherical; the lower part transverse elliptical, and clearly larger than the upper part.

Distribution. Japan: Kyushu (Yakushima Is.) and Honshu (Mie Pref.).

Specimens examined. Holotype, ♂, Kuromi-rindo, Kurio, Yakushima Is., Kagoshima Pref., Kyushu, 2. III. 1997, S. ONODA leg. (preserved in the collection of Kyushu University); 8♂♂, 16♀♀, Mikizaki, Owase-



Figs. 1–3. *Liocyrtusa onodai* HOSHINA: 1, female hind leg; 2, male hind leg; 3, spermatheca. Scale A, 0.5 mm for figs. 1–2; scale B, 0.1 mm for fig. 3.

shi, Mie Pref., Honshu, 11. II. 1995, K. KANNÔ leg.

要　　約

保科英人・官能健次：*Liocyrtusa onodai*（和名：ミナミナガヒメタマキノコムシ）に関する追記．———— 本種は，HOSHINA (1998) によって，屋久島産雄 1 頭の標本を基に新種として記載された種である．今回，第 2 著者の官能によって，雌雄合わせて 24 頭の標本が三重県より新たに採集された．本稿では，本種を本州から初めて記録するとともに，後脚と雌の貯精嚢の記載を行った．

References

DAFFNER, H., 1982. *Cyrtusa* ERICHSON und die nähstverwandten Gattungen (Coleoptera, Leiodidae) aus Ceylon und Südindien. *Rev. suisse Zool.*, **89**: 201–218.

HOSHINA, H., 1998. First record of the genus *Liocyrtusa* (Coleoptera: Leiodidae) from Japan, with a description of a new species. *Ent. Rev. Japan*, **53**: 9–13.

(Received April 15, 2002; Accepted September 7, 2002)

Ent. Rev. Japan, 57 (2): 129–138, October 30, 2002

Two New Species of the Genus *Limoniscus* REITTER, 1905 (Coleoptera: Elateridae) from Hokkaido, Japan*

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Abstract Two new species belonging to the genus *Limoniscus* REITTER, 1905: *L. katoi* and *L. kawaharai* from Hokkaido are described with a key to the known species in Japan.

Up to the present, 18 species of the genus *Limoniscus* REITTER, 1905 have been known from Japan. They are known as the rarest elaterids. It is hardly to examine further abundant material, but they are rather easily distinguishable to each other by the specific characteristics. Lately, I have had an opportunity to study two new species of the genus from Hokkaido through the courtesy of Mr. T. KATO. They are plainly distinguishable from the known species, however, only one male specimen was available for study in both species. In this short paper, I am going to describe these new species under the names of *Limoniscus katoi* and *L. kawaharai*, and provide a key to the 20 known species from Japan.

The holotype specimens are deposited in the collection of the Osaka Museum of Natural History.

Before going into further details, I would like to express my cordial gratitude to Mr. Toshiyuki KATO (Kitami City) for his kind and continuous offer of many valuable materials.

Limoniscus katoi KISHII, sp. nov.

(Figs. 1–7)

Male, 7.8 mm in length, 1.98 mm in width. Elongate, rather robust, subcylindrical, but less flattened at elytral surface, subparallel-sided and subshiny or a little opaque. Wholly black; tibiae and tarsi dark brownish; elytral base narrowly and basal 1/3 of 5th and 6th elytral interstices vaguely brownish. Pubescence rather tender, clearly long, rather dense, recumbent, a little curved and lightly silver-white with some luster.

Head distinctly broad, weakly convex above between eyes, with a clear shallow median and triangular depression, feebly declivous antero-inferiad, and frontal edge pentroof-likely protruding anteriad and almost straightened, rather broadly definitely marginated and only emarginated at the middle; the ratio of interocular distance across eyes to the width of an eye about 67:13 (ca. 5.2 times); frontal groove faced antero-inferiad, distinctly broad and deep, a little narrowed at the middle, with surface coarsely and pockmarkedly sculptured; vertical surface wholly smooth, with punctures clearly ocellated, circular, rather dense and large, more or less uneven

* Some New Forms of Elateridae in Japan (XXXVI)

in size and density, and their average distance among punctures generally subequal to each puncture diameter.

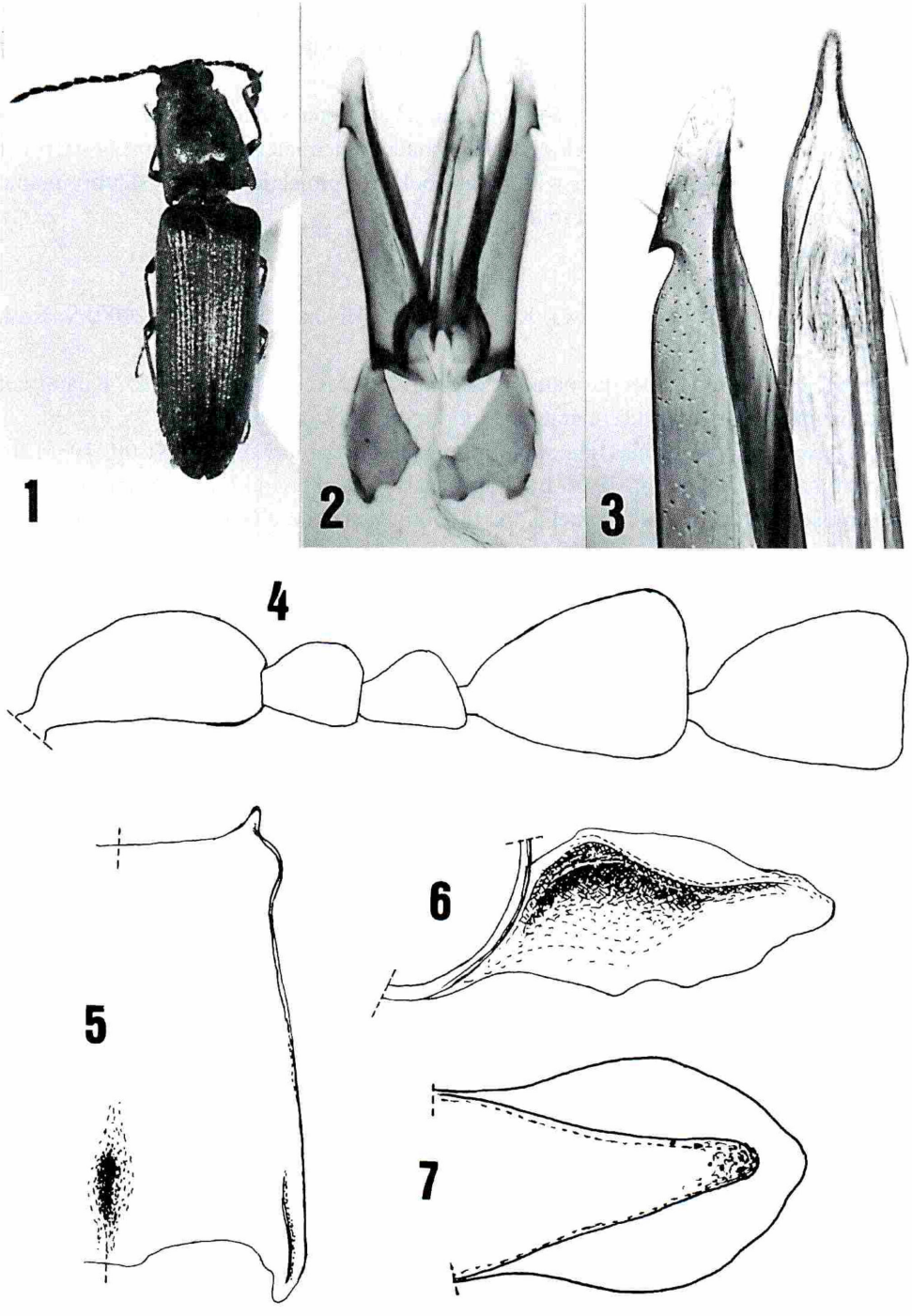
Antennae thick and a little longer than combined length of head and prothorax; ratio of length/width from basal segment to 5th as 26/13, 10.5/10, 11/10, 23/16.5 and 22.5/18 (Fig. 4), respectively; basal segment much voluminous and a little rounded at anterior side, 2nd subglobular, 3rd subtriangular, 4th to 10th plainly serrated and each segment more or less depressed bell-formed, and 11th elongate rhombic and about 1.5 times as long as 10th.

Pronotum (Fig. 5) quadrate, straightened at lateral sides and feebly narrowed anteriad, each side with clear carina which is weakened anteriorly and vanished before anterior angle, and with a distinct round thick and flat swell behind anterior end; disc moderately, simply and roundly convex above, neither any median line nor furrow, but having a distinct medio-longitudinal short furrow at hind slope, which clearly declines postero-infreiad; ratio of dorsal median length/width as 25:23; hind angles conspicuously thick, broad, and clearly short, roundly curved inwards near each hind apex, which is obtusely pointed, having an acute short and linear carina in each, the carina runs in a parallel before apex to base of angle; surface smooth entirely, with anterior border narrowly and transversely depressed, and with large circular and umbilical punctures wholly, but general punctures on discal surface longitudinally ellipsoidal, distinctly dense, simple and rather even in density, gently becoming denser and roundish laterad, and separated by about their diameter.

Scutellum elongate, plainly declivous antero-inferiad, nearly tongue-shaped, a little widened near the middle, then gradually and straightly convergent anteriad as well as posteriad, distinctly and medio-longitudinally elevated above, with punctures small, simple, rather dense and uneven in density; anterior edge marginated narrowly and less expanded anteriad; posterior end rounded.

Elytra elongate, parallel-sided from humeri to posterior 1/4, then gently roundly convergent posteriad, with a pair of shallow broad depressions behind anterior edge at basal parts of 2nd to 4th striae; apices roundly ended, each with a small acute and upheaved mucro at sutural end; striae very conspicuous, clearly furrowed with large and discontinuous punctures; strial intervals distinctly flattened, generally smooth, but partly with a faint indication of shagreened creases, and with punctures much smaller and sparser than those of pronotum.

Prosternum subtrapezoidal, widest behind anterior lobe, then linearly narrowing to posterior angles before coxal cavities, weakly and roundly convex below at posterior 2/3, less depressed transversely behind anterior lobe, which is semicircular, well declined antero-inferiad and obviously marginated at anterior edge, with very dense, large and umbilical punctures wholly; surface smooth, with punctures entirely simple, circular, a little smaller and clearly sparser than those of pronotum and generally uneven in density, and separated on an average by clearly more than diameter of a puncture. Prosterno-pleural sutures wholly smooth and broadly marginated at pleural sides, obviously enlarged perpendicularly at antero-pleural ends, slightly and shallowly furrowed at anterior 2/5, and widely opened each other at anterior ends. Prosternal process in ventral view (Fig. 7) thick and elongately extending posteriad triangularly, with a shallow depression between procoxal cavities having dense punctures, and broadly enlarged laterad at postero-interior sides, which are well expanded laterad at the middle, with a distinct concavity at each lateral side, in profile (Fig. 6) a little thick, protruding posteriad, irregularly excavated on ventral surface, with hind apex obtuse. Propleural punctures longitudinally subellipsoidal, a little denser than those of prosternal ones. Mesosternal cavity large and horizontal,



Figs. 1–7. *Limoniscus katoi* sp. nov.: 1, habitus, male, holotype, 7.8 mm; 2, male genitalia, dorsal view; 3, ditto, apical part; 4, antenna, basal segment to 5th; 5, pronotum, right dorsal view; 6, prosternal process, profile; 7, ditto, ventral view.

entirely rounded at hind part and very deeply hollowed, with an anterior groove rather broad and shallow. Metasternal punctures more or less similar to those of prosternum, but a little smaller in size and rather faintly punctured.

Male genitalia as figured (Figs. 2–3); median lobe gradually narrowed to near apex, then abruptly narrowed apically with apex obtusely pointed; apico-lateral expansion of each paramere elongate and rounded at apex, with outer hook-like projection plainly sharply pointed, with basal emargination rounded and small.

Female unknown.

Distribution. Hokkaido.

Type series. Holotype: ♂, Miwa, Koshimizu-cho, Hokkaido, 14. VIII. 2000, S. KAWAHARA leg.

Etymology. The new specific name is dedicated to Mr. Toshiyuki KATO, Kitami City, Hokkaido, in expressing my sincere gratitude for offering precious materials.

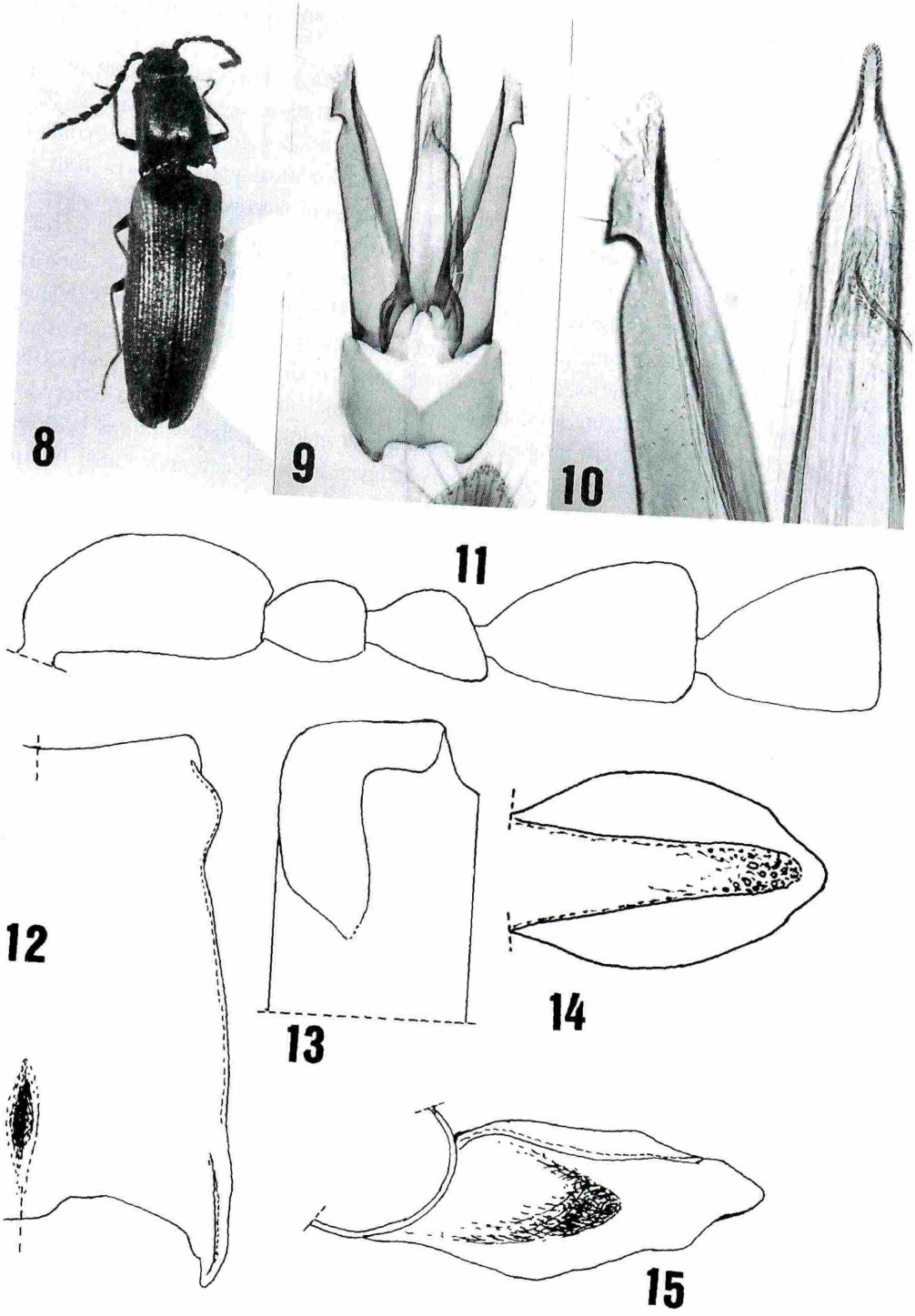
Remarks. This new species somewhat resembles *Limoniscus ogatai* (KISHII, 1985) from Kyushu and *L. hosodai* (KISHII, 1989) from Yamanashi in the elytral brownish maculation and the strong resemblance of male genitalia, but the former may be distinguishable from them by the following points: 1) smallest and much slender; 2) antennal serration feebler: *katoi* < *hosodai* < *ogatai*; 3) head punctures subocellated, small and dense in *katoi* and *hosodai*, but distinctly umbilical, large and much denser in *ogatai*; 4) interstices between punctures on pronotum smooth, similar in appearance to those of *katoi* and *hosodai*, but more or less reticulated by much denser punctures in *ogatai*; 5) pronotal posterior angles short, thick and less divergent postero-laterad in *katoi*, but longer and clearly divergent in *hosodai* and *ogatai*; 6) apico-lateral expansion of each paramere (Fig. 3) elongate, rounded at apex, with outer hook-like projection plainly sharply pointed, and basal emargination rounded and small in *katoi*, but narrower and obtusely pointed at apex, with hook-like projection small in *hosodai* and *ogatai*, and basal emargination of hook-like projection rounded and much larger in *ogatai*.

Limoniscus kawaharai KISHII, sp. nov.

(Figs. 8–15)

Male, 7.1 mm in length, 1.7 mm in width. Elongate, rather stout, subcylindrical, hardly depressed at anterior part of elytra, parallel-sided and subshining. Black with apical parts of femora, tibiae exclusive of bases and tarsi more or less yellowish; elytra black, decorated with a transverse yellowish orange maculation at base, and distinct elongate yellowish orange stripes occupying just behind humeri to anterior 1/5 of 5th to 8th strial interstices (Fig. 13). Pubescence rather tender, clearly long, rather dense at elytra, subrecumbent, less curved and lustrous, intermixedly arranged with silver-white and brownish ones.

Head broad, weakly convex above between eyes, then flattened and a little declivous antero-inferiad, with a shallow depression behind frontal margin, which is almost straightened, clearly marginated and sinuated at the middle; the ratio of interocular distance across eyes to the width of an eye about 59 : 15 (ca. 3.9 times); frontal groove faced anteriad, broad and rather deep, weakly narrowed medianly, less pentroof-likely projecting anteriad at frontal edge of head, with surface wholly pockmarkedly sculptured; vertical surface generally smooth with partly obsolete weak creases, with punctures distinctly umbilical, rounded, much dense and



Figs. 8–15. *Limoniscus kawaharai* sp. nov.: 8, habitus, male, holotype, 7.1 mm; 9, male genitalia, dorsal view; 10, ditto, apical part; 11, antenna, basal segment to 5th; 12, pronotum, right dorsal view; 13, humeral part of left elytron, dorsal view; 14, prosternal process, ventral view; 15, ditto, profile.

large, but a little uneven in size and density, and separated on an average by the space plainly less than diameter of a puncture.

Antennae thick, with apex exceeding as far as the length of terminal segment or more from apices of pronotal hind angles; relative length/width from basal segment to 5th as 24/11, 10.5/8.5, 10.5/9, 21/14 and 19.5/14.5 (Fig. 11), respectively; basal segment robust, cylindrical and plainly rounded at anterior side, 2nd rather obconical, 3rd ill-triangular, 4th to 10th segments well serrated, depressed bell-formed and gently becoming narrower and less longer apically, 11th elongate spindle-formed and about 1.2 times as long as 10th.

Pronotum (Fig. 12) quadrate, subparallel-sided or hardly narrowed anteriad, each side thinly carinated, feebly sinuated before hind angle, then linearly projecting anteriad, with anterior end obsolete, finally not reaching anterior edge of pronotum, and conspicuously and triangularly swollen laterad before anterior end; disc simply and roundly convex above without both median line and furrow, but having a faint medio-longitudinal short furrow at posterior slope, which is abruptly declined postero-inferiad; relative dorsal median length/width as 10/9; hind angles thick, less broad, rather short, roundly curved inwards, with each apex rather obtusely pointed, having an acute short and linear carina, which less divergently runs before apex to base of angle; surface plainly smooth, with anterior border narrowly and transversely depressed with large ocellated uneven and circular punctures, but general punctures on disc more or less longitudinally ovate, obviously dense, simple and rather even in density, but gently becoming round laterad, and their average interstices subequal to or less wider than their diameter.

Scutellum elongate, declivous antero-inferiad, tongue-shaped, subparallel-sided, medio-longitudinally elevated above, a little marginated and expanded anteriad at frontal edge, round at hind apex, and surface smooth with minute dense punctures.

Elytra elongate, parallel-sided from humeri to posterior 2/5, then gently and roundly convergent posteriad, with a pair of shallow crescentic concavities behind anterior edge at basal parts of 2nd to 4th striae; apices moderately rounded, each with a small acute and upheaved mucro at sutural end; striae distinct, narrowly furrowed with discontinual punctures; strial intervals entirely flattened, generally smooth, with punctures irregular in density, and much smaller and sparser than those of pronotum.

Prosternum elongate, subtrapezoidal, widest behind anterior lobe, then linearly narrowed to posterior angles before coxal cavities, roundly elevated beneath at posterior 1/3, transversely and faintly depressed behind anterior lobe, entirely smooth, with punctures minute, sparse and simple, and separated by the space much more than their diameter; anterior lobe semicircular, declivous antero-inferiad, plainly marginated at anterior margin, with very dense, large, round and ocellated punctures at anterior half, and slightly dense, a little smaller and sparser, and simple or subocellated punctures at basal part of lobe. Prosterno-pleural sutures wholly smooth, broadly marginated and straightened at pleural sides, plainly enlarged inferiad at antero-pleural ends, weakly canaliculated at anterior 1/3, and triangularly opened from each other at anterior ends. Prosternal process in ventral view (Fig. 14) thick, elongate, subtriangularly projecting posteriad, clearly depressed between procoxal cavities with coarse and dense punctures, and roundly and broadly enlarged laterad at postero-interior sides, which are well expanded laterad at the middle, each with a distinct concavity at lateral side, in profile (Fig. 15) becoming thinner posteriad, rather short and straightly protruding, with hind apex obtusely ended and feebly excavated at ventral surface behind hind apex. Propleural punctures longitudinally subrounded, feebly ocellated, much denser and less larger than those of prosternum. Mesosternal cavity large and

horizontal, entirely rounded and very deeply hollowed, with an anterior short groove broad and shallow. Metasternal punctures a little denser and smaller than those of prosternum.

Male genitalia as figured (Figs. 9–10); median lobe gradually narrowed to near apex, then abruptly narrowed apically, with apex obtusely pointed; apico-lateral expansion of each paramere elongate, rounded at apex, with outer hook-like projection sharply pointed, with basal emargination rounded and large.

Female unknown.

Distribution. Hokkaido.

Type series. Holotype: ♂, Miwa, Koshimizu-cho, Hokkaido, 25. VI. 2000, S. KAWAHARA leg.

Etymology. The new specific name is dedicated to the first collector, Mr. Susumu KAWAHARA, Kitami City, Hokkaido.

Remarks. This new species somewhat resembles *Limoniscus imitans* (LEWIS, 1894) from Honshu and Shikoku, but is at least distinguishable from the latter by the following points: 1) body smaller and slenderer (7.5–9 mm in *imitans*); 2) pronotum simply lustrous (always with cupreous and metallic luster in *imitans*); 3) elytral yellowish stripes short (much longer in *imitans*); and 4) metasternal punctures plainly larger and denser.

Key to the *Limoniscus* Species from Japan

1. Anterior end of pronotal lateral margin entirely reaching anterior angle. 2
— Anterior end of pronotal lateral margin vanished before anterior angle. 3
2. Elytra cupreous black with a pair of yellowish maculations near the middle on 4th to 8th strial intervals. 9.0–11.5 mm. (Honshu, Shikoku, Is. Tsushima). ..... *L. kraatzi nihonicus* (KISHII, 1966)
— Elytra brownish, yellowish orange at base and entirely yellowish along outer margins. 8.0–8.5 mm. (Honshu, Shikoku). ..... *L. limbatipennis* (NAKANE et KISHII, 1955)
3. Pronotum with lateral margin obviously swollen laterad before anterior end. Pronotum and elytra concolorous or maculated, without cupreous metallic lustre. 4
— Pronotum with lateral margin not swollen. Pronotum and elytra concolorous, more or less with cupreous metallic lustre on whole surface. 13
4. Elytra unicolorous and plainly opaque. 5
— Elytra black, more or less with longitudinal yellowish or reddish stripes, or brownish maculation at humeri, elytra rarely but entirely yellowish or reddish in female and shining. 6
5. Body black, with elytra dark cinnabar-red. 10.5 mm. (Is. Amami-ohshima). ..... *L. amamiensis* (ÔHIRA, 1966)
— Body entirely dark bluish black without any elytral stripes. 8.0–10.0 mm. (Honshu, Shikoku, Kyushu). ..... *L. atricolor* (LEWIS, 1879)
6. Elytra vaguely brown at humeri, and rarely with longitudinal and narrow stripes. 7
— Elytra not vaguely brown at humeri, with distinct yellowish or reddish stripes, also rarely with yellowish or reddish elytra in female 9
7. Pronotal punctures extremely dense and rather reticulated in part. Humeral brownish maculation obscure but sometimes longitudinally extending near apex. 9–10 mm. (Kyushu). ..... *L. ogatai* (KISHII, 1985)

— Pronotal punctures less dense, not reticulated, separated on an average by 1 or more times their diameter. ····· 8

8. Pronotal posterior angles rather long and clearly divergent postero-laterad. Serration of 4th to 10th antennal segments clearly broad and long. Prosternal process plainly narrowed posteriad. 7.0–9.0 mm. (Honshu: Yamanashi Pref.). ····· *L. hosodai* (KISHII, 1989)

— Pronotal posterior angles short and thick, produced in parallel. Serration of 4th to 10th antennal segments narrow and short. Prosternal process triangularly narrowed posteriad. 7.8 mm. (Hokkaido). ····· *L. katoi* sp. nov.

9. Elytral stripes more or less tinged with yellowish. Pronotal punctures always dense, sometimes reticulated each other, and their interstices subequal to their diameters or plainly less.· ····· 10

— Elytral stripes reddish, sometimes entirely bright red. Pronotal punctures small and clearly sparse, and more or less separated by more than their diameters. 7–10 mm. (Honshu, Shikoku, Kyushu). ····· *L. rufipennis* (LEWIS, 1894)

10. Elytral stripes reddish yellow, with inner one or two intervals blackish in male, and female elytra wholly reddish yellow with sutures and lateral margins weakly fuscous. Pronotal punctures subrounded and plainly dense, but not reticulated and their average interstices subequal to their diameter or a little less. 9.0–10.0 mm. (Honshu: Niigata, Nagano, Nara Prefs.). ····· *L. rufovittatus* (ÔHIRA, 1963)

— Elytral stripes yellowish, with inner three or four intervals always blackish except for testaceous basal parts. ····· 11

11. Body slender, shorter than 7.5 mm. Pronotum simply shining, with pubescence whitish. Elytral stripes short, transversely maculated at base and extending posteriad behind humeri to anterior 1/5 of 5th to 8th strial interstices. 7.1 mm. (Hokkaido). ····· *L. kawaharai* sp. nov.

— Body robust, longer than 7.5 mm. Pronotum with cupreous and metallic tint, with pubescence mainly yellowish. Elytral stripes generally extending posteriad. ····· 12

12. Pronotal punctures rather small and moderate in density, not reticulated, separated on an average by about their own diameter. 7.5–9.0 mm. (Honshu, Shikoku). ····· *L. imitans* (LEWIS, 1894)

— Pronotal punctures denser, more or less reticulated at the middle, separated on an average by clearly less than diameter of a puncture. 8.5–10.5 mm. (Hokkaido, Honshu, Shikoku, Kyushu). ····· *L. vittatus* (CANDÈZE, 1873)

13. Body small, shorter than 10.0 mm. Pronotal punctures dense, more or less longitudinally elliptical. ····· 14

— Body large, longer than 10.5 mm. Pronotal punctures rather sparse and rounded. ····· 17

14. Legs reddish; femora more or less fuscous. Prosternal process distinctly narrowed posteriad from base. ····· 15

— Legs yellowish orange wholly. Prosternal process parallel-sided at basal half, then becoming narrowed posteriad. ····· 16

15. Pronotum and elytra with faint brassy tint. Pubescence silver-whitish. Elytra wholly black. Pronotum narrow, distinctly longer than wide. Pronotal punctures dense, not reticulated, separated by about their own diameter. 7.7 mm. (Honshu: Ishikawa Pref.). ····· *L. takabai* KISHII, 1997

— Pronotum and elytra with distinct brassy and metallic tint. Pubescence clearly golden-yellowish. Elytra black with basal part obscurely brownish. Pronotum wide, about as long as

wide. Pronotal punctures very dense, partly reticulated from each other, separated by distinctly less than their diameters. 9.5 mm. (Shikoku: Tokushima Pref.). ..... *L. naomii* KISHII, 1997

16. Pronotal punctures sparse and even. Antennal segments 2 and 3 relatively short. 7.5–8.5 mm. (Honshu: Wakayama Pref.). ..... *L. hiramatsui* (ÔHIRA, 1976)
— Pronotal punctures dense and uneven. Antennal segments 2 and 3 relatively long. 8.0–9.5 mm. (Honshu, Shikoku, Kyushu). ..... *L. montivagus* (LEWIS, 1894)
17. Elytral apices neither mucronate nor upheaved. 18
— Elytral apices clearly mucronate and a little upheaved. 19
18. Pubescence yellowish tawny. Pronotal punctures dense and coarse. 12.5 mm (Hokkaido: Jozankei). ..... *L. ainu* (ÔHIRA, 1968)
— Pubescence grey. Pronotal punctures sparser, rather even and microscopically ocellated partly. 12.0–13.5 mm. (Hokkaido). ..... *L. niponensis* (LEWIS, 1894)
19. Pubescence silver-white. Pronotal punctures large and subocellated. Prosternal process narrow, subparallel-sided. 11.5–12.5 mm. (Honshu: Niigata, Nagano, Kyoto, Nara Prefs.). ..... *L. hinakurai* KISHII, 1998
— Pubescence golden-yellow. Pronotal punctures rather small and simply rounded. Prosternal process rather broad and gently narrowed posteriad. 10.5–12.5 mm. (Honshu, Shikoku, Kyushu). ..... *L. yamato* KISHII, 1998

要　　約

岸井　尚：北海道産カネコメツキ属の２新種．――― カネコメツキ属は美麗種が多いので蒐集家に好まれるコメツキだが，採集しがたいグループの一つで，多くの個体での比較研究が困難なものでもある．今回北見市の加藤敏行氏のご好意で得られた２頭のカネコメツキは何れも未記載のもので，それぞれエゾカネコメツキ *Limoniscus katoi*，キタカネコメツキ *L. kawaharai* として記載した．またこれで本邦のカネコメツキが20種知られることとなり，同定の難しいものもあるので種の検索表を付記した．

References

CANDÈZE, E. C. A., 1873. Insects recueillis au Japon par Mr. G. LEWIS. *Élat. Mem. Soc. roy. Sci. Liege*, (2) **5**, mem., 2: ii+32pp.

KISHII, T., 1966. Elateridae of Kyoto and its adjacent regions. *Biol. Lab. Heian High Sch., Kyoto*: 1–54.

――, 1985. Some new forms of Elateridae in Japan (XVII). *Bull. Heian High Sch., Kyoto*, **29**: 1–30.

――, 1989. New species of *Kibunea* KISHII and *Gambrinus* LECONTE from Yamanashi Pref. collected by Mr. K. HOSODA (Coleoptera: Elateridae). "Some new forms of Elateridae in Japan (XXII)". *Ent. Rev. Japan, Osaka*, **44**: 63–68.

――, 1997. Notes on Elateridae from Japan and its adjacent area (15). *Bull. Heian High Sch., Kyoto*, **40**: 1–11.

――, 1998. Notes on Elateridae from Japan and its adjacent Area (16). *Ibid.*, **41**: 1–28.

――, 1999. A check–list of the family Elateridae from Japan (Coleoptera). *Ibid.*, **42**: 1–144.

LEWIS, G., 1879. Diagnoses of Japan. *Ent. Month. Mag.*, **16**: 155–157.

——— , 1894. On the Elateridae of Japan. *Ann. Mag. nat. Hist.*, [6] **13**: 182–201.

NAKANE, T. et T. KISHII, 1955. Descriptions of a new form of the Elaterid-beetles from Japan, with notes on some others. *Sci. Rep. Saikyo Univ. (Nat. Sci. Liv. Sci.), Kyoto*, **2** (1), A ser.: 43–45.

ÔHIRA, H., 1966. Notes on some Elaterid-beetles from the Ryukyu Islands, II (Coleoptera). *Bull. Jap. Ent. Acad., Nagoya*, **2** (2): 7–12.

——— , 1968. New or little-known Elateridae from Japan, XI (Coleoptera). *Ibid.*, **4** (3): 9–12.

——— , 1976. New or little-known Elateridae (Coleoptera) from Japan, XX. *Trans. Shikoku Ent. Soc., Matsuyama*, **13**: 47–50.

(Received September 10, 2001; Accepted March 30, 2002)

Ent. Rev. Japan, 57 (2): 139–143, October 30, 2002

A New Subspecies of *Homotechnes motschulskyi* (FLEUTIAUX, 1902) (Coleoptera: Elateridae) from Shiga and Mie Prefectures*

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Abstract A new subspecies of *Homotechnes motschulskyi* (FLEUTIAUX, 1902): *H. m. oikensis* from Mt. Oike-dake of Shiga and Mie Prefectures is described.

As the first record of the apterous species *Hypolithus motschulskyi* from Mie Prefecture, ÔHIRA (1995) described a new subspecies *H. m. kawasei* (now in the genus *Homotechnes*) based on the specimens from Hirakura in Misugi-mura and the Kogurumi valley in Fujiwara-cho. On this species from Mie Prefecture, ÔHIRA and KAWASE (1996) at length reported relation to another subspecies from this Prefecture: *H. m. taichii* (NAKANE, 1963) which is distributed widely throughout the Ohdaigahara mountains.

Lately, I received many specimens of this species collected from Mt. Oike-dake of the Suzuka mountains which is located on the boundary between Eigenji-cho of Shiga Prefecture and Fujiwara-cho of Mie Prefecture through the courtesy of many entomologists in Mie Prefecture mentioned below, and some examples from Mt. Kunimi-yama of the Takami mountains through Mr. Y. OKUDA. After a careful examination, it became clear that the specimens from Mt. Oike-dake differed from those of Mt. Kunimi-yama and Hirakura, and they will be described in the present paper as a new subspecies. The configuration of the male genital organ and of the thorny plates on female bursa copulatrix were good diagnosis.

The holotype is deposited in the collection of the Osaka Museum of Natural History, Japan and the paratypes are in the collection of some collectors and the author.

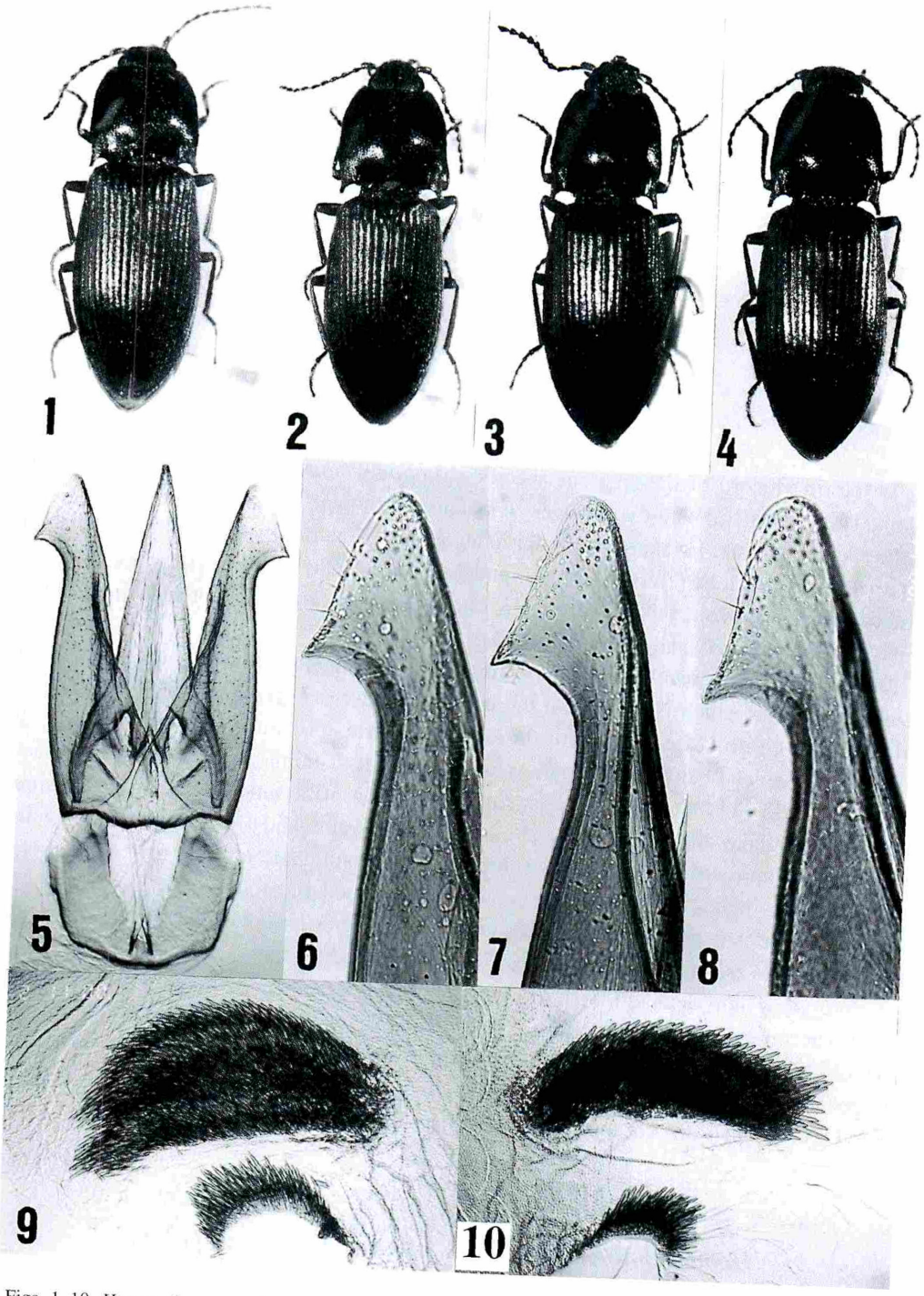
Before going into details, I wish to express my deep gratitude to the members of the Mie Kontyû Danwa-kai: Messrs. Katsumi AKITA (Hisai City), Kenji KANNÔ (Komono Town), Nobuyuki NARUKAWA (Suzuka City) and Hiroshi OTOBE (Tsu City), who gave me many valuable specimens. I also thank Mr. Yoshihide OKUDA (Takarazuka City) and Mr. Kiyoshi MASAKI (Kyoto City) for their offer or loan of the specimens used in the present paper.

Homotechnes motschulskyi oikensis KISHII, subsp. nov.

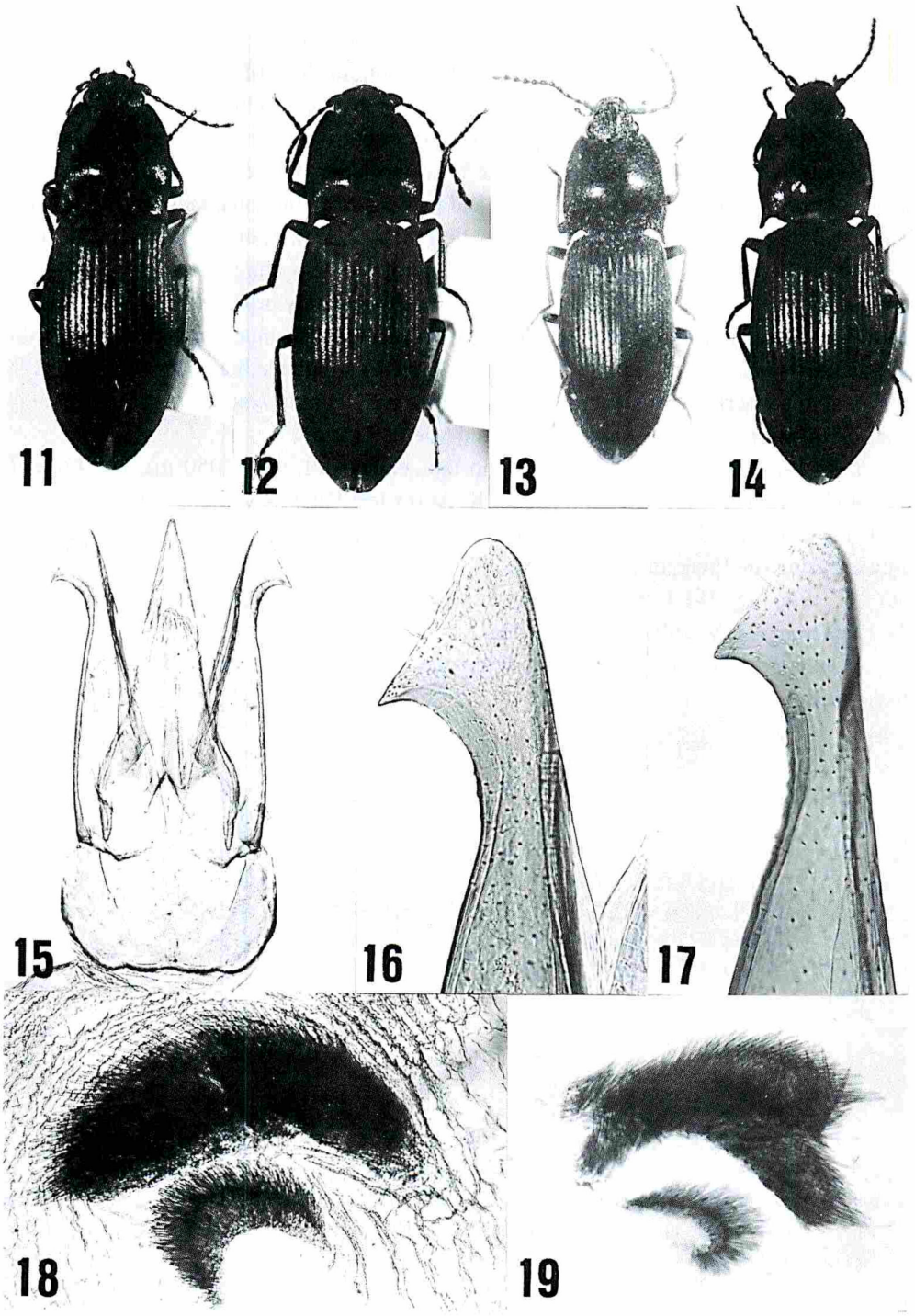
(Figs. 1–10)

Homotechnes motschulskyi subsp.: KISHII, 2001, Nejirebane, Osaka, (93): 4 (Tate-dani valley in Fujiwara-cho, Mie).

* Some New Forms of Elateridae in Japan (XXXVII)



Figs. 1–10. *Homotechnes motschulskyi oikensis* subsp. nov.: 1–4, habitus (1, male, holotype, 9.6 mm, Mano-tani valley; 2, female, paratype, 11.2 mm, ditto; 3, male, paratype, 10.2 mm, Kogurumi-dani valley; 4, female, paratype, 10.4 mm, ditto); 5, male genitalia, dorsal view, holotype; 6–8, apical part of paramere in aedeagus (6, holotype; 7, Kogurumi-dani valley, paratype; 8, Tate-dani valley, paratype); 9–10, thorny plates on bursa copulatrix of female genitalia (9, Mano-tani valley, paratype; 10, Kogurumi-dani valley, paratype).



Figs. 11–19. *Homotechnes motschulskyi kawasei* (OHIRA, 1995): 11–14, habitus (11, male, 10.3 mm, Hirakura; 12, female, 12.0 mm, ditto; 13, male, 10.9 mm, Mt. Kunimi-yama; 14, female, 11.8 mm, ditto); 15, male genitalia, dorsal view, Hirakura; 16–17, apical part of paramere in aedeagus (16, Hirakura; 17, Mt. Kunimi-yama); 18–19, thorny plates on bursa copulatrix of female genitalia (18, Hirakura; 19, Mt. Kunimi-yama).

Length: 9.6–11.9 mm (male, Figs. 1–2) and 10.6–12.6 mm (female, Figs. 3–4); humeral width: 2.8–3.4 mm (male) and 3.1–3.6 mm (female). Dark brown, generally subopaque; antennae, lateral sides of pronotum, apical part of elytra, anterior lobe of prosternum and apical one (female) or two (male) sternites more or less reddish brown; legs yellowish brown.

The general profile of the present new subspecies is similar to subsp. *kawasei* (ÔHIRA, 1995) (Figs. 11–14), but is distinguishable from the latter by the combination of following points: 1) body a little smaller; 2) antennae and legs paler; 3) 3rd antennal segment of male less longer: 1.3–1.4 times as long as 2nd (1.1–1.2 times in *kawasei*); 4) elytral intervals on basal part more or less transversely creasy (generally smooth or less shagreen-likely sculptured in *kawasei*); 5) male genitalia (Figs. 5–8) with median lobe plainly broad at base, then triangularly protruding apically, and apical hooked expansion of paramere much larger and less elongate than that of *kawasei* (Figs. 15–17); and 6) thorny plates on female bursa copulatrix (Fig. 9–10) with small plate narrower and rather weakly curvate than those of *kawasei* (Fig. 18–19).

Distribution. Mt. Oike-dake in Shiga and Mie Prefectures.

Type series. Holotype: ♂, Mt. Mano-tani valley (alt. 950–1050 m), Mt. Oike-dake, Eigenji-cho, Shiga Prefecture, 3. VI. 2000, K. AKITA leg. Paratypes: 47♂♂, 17♀♀, same data as for the holotype; 13♂♂, 9♀♀, Kogurumi-dani valley (alt. 700–940 m), Mt. Oike-dake, Fujiwara-cho, Mie Prefecture, 3. VI. 2000, K. AKITA leg.; 1♀, ditto, 6. VI. 1987, N. NARUKAWA leg.; 1♂, ditto, 28. IV. 1991, M. NAKANISHI leg.; 6♂♂, 1♀, Tate-dani valley, Fujiwara-cho, Mie Prefecture, 23. V. 1997, K. KANNÔ leg.

Etymology. The subspecific name of the present subspecies refers to the type locality, Mt. Oike-dake.

要　　約

岸井　尚：ミヤマヒサゴコメツキの１新亜種. ——— *Homotechnes motschulskyi* ミヤマヒサゴコメツキは下翅退化縮小のため，高山または水系による隔離の影響を受けやすい種の一つとして著名で，これまでに極めて多くの亜種が報告されている．滋賀と三重の県境にある御池岳から多数得られた個体群は近接地域産の亜種群と異なる別亜種と認められるので *H. m. oikensis* オイケミヤマヒサゴコメツキの新名で記載した．

References

KISHII, T. 1998. Two new subspecies of *Homotechnes motschulskyi* (FLEUTIAUX, 1902) (Coleoptera: Elateridae) from Mie and Nara Prefectures. "Some new forms of Elateridae in Japan (XXVII)". *Ent. Rev. Japan, Osaka*, **53**: 77–80.

——— , 1999. A check-list of the family Elateridae from Japan (Coleoptera). *Bull. Heian high Sch.*, **42**: 1–144.

——— , 2001. Elaterid-beetles from Mie Prefecture (6). On the collection by Mr. Kenji KANNÔ. *Nejire-bane, Osaka*, (93): 3–12. (In Japanese).

ÔHIRA, H. 1995. New or little known Elateridae (Coleoptera) from Japan, XXXI. *Jpn. J. Syst. Ent., Ehime*, **1**: 95–97.

—— and H. KAWASE, 1996. Hirakura-miyama-hisago-kometsuki ni tsuite (= Notes on the *Hypolithus motschulskyi kawasei*). *Hirakura, Mie*, **40** (1): 4. (In Japanese).

(Received September 30, 2001; Accepted July 21, 2002)

Ent. Rev. Japan, 57 (2): 145–146, October 30, 2002

Further New Records of Tiger Beetle Species from China (II) (Coleoptera: Cicindelidae)

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Abstract *Heptodonta vermifera* and *Cosmodela setosomalaris* are reported for the first time from Gansu Province, China.

The authors received for study further material of tiger beetle species, which were collected by Mr. Andre GORODINSKI (Moscow) in southwestern China. Referring to WIESNER (1992) two of them turned out to be new, even if not unexpected provincial records from China. In the following the collection data are listed.

Prothyma lautissima DOKTHOUROFF, 1888

Specimens examined: 6♂♂, 6♀♀, near Wudu, Min Shan Mts., alt. 1,200 m, Gansu, China, 13. VI. 2001, A. GORODINSKI leg.; 16♂♂, 12♀♀, near Wenxian, Min Shan Mts., alt. 1,100 m, Gansu, China, 3. VII. 2001 , A. GORODINSKI leg.

Both populations differ somewhat in size and color. The specimens from Wudu are about 9.0 to 11.2 mm large, with an average of 9.8 mm; their elytra are colored blueish green to dark violet. The specimens from Wenxian are about 9.8 to 12.3 mm large, with an average of 10.9 mm; their elytra are blueish green colored.

Heptodonta vermifera W. HORN, 1908

Specimens examined: 4♂♂, 2♀♀, Xichang env., alt. 1,700 m, S. Sichuan, China, 18. VII. 2001, A. GORODINSKI leg.

New record from Gansu Province. Previously the species was known from Yunnan only.

Cicindela (Cicindela) gemmata gemmata FALDERMANN, 1835

Specimens examined: 4♂♂, 3♀♀, Satan vill., 95 km N.W. Wudu, Min Shan Mts., alt. 2,900 m, Gansu, China, 18. VI. 2001, A. GORODINSKI leg.

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* 78. Contribution towards the knowledge of Cicindelidae

Cosmodela setosomalaris (W. HORN, 1913)

Specimens examined: 3♂♂, 5♀♀, near Wudu, Min Shan Mts., alt. 1,200 m, Gansu, China, 13. Vl. 2001, A. GORODINSKI leg.

New record from Gansu Province. Previously the species was known from Kwei Tschou, Sz'Tschwan, Yunnan and Tibet.

Acknowledgement

The authors are indebted to Mr. Andre GORODINSKI, who made the beetles available.

References

WIESNER, J., 1992. Checklist of the Tiger Beetles of the World (Coleoptera, Cicindelidae). Verlag Erna Bauer, Keltern, 1992: 364pp.

(Received April 22, 2002; Accepted July 20, 2002)

Ent. Rev. Japan, 57 (2): 147–153, October 30, 2002

New or Little-known Tenebrionid Species from Japan (Part 3)

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Abstract This is the third part of the series of studies on the Japanese Tenebrionidae, describing three new species, *Stenochinus wakoi* sp. nov. (Bolitophagini), *Uloma hiranoi* sp. nov. (Ulomini), and *Diaclina yaeyamaensis* sp. nov. (Ulomini).

As the third part of the series of studies on the Japanese Tenebrionidae, we are going to describe three new species belonging to the tribes Bolitophagini and Ulomini.

We thank Messrs. Yukihiko HIRANO (Odawara City), Noboru KANIE (Seto City), Minoru SAWAI (Yamanashi Pref.), Hiroshi OTOBE (Tsu City), Yôsuke WADA (Takamatsu City), and the late Atsuo IZUMI for offering materials, and also thank Dr. Masashi INAGAKI (Yokkaichi City) and Dr. Makoto KIUCHI (Tsukuba City) for taking photographs inserted in this paper.

All the holotypes to be designated are deposited in the collection of the National Science Museum (Nat. Hist.), Tokyo, Japan (NSMT).

Stenochinus wakoi sp. nov.

[Japanese name: Oni-kubikakushi-gomimushidamashi]

(Figs. 1, 4–5)

Dark reddish brown, granules and ridges on elytra almost black, hairs on each surface pale golden. Body elongate, subcylindrical.

Head transversely subelliptical, steeply inclined forwards, closely and coarsely punctate and covered with adpressed scale-like hairs; clypeus somewhat trapezoidal, gently convex in middle, clypeo-genal borders sulcate, fronto-clypeal border not defined; genae subrectangular, with rounded outer margins; frons wide, slightly convex, diatone 3.5 times the width of an eye diameter in dorsal view. Eyes medium-sized, subovate in dorsal view, roundly convex laterad, with ocular sulci distinctly deepened posteriad from interior parts of eyes. Antennae clavate, reaching basal 1/4 of pronotum, six apical segments wider than long, 11th ovate, ratio of the length of each segment from base to apex: 0.66, 0.46, 0.62, 0.36, 0.35, 0.28, 0.31, 0.32, 0.37, 0.38, 0.79.

Pronotum longer than wide (5 : 4), widest slightly behind the middle; apex widely emar-

ginate in frontal view, subelliptically produced anteriad and forming an apical lobe in dorsal view, the lobe being very weakly incised at the middle and steeply declined towards front angles; base very weakly produced, slightly sinuous in lateral parts, remarkedly incised at the middle; sides steeply inclined laterad and gently enveloping ventral sides; front angles acute and directed anteriad, hind angles acute and directed postero-laterad; disc strongly convex, moderately so in middle, gently concave in an area behind the anterior lobe, depressed in postero-medial parts close to the basal incision; surface closely and coarsely covered with punctures and adpressed scale-like hairs, which are longer than those on head. Scutellum subsquare, weakly convex, sparsely covered with punctures and scale-like hairs in lateral parts.

Elytra 2.3 times as long as wide, 2.6 times the length and 1.2 times the width of pronotum, narrowest at basal 1/4, widest at apical 1/3; dorsum strongly convex, very weakly depressed in area behind scutellum; disc with rows of strong punctures, those in lateral parts grooved, upper edge of each puncture with a granule on each side, 5th row rather noticeably deepened close to base; intervals coarsely, somewhat transversely wrinkled, slightly convex in medial part, ridged in lateral parts, gently convex in posterior parts, covered with small punctures and scale-like hairs, which are fine in interior and posterior parts, and become stouter antero-laterad; humeri gently swollen; apices rounded.

Ventral side covered with punctures and scale-like hairs, which are obviously smaller than dorsal ones. Legs medium-sized; tibiae with rows of suberect hairs along interior margins; ratios of the lengths of pro-, meso- and metatarsomeres: 0.80, 0.78, 0.76, 0.58, 2.64; 0.80, 0.68, 0.72, 0.32, 2.60; 1.22, 0.80, 0.54, 2.66.

Male genitalia subfusiform, strongly curved at the middle of basal piece in lateral view, 1.8 mm in length, 0.48 mm in width; fused lateral lobes 0.60 mm in length, gently curved in lateral view, weakly ridged along medial line in apical 2/5, with apices projected and dehiscent.

Body length: 10.2–10.5 mm.

Holotype: ♂, Yoshihara, 5–40 m alt., Ishigaki-jima Is., Ryukyu Isls., Okinawa Pref., Japan, 6. V. 1993, K. AKITA leg. Paratypes: 1♀, same data as for the holotype; 1♀, Yoshihara, Ishigaki-jima Is., 10. VI. 1982, A. IZUMI leg.; 1♂, Yoshihara, Ishigaki-jima Is., 5. V. 1995, Y. WADA leg.

Notes. This new species resembles *Stenochinus cylindricus* (GEBIEN, 1913), from Taiwan in having subcylindrical body with the apical lobe of the pronotum not distinctly incised, but can be distinguished from the latter by the shorter body, with the pronotal apical lobe obviously less strongly produced, the scutellum sparsely covered with punctures and scale-like hairs, male genitalia shorter (2.15 mm in *S. cylindricus*) and more strongly curved in lateral view.

The past records concerning *Stenochinus cylindricus* from Ishigaki-jima Island might be incorrect and presumably of this new species.

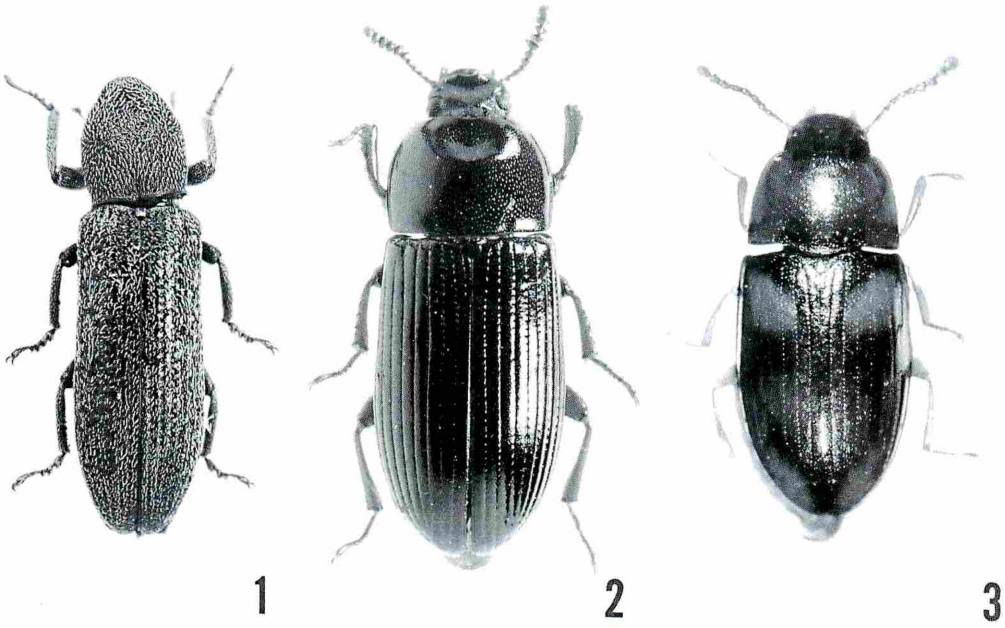
The specific name is given in honor of the late Mr. Wakô KITAWAKI, who was an old friend of the second author (K. AKITA) of the present paper.

Uloma hiranoi sp. nov.

[Japanese name: Tsunohige-eguri-gomimushidamashi]

(Figs. 2, 6–9)

Reddish brown, with dorsal surface, apices of femora, apices and basal portions of tibiae,



Figs. 1–3. Habitus. 1, *Stenochinus wakoi* sp. nov., holotype, ♂; 2, *Uloma hiranoi* sp. nov., holotype, ♂; 3, *Diaclina yaeyamaensis* sp. nov., holotype, ♂.

and margins of procoxae blackish brown; dorsal surface strongly shining, ventral surface moderately so. Rather elongate, subparallel-sided, moderately and longitudinally convex.

Male. Head transversely elliptical, gently convex in posterior part and widely flattened in middle, closely punctate, the punctures becoming larger in flattened part, and smaller towards posterior and lateral portions; clypeus feebly emarginate at apex, with a transverse ridge, which is about 3/4 as wide as of clypeus at the base, about 1/2 the width of clypeus at the apex, and bluntly pointed at each end; genae rather large, with outer margins oblique and slightly produced in anterior 3/4, and then gently narrowed towards eyes, clypeo-genal borders indistinct; frons triangularly inclined anteriad, diatone about twice the width of transverse diameter of an eye. Eyes transverse, gently convex above. Antennae rather short, reaching apical 1/3 of pronotum, seven apical segments widened and slightly clavate, 5th slightly, and 7th conspicuously pointed at each apex of inner side, ratio of the length of each segment from base to apex: 1.42, 0.12, 0.17, 0.15, 0.15, 0.15, 0.17, 0.15, 0.16, 0.17, 0.24.

Mentum subcordate, slightly concave, almost entirely bordered by short hairs; gula inverted linguiform; terminal segment of each maxillary palpus medium-sized, with truncate apical side, which is as long as the rounded interior side and 0.7 times as long as the arcuate exterior side.

Pronotum 1.4 times as wide as long, widest at the middle; apex gently produced, rather noticeably so in medial 1/4, finely bordered in lateral 3/8; base feebly produced in medial 2/5, almost straight in lateral parts; lateral margin feebly produced, finely bordered; front angles subrectangular with rounded corners, hind angles obtuse; disc moderately convex, rather closely punctate, sparsely intermixed with minute punctures, transversely and subelliptically depressed in antero-medial portion; the depression 2/5 times the width of pronotum, scattered with large

punctures in middle, and rather impunctate in posterior edge. Scutellum widely pentagonal, slightly convex, scattered with minute punctures.

Elytra about 1.7 times as long as wide, 2.8 times the length and slightly wider than pronotum, widest at apical 3/7, very slightly narrowed basad and roundly so apicad; disc punctato-striate, punctures in the striae notching intervals, distance among them about 1.0–2.2 times their own diameter; intervals gently convex, rather transversely micro-reticulate, fairly closely scattered with microscopic punctures; sides steeply declined to lateral margins, which are invisible from above; humeri feebly swollen; apices rounded.

Prosternum medium-sized, asperate, glabrous in middle, bordered at apex, distinctly raised medially, with obtuse prosternal process.

Legs rather short; protibiae not strongly widened to apex, with dorsal surface grooved in apical portion, inner margin narrowly emarginate in basal portion, and ventral surface with a row of five to six teeth; ratios of the lengths of pro-, meso- and metatarsomeres: 0.19, 0.10, 0.10, 0.10, 0.48; 0.38, 0.13, 0.12, 0.12, 0.46; 0.58, 0.12, 0.13, 0.56.

Male genitalia 2.3 mm in length, 0.4 mm in width; basal piece strongly curved at posterior 2/5 in lateral view; lateral lobes 0.8 mm in length, semicircularly flattened in dorsal view, with apex truncate and rounded at the corners.

Female. Clypeus not ridged at apex. Antennae not pointed at inner apices of 5th and 7th segments. Pronotum without depression. Mentum subhexagonal, not concave but asperate medially.

Body length: 9.1–9.3 mm.

Holotype: ♂, Banna, Ishigaki-jima Is., Ryukyu Isls., Japan, 20. III. 1995, Y. HIRANO leg. Paratypes: 1♀, Mt. Banna-dake, Ishigaki-jima Is., 11. IV. 1983, M. SAWAI leg.; 1♀, Mt. Omoto-dake, Ishigaki-jima Is., 9. IV. 1988, M. SAWAI leg.

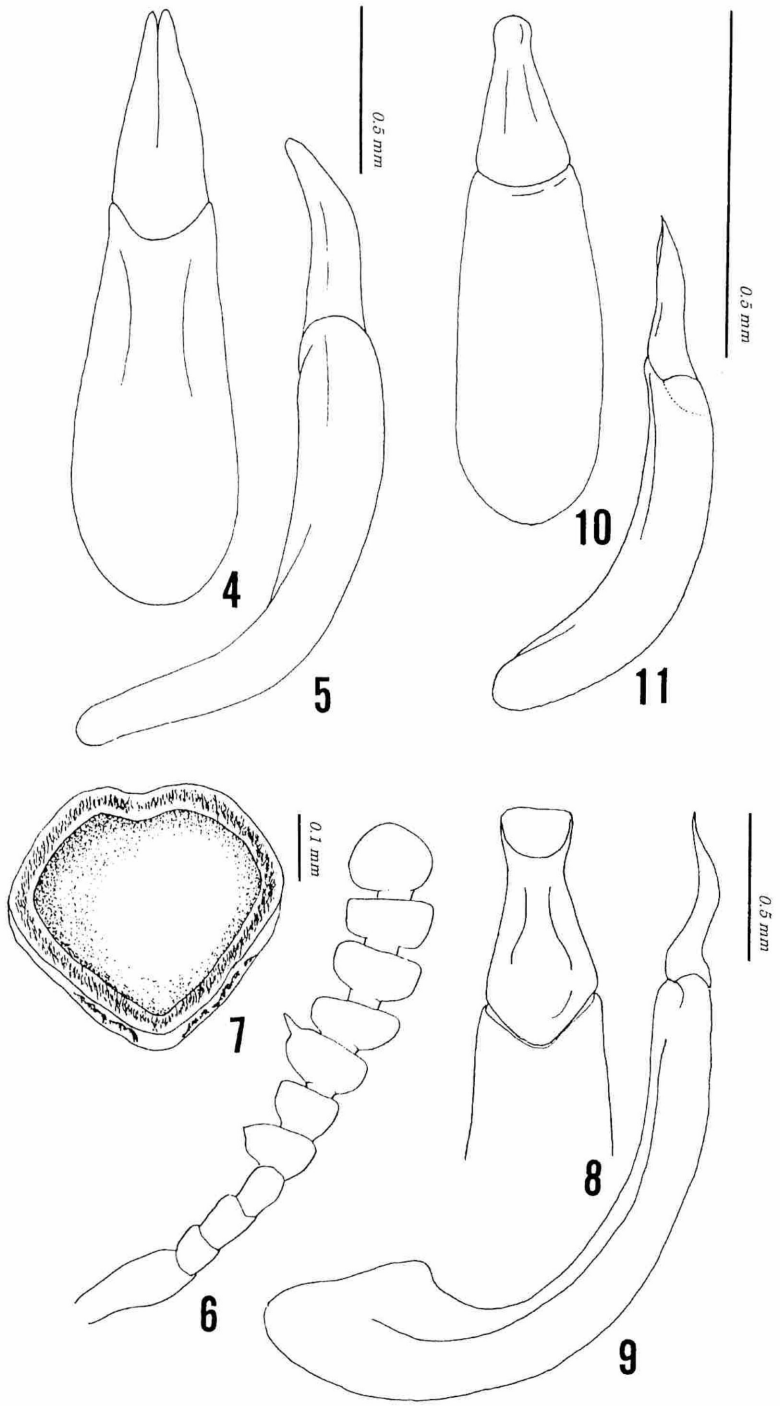
Notes. This new species is related to *Uloma takagii* MASUMOTO et NISHIKAWA, 1986, and *U. nanshanchica* MASUMOTO et NISHIKAWA, 1986 from Taiwan, in having the male clypeus with a transverse ridge, of which both sides are pointed, seven apical segments of the antennae slightly clavate, at least the 5th and 7th segments pointed at each apex of interior side, and the mentum subcordate, slightly concave, and almost entirely bordered by short hairs. The present new species can be easily distinguished from *U. takagii* by the body smaller and shorter, with the dorsal surface blackish brown, the depression of the pronotum smaller and shallower, and the prosternum glabrous in middle. From *U. nanshanchica*, this new species is distinguished by the rather smaller body, the 8th to 10th antennal segments without projection, the more longitudinal mentum, and the finer elytral striae.

Diaclina yaeyamaensis sp. nov.

[Japanese name: Yaeyama-yotsumontsuya-gomimushidamashi]

(Figs. 3, 10–11)

Reddish brown, eyes, fronto-clypeal border, posterior parts of eyes, anterior and posterior margins of pronotum and apices of 1st to 9th segments of antennae nearly black, elytra blackish brown with two pairs of nebulose orange patches: basal ones transversely subovate, and connected with elytral margins; apical ones subtriangular with sinuous anterior margins, not connected with elytral margins; dorsal surface moderately shining, ventral surface gently aluta-



Figs. 4–11. 4–5. *Stenochinus wakoi* sp. nov. 4, male genitalia, dorsal view, 5, ditto, lateral view; 6–9. *Uloma hiranoi* sp. nov., 6, left antenna (male), 7, mentum (male), 8, male genitalia, apical part, 9, male genitalia, lateral view; 10–11. Male genitalia of *Diaclina yaeyamaensis* sp. nov., 10, dorsal view, 11, lateral view.

ceously shining. Elongate-ovate, gently convex dorsad.

Head subhexagonal, gently convex posteriad, closely and finely punctate; clypeus transversely subhexagonal, fronto-clypeal border very finely grooved; genae oblique, gently convex above in anterior parts of eyes, with outer margins feebly produced; frons wide, gently inclined anteriad, diatone about 2.5 times the width of transverse diameter of an eye. Eyes transverse, feebly oblique, very weakly produced laterad. Antennae subclavate, weakly flattened, barely reaching hind angles of pronotum, 7th to 10th segments dilated apicad, 11th segment circular, ratio of the length of each segment from base to apex: 0.10, 0.05, 0.10, 0.09, 0.09, 0.09, 0.09, 0.09, 0.10, 0.10, 0.14.

Pronotum somewhat trapezoidal, 1.56 times as wide as long, widest at base; apex rather widely emarginate, feebly produced in middle, finely bordered; base slightly produced in medial 1/3, feebly sinuous in lateral parts, with a pair of shallow depressions on each side, finely bordered, the border becoming finer in laterad; sides gently declined to lateral margins, which are rather shallowly grooved; front angles obtuse with rounded corners, hind angles subrectangular with rounded corners; disc gently convex, rather closely punctate, the punctures being of the same size as those on head, though a little sparser. Scutellum subtriangular, very weakly convex, rather sparsely scattered with microscopic punctures.

Elytra elongated ovate, 1.5 times as long as wide, 2.8 times the length and 1.12 times the width of pronotum, widest at the middle; disc gently convex, highest at the middle, with rows of punctures, distance among them being 0.8 to 2.0 times the width of each diameter; intervals slightly convex, scattered with punctures, which are smaller than those on pronotum; sides steeply declined to lateral margins, which are grooved and rimmed; humeral parts weakly swollen; apices weakly produced.

Legs medium-sized; male metatibia with interior side feebly thickened and granulate; ratios of the lengths of pro-, meso- and metatarsomeres: 0.07, 0.06, 0.06, 0.06, 0.10; 0.09, 0.06, 0.05, 0.06, 0.16; 0.16, 0.06, 0.07, 0.15.

Male genitalia 0.71 mm in length, 0.20 mm in width; basal piece rather strongly curved at posterior 2/5 in lateral view; fused lateral lobes 0.25 mm in length, slightly spatulate at apex.

Body length: 3.5 mm.

Female. Unknown.

Holotype: ♂, Ohtomi, Iriomote-jima Is., Ryukyu Isls., Japan, 24. X. 1996, Y. HIRANO leg. Paratype: 1 ♂, same data as for the holotype; 1 ♂, Yonehara, Ishigaki-jima Is., Ryukyu Isls., 16. VI. 1999, N. KANIE leg.

Notes. This new species resembles *Diaclina plagiata* (MARSEUL, 1876) distributed in Kyushu and Honshu, Japan, but can be easily distinguished from the latter by the body smaller (4.5 to 4.9 mm in *D. plagiata*), punctures on the head and pronotum smaller and sparser, the head and pronotum reddish brown (blackish brown in *D. plagiata*), the male metatibiae with an interior side simply thickened apicad (slightly gouged in the middle, and thickened in apical 2/5 in *D. plagiata*), and the male genitalia different in shape.

要　約

益本仁雄・秋田勝己：日本産のゴミムシダマシ科甲虫の新種・稀少種（第３報）．――――
日本産のゴミムシダマシ科のうち，カブトゴミムシダマシ族クビカクシゴミムシダマシ属の１

新種，オニクビカクシゴミムシダマシ *Stenochinus wakoi* sp. nov.，エグリゴミムシダマシ族エグリゴミムシダマシ属の1新種，ツノヒゲエグリゴミムシダマシ *Uloma hiranoi* sp. nov.，および同族ヨツモンツヤゴミムシダマシ属の1新種，ヤエヤマヨツモンツヤゴミムシダマシ *Diaclina yaeyamaensis* sp. nov. を記載・命名した．

References

CHÛJÔ, M. T., 1985. Tenebrionidae. *In* KUROSAWA, Y., *et al.* (eds.), Coleoptera of Japan in Color, **3**: 341–344. Hoikusha, Osaka. (In Japanese).

GEBIEN, H., 1913. H. SAUTER's Formosa-Ausbeute. Tenebrionidae (Coleopt.). *Arch. Naturg.*, **79 A** (9): 1–58, 1 pl.

MARSEUL, M. S.-A. DE, 1876. Coléoptères du Japon recueillis par M. Georges LEWIS, 2e Mémoire (1), Énumération des Hétéromères avec la description des espèces nouvelles, 1re Partie. *Annls. Soc. ent. Fr.*, (**5**), **6**: 93–142.

MASUMOTO, K., et N. NISHIKAWA, 1986. A revisional study of the genus *Uloma* from Japan, Korea and Taiwan (Tenebrionidae, Coleoptera). *Ins. matsum.*, (N. S.), (35): 17–43.

(Received August 15, 2002; Accepted September 7, 2002)

Ent. Rev. Japan, 57 (2): 155–164, October 30, 2002

Buprestid Beetles (Coleoptera: Buprestidae) New to Japanese Fauna (Part 1)

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Abstract Four new species of the genera *Toxoscelus* and *Agrilus* are described from Japan under the name of *Toxoscelus nakajimai* sp. nov., *Agrilus japanocarinatus* sp. nov., *Agrilus koyoi* sp. nov. and *Agrilus ogatai* sp. nov. *Agrilus adelphinus* KERREMANS, 1895 is recorded as new to Japanese fauna.

Introduction

According to the check list of the Japanese Buprestidae (AKIYAMA and OHMOMO, 1997), 204 species of buprestid beetles are recognized from Japan. After that, we have been demoted *Chrysochroa alternans* WATERHOUSE, 1888 to a subspecies of *Chrysochroa fulgidissima* (SCHÖNHERR, 1817) at the opportunity of describing a new subspecies *Chrysochroa fulgidissima adachii* AKIYAMA et OHMOMO, 1998. Therefore, 203 species are recognized for Japanese buprestid fauna. At the same time, we suggested that more than 20 species were known from Japan as unidentified and/or new species mainly belonging to the subfamily Agrilinae. In this paper, I will describe four new species from Japan and firstly record *Agrilus adelphinus* KERREMANS, 1895, from Japan.

I wish to express my sincere thanks to Dr. Eduard JENDĚK, Institute of Zoology, Slovak Academy of Sciences, for his offering of *Agrilus* specimens with valuable advices and Dr. Hiroshi MAKIHARA, the Forestry and Forest Products Research Institute (FFPRI), Tsukuba, for his valuable information of new species from Amami-Oshima, the Ryukyus, Japan. I also express my deep thanks to Dr. Yoshio HIRAI, National Institute of Agrobiological Resources, Tsukuba, for taking photographs. I am also indebted to colleagues in the text for their kind offers of the materials.

Materials and methods

The depositories of materials used for this study are shown by using abbreviations as follows: NSMT (National Science Museum, Tokyo), COTJ (collection of S. OHMOMO, Tsukuba, Japan), and CTOJ (collection of Y. TSUTSUMIUCHI, Oita, Japan). Holotypes are deposited in the collection of NSMT.

The body size is formulated as minimal–maximal length minimal–maximal width. Other abbreviations are used for the proportional rate between maximal length (L) and maximal width (W).

Toxoscelus nakajimai sp. nov.

(Figs. 1, 6–A)

[Japanese name: Ryukyu-kuritamamushi]

Type series. Holotype: ♂, NSMT, Emerged from dead branches, 2. V. 1997, Tsukuba-shi, Ibaraki Pref. (Dead branches were collected on 14. III. 1997, at Setouchi-cho, Amami-Oshima, Kagoshima Pref., the Ryukyus, by T. NAKAJIMA). Paratypes: 6♂♂, 6♀♀, COTJ, the same data as for the holotype.

Description. Size 5.5–7.8 × 1.7–2.8 mm. Holotype: 6.2 mm in length. Body rather slender, blackish-brown with purplish tinge.

Head small, with a wide and deep median groove running from vertex to the center of frons; vertex gibbose on each side of median groove, concentrically rugoso-punctate; frons slightly convex, transversely rugoso-punctate, with sparse silver hairs; eyes slightly converging below in frontal aspect; clypeus strongly narrowed by the cavities of antennal insertion, with the anterior margin arcuately emarginate; antennal cavities large, with the posterior margins strongly carinate; antennae short and compact, serrate distad from antennomere 5.

Ventral surface aeneous with blackish tinge, sparsely covered with pale yellow hairs.

Pronotum transverse (L/W = 0.75), widest at the middle; sides distinctly arcuately expanded in dorsal aspect and bisinuate in lateral aspect; anterior margin bisinuate, with the median lobe broadly produced and not punctate; posterior margin strongly and angulately emarginate just before the elytral lobes, slightly and straightly emarginate just before scutellum; anterior angles sharply projecting forward; posterior angles obtuse and rounded; marginal carinae entire, bisinuate in lateral aspect; disk uneven, with four small shallow depressions along lateral sides, two small shallow depressions just before scutellum; surface rugoso-punctate.

Elytra rugosely imbricate (L/W = 2.55), distinctly wider than pronotum at the base, widest in the anterior three-fifths; sides expanded straightly from humeri to anterior one-tenth, slightly convergent to anterior third, expanded, swollen near the anterior three-fifths, then obliquely convergent to the tips; apices separately subacute, very finely denticulate-serrate near apex; sutural margins distinctly elevated near scutellum and slightly so in posterior half; disk uneven, depressed along the suture; basal depressions broad and obsolete; surface densely rugoso-imbricate, ornamented with short whitish silver hairs arranging ocellate rings, elliptical longitudinal band, wavy band and zigzag bands on each elytron. Scutellum triangular, finely rugose.

Legs short and robust; anterior and middle tibiae curved; posterior tibiae straight, with the inferior ridge serrate.

Male genitalia. As fig. 6–A.

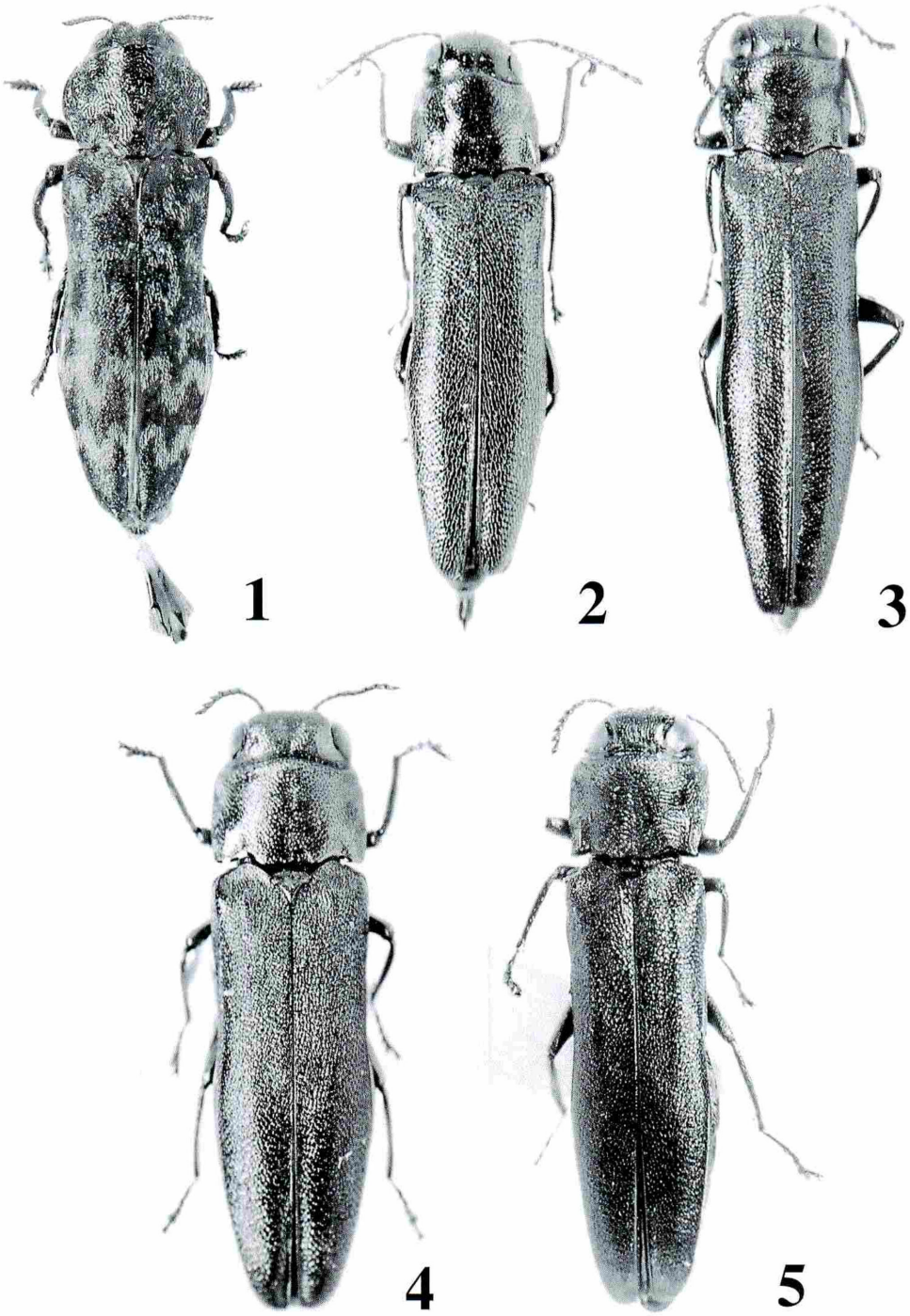
Sexual dimorphism. Female last abdominal segment broadly rounded, with small six denticles at apex.

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

Host plant. *Distylium racenosum* SIEB. et ZUCC. (weakened branch).

Etymology. This specific name is dedicated to Dr. Tadakazu NAKAJIMA, FFPRI, who gathered dead branches of the host plant.

Remarks. This new species resembles *Toxoscelus amamiensis* Y. KUROSAWA, 1963 of the same locality, but can be easily distinguished from the latter by the shapes of frons, pronotum and male genitalia.



Figs. 1–5. Habitus. 1, *Toxoscelus nakajimai* sp. nov. (holotype); 2, *Agrilus japanocarinatus* sp. nov. (holotype); 3, *Agrilus ogatai* sp. nov. (holotype); 4, *Agrilus koyoi* sp. nov. (holotype); 5, *Agrilus adelphinus* KERREMANS.

Agrilus japanocarinatus sp. nov.

(Figs. 2, 6–B, 7–A, 8–A)

[Japanese name: Nippon-katasuji-nagatamamushi]

Type series. Holotype: ♂, NSMT, Emerged from dead branches, 15–21. IV. 1994, Tokyo (Dead branches were collected on X–XI. 1993, at Masuzawa, Tateiwa-mura, Minami-Aizu, Fukushima Pref., A. SEKI leg.). Paratypes: 4♂♂, 20♀♀, COTJ, the same locality as the holotype; 2♀♀, COTJ, Emerged from dead branches, V. 1988, Tokyo (Dead branches were gathered on X. 1987, Hinoemata-mura, Minami-Aizu, Fukushima Pref., K. KUME leg.); 1♂, 1♀, COTJ, 6. VII. 1991, Masuzawa, Tateiwa-mura, Minami-aizu, Fukushima Pref., T. SHINDO leg.; 2♀♀, COTJ, Emerged from dead branches, 21. V. 1992, Tokyo (Dead branches were collected on 2. V. 1992, at Tateiwa-mura, Minami-aizu, Fukushima Pref., K. SHINDO leg.); 1♀, COTJ,

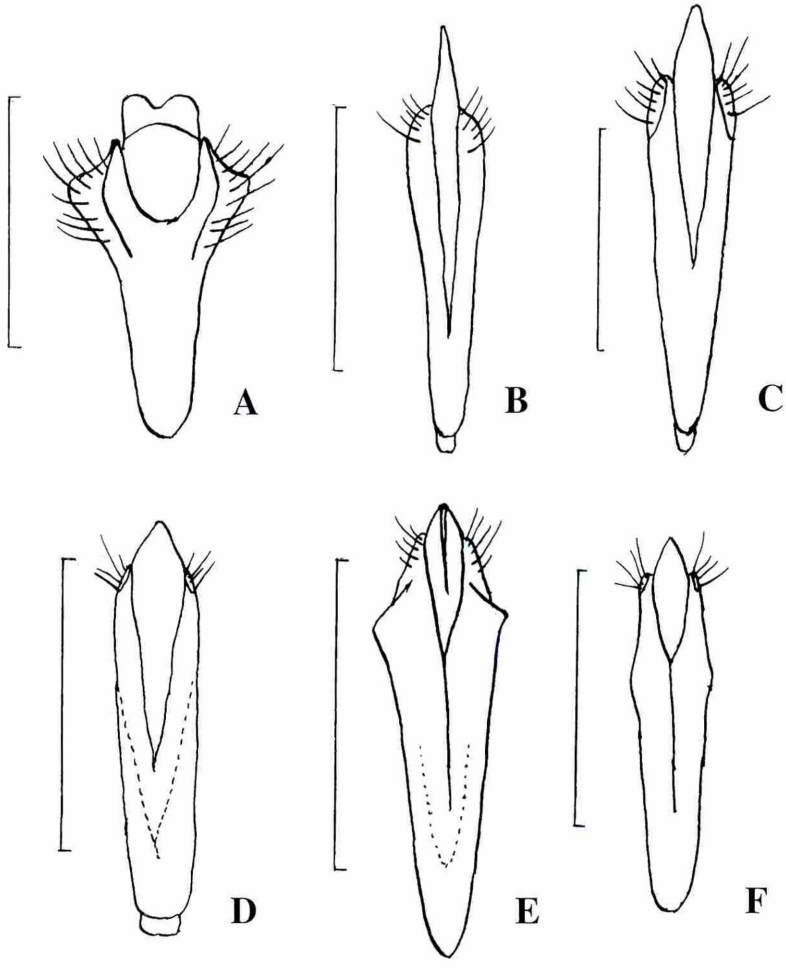


Fig. 6. Male genitalia (dorsal aspect). 6–A, *Toxoscelus nakajimai* sp. nov. (holotype); 6–B, *Agrilus japanocarinatus* sp. nov. (holotype); 6–C, *Agrilus ogatai* sp. nov. (holotype); 6–D, *Agrilus koyoi* sp. nov. (holotype); 6–E, *Agrilus adelphinus* KERREMANS; 6–F, *Agrilus tibialis* SAUNDERS. Scale bar: 1 mm.

29. V. 1977, Moniwa, Fukushima-shi, Fukushima Pref., S. TSUYUKI leg.; 1♂, 1♀, COTJ, 28. V. 1999, Tsuchiiwa, Ogata-cho, Oita Pref., Y. TSUTSUMIUCHI leg.; 1♂, CTOJ, 20. V. 1999; 5♂♂, 2♀♀, CTOJ, 28. V. 1999, ditto; 1♂, 2♀♀, CTOJ, 5. VI. 1999, Tsuchiiwa, Ogata-cho, Oita Pref., Y. TSUTSUMIUCHI leg.; 1♂, CTOJ, 16. VI. 2001, Miyanoura, Yonouzu-cho, Oita Pref., Y. TSUTSUMIUCHI leg.

Description. Size 4.2–5.6 × 1.1–1.4 mm. Holotype: 5.0 mm long. Body slender; frons and vertex golden green with metallic tinge; pronotum and elytra aeneous with greenish tinge.

Frons and vertex moderately convex, with dense, transverse and deep wrinkles, covered with long whitish-yellow hairs; eyes feebly convex, subparallel; clypeus moderately incurved; antennae long, serrate distad from antennomere 4, last antennomere reaching to the elytral base.

Ventral surface aeneous with blackish tinge, sparsely covered with long white hairs. Legs dark green.

Pronotum longitudinal (L/W = 1.20), widest at the base; sides subparallel in anterior two-thirds then weakly sinuate to the posterior angles; antenomedial lobe moderate; anterior angles sharply projecting forward; posterior angles moderately projecting lateral; disk with dense and transverse wrinkles, impressed moderately at just before scutellum and near posterior angles; marginal and submarginal carinae joined proximally, prehumeral carina distinctly rounded at proximal two-fifths and distinctly independent from marginal carina (Fig. 7–A). Prosternal process distinctly widened behind fore coxae (Fig. 8–A), with sparse large and dense small punctures, covered with long whitish-yellow hairs.

Elytra transversely and rugosely imbricate (L/W = 3.0), feebly wider than pronotum at the base, widest in the anterior three-fifths, uniformly with distinct short golden pubescence; humeral impression distinct; humeral carinae straight, sharply defined, and expanding to just before the middle; sides subparallel, moderately enlarged in anterior two-fifths, thence rectilinearly narrowed to apex; apices rounded.

Scutellum trapezoidal, with distinctly elevated transverse carina. Last abdominal sternite

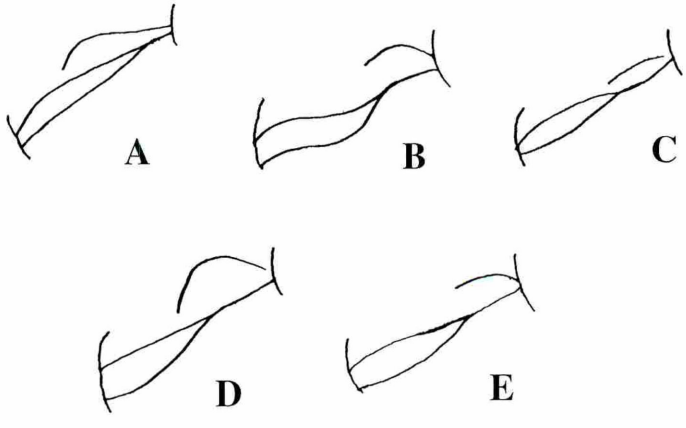


Fig. 7. Carinae on prothorax (lateral aspect): 7–A, *Agrilus japanocarinatus* sp. nov. (holotype); 7–B, *Agrilus ogatai* sp. nov. (holotype); 7–C, *Agrilus sibiricus fukushimensis* JENDEK; 7–D, *Agrilus koyoi* sp. nov. (holotype); 7–E, *Agrilus adelphinus* KERREMANS.

distinctly incurved at the apex.

Male genitalia. As fig. 6–B.

Sexual dimorphism. Female body rather robust; coloration of frons and vertex aeneous with greenish tinge.

Distribution. Japan: Honshu, Kyushu.

Host plant. *Fraxinus mandshurica* RUPR.

Etymology. This new species is the second species having typical humeral carinae on elytra from Japan and is named on this feature. *Agrilus* species having this type of humeral carinae on the elytra are known widely from the tropical Asia, but almost of them are not described yet and are waiting for further study.

Remarks. This new species resembles European *Agrilus convexicollis* REDTENBACHER, 1849, but is easily distinguished from it by the clear and long humeral carinae on elytra. This new species also resembles *Agrilus carinihumeralis* KUROSAWA, 1964, which is a peculiar species in Japan in having carinae of elytral humeri, however, the present new species is easily distinguished from the latter by the long antennae in male and the shapes of prosternal process (Fig. 8–A), prehumeral carina (Fig. 7–A) and male genitalia (Fig. 6–B).

Agrilus ogatai sp. nov.

(Figs. 3, 6–C, 7–B, 8–B)

[Japanese name: Ogata-nagatamamushi]

Type series. Holotype: ♂, NSMT, 19. V. 1991, Mt. Kurodake, Kuju, Oita Pref., Kyushu, S. OHMOMO leg. Paratypes: 3♀♀, COTJ, 28–29. VII. 1981, Ikutahara-cho, Hokkaido, S. OHMOMO leg.; 1♀, COTJ, 3. VIII. 1980, Ikutahara-cho, Hokkaido, Y. ODA leg.; 1♂, COTJ, 3. VIII. 1985, Ikutahara-cho, Hokkaido, S. OHMOMO leg.; 1♂, COTJ, 17. VII. 1977, Mt. Moiwa, Sapporo-shi, Hokkaido, N. NISHIKAWA leg.; 1♀, COTJ, 10. VI. 2001, Kami-nopporo, Kita-hiroshima-shi, Hokkaido, S. OHMOMO leg.; 1♂, COTJ, 29. V. 1977, Karasugawa, Moniwa, Fukushima-shi, Fukushima Pref., S. OHMOMO leg.; 1♂, COTJ, 14. VI. 1997, Masuzawa, Tateiwa-mura, S-Aizu, Fukushima Pref., K. AKIYAMA leg.; 5♂♂, 1♀, COTJ, 6–7. VI. 1998, Yatakezawa, Tateiwa-mura, S-Aizu, Fukushima Pref., S. OHMOMO leg.; 1♀, COTJ, 28. VI. 1985, Masutomi spa, Yamanashi Pref., S. OHMOMO leg.; 1♀, COTJ, 26. V. 1990, Shakadoh, Kaga-hakusan, Ishikawa Pref., T. MIKAGE leg.; 1♂, COTJ, 2. VI. 1974, Mt. Hiko, Fukuoka Pref., T. AKASHI leg.; 1♂, 1♀, COTJ, 20. VI. 1992, Mt. Kurodake, Kuju, Oita Pref., S. OGATA leg.; 3♂♂, 2♀♀, COTJ, 8. VII. 1995, ditto; 2♂♂, COTJ, 26. VI. 1997, ditto; 1♂, COTJ, 22. VII. 2000, ditto; 7♂♂, COTJ, 20. VI. 1993 and 1♀, COTJ, 13–15. VI. 1997, Mt. Kurodake, Kuju, Oita Pref., S. OHMOMO leg.; 1♂, COTJ, 29. VII. 1979, Mt. Kurodake, Kuju, Oita Pref., S. IMASAKA leg.

Description. Size 5.2–7.2 × 1.3–1.7 mm. Holotype: 6.0 mm in length. Body rather slender, bluish-green with metallic tinge and sometime with golden tinge.

Frons flattened, with dense and transverse wrinkles, covered with golden orange long hairs in lower and lateral parts; vertex feebly convex, with dense and transverse winkles, with obvious median groove running from frons; eyes convex, slightly convergent ventrally; clypeus moderately incurved; antennae slender, serrate from antennomere 4.

Ventral surface aeneous with blackish tinge.

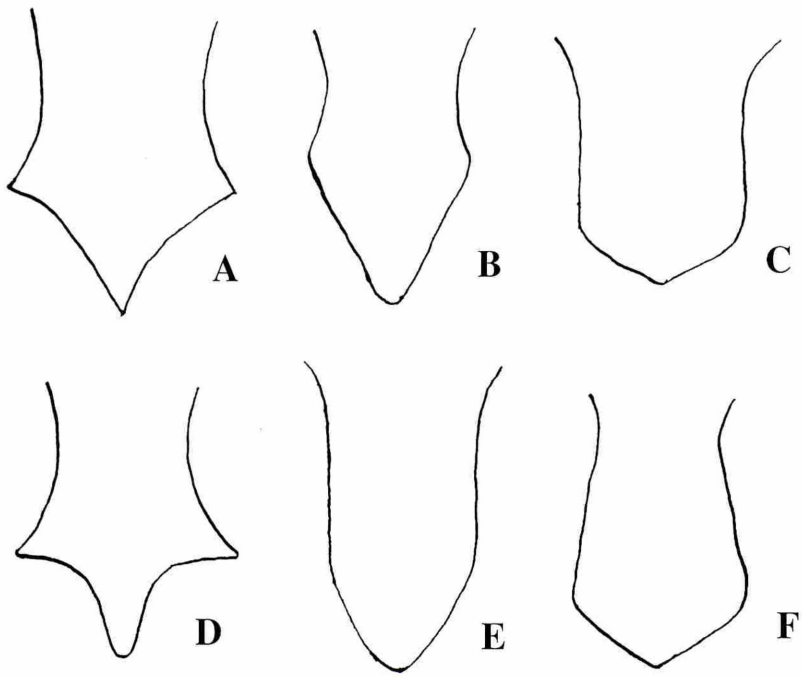


Fig. 8. Prosternal process. 8–A, *Agrilus japanocarinatus* sp. nov. (holotype); 8–B, *Agrilus ogatai* sp. nov. (holotype); 8–C, *Agrilus sibiricus fukushimensis* JENDEK; 8–D, *Agrilus koyoi* sp. nov. (holotype); 8–E, *Agrilus adelphinus* KERREMANS; 8–F, *Agrilus tibialis* SAUNDERS.

Pronotum transverse (L/W = 0.8), widest at the middle; sides evenly arcuate, distinctly incurved before acute basal angles; anterior margin bisinuate, broadly produced at middle; posterior margin distinctly trisinuate; anterior angles sharply projecting forward; disk with dense and transverse wrinkles; lateral impressions prominent; marginal and submarginal carinae joined proximally; prehumeral carina distinctly rounded at proximal two-fifths and not joined with marginal carina (Fig. 7–B). Prosternal process widened behind fore coxae (Fig. 8–B), with a wide depression at the center, densely covered with silver brown long hairs.

Elytra transversely and rugosely imbricate (L/W = 2.7), distinctly wider than pronotum at the base, widest in the anterior three-fifths, with sparse, semierect, poorly visible blackish brown pubescence; humeral impression distinct; apices distinctly truncate and finely serrate; sides subparallel, in anterior third moderately enlarged, then rectilinearly narrowed to apex. Scutellum with distinctly elevated transverse carina. Last abdominal sternite regularly rounded at the apex. Metatibiae with a procession of dark brown long setae at posterior half of outer ridges.

Male genitalia. As fig. 6–C.

Sexual dimorphism. Female very similar to male, except body rather robust.

Distribution. Japan: Hokkaido, Honshu, Kyushu.

Etymology. This specific name is dedicated to my good friend Prof. Dr. Seiya OGATA, Kyushu University, who introduced me to Mt. Kurodake in Oita Prefecture and gave me opportunities to find this new species.

Remarks. This new species is very similar to *Agrilus sibiricus fukushimensis* JENDĚK, 1994, but is easily distinguished from the latter by the shape of prosternal process (Figs. 8–B, 8–C) and submarginal pronotal carina (Figs. 7–B, 7–C). In many lists of Japanese faunistic study on buprestid beetles, both species seem to be confused with each other.

Agrilus koyoi sp. nov.

(Figs. 4, 6–D, 7–D, 8–D)

[Japanese name: Koyo-nagatamamushi]

Type series. Holotype: ♂, NSMT, 17. VIII. 1991, Masuzawa, Tateiwa-mura, Minami-aizu, Fukushima Pref., A. SEKI leg. Paratypes: 2♂♂, 2♀♀, COTJ, 11. VIII. 1991 and 4♂♂, 4♀♀, COTJ, 14. VIII. 1991, the same locality as the holotype, K. SHINDO leg.; 3♂♂, 3♀♀, COTJ, 12. VIII. 1991, the same locality as the holotype, S. OHMOMO leg.; 1♂, COTJ, the same data as the holotype; 1♂, COTJ, 23. VII. 1994, the same locality as the holotype, S. OHMOMO leg.

Description. Size 5.1–6.2 × 1.2–1.8 mm. Holotype: 5.3 mm in length. Body rather robust, cupreous with greenish tinge except for golden green frons.

Frons feebly convex, densely and transversely wrinkled, with an obvious median groove, which runs from vertex to the center of frons; vertex feebly convex, with dense and transverse wrinkles; eyes convex, slightly convergent to below; clypeus moderately incurved; antennae rather compact, serrate from antennomere 4.

Ventral surface aeneous, sparsely covered with long whitish hairs.

Pronotum transverse (L/W = 0.75), widest at the apex; disc flattened, densely and transversely wrinkled; with shallow depression just before scutellum; anterior margin emarginate and moderately bisinuate; posterior margin trisinuate; sides straight in anterior two-thirds, then feebly arcuately expanded to base; marginal carina almost straight, not joining with prehumeral carina at the basal angles; prehumeral carina distinctly rounded, jointed with marginal carina at the middle (Fig. 7–D); prosternal process distinctly widened behind fore coxae with a wide depression at the center (Fig. 8–D).

Elytra transversely and rugosely imbricate (L/W = 4.0), slightly wider than pronotum at the base, widest in the anterior three-fifths, with sparse semirecumbent pale yellow hairs at the anterior half around elytral suture and one-fifth of each elytron along suture; humeral impressions shallow; apices rounded, with fine dentation; sides subparallel from the base to anterior three-fifths, then moderately enlarged and rectilinearly narrowed to apex. Scutellum large, triangularly acuminate, with transverse carina at posteromedial area. Last abdominal sternite rounded at the apex. Metatibiae with a procession of dark brown long setae at posterior three-fifths of outer ridges.

Male genitalia. As fig. 6–D.

Sexual dimorphism. Female body rather robust; coloration of frons golden green with cupreous tinge.

Distribution. Japan: Honshu.

Etymology. This specific name is dedicated to the late Mr. Koyo AKIYAMA who greatly contributed to the study of not only Japanese species but also Asian buprestid beetles.

Remarks. This new species is similar to *Agrilus brevitarsis* LEWIS, 1893, but is easily distinguished from the latter by the shape of prosternal process (Fig. 8–D), submarginal pronotal carina (Fig. 7–D) and male genitalia (Fig. 6–D).

Agrilus adelphinus KERREMANS, 1895

(Figs. 4, 6–E, 7–E, 8–E)

[Japanese name: Nisehosoashi-nagatamamushi]

Agrilus adelphinus KERREMANS, 1895: 222. — JENDĚK, 1994: 14.

Specimens examined. 1♂, COTJ, 23. VII. 1973, Namekawa spa, Yonezawa-shi, Yamagata Pref., S. OHMOMO leg.; 4♂♂, 6♀♀, COTJ, 23. VI. 1980, Akane-rindo, Haramachi-shi, Fukushima Pref., S. OHMOMO leg.; 4♂♂, 1♀, COTJ, 2. VI. 1984, ditto; 1♀, COTJ, 8. V. 1987, ditto; 2♀♀, COTJ, 2. VI. 1989, ditto; 1♀, COTJ, 26. VI. 1989, Hirono-machi, Fukushima Pref., S. OHMOMO leg.; 1♀, COTJ, 30. V. 1967, Tsuchiyu spa, Fukushima-shi, Fukushima Pref., S. OHMOMO leg.; 5♂♂, 1♀, COTJ, 6. VI. 1998, Yatakezawa, Tateiwa-mura, Fukushima Pref., S. OHMOMO leg.; 1♂, 1♀, COTJ, 2. VI. 1991, Sakurakubo, Kuroiso-shi, Tochigi Pref., S. OHMOMO leg.; 3♂♂, COTJ, 21. VI. 1995, Terako, Kuroiso-shi, Tochigi Pref., S. OHMOMO leg.; 1♂, 1♀, COTJ, 28. V. 1991, Senbonmatsu, Nishinasuno-machi, Tochigi Pref., S. OHMOMO leg.; 6♂♂, 1♀, COTJ, 22. V. 1994, Kido, Motegi-machi, Tochigi Pref., S. OHMOMO leg.; 6♂♂, 2♀♀, COTJ, 11. VI. 1988, Mt. Hanazono, Kita-ibaraki-shi, Ibaraki Pref., K. ICHIGE leg.; 6♂♂, 3♀♀, COTJ, 29. IV. 2001, Mt. Tsukuba, Makabe-machi Ibaraki Pref., S. OHMOMO leg.; 9♂♂, 2♀♀, 5. V. 1989, COTJ, Migimomi, Tsuchiura-shi, Ibaraki Pref., S. Ohmomo leg.; 1♂, COTJ, 22. VI. 1974, Tobira spa, Nagano Pref., T. KOBAYASHI leg.; 5♂♂, 3♀♀, COTJ, 1. VI. 1991, Tsukahara, Yufuin-cho, Oita Pref., S. OHMOMO leg.; 6♂♂, 6♀♀, CTOJ, 3. VI. 2001, Tsukahara, Yufuin-cho, Oita Pref., Y. TSUTSUMIUCHI leg.

Distribution. Russian Far East, China, Korea, Japan: Honshu, Kyushu.

Remarks. This species is very common in Japan (Honshu and Kyushu), and has the same habitation with *Agrilus tibialis tibialis* SAUNDERS, 1873. Size 5.0–6.4 × 1.0–1.4 mm. By close examination of *A. adelphinus* specimens from Russian Far East and Japan, this species easily distinguished from *A. tibialis tibialis* SAUNDERS, 1873 as follows: 1) body more slender than latter in shape, 2) prosternal process linguiform (Fig. 8–E), widely depressed, and densely covered with long pale yellow hairs, while in the latter it widened behind fore coxae (Fig. 8–F), and sparsely covered with long white hairs, 3) each elytron along suture without white short hairs at the apical one-fifth while in the latter it covered more or less with white short hairs, 4) male genitalia with ridge on paramere (Fig. 6–E), while in the latter it without clear ridge (Fig. 6–F).

要　　約

大桃定洋：日本産タマムシ科甲虫の新種（第一報）．——— 日本産タマムシ科甲虫として，クリタマムシ属の1新種 *Toxoscelus nakajimai* sp. nov. リュウキュウクリタマムシ(奄美大島)とナガタマムシ属の3新種 *Agrilus japanocarinatus* sp. nov. ニッポンカタスジナガタマムシ(本州、九州)，*Agrilus koyoi* sp. nov. コーヨーナガタマムシ(本州)及び *Agrilus ogatai* sp. nov. オガタナガタマムシ(北海道，本州，九州)をそれぞれ記載した．また，*Agrilus adelphinus* KERREMANS, 1895 ニセホソアシナガタマムシを日本産として初めて記録した．この種は *Agrilus tibialis* SAUNDERS, 1873 ホソアシナガタマムシに酷似しており，極東ロシア，中国，朝鮮半島

に広く分布し，日本でも本州，九州に普通に分布する．

References

AKIYAMA, K. and S. OHMOMO, 1997. A check list of the Japanese Buprestidae. *Gekkan-Mushi*, Tokyo (Suppl. 1). 64pp.

——, 1998. A new subspecies of *Chrysochroa fulgidissima* (SCHÖNHERR, 1817) from Otoko-jima, Danjo Iss., Nagasaki Pref., Japan (Buprestidae, Coleoptera). *Gekkan-Mushi*, (333): 2–4.

JENDĚK, E., 1994. Studies in the east Palaearctic species of the genus *Agrilus* DAHL, 1823 (Coleoptera: Buprestidae). Part I. *Entomol. Probl.*, **25** (1): 9–25.

KERREMANS, Ch., 1895. Buprestides Indo-Malais. Deuxieme Partie. *Ann. Soc. entomol. Belg.*, **39**: 192–224.

KUROSAWA, Y., 1964. Descriptions of several new species and subspecies of the genus *Agrilus* CURTIS from Amami-oshima of the Loo-choo archipelago. *Kontyû*, **32**: 323–334.

——, 1977. A revision of the buprestid beetles of the genera *Toxoscelus* and *Cryptodactylus* in Japan and its adjacent regions. *Bull. natn. Sci. Mus., Tokyo,* (**A**), **3**: 169–186.

(Received August 28, 2002; Accepted September 20, 2002)

Ent. Rev. Japan, 57 (2): 165–168, October 30, 2002

Records on Elmidae (Coleoptera) from Sri Lanka

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Abstract Six species in five genera belonging to Elmidae are recorded from Sri Lanka, with taxonomic notes.

Through the courtesy of Dr. P. J. SPANGLER, I have had a good fortune to examine a collection of Elmidae captured by the members of the Ceylon Insect Project of Smithsonian Institution in 1970.

As far as I am aware, the elmid fauna of Sri Lanka (Ceylon) was known to some extent by DELÈVE (1973) and JÄCH (1984) and others. The result of examination of the Smithsonian materials was six species belonging to five genera, but they included some taxonomic problems. The additional notes on them are reported in the present paper.

I am very grateful to Dr. Paul J. SPANGLER for his kind support in many ways.

Genus *Potamophilinus* GROUVELLE

Potamophilinus GROUVELLE, 1896, Bull. Soc. ent. France, 1896: 77. — DELÈVE, 1963, Bull. Ann. Soc. R. ent. Belg., 99: 432. — JÄCH, 1984, Arch. Hydrobiol. Suppl., 69: 280.
Type species: *Potamophilus orientalis* GORY, 1844.
Freyiella BOLLOW, 1938, Mitt. Münch. Ent. Ges., 28(2): 168.
Type species: *Freyiella foveicollis* BOLLOW, 1938

The genus *Freyiella* is almost identical with the genus *Potamophilinus*. This possibility of synonymous was already pointed out by DELÈVE (1963, 1967).

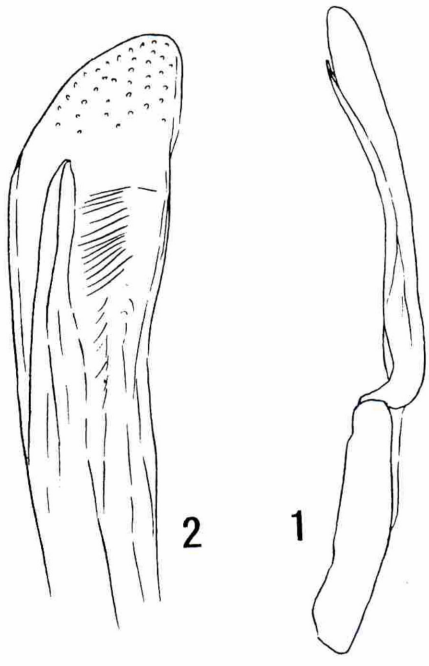
Potamophilinus tuberculatus HINTON

(Figs. 1–2)

Potamophilinus tuberculatus HINTON, 1935, Stylops, 4: 175 (Peradeniya, Ceylon). — JÄCH, 1984, Arch. Hydrobiol. Suppl., 69: 283.

The male genitalia is illustrated firstly in the present paper.

Male genitalia: basal lobe rather stout; median lobe slender, gently bent ventrally, with rounded apex and 1.6 times as long as basal lobe; lateral lobe also narrow and shorter than median lobe.



Figs. 1–2. Male genitalia of *Potamophilinus tuberculatus* HINTON. 1, Lateral aspect; 2, close up of median lobe.

Specimens examined: 57♂♂, 52♀♀, Rat. Dist., Uggalkaltota, 350 ft., Irrigation Bangalow, 31. I~8. II. 1970, DAVIS and ROWE leg.; 2♂♂, Uggalkaltota, 500 ft., 10–14. X. 1970, O. S. FLINT Jr. leg.; 15♂♂, 9 ♀♀, Kan Dist., Kandy, 1,800 ft., Peak View Motel, Jan. 7–14, 1970, DAVIS and ROWE leg.; 2♀♀, Kan Dist., Hasalaka, 500 ft., 22~25. XI. 1970, O. S. FLINT Jr. leg.; 1♀, Kan Dist., Polpitiya, Kekani Ganga, 400 ft., 24. IX. 1970, O. S. FLINT Jr. leg.

Potamophilinus costataus HINTON

Potamophilinus costataus HINTON, 1935, Stylops, 4: 174 (Peradeniya, Ceylon). — DELÈVE, 1973, Ent. Scand. Suppl., 4: 8. — JÄCH, 1984, Arch. Hydrobiol. Suppl., 69: 282.

Specimens examined: 1♀, Kan Dist., Kandy, 1,800 ft., Peak View Motel, 7~14. I. 1970, DAVIS and ROWE leg.; 1♀, Pol. Dist., Polonnaruwa, Dec. 27, 1969, P. B. KARUNARATNE leg.; 1♂, 1♀, Rat. Dist., Udawalawe DamSite, 250 ft., 19. X. 1970, O. S. FLINT Jr. leg.; 2♀♀, Rat. Dist., Uggalkaltota, 350 ft., Irrigation Bangalow, 31. I~ 8. II. 1970, DAVIS and ROWE leg.

Stenelmis anderssoni DELÈVE

Stenelmis anderssoni DELÈVE, 1973, Ent. Scand. Suppl., 4: 9 (Kitulgala, Sabaragamuwa Prov., Ceylon). — JÄCH, 1984, Arch. Hydrobiol. Suppl., 69: 284.

Specimens examined: 3 exs., Kan. Dist., 5 mi. N. W. Mahiyangana, Blacklight at Haselaka Irrigation

Bungalow, 30. III ~ 9. IV. 1971, P. and P. SPANGLER leg.; 8 exs., Anu. Dist., Wildlife Soc. Bungalow Hunuwilagama, Wilpattu, 200 ft., 10~19. III. 1970, DAVAIS and ROWE leg.

Ordobrevia fletcheri DELÈVE

Ordobrevia fletcheri flavolineata DELÈVE, 1973, Ent. Scand. Suppl., 4: 11 (Kitulgala, Sabaragamuwa Prov., Ceylon); DELÈVE, 1973, Bull. Fish. Res. Stn. Sri Lanka, 24: 70.
Ordobrevia flavolineata: JÄCH, 1984, Arch. Hydrobiol. Suppl., 69: 286.

Specimens examined: 3 exs., Kan. Dist., 5 mi. N.W. Mahiyangana, Blacklight at Haselaka Irrigation Bungalow, Mar. 30. III~9. IV. 1971, P. and P. SPANGLER leg.

Leptelmis cederholmi DELÈVE

Leptelmis cederholmi DELÈVE, 1973, Ent. Scand. Suppl., 4: 11 (Mahaveli Ganga at Alutnuwara, Uva Prov., Ceylon). — JÄCH, 1984, Arch. Hydrobiol. Suppl., 69: 287.

Specimens examined: 2 exs., Kan Dist., Kandy, 1,800 ft., Peak View Motel, 15~24. I. 1970, DAVIS and ROWE leg.; 1 ex., Kan Dist., Hasalaka, 500 ft., 22~25. XI. 1970, O. S. FLINT Jr. leg.

Graphelmis ceylonica (NIETNER)

Stenelmis ceylonicus NIETNER, 1859, in MOSCHULSKY, Etud Ent., 8: 49 (Ceylon).
Graphelmis ceylonica: DELÈVE, 1973, Ent. Scand. Suppl., 4: 12. — JÄCH, 1984, Arch. Hydrobiol. Suppl., 69: 288.

Up to the present, the author of the specific name was cited erroneously as MOTSCHULSKY. But the author name is indicated evidently as NIETNER in the original description, which is included in the MOTSCHULSKY's paper.

Specimens examined: 10 exs., Rat. Dist., Uggalkaltota, 350 ft., Irrigation Bangalow, 31. I~8. II. 1970, DAVIS and ROWE leg.; 1 ex., Kan. Dist., 5 mi. N.W. Mahiyangana, Blacklight at Haselaka Irrigation Bungalow, Mar. 30. III~9. IV. 1971, P. and P. SPANGLER leg.

要　　約

佐藤正孝：スリランカ産ヒメドロムシ科の記録. ——— スミソニアン研究所が1970年に行なったセイロン（スリランカ）昆虫類調査のうち，コウチュウ目ヒメドロムシ科の標本を検することができたので，その結果として5属6種をここに記録した.

References

BOLLOW, H., 1938. Monographie der palaearktischen Dryopidae, mit Berücksichtibung der eventuell

transgredierenden Arten (Col.). *Mitt. Münch. ent. Ges.*, **28**: 147–187, 366–367.

DELÈVE, J., 1963, Contribution a l'etude des Dryopoidea, V. Notes sur les divisions generiques des Larinae d'Afrique (Coleoptera, Elminthidae) et descriptions d'especes nouvelles. *Bull. Ann. Soc. R. ent. Belg.*, **99**: 431–458.

——— , 1967. Contribution a l'etude des Dryopoidea (Coleoptera), XIX. Notes diverses et descriptions d'especes nouvelles. *Bull. Ann. Soc R. ent. Belg.*, **103**: 414–446.

——— , 1973. Coleoptera: Dryopidae et Elminthidae. *Ent. Scand. Supple.*, **4**: 5–23.

GROUVELLE, A., 1896. Note sur les subdivision géneriques des Potamophiliens. *Bull. Soc. ent. Fr.*, 1896: 77–78.

HINTON, M., 1859. Notes on the Dryopoidea (Col.). *Stylops*, **4**: 169–179.

JÄCH, M. A., 1984. Die Koleopterenfauna der Bergbäche von Südwest-Ceylon. *Arch. Hydrobiol. Suppl.*, **69**: 228–332.

NIETNER, M., 1859. In MOTSCHULSKY, Entomologie spéciale. Insects des Indes orientales, et de contrées analogues. *Etud. Ent.*, **8**: 25–118.

(Received September 10, 2002; Accepted September 21, 2002)

Ent. Rev. Japan, 57 (2): 169–179, October 30, 2002

Studies on the Asian Staphylininae (Coleoptera: Staphylinidae) V.
Notes on the Genus *Hesperosoma* SCHEERPELTZ, with Descriptions of Two New Subgenera and a New Species

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Abstract Genus *Hesperosoma* is reviewed, with establishments of two new subgenera, *Hemihesperosoma* and *Euhesperosoma*, and a new species, *Hesperosoma chinense*, is described in this paper.

The genus *Hesperosoma* was established by SCHEERPELTZ (1964) for *Hesperosoma malaisei* SCHEERPELTZ. The present author reviewed this genus in 1993 taking main account of the genus from the specimens of *Hesperosoma miwai* (BERNHAUER). Recently I had an opportunity to examine the allo- and paratype specimens of *Hesperosoma*, and I found that the generic characteristics are more variable in some important features. Therefore I am going to give some supplementary account of the generic characters in this paper, with a redescription of *H. malaisei*. Also, I was able to examine several different species belonging to *Hesperosoma* from SE Asia and found that they are separated at least into three natural groups by the characteristics of chaetotaxy on head, structures of mesosternum, female genital segments and male genitalia. As these characteristics seem to be stable for each group, I would like to establish three new subgenera for the groups under the names *Hesperosoma* s. str., *Hemihesperosoma* and *Euhesperosoma*, with a descriptions of a new species.

In his review of *Amichrotus excellens* BERNHAUER, HAYASHI (1995) pointed out the need of revision because the species is not true *Amichrotus* species.

Amichrotus excellens is well similar in the structures of mouth organs, male secondary sexual features, prothorax and abdomen to those of *Hesperosoma*. Hence I newly transfer the species from *Amichrotus* to *Hesperosoma*, but this species is very peculiar in the structures of mesosternum. Recently I examined some other species from India, the Philippines and Thailand which have almost the same generic characteristics with *A. excellens*, so that I establish the subgenus *Euhesperosoma* for this species.

Hesperosoma miwai and its allied species are markedly different from the other members of the genus in the structures of genital segments of both sexes and male genitalia, and I consider that they constitute a distinct group by those structures. Although Dr. S. NAOMI (1982) established the subgenus *Paramichrotus* for *Amichrotus miwai* (= *Hesperosoma miwai*), this name was already established as a subgenus of *Thoracostrongylus* for *Onthorestes javanus* BERNHAUER (= type species of *Thoracostrongylus*) and treated as a synonymy of the genus *Thoracostrongylus* by CAMERON (1932). According to ICZN article 11.6 a name published in synonymy is unavailable unless before 1961 it was treated as an available name and adopted as the name of a taxon. *Paramichrotus* had not been used as the name of taxon, but BLACKWELDER

(1952) treated it as an available name and mentioned it was stillborn as an objective synonym of *Thoracostrongylus*. HERMAN (2001) mentioned that *Paramichrotus* is nomen nudum (article 11.6). If my interpretation for ICZN article 11.6.1 were correct, I agree with BLACKWELDER's opinion. Therefore I establish subgenus *Hemihesperosoma* for *H. miwai*.

I wish to express my sincere gratitude to Dr. H. SCHILLHAMMER, the Naturhistorisches Museum, Wien, for his courtesy to lend me the type specimens of *Hesperosoma*. I thank to Dr. K. MORIMOTO, the Emeritus Professor of Kyushu University for his critically reading the manuscript of this paper.

Almost all the terminology used herein are the same as those explained in HAYASHI (1993).

The Genus ***Hesperosoma*** SCHEERPELTZ, 1965

Type species: *Hesperosoma malaisei* SCHEERPELTZ, 1965

Hesperosoma SCHEERPELTZ, 1965. Arkiv Zool., 17A (2): 270. — HAYASHI, 1993 (partim). Elytra, 22: 290–294.

Paramichrotus NAOMI, 1982. Trans. Shikoku ent. Soc., 16: 37–39 (nec *Paramichrotus* CAMERON, 1932). — HAYASHI, 1993. Elytra, 22: 290.

Though this genus was well described by SCHEERPELTZ, it has wider range of variation in important organs and some indistinct points were still present in his original description. Thus I would like to give some supplementary description as in the followings.

Head more or less transverse, roundly subquadrate to obtrapezoidal; eyes moderate in size, rather convex, nearly as long as or a little shorter than postgenae; left mandible not, but right one denticulate at the tip of the tooth.

Mentum with a pair of delicate erect setae at each side, but inner seta of them sometimes well developed. Gular sutures nearly contiguous in posterior third to half. Subgenal macroseta rather short.

Elytra with lateral margins in about posterior half not to strongly creased.

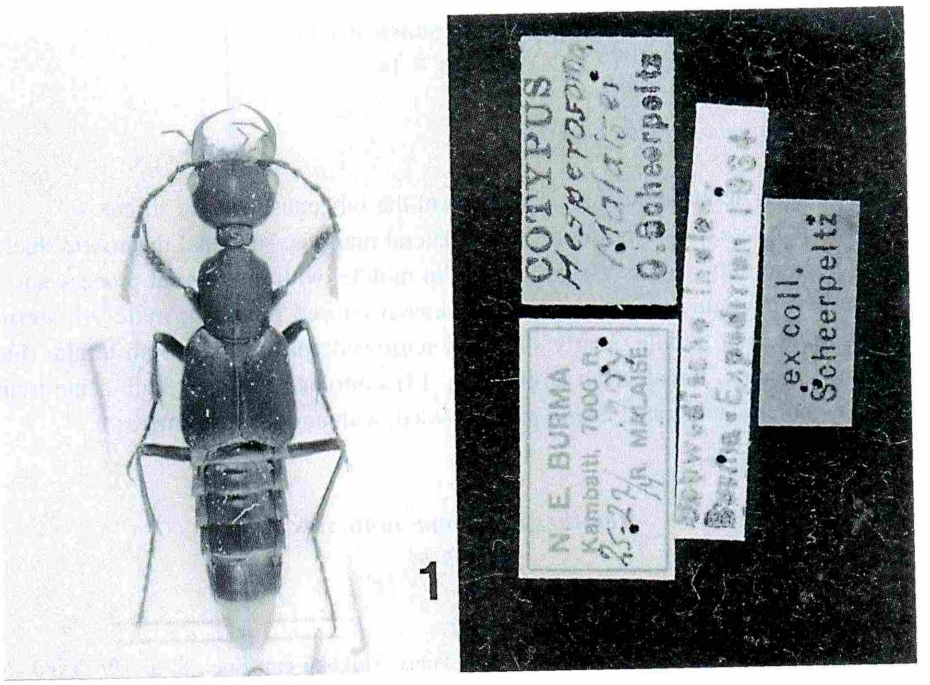
Mesosternum with a V-shaped to Y-shaped ridge.

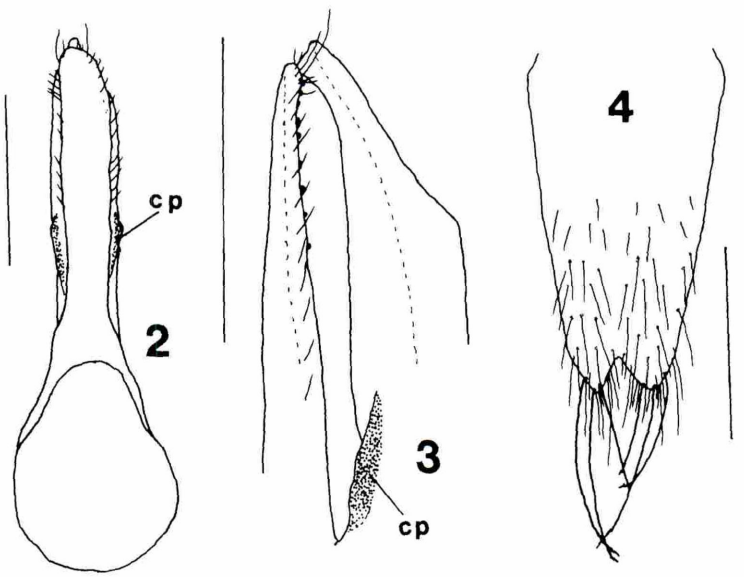
Abdomen with 3rd sternite bearing a short and acute median carina at base and short sulcus behind the tip of the carina; 4th and 5th sternite each with basal line more or less acutely produced posteriad at the middle; male styli moderately thick to slender; 10th tergite subtrapezoidal and subtruncate at apex; male 9th sternite moderately wide, straightly narrowed apicad or markedly widened, foliaceous; gonocoxites in female moderate in width at base or markedly wide.

Male genitalia almost symmetrical, elongate, thick or fan-shaped; parameres unilobed to bilobate.

Metatarsi with 1st segment nearly as long as or more or less shorter than 5th; empodial setae paired, short and thin.

Discussion. Hesperosoma closely related to *Philomyceta* CAMERON, 1944 in the structures of mouth organs and general appearance, but is easily distinguished from the latter by the depressions on sternites of abdomen, namely, *Philomyceta* has depressions on the basal 4 visible tergites of abdomen. This genus may be less advanced than *Philomyceta* because of less modified abdominal tergites and symmetrical male genitalia.





1–4. *Hesperosoma malaisei* SCHEERPELTZ. 1, Habitus; 2, male genitalia, ventral view (cp = chitinized plica); 3, ditto, light lateral view; 4, 9th sternite in male. (Scale bars: 0.5 mm)

Hesperosoma sensu stricto

(Figs. 1–4, 9–14)

Type species: *Hesperosoma malaisei* SCHEERPELTZ

I would like to describe the main characters of the subgenus in sensu stricto: –

Elytra weakly creased in posterior half of lateral margins: subgenal macroseta thick, well developed; mesosternum with a V-shaped ridge in middle, with meosternal process not ridged medially but even; pleurites slender and somewhat curved outward; male 9th sternite of abdomen not dilated in middle, nearly straightly narrowed apicad; male 10th tergite (Fig. 12) deeply notched at apex; female 10th tergite (Fig. 13) subtruncate at apex with acute triangular process; male genitalia elongate , nearly parallel-sided, with unilobed parameres.

Hemihesperosoma nom. nov.

(Figs. 5–6)

Type species: *Amichrotus miwai* BERNHAUER, 1943: 177.

Paramichrotus NAOMI, 1982 (nec CAMERON, 1932). Trans. Shikoku ent. Soc., 8: 37–39 (Type species: *Amichrotus miwai* BERNHAUER, 1943: 177.).

Hesperosoma: HAYASHI, 1994. Elytra, 21: 290–294.

Though this subgenus was defined in detail by HAYASHI (1994) as the genus *Hesperosoma*, the subgenus has several different characteristics from *Hesperosoma* s. str. Therefore I would like to give some supplementary description as in the followings.

Elytra distinctly creased at posterior half of lateral margin; mesosternal process weakly convex medially behind V-shaped ridge; subgenal macroseta poorly developed, fine and rather indistinct; pleurites elongate and weakly incurved; male 10th tergite (Fig. 5) wide, somewhat semioval and weakly arcuate at apical margin; male 9th sternite very wide, strongly foliaceous; female 10th tergite (Fig. 6) wide and short, widely truncate at apex, without any process; female gonocoxcite a little wider at base than in *Hesperosoma* s. str., and the minute stylus a little shorter; male genitalia markedly fan-shaped, with bilobate parameres.

Etymology. From the Greece, "Hemi-" (half) is combined with generic name *Hesperosoma*.

Euhesperosoma subgen. nov.

(Figs. 7–8)

Type species: *Amichrotus excellens* BERNHAUER

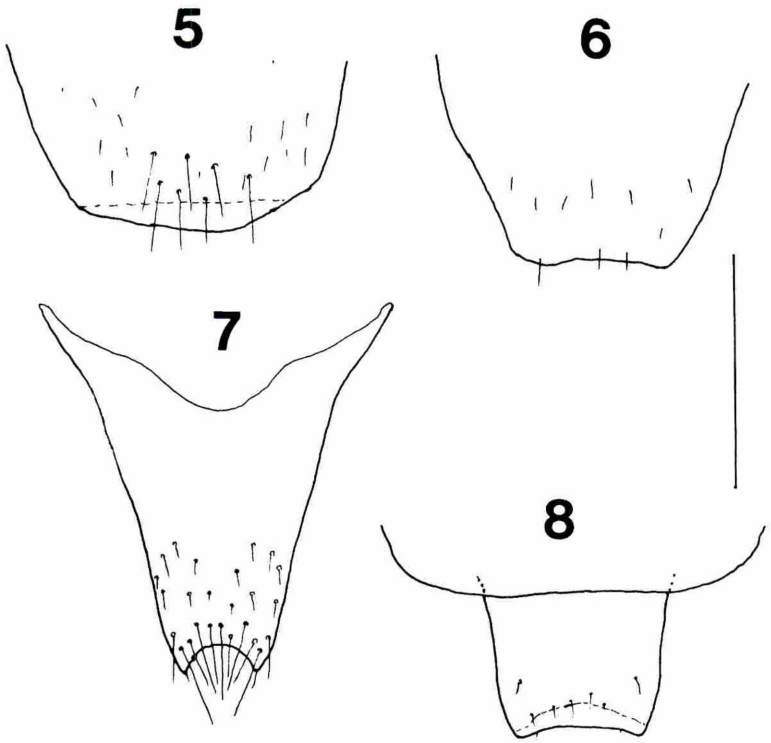
Elytra not creased at lateral margin; subgenal macroseta fine, inconspicuous; mesosternum with a short median carina in basal area and Y-shaped ridge behind the carina; male 10th tergite (Fig. 7) rather short, roundly emarginate at apical margin; female 10th tergite (Fig. 8) widely truncate at apical margin, without any process; male genitalia rather slender, with parameres unilobed.

Etymology. From the Greece, "Eu-" (good, well) is combined with generic name *Hesperosoma*.

Notes. Structure of the mesosternum is nearly equal to that of the genus *Thoracostrongylus* (Staphylinina). Some species of this *Euhesperosoma* are found from India, the Philippines and Thailand. Therefore the locality, Kamikochi, Japan of the type species *Amichrotus excellens* is probably erroneous, this species is probably not distributed in Japan.

Key to the Subgenera of *Hesperosoma*

1. Mesosternum with a short median carina at base..... *Euhesperosoma* subgen. nov. (*Hesperosoma excellens* (BERNHAUER), *H. elegans* (CAMERON))
— Mesosternum without median carina in base 2
2. Pleurites moderately thick and straight; male 9th abdominal sternite moderately wide, straightly narrowed apicad; female 10th tergite with an acute process at apex; male genitalia elongate, nearly parallel-sided , with parameres unilobed. ..... *Hesperosoma* s. str. (*H. malaisei* SCHEERPELTZ, *H. chinense* sp. nov.)
— Pleurites elongate and weakly incurved; male 9th abdominal sternite strongly dilated,



Figs. 5–8. 10th tergites of *Hesperosoma* spp.: 5–6, *Hesperosoma* (*Hemihesperosoma*) *miwai* BERNHAUER (5, male; 6, female); 7–8, *Hesperosoma* (*Euhesperosoma*) sp. (7, male; 8, female). (Scale bar: 0.5 mm)

markedly foliaceous; female 10th tergite without any process at apex; male genitalia markedly sectoral, strongly widened apicad, with parameres bilobate. .... *Hemihesperosoma* nom. nov.

(*H. miwai miwai* (BERNHAUER), *H. miwai nanshanchiana* HAYASHI, *H. sakoi* HAYASHI)

Hesperosoma (*Hespersoma*) *malaisei* SCHEERPELTZ

(Figs. 1–4)

Hesperosoma malaisei SCHEERPELTZ, 1965. Ark. Zool., 17 (2): 271.

Redescription. Body thick, subparallel-sided rather flattened above; head, pronotum and elytra blackish violaceous blue and weakly shiny, scutellum deep black; under side of thorax and basal 3 visible segments of abdomen reddish brown, 6th and 7th segments blackish brown, with the latter posterior half pale yellow as in 8th and genital segments; antennae nearly black, with apical 5 segments white; mouth organs and legs pitchy brown, with femora light brown in each basal half. Length: 13–14 mm.

Head roundly subquadrate, widely rounded at posterior angles, much wider than long (41.0 : 32.0), much wider and shorter than pronotum (41.0 : 32.0 and 32.0 : 39.0) and a little narrowed posteriad; upper surface gently convex, densely and coarsely punctured, without microsculpture except for clypeal region, the punctures umbilicate and almost regular in size, and median line narrowly impunctate reaching vertex from clypeal region; clypeal region rugulosely microsculptured and narrowly sulcate along front margin. Mandibles rather long, much longer than head (19 : 16). Eyes relatively small, strongly convex and two-thirds as long as postgena. Antennae slender and long, fully reaching base of pronotum, all segments more or less longer than wide and with the following relative length (width): 23.0 (5.0) : 9.5 (5.0) : 17.0 (5.0) : 10.0 (5.5) : 10.5 (6.0) : 10.0 (6.0) : 9.0 (6.5) : 8.5 (7.0) : 8.0 (7.0) : 7.5 (7.0) : 12.0 (6.5).

Subgenae very sparsely and finely punctate, infragenal line strongly impressed in full length.

Pronotum widest at anterior third, gently sinuate and narrowed posteriad from the widest point, widely rounded at each angle, a little wider than long (39.0 : 32.0), much narrower and shorter than elytra (33.0 : 51.0 and 39.0 : 52.0); disc strongly convex, densely and coarsely punctured as on head, with short dark pubescence; median line indistinct but barely traceable as a border-line of hair stream in full length.

Scutellum flattened, shagreened, coarsely, shallowly and indistinctly asperate-punctate.

Elytra subtrapezoidal, nearly as wide as long, weakly dilated posteriad, lateral margin gently arcuate and angularly well creased in posterior two-thirds, apices weakly emarginate, and latero-apical angles obtusely angulate; surface flattened, vaguely depressed along sutural space, densely and coarsely asperate-punctate, with short dark pubescence.

Abdomen gradually narrowed posteriad, with very fine and weak reticulate microsculpture in each basal area but without such in the rest; basal 3 visible segments impunctate in each basal area, sparsely and coarsely punctured narrow space behind the area, thence, minutely and sparsely punctured in each posterior area as well as on the whole of 6th to 8th segments with long pubescence, the punctures on sternites rather larger than those on tergites; male 8th sternite truncate at apical margin, nearly straight; pleurites rather slender and somewhat outwardly

curved; male 10th tergite shallowly and subtriangularly emarginate at apical margin; male 7th sternite with a large crescentic shallow depression, being thickly covered with blackish long hairs; male 8th sternite rather deeply emarginate at apex; male 9th sternite (Fig. 4) obtrapezoidal, narrow, not expanded laterad, deeply emarginate at apex; female 10th tergite subtruncate at apex, with an elongate triangular process; female 8th sternite widely rounded at apical margin; female gonocoxcite rather slender, short, 2nd gonocoxcite with about 4 long setae of various length in apical portion, and minute stylus very short, with a long seta.

Legs slender and long; protibiae not spinous except terminal spurs but with a few spinous setae; mesotibiae nearly straight, with several spines in outer surface; metatibiae faintly incurved, with a few short spines; metatarsi with 1st segment short, much shorter than 5th (16.0 : 21).

Male genitalia (Figs. 2–3) elongate and symmetrical; penis weakly tumid in apical half in ventral view, gently curved ventrad in apical fifth, gradually narrowed towards subacute apex but blunt at the tip, with a short thin sclerotized plica at the middle of lateral margin; parameres unilobed, somewhat inclined to the left, gradually widened apicad, widest at apical fourth, feebly arcuate at apex, and the tip not reaching top of penis; inner (dorsal) surface of parameres bearing sparse peg-setae along apical third of margins of inner face.

Specimens examined: ♂(paratype), Kambaiti (7000 feet), NE Burma (Myanmar), 25~27. IV. 1934, R. MALAISE leg.; ♀(allotype), the same locality, 28. V. 934, R. MALAISE leg.

Distribution: Myanmar.

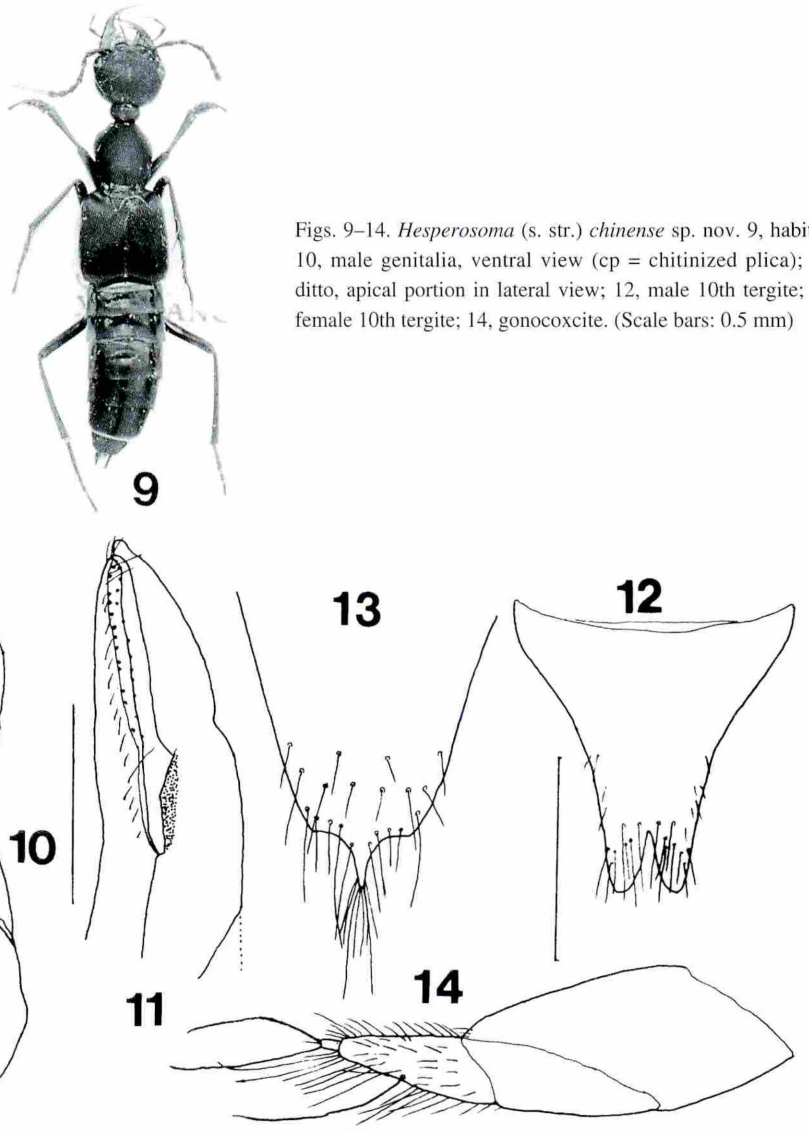
Notes. The present species is easily distinguishable from the other species of this genus in the colour combination of body. This species is closely allied to *H. chinense* sp. nov., but easily distinguishable from the latter by the different coloration of abdomen mentioned in the description of the following species.

Hesperosoma* (*Hespersoma*) *chinense sp. nov.

(Figs. 9–14)

Body elongate, subparallel-sided and rather flattened above; fore body deep blue with metallic lustre and black ventrally; abdomen with basal 4 segments reddish brown, 6th segment sometimes darkened in posterior half, 7th blackish brown, narrowly yellowish at hind margin, 8th blackish brown with base of the tergite widely yellowish and bearing yellowish round patch at each side of the sternite, and genital segments dark brown to blackish brown; mouth organs pitchy, though inner margin of mandibles and last segments of palpi reddish brown; antennae black, with apical 5 segments whitey yellow; legs blackish, tarsi dark brown. Length: 14.0–16.7 mm.

Head semicircular, widely and roundly narrowed posteriad, a little wider than long (35.5 : 31.0), a little wider and much shorter than pronotum (35.5 : 31.0 and 31.0 : 38.0) and weakly convex above; surface with coarse, umbilicate and very dense punctures, without microsculpture except for clypeal region; clypeal region flat, transversely subpentagonal, impunctate and with reticulate microsculpture; median line running from top of clypeal region to vertex, narrowly and irregularly impunctate; postgenae very sparsely punctate in under half. Mandibles sickle-shaped, strongly elongate but a little longer than head (10.0 : 8.0). Eyes moderately large, strongly convex, much shorter than postgenae (11.0 : 15.0). Antennae slender and long, reach-



Figs. 9–14. *Hesperosoma* (s. str.) *chinense* sp. nov. 9, habitus; 10, male genitalia, ventral view (cp = chitinized plica); 11, ditto, apical portion in lateral view; 12, male 10th tergite; 13, female 10th tergite; 14, gonocoxcite. (Scale bars: 0.5 mm)

ing behind the middle of pronotum; 1st to 7th and 11th segments each longer than wide, 8th nearly as long as wide, 9th and 10th each slightly wider than long; each segment with the following relative length: 20.0 : 8.0 : 14.0 : 8.5 : 8.0 : 8.0 : 7.5 : 7.0 : 6.0 : 6.0 : 10.0. Chaetotaxy composed of 7 pairs of macrosetae, which are well developed except front marginal ones, and several short characteristic setae scattered as in Fig. 11.

Underside of head nearly impunctate except for a few groups of several small, shallow and weak punctures here and there; subgenal macroseta well developed.

Pronotum subcordate, strongly convex above, much longer than wide (60.0 : 50.0), much shorter and narrower than elytra (50.0 : 72.0 and 60.0 : 75.0); widest at about anterior third, then gradually narrowed to widely rounded base; front margin nearly straight and front angles widely rounded; sides gently arcuate in front half and faintly emarginate in hind half; disc very densely

and coarsely punctured as on head, not microsculptured, with fine, short brownish pubescence, median line faintly convex and very narrowly impunctate in basal half.

Scutellum rather minutely and sparsely punctured, with fine linear microsculpture and weakly convex medially in basal half.

Elytra subquadrate, slightly longer than wide (75.0 : 72.0), weakly arcuate at sides, weakly emarginate at apices and widely rounded at latero-apical angles; surface nearly even, very densely and finely asperate-punctate, the punctures somewhat foveolate, without microsculpture; lateral margin somewhat creasedat, blunt at the edge in hind third.

Abdomen rather wide, slightly narrower at base than elytra, slightly narrowed posteriad; basal depressions on each of 3rd to 5th tergites longitudinally, coarsely, sparsely and loosely rugose or poorly grooved and coarsely sparsely punctured in the rugae or grooves, the punctures poorly defined; the rest very minutely punctured as in *H. malaisei*, the punctures a little more denser than and pubescence a little shorter than in the latter; 7th sternite with a rather small macula of long brownish pubescence, the macula smaller than in *H. malaisei*; 8th sternite rather deeply and roundly emarginate at apex; male 10th tergite (Fig. 12) narrowly and very deeply notched; gonocoxcite (Fig. 14) rather wide at base, 2nd gonocoxcite with a long stout seta at lateral side of apical fourth and minute stylus rather long, with 2 long stout setae at the tip.

Male genitalia (Figs. 10–11) well similar to *H. malaisei,* but parameres slightly inclined to the left, more narrowly rounded at apex, markedly rugulose in basal two-thirds of both sides and peg-setae on inner face sparsely scattered along margins of the apical two-thirds; penis gently curved ventrad, with a plica in middle of each side as in *H. malaisei.*

In male the first segment of protarsi nearly as long as 2nd and 3rd combined together and also 5th, but in female the 1st segment of protarsi distinctly much longer than 5th.

Holotype: ♂, Qinling Mts. (alt. ~1200 m), Xunyangba Env., Shaanxi Prov., China, 20. V.~ 10. VI. 2000 (in the collection of the Osaka Museum of Natural History). Paratypes: 3♂♂, 4♀♀, the same date as the holotype.

Specimens examined: 1♀, 7 km N. of Muyi Vill. (alt. 2000 m), Shennongjia Country, Hubei Prov., China, 15~21. VI. 1997.

Distribution: China.

Notes. The present new species is closely allied to *H. malaisei* SCHEERPELTZ but easily distinguishable from the latter in the following points: in the present species the abdomen is reddish in the basal 4 visible segments, the genital segments are dark brown to blackish brown, the elytra are not edged at the lateral margins and inner face of the parameres of male genitalia bears peg-setae in apical two-thirds, while in the latter the abdomen is reddish in basal 3 visible segments, the genital segments are pale yellow, the elytra are distinctly edged at lateral margins and inner face of the parameres of male genitalia bears peg-setae only in apical third.

Etymology. The specific name is derived from its native country.

Hesperosoma (Hemihesperosoma) miwai miwai (BERNHAUER)

Amichrotus miwai BERNHAUER, 1943. Mitt. Münch. ent. Ges., 33 : 177
(See HERMAN, 2001: 2509 for synonymy)

Distribution: Taiwan.

Hesperosoma (*Hemihesperosoma*) *miwai nanshanchiana* HAYASHI

Hesperosoma miwai nanshanchiana HAYASHI, 1993. Ent. Rev. Japan, 48: 123.

Distribution: Taiwan.

Hesperosoma (*Hemihesperosoma*) *sakoi* HAYASHI

Hesperosoma sakoi HAYASHI, 1993. Ent. Rev. Japan, 48: 124.

Distribution: Taiwan.

Hesperosoma (*Euhesperosoma*) *excellens* (BERNHAUER) comb. nov.

Amichrotus excellens BERNHAUER, 1939. Ent. Nachr. Bl., 12: 100.
Amichrotus excellens: NAOMI, 1983. Kontyû, 51: 53.
Amichrotus (expediently) *excellens*: HAYASHI, 1995. Ent. Rev. Japan, 50: 47–52.
(See HAYASHI, 1995 for other synonymy)

Distribution: Japan (?).

Notes. All other species of the subgenus *Euhesperosoma* (including undescribed species) examined are collected in tropical SE Asia (India, Thailand and the Philippines). Therefore the locality of this species from Kamikochi, Japan is very doubtful.

Hesperosoma (*Euhesperosoma*) *elegans* (CAMERON) comb. nov.

Amichrotus elegans CAMERON, 1920. Ent. Mon. Mag., 56: 218. — HAMMOND, 1984. Sarawak Mus. J. 33 (54): 195.
Thoracostrongylus elegans: CAMERON, 1932. Fn. British India: 214; SCHEERPELTZ, 1933. Coleopt. Cat., 132: 1407; BISWAS and BISWAS, 1985. Rec. Ind. zool. Survey Ind., 1985: 146.

Specimens examined: 1♀(holotype), Sidapur, Coorg, 8. VII. 1917, Y. R. RAO leg; 1♀, same data as the holotype; 1♀, Nilgiri Hills, H. L. ANDREWS leg.; 1♀, Fort de Kock, Sumatra, E. JACOBSON leg.; 1♀, the same locality as the holotype (3000 F.), 17. VI. 1917, T. R. N. leg.

Distribution: India, Sumatra, Borneo.

Notes. I will redescribe this species in the near future.

要　　約

林　靖彦：アジア産ハネカクシ亜科の研究 V. *Hesperosoma* 属について. ——— *Hesperosoma* 属は中形のハネカクシで美麗種を多く含み，ミャンマー産の種をもとに SCHEERPELTZ によって立てられた *Anisolinina* 亜族に属する小さなグループである．筆者は1993年に台湾産の *Amichrotus miwai* BERNHAUER を模式種に見立てて属の再記載を行った．筆者は最近ウィーンの SCHILLHAMMER 博士のご好意により，本属の模式種である *H. malaisei* SCHEERPELTZ の一部を借用し詳しく調べることが出来た．その結果，筆者の1993年の *H. miwai* の処理は妥当と考えられたが，その報文には見られなかったいくつかの重要な特徴を見いだしたので属の特徴について補足的な記載を行った．同時に東南アジア産のいくつかの近似種（未記載種含む）を合わせて検討した結果，本属は三つの自然群から構成されていると考えられたので，それぞれを亜属と認めて記載し，あわせて一新種を記載し，*Amichrotus* の一種を本属に移した．

References

BERNHAUER, M., 1938. Zur Stapylinidenfauna von China und Japan. (10. Beitrag). *Ent. Nachr. Bl.*, **12**: 97–109.

——, 1943. Neuheiten der palaearktischen Staphylinidenfauna. *Mitt. Münch. ent. Ges.*, **33**: 169–188.

BISWAS, D. N. et S. Biswas, 1985. Insecta: Staphylinidae. On a collection of Staphylinidae (Insecta: Coleoptera) from Namdapha, Wild Life Sanctuary, Tirap District, Arunachal Pradesh, India. *Rec. Ind. zool. Suevey Ind.*, **82** (1–4): 139–146.

BLACKWELDER, R. E., 1952. The generic names of the beetle family Staphylinidae with an essay on genotype. *Bull. U.S. natn. Mus.*, **200**: i–iv+1–483.

CAMERON, M., 1920. New species of Staphylinidae from India. *Ent. Mon. Mag.*, **56**: 141–148, 214–220.

——, 1932. Coleoptera. Staphylinidae III. In: The Fauna of British India including Ceylon and Burma. xiii + 443 pp., 4 pls. Tayler & Francis, London.

HAYASHI, Y., 1993. Studies on the Asian Staphylinidae, I. *Elytra, Tokyo,* **21**: 281–301.

——, 1993. Notes on Staphylinidae from Taiwan, IX. (Coleoptera). *Ent. Rev. Japan*, **48**: 123–126.

——, 1995. Studies on Staphylinidae (Coleoptera) from Japan, V. Revision on the type species of *Amichrotus excellens* BERNHAUER and *Staphylinus* (*Xanthocypus*) *ganglbauerianus* BERNHAUER. *Ent. Rev. Japan*, **50**: 45–57.

HAMMOND, P., 1984. An annotated check-list of Staphylinidae (Insect: Coleoptera) recorded from Borneo. *Sarawak Mus. J.*, **33** (54): 187–218.

HERMAN, L., 2001. The Catalog of Staphylinidae, V. *Bull. Amer. Mus. nat. Hist.*, **265**: 2441–3020.

NAOMI, S., 1982. Description of a new subgenus *Paramichrotus* of the genus *Amichrotus* SHARP from Taiwan. *Trans. Shikoku ent. Soc.*, **16**: 37–39.

——, 1983. Revision of the subtribe Xanthopygina (Coleoptera, Staphylinidae) of Japan. II. *Kontyû*, **51**: 47–55.

SCHEERPELTZ, O., 1964. Wissenschaftliche Ergebnisse der schwedischen Expedition 1934 nach Indien und Burma. Col. Staphylinidae (except. Megalopsidiinae et Steninae). *Ark. Zool.*, **17**A (2): 93–371.

SMETANA, A. et A. DAVIS, 2000. Reclassification of the north temperate taxa associated with *Staphylinus* sensu lato, including comments on relevant subtribes of Staphylinini (Coleoptera, Staphylinidae). *Amer. Mus. Novitates* **3287**: 1–88.

(Received September 3, 2002; Accepted September 25, 2002)

Ent. Rev. Japan, 57 (2): 181–189, October 30, 2002

Three New Species of the Subgenus *Amaroschesis* of the Genus *Trichotichnus* (Coleoptera: Carabidae: Harpalini) from Sichuan, with New Records

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Abstract Three new species of the subgenus *Amaroschesis* are described under the names of *Trichotichnus* (*Amaroschesis*) *imurai*, *T.* (*A.*) *obscurus*, and *T.* (*A.*) *oblongipennis* from Sichuan. Also new records of *T.* (*A.*) *obtusicollis* SCHAUBERGER and *T.* (*A.*) *satoi* N. Ito are given.

A diversity of species of the genus *Trichotichnus* MORAWITZ, 1863 in China, mainly in Sichuan, Yunnan, and Shaanxi is gradually becoming clear by the recent contributions. As the result of my continuous examination of *Trichotichnus* from China, I found three new species, which are going to name in this paper as *Trichotichnus* (*Amaroschesis*) *imurai*, *T.* (*A.*) *obscurus*, and *T.* (*A.*) *oblongipennis,* together with the records of new localities of *T.* (*A.*) *obtusicollis* SCHAUBERGER and *T.* (*A.*) *satoi* N. ITO.

I would like to express my cordial thanks to Dr. Fritz GUSENLEITNER of the Oberösterreichisches Landesmuseum, Linz for his kind loan of SCHAUBERGER's type under his care and to Dr. Yûki IMURA, Yokohama for his kind offer of material, to whom I dedicate a new species name, *T. imurai*. Concerning to the measurement of body parts, refer the former ITO's paper. The abbreviations of depositories are employed as follows.

NSMT: the National Sciences Museum (Nat. Hist.), Tokyo.

OMNH: the Osaka Museum of Natural History, Osaka.

NIc: Author's collection.

Trichotichnus (*Amaroschesis*) *obtusicollis* SCHAUBERGER

Trichotichnus obtusicollis SCHAUBERGER, 1936, Kol. Rdsch., 21: 11, 14–15 (Type locality: Tatsienlu, Sichuan).

Specimens examined: 2♂♂, 3♀♀, Pass 35 km NNE Luhuo, alt. 4,000 m, oniferous forest / clearings, 31.43 N, 100.44 E, NW Sichuan, China, 1–3. VII. 2001, J. KALÁB leg.; 1♂, valley 39 km SSW Zamtang, alt. 3,700 m, coniferous forest/clearings, 31.54 N, 100.58 E, NW Sichuan, China, 12. VII. 2001, J. KALÁB leg.; 1♂, valley 20 km SSE Zamtang, alt. 4,000 m, alpine meadows / rhododendros, 32.03 N, 101.05 E, NW Sichuan, China, 12. VII. 2001, J. KALÁB leg.; 2♀♀, 15 km NW Aba, alt. 3,500 m, border field / road, 33.00 N, 101.36 E, NW Sichuan, China, 29–30. VII. 2001, J. KALÁB leg.

Trichotichnus (Amaroschesis) satoi N. ITO

Trichotichnus (Amaroschesis) satoi N. ITO, 1999, Elytra, 27: 588–590 (Type locality: Waze, Kangding-Xian, Sichuan).

Specimens examined: 3 ♂♂, 7 ♀♀, Gongga Shan Mts., NW side of the central part, alt. 3,800–4,400 m, 29°38′–46′ N, 101°42′–45′ E, Kangding Co., Sichuan, China, 10–12. VI. 2001, L. and R. BUSINSKY leg.; 1 ♂, Gongga Shan Mts., W foot of the 7,556 m peak, alt. 3,300–4,500 m, 29°30′–39′ N, 101°45′–46′ E, Kangding Co., W Sichuan, China, 13–17. VI. 2001, L. and R. BUSINSKY leg.; 1 ♂, 3 ♀♀, Gongga Shan Mts., 20 km SW of the 7,556 m peak, alt. 4,000–4,800 m, 29°30′–31′ N, 101°42′–44′ E, Kangding Co., W Sichuan, China, 18–19. VI. 2001, L. and R. BUSINSKY leg.

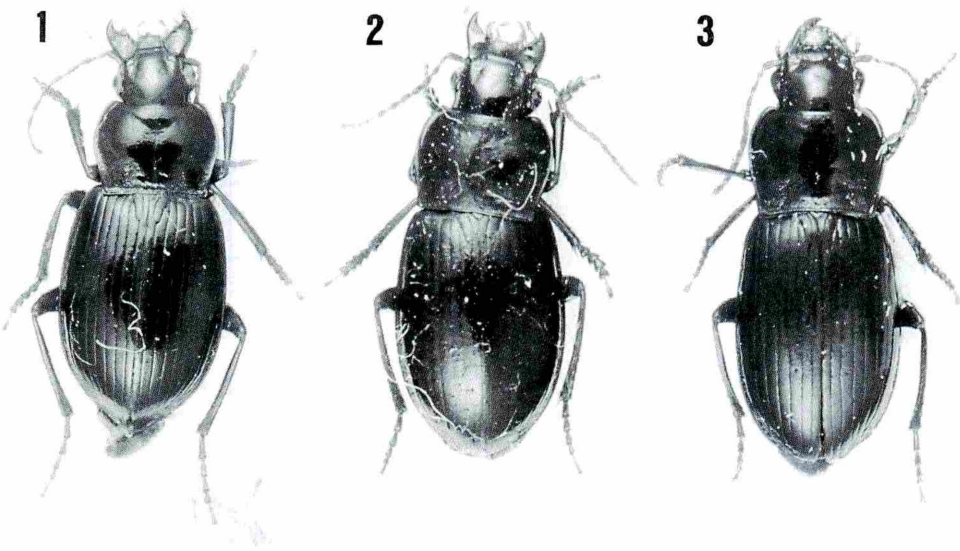
Trichotichnus (Amaroschesis) imurai N. ITO, sp. nov.

(Figs. 1 and 4)

Body ovate, rather convex dorsally, black to brackish brown, shiny, with very weak iridescent lustre on elytra; palpi, antennae, lateral areas of pronotum, and tarsi light brown, head reddish brown to brownish black, sutural intervals of elytra and tibiae dark brown, lateral portions of prothracic ventral surface, coxae and trochanters reddish brown.

Head somewhat large, 0.67–0.68 times as wide as the pronotal width, rather well convex, sparsely and microscopically punctate, with wide interocular space nearly seven-tenths of width of head including eyes; labrum subquadrate, weakly emarginate at apex; clypeus uniformly concave apically, transversely depressed behind apex; clypeal suture uniformly clear; frontal impressions each moderate in depth, arcuately running posteriorly, shallowed in posterior half; eyes weakly bulging; temples long, about two-fifths of eye length; genuine ventral margin of eye rather widely separated from buccal fissure; antennae slender, more or less long, apical two segments reaching elytra; mandibles robust and acute at apices, terebral tooth of left mandible sharply triangular and that of right one indistinct and hump-shaped, retinacular tooth of left one small and blunt apically and that of right one well protrudent and narrowly rounded; palpi slim, 3rd segment of labial palus approximately as long as 2nd one; ligula expanded forwards and slightly arcuate at apex; median tooth of mentum regular-triangulate, epilobes slightly widened apicad; microsculpture partly not clearly impressed, consisting of mixtures with isodiametric and subsquare meshes.

Pronotum subquadrate, widest slightly behind apical two-fifths, 1.41–1.48 times as wide as long, more or less steeply sloping apico-laterad, rather well reflected at sides; sides weakly arcuate from apex to the widest point, thence linearly and gently convergent basad, sinuate before base; apex deeply emarginate, entirely bordered; base one-fifth wider than apex, almost truncate or hardly arcuate at each lateral third, with thick border; apical angles narrowly rounded, well protrudent forwards; basal angles rectangular or a little smaller than right angle, weakly prominent laterad; lateral furrows each abruptly widened basad from middle, fused with basal fovea which is longitudinally and narrowly grooved near inner side of itself; front transverse impression comparatively deep, the hind one also relatively clear; dorsal punctures lacking on disc, sparse and minute near apex, moderate in density and somewhat coarse in lateral furrows and basal foveae; microsculpture fairly clear, composed of transverse meshes.



Figs. 1–3. Habitus of *Trichotichnus* spp. 1, *Trichotichnus* (*Amaroschesis*) *imurai* N. Ito, sp. nov.; 2, *T.* (*A.*) *obscurus* N. Ito, sp. nov.; 3, *T.* (*A.*) *oblongipennis* N. Ito, sp, nov.

Elytra ovate, 1.36–1.47 times as log as wide, three- to fourths-tenths wider than pronotum, well convex, quite smooth; sides comparatively well arcuate, hardly sinuate before apices, which are slightly arcuate at margins and narrowly rounded and separate at tips; bases weakly emarginate, very obtuse and angulate or blunt at humeral angles; striae shallow, weakly meandering, finely crenulate; intervals flat on disc, not distinctly elevated even near apices and bases, a setiferous pore situated between apical three-fifths and middle and adjoining 2nd stria; marginal series 21–25 umbilicate pores; surface rather clearly and transversely microlined. Hind wings vestigial.

Ventral surface somewhat obscurely punctate on preepisterna, moderately so on mesepisterna and laterally on metasternum, and coarsely so on metepisterna where the punctures are partly fused; metepisternum short, quadrate, three-tenths wider than long; 6th abdominal sternite in both sexes bisetose at each side, in ♂ feebly notched at apex and in ♀ and clearly arcuate at the apex.

Hind femora trisetose along hind margin; fore tibiae indistinctly sulcate only near apex, trispinous apico-externally, terminal spur lanceolate; tarsi moderate long, adhesive squamae in 1st segment of male mid tarsus occupied in apical half, hind tarsi 1.04–1.07 times in ♂ and 0.83–0.87 times in ♀ as long as the width of head, 1st segment two-thirds as long as the 2nd and 3rd taken together and one-fifth longer than the 2nd, 3rd one-third longer than the 4th, claw segment quadrisetose (hexasetose in one specimen) along each ventral margin, two fine dorsal setae at apex long.

Aedeagus (Fig. 4–M) not stout, straight in middle, slightly arcuate at apex which is thin and not bulging at tip; apical orifice widely opening, inner sac without any armatures; apical lobe oblong, a little longer than wide ventral surface shallowly concave in apical fourth, acutely ridged at sides, bordered apical margin. Stylus (Fig. 4–F) short, slightly curved, armed with a

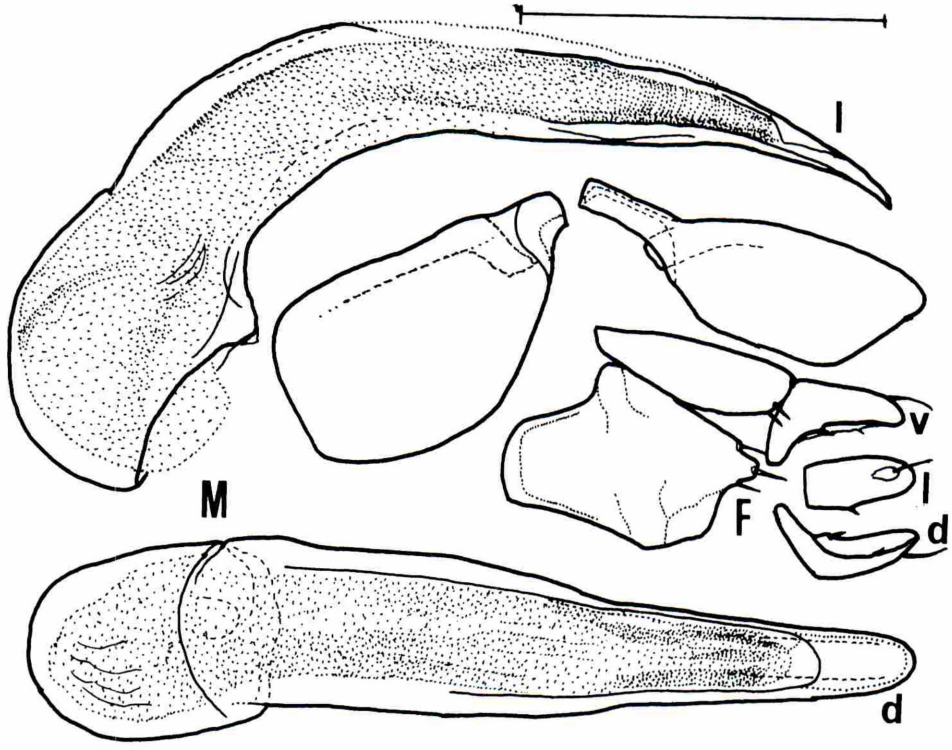


Fig. 4. Genitalia of *Trichotichnus* (*Amaroschesis*) *imurai* N. ITO, sp. nov. M, male genitalia; F, female genitalia; d, dorsal aspect; l, lateral aspect; v, ventral aspect. Scale: 1 mm.

short spine at each inner margin; basal segment bearing long and fine setae at apico-internal corner; valvifer trisetose at apical margin.

Length: 8.9–9.4 mm. Width:3.8–4.0 mm.

Holotype: ♂, Above Caigai, 3,020–3,070 m, in Kalong valley, Heishui Xian, Sichuan, 12–15. VI. 2001, Y. IMURA leg. (Preserved in NSMT). Paratypes: 8♂♂, 7♀♀, same data as the holotype; 3♂♂, 1♀, 15 km S of Songpan, Zhaga Fall, 32°33′44" N, 103°29′58", alt. ~3,200 m, coniferous forest / rhododendrons, NC Sichuan, China, 21. VII. 1999, M. JANATA leg. (Preserved in NSMT and NIc).

This new species is similar to *Trichotichnus* (*Amaroschesis*) *satoi* N. ITO, but is distinguished from the latter by the color lighter and brownish instead of being purely black, the pronotum sinuate before base at sides and the elytra wider and microlined instead of being transversely meshed. The new species is also very closely allied to *Trichotichnus* (*Amaroschesis*) *reflectus* N. ITO, but the color is darker, the pronotum is a little more strongly protrudent laterad at basal angles and more flattened on basal foveae, and the elytra are a little more clearly microsculptured.

Trichotichnus (*Amaroschesis*) *obscurus* N. Ito, sp. nov.

(Figs. 2 and 5)

Body oblong, fairly convex, black, not strongly shiny, iridescent on elytra; palpi, mentum and 2nd to apical antennal segments light brown, middle portions of mandibles, 1st antennal segments, tarsi, and basal portions of tibiae, dark brown, pronotal apex and base, and sutural intervals of and lateral portions of elytra slightly reddish.

Head somewhat large, nearly seven-tenths of the pronotal width, gently elevated, microscopically punctate, concave near apices of frontal impressions, with wide interocular space approximately three-fourths of the width of head; labrum subtrapezoidal, triangularly emarginate at apex; clypeus slightly protruding at apical corners, transversely depressed in apical third; clypeal suture fine and shallow throughout; frontal impressions various in depth near apices, abruptly shallowed posteriorly, obliterated near supraorbital grooves; eyes weakly prominent; temples one-fifth to one-sixth of the eye length, gently sloping; genuine ventral margin of eyes widely separated from buccal fissure; palpi somewhat massive, 3rd segment of labial palpus almost as long as the 2nd; ligula expanded near apex which is weakly arcuate; epilobes of mentum gently widened apicad; microsculpture vaguely impressed, partly in visible, consisting of mixtures with isodiametric and transverse meshes.

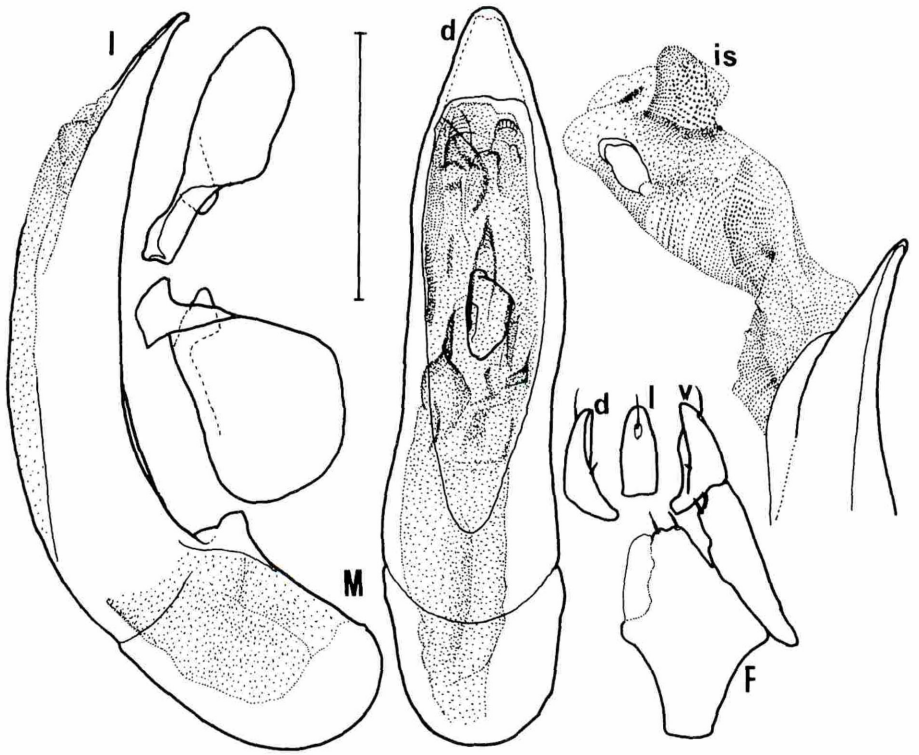


Fig. 5. Genitalia of *Trichotichnus* (*Amaroschesis*) *obscurus* N. Ito, sp. nov. M, male genitalia; F, female genitalia; d, dorsal aspect; l, lateral aspect; v, ventral aspect; is, inner sac. Scale: 1 mm.

Pronotum weakly cordate, gently convex, widest near apical third, 1.45–1.51 times as wide as long, obscurely and sparsely punctate in latero-apical portions, somewhat roughly and moderately punctate in lateral furrows and basal foveae; sides gently arcuate apicad and almost linearly convergent posteriorly from the widest point, hardly sinuate before base; apex rather deeply emarginate, clearly bordered; base one-fifth to one-fourth of apex, hardly emarginate, and thickly bordered; apical angles fairly protruding apicad; basal angles a little larger than right angle, barely toothed at tips; lateral furrows engraved in a line lengthwise; basal foveae each not depressed, slightly declined, and with a small concave at inner side; front transverse impression relatively clear and shallow, the hind one vague; median line lying between the impressions; microsculpture rather clear, intermixtured with isodiametric and transverse meshes.

Elytra widely oblong, 1.34–1.40 times as long as wide, well convex, without punctures; sides gently sloping in humeri, shallowly sinuate preapically; apices narrowly separated from each other, blunt at tips; bases each obtusely and angularly countered with lateral margin; striae fine, shallow, and finely crenulate, scutellar striole moderate in length; intervals flat throughout, a setiferous dorsal pore of 3rd interval near apical two-fifths; marginal series continuous, composed of 18–20 umbilicate pores; microsculpture more or less clearly visible as transverse lines and meshes. Hind wings reduced.

Ventral surface very sparsely and vaguely punctate on pro- and mesepisterna, coarsened on metepisterna; metepisternum quadrate, one-fourth shorter than wide; 6th abdominal sternite in both sexes quadrisetose along apical margin, truncate in ♂ and widely arcuate in ♀ at apex.

Hind femora bisetose at hind margin; fore tibiae unispinous at apico-external corner, without sulcus, terminal spur short; tarsi not long, mid tarsi in ♂ squamous in apical two-thirds, hind tarsi short, one-tenth in ♂ and about two-tenths in ♀ shorter than the width of head, 1st segment two-sevenths shorter than the 2nd and 3rd taken together and one-fourth longer than the 2nd, 3rd one-fifth longer than the 4th, claw segment trisetose along each ventral margin.

Aedeagus (Fig. 5–M) gently arcuate, gradually thinned apicad, directed ventrad at tip, with large basal bulb; apical orifice wide in apical third, inner sac with sclerite plate; ventral surface depressed, ridged at sides. Stylus (Fig. 5–F) stout, weakly curved, with a tiny spine at each outer margin; basal segment bispinous apico-laterally; valvifer bisetose at apex.

Length: 8.4–9.0 mm. Width: 3.5–4.0 m.

Holotype: ♂, Valley 15 km SSE Zamtang, 32°07′N, 101°04′ E, alt. 3,500 m, coniferous forest / clearings, NW Sichuan, China, 11. VII. 2001, J. Kaláb leg. (preserved in OMNH). Paratypes: 11♂♂, 5♀♀, same data as the holotype; 1♂, 9♀♀, ditto, Valley 20 km SSE Zamtang, 32°03′N, 100° 05′E, alt. 4,000 m, 12. VII. 2001; 14♂♂, 8♀♀, ditto, Valley 15 km SSW Zamtang, 32°09′N, 100°55′E, alt. 3,500 m, 5–19. VII. 2001; 1♀, ditto, Mts. 25 km SSE Zamtang, 33°02′N, 101°08′E, alt. 4,600 m, 13–14. VII. 2001; 1♀, ditto, Mts. 45 km S Zamtang, 31°52′N, 100°59′E, alt. 4,600 m, 17–19. VII. 2001; 4♂♂, 4♀♀, ditto, Valley 39 km SSW Zamtang, 31°54′N, 100°58′E, alt. 3,700 m, 16–19. VII. 2001; 5♂♂, 3♀♀, ditto, 40 km ESE Aba, 32°43′N, 102°06′E, 31. VII.～1. VIII. 2001; 5♀♀, ditto, Pass 25 km NNE Zhangla, 33°04′N, 103°44′E, 3–5. VIII. 2001; 2♂♂, 2♀♀, 15 km S of Songpan, Zhaga Fall, 32°33′44" N, 103°29′58", alt. ~3,200 m, coniferous forest / rhododendrons, NC Sichuan, China, 21. VII. 1999, M. Janata leg. (preserved in NIc).

This new species is allied to *Trichotichnus* (*Amaroschesis*) *curticornis* N. Ito, but the pronotum is less convex, wider in lateral furrows and with baso-lateral portions flatter and more punctate, and the elytra is less clearly microsculptured. The new species is also similar to

Trichotichnus (*Amaroschesis*) *obtusicollis* SCHAUBERGER, but is discriminated from the latter by the pronotum not blunt at basal angles, sinuate before base and not convex in latero-basal areas.

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

(Figs. 3 and 6)

Body oblong, comparatively elongate, almost entirely black, shiny, without iridescent lustre; palpi light brown, antennae and tarsi brown to dark brown.

Head large, 0.69–0.73 times as wide as the pronotal width, rather well raised, very sparsely with microscopic punctures; labrum weakly convergent forwards, deeply and triangularly emarginate at apex; clypeus blunt and gently protruding at apical corners, sometimes longitudinally rugose near sides; clypeal suture clear, slightly deep; frontal impressions shallow, vague, reduced near supraorbital grooves; interocular space wide, about three-fourths of the width of head; eyes relatively large, though slightly prominent; temples not developed, short, one-sixth of the eye length; genuine ventral margin widely separated from buccal fissure; palpi short and rather massive; ligula constricted behind apex which is truncate and sharply protruding laterad at sides; paraglossae fan-shaped, isolated from ligula behind the constriction; epilobes of mentum narrow, weakly widened apicad; microsculpture not clearly impressed, consisting of isodiametric meshed near clypeal apex and of transverse ones partly in other portions.

Pronotum quadrate, widest at apical two-fourths, not wide, one-third wider than long, gently convex, the convexity wide, occupying up to sides and therefore lateral furrows carved in a line; sides lightly arcuate forwards and linearly and weakly convergent backwards from the widest point, with long and shallow sinus before base; apex evenly and shallowly emarginate, bordered except narrow middle; base one-fifth wider than apex, hardly arcuate laterally and straight between the arc, thickly bordered as the sides; apical angles moderately rounded; basal angles rectangular, with tiny and blunt protuberance at tips; latero-basal portions each weakly swollen in middle, shallowly and narrowly grooved at inner side of the swell; front transverse impression shallow, from which fine median line runs near base, the hind one obsolete; microsculpture relatively clear, consisting of mixtures with isodiametric and transverse meshes.

Elytra elliptical, fairly long, three-fifths longer than wide, almost flat on disc, steeply declined laterad, quite smooth or very sparsely and microscopically punctate; sides slightly curved in middle, abruptly and almost straightly convergent near apices; apices widely separated from each other and fully rounded at tips; bases each hardly bisinuate, forming an sharp and obtuse angle with lateral border, with a tiny tooth at the angle; striae fine, shallow, and finely and clearly crenulate, scutellar striole fairly long and reaching 1st striae; intervals mostly not elevated, slightly convex laterally and apically; marginal series wide between umbilicate pores in middle, consisting of 15–17 pores; microsculpture more or less clear, visible as transverse meshes on disc and isodiametric ones near base. Hind wings vestigial.

Ventral surface without punctures; metepisternum short, one-sixth narrower than long; 6th abdominal sternite in ♂ unisetose at each side and truncate at apex and in ♀ bisetose at the side and weakly arcuate at the apex.

Hind femora bisetose near hind margin; fore tibiae not oblique in outer half of apex and trispinous apico-laterally, terminal spur simple and elongate; tarsi not long, 1st mid tarsal segment in ♂ bearing adhesive squamae in apical half, hind tarsus six-sevenths in ♂ and three-

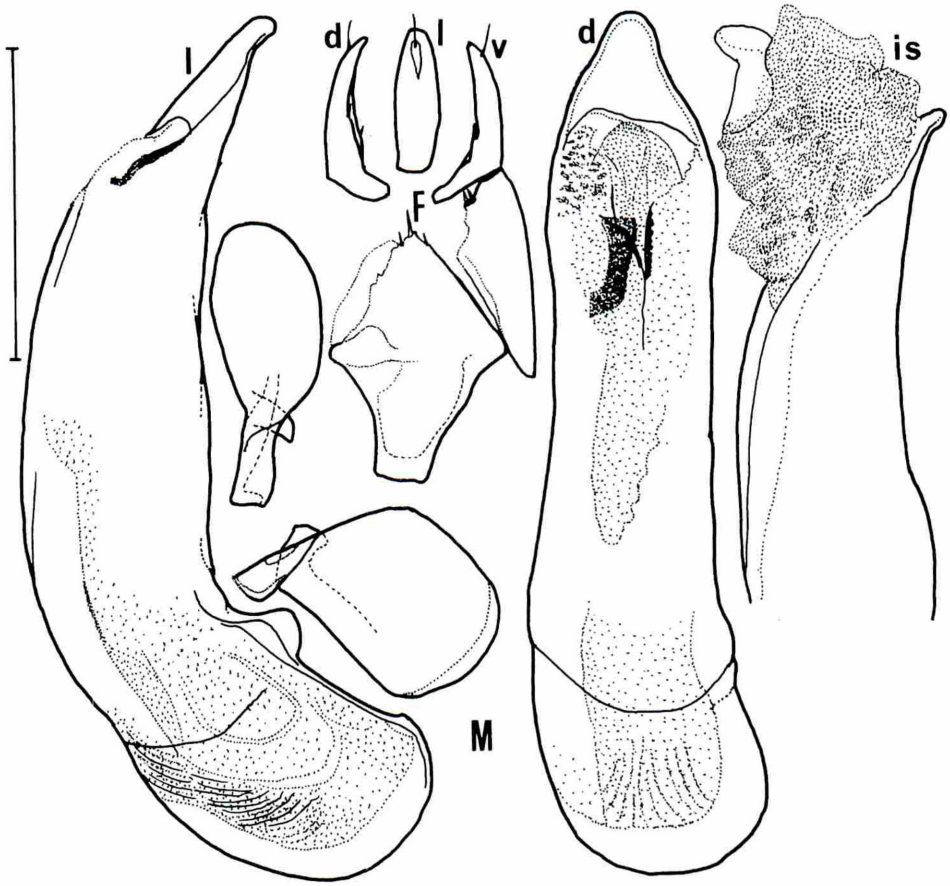


Fig. 6. Genitalia of *Trichotichnus* (*Amaroschesis*) *oblongipennis* N. ITO, sp. nov. M, male genitalia; F, female genitalia; d, dorsal aspect; l, lateral aspect; v, ventral aspect; is, inner sac. Scale: 1 mm.

fourths in ♀ as long as the width of head, 1st segment two-sevenths shorter than the 2nd and 3rd taken together and one and one-fifth as long as the 2nd, 3rd one-fifth to one-fourth longer than the 4th, claw segment trisetose, rarely quadrisetose along each ventral margin.

Aedeagus (Fig. 6–M) stout, sweet potato-shaped, straightly prolonged, weakly directed ventrad at apex, which is slightly tortuous to right in frontal view, and with large basal bulb; apical orifice small, opening near apex, inner sac with a robust sclerite like short and massive shoe; apical lobe subtriangular, hardly constricted behind tip which is rounded. Stylus (Fig. 6–F) somewhat slim, with a very small spine at each outer margin; basal segment bispinous at apico-externally; valvifer bearing a rather long seta and two fine and short setae at apex.

Length: 7.5–8.1 mm. Width: 3.0–3.3 mm.

Holotype: ♂, N near Yalong Jiang great bend, 2,900–4,100 m, 28°47′N, 101°58′ E–102°01′E, Jiulong Co. and Mianning Co. border, W Sichuan, China, 17–18. VII. 2001, L. and R. BUSINSKY (preserved in OMNH). Paratypes: 4♂♂, 3♀♀, same data as the holotype (preserved in NIc).

This new species is similar in aedeagal shape and general appearance to *Trichotichnus* (*Amaroschesis*) *obtusicollis* SCHAUBERGER, but the body is narrower, the pronotum is not blunt at basal angles and moderately punctate instead of being impunctate, and the elytra is more weakly microsculptured.

The new species resembles the previous new species, *T. obscurus*, but is distinguished from the latter by the body smaller, narrower, mostly black in coloration instead of being brownish, and with more vague microsculpture, and the elytra more elongate.

要　　約

伊藤 昇．中国四川省からの*Amaroschesis* 亜属 (*Trichotichnus*属) 3 新種および*Trichotichnus* (*Amaroschesis*) *obtusicollis* と *T.* (*A.*) *satoi* の追加記録．――― 中国における*Trichotichunus* 属の多様性は，近年明らかになりつつある．著者は継続的に本属の標本を検する機会を得ており，今回の検討においても 3 新種を見出した．本稿ではこれらを，*Trichotichnus* (*Amaroschesis*) *imurai*, *T.* (*A.*) *obscurus*, *T.* (*A.*) *oblongipennis* と命名記載した．更に *Trichotichnus* (*Amaroschesis*) *obtusicollis* と *T.* (*A.*). *satoi* の記録を追加した．*T. imurai* は本種を採集し筆者に提供下さった井村有希博士に献名した．

References

ITO, N., 1999. Some Species of the Genus *Trichotichnus* from Sichuan, Southwest China (Coleoptera, Carabidae, Harpalini). *Elytra, Tokyo*, **27**: 581–597.

SCHAUBERGER, E., 1936. Zur Kenntnis der paläarktischen Harpalinen (Funfzehnter Beitrage). Ueber *Trichotichnus*-Arten. *Kol. Rdsch.*, **22**: 1–22.

(Received September 6, 2002; Accepted September 14, 2002)

Ent. Rev. Japan, 57 (2): 191–195, October 30, 2002

Notes on Buprestid Beetles (Coleoptera: Buprestidae) from the Philippines, II.

Sadahiro OHMOMO

Arakawa-oki 953–502, Ami-machi, Inashiki-gun, Ibaraki 300–1151, Japan

Abstract Two new species are described from Philippines under the name of *Haplotrinchus edai* and *Coraebosoma mindoroense*.

In continuation with our previous paper (AKIYAMA and OHMOMO, 1993) on the buprestid beetles from the Philippines, I will describe two new buprestid species. The source collections or pres4ent depositories of specimens are listed as follows in parentheses, preceded by abbreviations used in this paper: NSMT (National Science Museum (Nat. Hist.), Tokyo, Japan), COTJ (collection of S. OHMOMO, Tsukuba, Japan), and CETJ (collection of S. EDA, Tokyo, Japan.). The body size is formulated as minimal-maximal length and width. Other abbreviations used for the proportional rate between maximal length (L) and maximal width (W). Photographs inserted in this paper are taken by Dr. Yoshio HIRAI, National Institute of Agrobiological Resources, Tsukuba, Japan.

Holotypes are deposited in the collection of NSMT.

Haplotrinchus edai sp. nov.

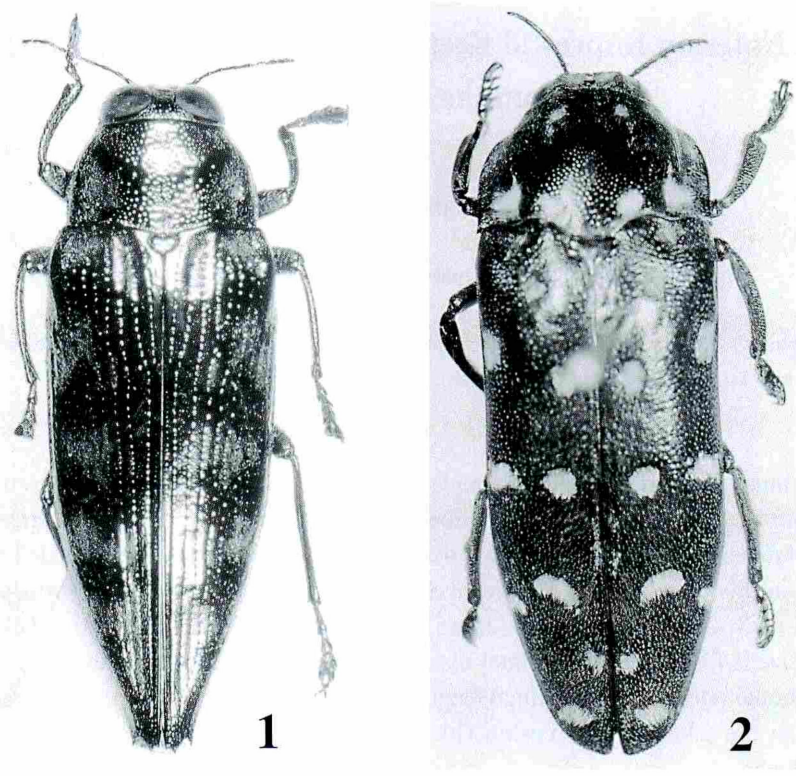
(Figs. 1, 3–A, 4–A)

Type series. Holotype: ♂, NSMT, IV. 1982, Sibuyan Is., Philippines. Paratypes: 6♂♂, 1♀, COTJ, the same data as for the holotype; 2♀♀, COTJ, 10~30. VI. 1999, Mt. Halcon, Mindoro Is., Philippines; 1♂, 1♀, CETJ, V. 2002, Mt. Halcon, Mindoro Is., Philippines.

Description. Size 11.7–19.0 × 4.6–7.1 mm. Holotype: 13.8 mm in length. Integument golden green, sometimes with red cupreous reflexion.

Head as wide as the anterior margin of the pronotum. Eyes slightly convex, regularly elliptical, convergent to vertex. Frons with a shallow, large and pentagonal depression marginated by a smooth and shining transverse swelling. Clypeus transverse and marginate. Antennal cavities subtriangular. Antennae reaching to base of the pronotum, serrate distad from the fifth segment, the segment 2nd < 3rd < 4th = 5th.

Pronotum widest at base (L/W = 0.59); anterior margin slightly bisinuate; sides rather regularly rounded in the anterior two-fifths and straight in the posterior three-fifths, bordered by a sharp carina, feebly sinuous; posterior angles rectangular; base bisinuate. Surface with oval moderate depression along each lateral margin; disc smooth, shining, irregularly and coarsely punctate except around the lateral depressions where the punctures are fine and dense.



Figs. 1–2. Habitus. 1, *Haplotrinchus edai* sp. nov. (holotype); 2, *Coraebosoma mindoroense* sp. nov. (holotype).

Scutellum cordiform, convex, smooth, shining. Prosternal process moderately punctate, pubescent and marginate, triangular at apex; sides straight.

Elytra (L/W = 2.22) with shoulders expanded and forming a rounded lobe with a small notch posteriorly, suparallel on anterior half, then sinuously constricted, ending in a trispinose apex on each side of the suture, of which the external spine is longer and more acute than the median one but not reaching the level of the median one. Disc shining, punctato-striate, the intervals convex and punctate. Each elytron with large, finely punctate and inconspicuously pubescent areas in the humeral depressions, at the antero-lateral one-fourth, at the middle, at the posterior third and at the posterior fifth (juxta-sutural area); the other areas less marked, disposed between the humeral and the median areas.

Apex of last visible abdominal sternite roundly emarginate.

Protibiae and mesotibiae weakly arcuate.

Male genitalia. As fig. 3–A.

Sexual dimorphism. Female rather robuster; apex of the last visible abdominal sternite rounded.

Etymology. This specific name is dedicated to Mr. Shigeru EDA, Tokyo, Japan, who supply many materials for the study.

Remarks. This new species is allied to *H. philippinensis* OBENBERGER, 1926, from Luzon

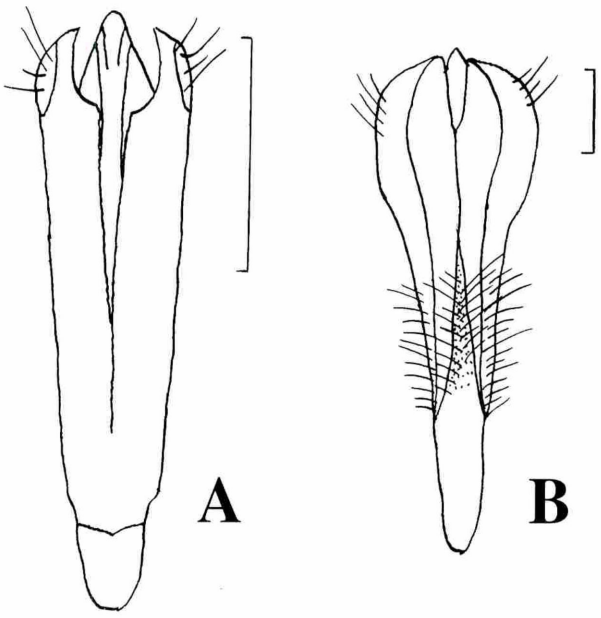


Fig. 3. Male genitalia (dosal aspect). 3–A, *Haplotrinchus edai* sp. nov. (holotype); 3–B, *Coraebosoma mindoroense* sp. nov. (holotype). Scale bar: 1 mm.

Is., the Philippines, but easily distinguished from the latter as follows: 1) sides of prosternal process straight (Fig. 4–A), while in *H. philippinensis*, it is widening laterally behind fore coxae (Fig. 4–B); 2) elytral punctuation finer and forming rows but not striate, while in *H. philippinensis*, it is larger and forming rows at the anterior half and striate at the posterior half.

Coraebosoma mindoroense sp. nov.

(Figs. 2, 3–B)

Type series. Holotype: ♂, NSMT, V. 2002, Mt. Halcon, Mindoro Is., Philippines. Paratypes: 5♂♂, 2♀♀ exs., COTJ, 10–30. VI. 1999, the same locality as for the holotype; 30 exs., COTJ, the same data as for the holotype; 72 exs., CETJ, the same data as for the holotype.

Description. Size 14.0–19.5 × 5.1–7.2 mm. Holotype: 18.0 mm in length. Integument black with weak purple reflection. Setae forming bands, patches and fascia yellowish gray.

Head with two small oblique setal bands on vertex, depression between eyes moderately clothed with recumbent setae. Eyes slightly convex, regularly elliptical; inside subparallel at the front. Clypeus emarginate. Antennae short, serrate distad from the fourth segment, the segment 2nd > 3rd = 4th.

Pronotum transverse (L/W = 0.63), with two small setal patches on anteromedial half of discal convexity and four moderate setal patches along posterior margin, lateral extended areas sparsely setose; base sparsely subimbricate; disc strongly convex anteriorly. Anterior margin weakly bisinuate, posterior margin bisinuate and central area just in front of scutellum obsolete-

Fig. 4. Prosternal process: 4–A, *Haplotrinchus edai* sp. nov. (holotype); 4–B, *Haplotrinchus philippinensis* OBENBERGER, 1926.

ly hollowed. Scutellum large, cordiform. Prosternal process narrowed ventrad to procoxae, then widens before apical attenuation.

Elytra as wide as the posterior margin of the pronotum (L/W = 2.21); each elytron with yellowish gray setal markings, seven small patches and one transverse broken fascia which is sometimes continuous with the opponent as in fig. 2; sides subparallel at anterior three-fifths, then convergent to apex which is finely denticulate. Ventral surface sparsely and evenly covered with short yellowish gray setae, these becoming longer and more dense on mesepimeron, on lateral 1/2 metacoxal plate, at apicolateral angles of abdominal sternites 1–4 and a fringe on sternite 3; entire surface generally shallowly irregularly punctate, each puncture with one short rufobrunet recurved seta on dorsum.

Apex of last visible abdominal sternite weakly arcuately emarginate.

Legs with femora slightly swollen; tibiae flattened, with ridge; metatibiae with projecting tooth near midpoint; tarsi with inner tooth of bifid claw much shorter than outer tooth.

Male genitalia. As fig. 3–B.

Sexual dimorphism. Female rather robuster; apex of the last abdominal sternite broadly rounded.

Remarks. This species is allied to *C. panayense* BELLAMY, 1990, from Panay Is., the Philippines, but easily distinguished from the latter as follows: 1) integument black with weak purple reflection, while in *C. panayense*, it is blackish brown with green reflection, 2) setae yellowish gray, while in *C. nanayense*, it is golden, 3) front and lateral extended areas of pronotum moderately covered with long yellowish gray setae, while in *C. panayense*, they are densely covered with long golden setae, 4) posterior margin of pronotum just in front of scutellum weakly hollowed, while in *C. panayense* it is straight. This species also resembles *C. negrosianum* BELLAMY, 1990 from Negros Is., the Philippines, but is easily distinguished from the latter as follows: 1) integument black with weak purple reflection, while in *C. negrosianum*, it is blackish brown with green reflection, 2) setae yellowish gray, while in *C. negrosianum*, it is golden, 3) anterior margin of pronotum weakly rounded, while in *C. negrosianum*, it is strongly convex.

要　　約

大桃定洋：フィリピン産タマムシ科甲虫（第二報）．——— フィリピン産タマムシ科甲虫と

して，Sibuyan 島および Mindoro 島からヒメサンカクタマムシ属の 1 新種 *Haplotrinchus edai* sp. nov. を，Mindoro 島からオオナカボソタマムシ属の 1 新種 *Coraebosoma mindoroense* sp. nov. をそれぞれ記載した．

References

BELLAMY, C. L., 1990. Revision of the Coraebini genus *Coraebosoma* OBENBERGER (Coleoptera: Buprestidae: Agrilinae). *Ent. Scand.* (Grp. 2), **21**: 197–210.

OBENBERGER, 1926. J., Opuscula Buprestologica I. Beitrage zur kenntnis der Buprestiden (Col.). *Arch. Naturg.*, **92** (A) (1928), Heft 9–11: 1–350.

AKIYAMA, K. and S. OHMOMO, 1993. A new species and one new subspecies of the genus *Ovalisia* KERREMANS, 1900, from the Philippines (Coleoptera, Buprestidae). *Ent. Rev. Japan*, **48**: 11–14.

(Received September 7, 2002; Accepted October 4, 2002)

Ent. Rev. Japan, 57 (2): 197–202, October 30, 2002

Records on Donaciinae from Primorsky Province in 2002, with Taxonomic Notes on *Donacia knipowitschi* JACOBSON (Coleoptera: Chrysomelidae)

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Abstract In 2002, nine species of Donaciinae were collected in Primorsky Province, Far East Russia. Among them, two interesting species are recognized: a rare species, *Donacia knipowitschi* JACOBSON from Far East Russia resembles *Donacia katsurai* KIMOTO from Japan but endophallic features are useful for their discrimination; *Donacia vulgaris* ZSCHACH is reported for the first time from Primorsky Province.

The author (2001) firstly recorded *Donacia bicoloricornis* CHEN from Primorsky Prov., Far East Russia and reported collecting records of five *Donacia* species from the region. I had an opportunity to visit again Primorsky Prov., Far East Russia in July, 2002 and obtained nine donaciine species. Among them, I recognized two interesting species: *Donacia knipowitschi* JACOBSON is a rare species in Far East Russia which resembles *Donacia katsurai* KIMOTO from Japan; *Donacia vulgaris* ZSCHACH is a rare species in Primorsky. In this paper, these collecting records with taxonomic notes on *D. knipowitschi* are reported.

I gratefully acknowledge to Dr. Victor N. KUZNETSOV (Institute of Biology and Soil Science, Far Eastern Branch of Russian Academy of Science, Vladivostok), Mr. Shigehiko SHIYAKE (Osaka Museum of Natural History) and Mr. Osamu TOMINAGA (Nara) for supporting my field survey. This study is supported by Grants-in-Aid from the Hyogo Science and Technology Association in 2002

Plateumaris amurensis WEISE, 1898

(Fig. 1)

Record: 1♂, 2 km W of Gornotayoznoye, Khasan district, alt. 80 m, 14. VII. 2002, M. HAYASHI leg.

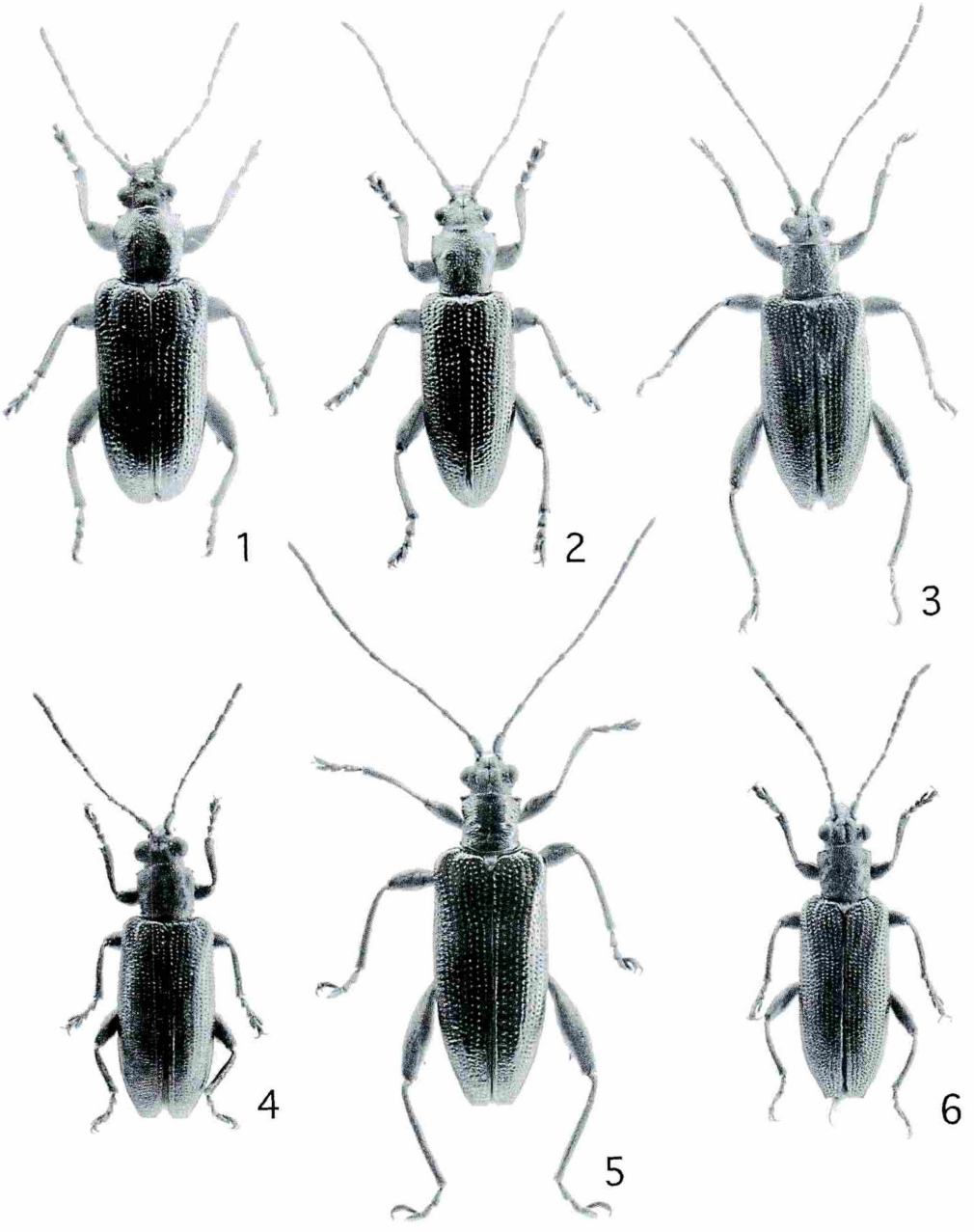
Plateumaris weisei (DUVIVIER, 1885)

(Figs. 2, 7)

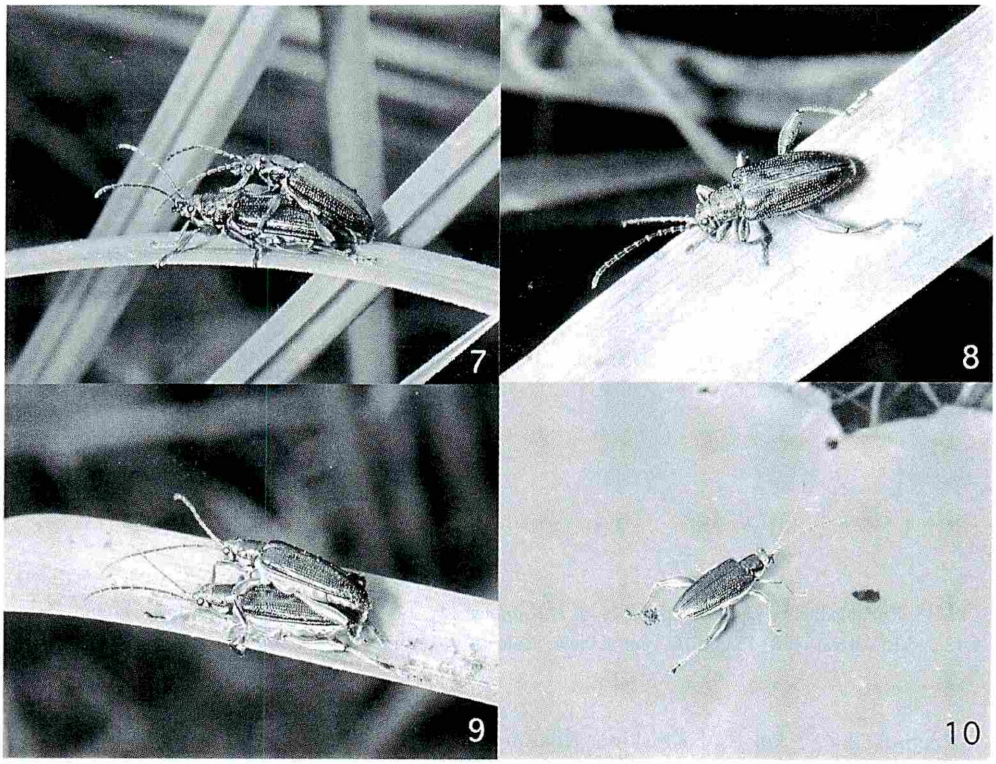
Records: 4♂♂, 2♀♀, 1 km N of Khasan, along Long Lotos Lake, Khasan district, 11. VII. 2002, M. HAYASHI leg.; 7♂♂, 3 km W of Kraskino, Khasan district, 11. VII. 2002, M. HAYASHI leg.; 7♂♂, 3 km W of Mt. Priozyornaya, near Ptichje Lake, Khasan district, 11. VII. 2002, V. N. KUZNETSOV leg.; 13♂♂, 3♀♀, Gankelevsky valley, Kedorovaya Pad Natural Reserve, Khasan district, 12~13. VII. 2002, M. HAYASHI leg.; 1♂, 5 km W of Perevoznaya, Khasan district, 13. VII. 2002, M. HAYASHI leg.; 14♂♂, 3♀

♀, nr. mouth of Narva River, Khasan district, 13. VII. 2002, M. HAYASHI leg.

Notes. This species is commonly found in the marsh with sedges in the region.



Figs. 1–6. Habitus of male Donaciinae from Primorsky Prov.: 1, *P. amurensis* (2 km W of Gornotayoznoye); 2, *P. weisei* (nr. mouth of Narva River); 3, *D. aquatica* (Gankelevsky valley); 4, *D. knipowitschi* (1 km E of Kraskino); 5, *D. sparganii gracilipes* (Gankelevsky valley); 6, *D. vulgaris* (1 km E of Kraskino).



Figs. 7–10. Living individuals of Donaciinae: 7, a pair of *P. weisei* (Gankelevsky valley); 8, male of *D. aquatica* (Gankelevsky valley); 9, a pair of *D. sparganii gracilipes* (Gankelevsky valley); 10, *D. lenzi* on floating-leaf (1 km N of Khasan).

Donacia (*Donaciomima*) *aquatica* (LINNAEUS, 1758)

(Figs. 3, 8)

Record: 1♂, Gankelevsky valley, Kedorovaya Pad Natural Reserve, Khasan district, 12~13. VII. 2002, M. HAYASHI leg.

Notes. I examined one specimen of this species in the collection of the Institute of Biology and Soil Science, Vladivostok (IBSV): 1♂, Lyanchihae river (near Okeanskaya), 25. V. 1948.

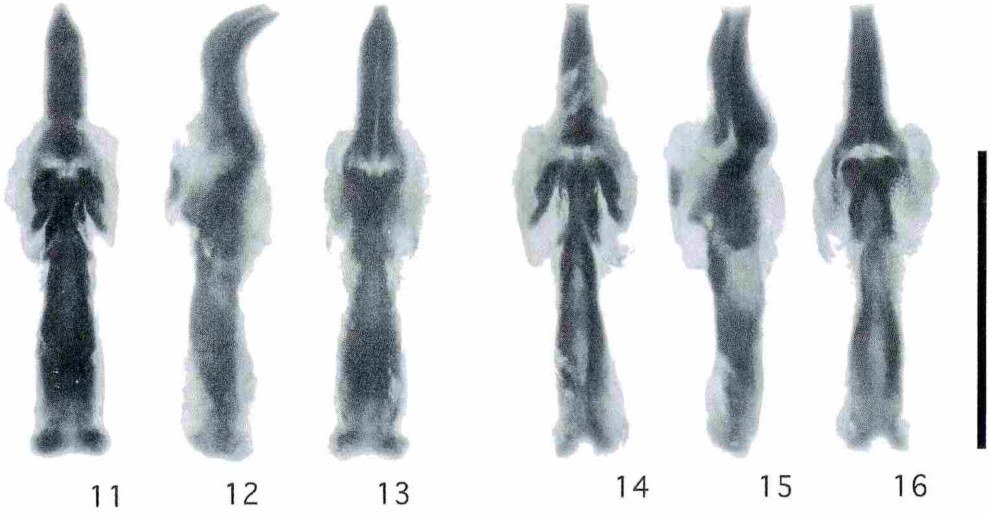
Donacia (*Donaciomima*) *bicoloricornis* CHEN, 1941

Records: 4♂♂, 1♀, 3 km W of Kraskino, Khasan district, 11. VII. 2002, O. TOMINAGA leg.; 1♀, 2 km NNW of Bezverkhovo, along Narva River, 13. VII. 2002, M. HAYASHI leg.

Donacia (*Donaciomima*) *knipowitschi* JACOBSON, 1927

(Figs. 4; 11–13)

Donacia knipowitschi JACOBSON, 1927, Festsch. Knip., Moscow: 45.



Figs. 11–16. Endophallus of *Donacia* spp.: 11–13, *D. knipowitschi*; 14–16, *D. katsurai* from Japan. 11 and 14, dorsal view; 12 and 15, lateral view; 13 and 16, ventral view. Scale bar = 0.5 mm.

Records: 1♂, 1 km E of Kraskino, Khasan district, 11. VII. 2002, O. TOMINAGA leg.; 1♂, v. Kamenushka, Ussrisky district, Primorsky krai, Far East Russia, 1. VI. 2002, V. KUZNETSOV leg.

Taxonomic notes. A rare species, *Donacia knipowitschi* JACOBSON is only known from South Primorsky (MEDVEDEV, 1992). According to the MEDVEDEV's key (1992), it resembles two eastern Palaearctic species: *D. katsurai* KIMOTO from Japan; *D. frontalis* JACOBY from China and Japan. HAYASHI and HARUSAWA (2000) discussed their identification and distribution but they did not refer to *D. knipowitschi*. In my observation, such male genitalic features, as the apex of median lobe and median process of endophallus are useful for their identification:

1. Median lobe of male genitalia almost subparallel-sided in most length; median process of endophallus broad and bent toward hind side. ..... *D. frontalis* JACOBY
1′ Median lobe of male genitalia narrowed subapically; median process of endophallus slender. 2
2. Median process of endophallus strongly bent toward under side (Fig. 12), median lobe narrowly truncate at apex (Fig. 13). ..... *D. knipowitschi* JACOBSON
2′ Median process of endophallus slightly arced for under side (Fig. 15), median lobe truncate at apex (Fig. 16). ..... *D. katsurai* KIMOTO

These taxa are difficult to discriminate each other based on external characters. *D. frontalis* is known from north to south China (TAN *et al.*, 1980), but it from north China may possibly be *D. knipowitschi*.

Distribution. Far East Russia (Primorsky).

Donacia (*Donaciomima*) *flemora* GOECKE, 1944

Records: 2♂♂, 1♀, Gankelevsky valley, Kedorovaya Pad Natural Reserve, Khasan district, 12~13. VII. 2002, O. TOMINAGA leg.

Notes. I examined one specimen of this species in coll. of the IBSV: 1 ex., Ryazanovka, Primorye, 6. VII. 1985, DANILENKO leg.

Donacia (*Donaciomima*) *sparganii gracilipes* JACOBY, 1885

(Fig. 5, 9)

Records: 26♂♂, 9♀♀, Gankelevsky valley, Kedorovaya Pad Natural Reserve, Khasan district, 12~13. VII. 2002, M. HAYASHI leg.; 1♀(in pupal cocoon), 5 km W of Perevoznaya, Khasan district, 13. VII. 2002, M. HAYASHI leg.

Donacia (*Donaciomima*) *vulgaris* ZSCHACH, 1788

(Fig. 6)

Records: 2♂♂, 1♀, 3 km W of Kraskino, Khasan district, 11. VII. 2002, O. TOMINAGA leg.; 1♂, 1 km E of Kraskino, Khasan district, 11. VII. 2002, M. HAYASHI leg.; 1♂, 1♀, 1 km W of Gornotayoznoye, Ussurysky district, alt. 80 m, 14. VII. 2002, M. HAYASHI and O. TOMINAGA leg.

Notes. This species is firstly recorded from Primorsky Prov.

Distribution. Far East Russia (Primorsky, Amur, Sakhalin); S. Kuril (Kunashiri), Japan (Hokkaido, Honshu), China, Europe (TAN *et al.*, 1980; MEDVEDEV, 1992; KIMOTO and TAKIZAWA, 1994; this report).

Donacia (*Cyphogaster*) *lenzi* SCHONFELDT, 1888

(Fig. 10)

Records: 2♂♂, 5♀♀, 1 km N of Khasan, along Long Lotos Lake, Khasan district, 11. VII. 2002, M. HAYASHI leg.

要　　約

林　成多：ロシア沿海州で採集したネクイハムシ亜科の記録（2002年）および *Donacia knipowitschi* JACOBSON の分類学的ノート．――― 2002年７月にロシア沿海州の南部において9種のネクイハムシ亜科甲虫類を得ることができた．渡航時にすでにスゲ類の花期は過ぎていたが，ヒラシマミズクサハムシ *Plateumaris weisei* (DUVIVIER) は特に個体数が多かった．この中でホソネクイハムシ *Donacia vulgaris* ZSCHACH は沿海州から初記録となる．また，得られた *Donacia knipowitschi* JACOBSON の交尾器を検討したところ，カツラネクイハムシ *D. katsurai* KIMOTO やアオノネクイハムシ *D. frontalis* JACOBY に外見が極めてよく似ているものの，骨片（内袋）の先端部の形状は明瞭に異なることを確認した．

References

HAYASHI, M., 2001. *Donacia bicoloricornis* CHEN from Far East Russia, with records on several *Donacia* from Primorskiy Province (Coleoptera: Chrysomelidae: Donaciinae). *Ent. Rev. Japan*, **56** : 63–66.

HAYASHI, M. and K. HARUSAWA, 2000. *Donacia frontalis* JACOBY from Japan (Coleoptera, Chrysomelidae, Donaciinae). *Elytra, Tokyo,* **28** : 203–209.

KIMOTO, S. and H. TAKIZAWA, 1994. Leaf beetles (Chrysomelidae) of Japan. 539 pp. Tokai University Press, Tokyo. (In Japanese).

MEDVEDEV, L. N., 1992. Fam. Chrysomelidae. *In*. Opredelitel'nasekomyh Dalnego Vostoka SSSR. V.3. Part 2. Nauka, St. Petersburg: 533–602. (In Russian).

TAN, J., P. YU, H. LI, S. WANG, and S. JING, 1980. Coleoptera: Chrysomelidae (I). Economic Insect Fauna of China, 18. Science Press, Beijing. 213 pp. (In Chinese).

(Received September 18, 2002; Accepted October 7, 2002)

Ent. Rev. Japan, 57 (2): 203–204, October 30, 2002

Host Plants of *Plateumaris constricticollis babai* CHÛJÔ (Coleoptera: Chrysomelidae: Donaciinae)

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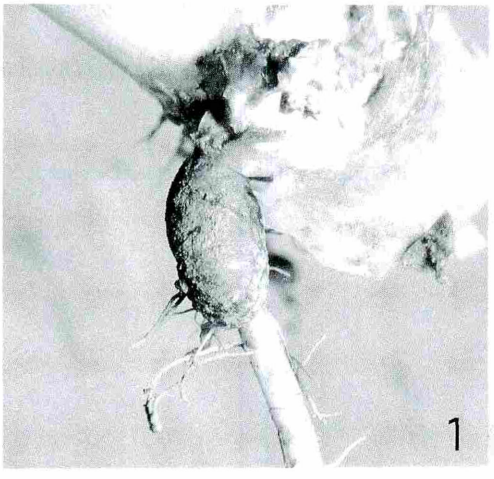
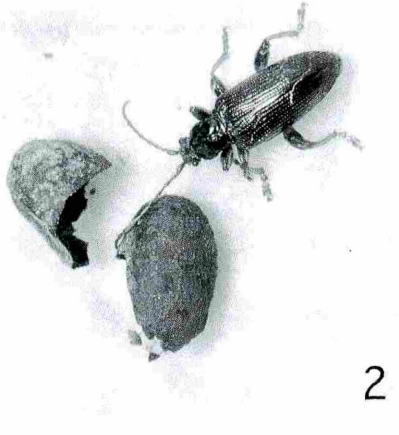
Abstract Several pupal cocoons of *Plateumaris constricticollis babai* CHÛJÔ were obtained from roots of reed, *Phragmites australis* in Tochio City, Niigata Prefecture, central Japan. *P. australis* can be considered to be one of its larval host plants.

Plateumaris constricticollis (JACOBY) is known as a Japanese endemic species that is subdiveded into four subspecies: *constricticollis* s. str. and *babai* CHÛJÔ in Northeastern Japan; *toyamensis* TOMINAGA et KATSURA and *chugokuensis* TOMINAGA et KATSURA in Western Japan (CHÛJÔ, 1959; TOMINAGA and KATSURA, 1984). It is interesting that the subspecies in Northeastern Japan do not eat any plants during their adult stages (Fossil Insect Research Group for Nojiri-ko Excavation, 1985). Two species of sedge, *Carex thunbergii* and *Carex ampliata* are known as larval host plants of subsp. *babai* (NARITA and KUBOTA, 1988; YAGI, 1991).

Plateumaris constricticollis babai are commonly found on hills to mountain regions in Niigata Prefecture (HAYASHI, 1997, 2000). In my observation, *P. c. babai* in the area is peculiar to marsh with reeds, *Phragmites australis* and it makes pupal cocoon on the roots (Figs. 1, 2) in Tochio City, Niigata Pref. Therefore, *P. australis* can be considered to be one of its larval host plants.





Figs. 1–2 *Plateumaris constricticollis babai* CHÛJÔ (Moguradani, Tochio City, Niigata Pref.): 1, pupal cocoon on root of *Phragmites australis*; 2, male obtained from the pupal cocoon.

Plateumaris constricticollis babai CHÛJÔ, 1959

(Fig. 2)

Records: 2♂♂, 1♀(adults in pupal cocoon), Moguradani, Tochio City, Niigata Prefecture, alt. 200 m, 19. IV. 2002, M. HAYASHI leg.; with several old cocoons were obtained.

Host plants of larva: *Phragmites australis* (Japanese name: Yoshi), *Carex thunbergii* (Japanese name: Aze-suge) and *Carex ampliata* (Japanese name: Kasa-suge).

要　　約

林　成多：シナノオオミズクサハムシ *Plateumaris constricticollis babai* CHÛJÔ の幼虫食草．――― 新潟県栃尾市において，シナノオオミズクサハムシの複数の繭がヨシの根に付着していることを確認した．従ってヨシは本亜種の幼虫食草とみなすことができる．これまでスゲ類が幼虫食草と知られていたが，新潟県下ではヨシが主要な食草である可能性が高い．

References

CHÛJÔ, M., 1959. Contribution to the Fauna of Chrysomelidae (Coleoptera) in Japan (III). *Mem. Fac. Liberal Arts and Education Kagawa Univ.* (Part II), (81): 1–16.

HAYASHI, M., 1997. Notes on *Plateumaris constricticollis babai* CHÛJÔ in Chuetsu district, Niigata Prefecture, Japan. *Gekkan-Mushi, Tokyo,* (**322**): 16–17. (In Japanese).

HAYASHI, M., 2000. Distribution of Donaciinae (Coleoptera, Chrysomelidae) in and around Niigata Prefecture, Central Japan. *Elytra, Tokyo*, **28**: 409–417.

NARITA, Y. and M. KUBOTA, 1988. Notes on life circle of *Plateumaris constricticollis* (JACOBY). *Donaciist, Yokohama*, (**2**): 13–15. (In Japanese).

TOMINAGA, O. and K. KATSURA, 1984. Studies on the Japanese Donaciinae (Coleoptera: Chrysomelidae) 2. Notes on the geographical diversity of *Plateumaris constricticollis*, with description of an allied new species. *Bull. Osaka Mus. Nat. His.*, (**37**): 25–40, 8 plates. (In Japanese with English original descriptions).

YAGI, T., 1991. *Plateumaris constricticollis* (JACOBY) from Chiba Prefecture, Japan. *Donaciist, Yokohama,* (**4**): 5. (In Japanese).

(Received September 18, 2002; Accepted October 7, 2002)

Ent. Rev. Japan, 57 (2): 205–217, October 30, 2002

Japanese Species of the Genus *Cantharis* LINNAEUS (Coleoptera, Cantharidae)

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Abstract Japanese species of the genus *Cantharis* is reviewed. The genus *Wittmercantharis* is demoted to the subgeneric level of *Cantharis*. A new species, *Cantharis* (*Telephorus*) *heleocharis*, is described.

According to the Junk's Supplemental Catalogue of the family Cantharidae compiled by DELKESKAMP (1976), 13 species of the genus *Cantharis* had been known from Japan. However, these species are considerably heterogeneous, and confused in generic or specific identification. Since the DELKESKAMP's work, most species of Japanese *Cantharis* have been transferred to related genera by Japanese entomologists based on subsequent eminent studies by WITTMER (1972, 1978).

At first, *Cantharis insulsus* (HAROLD) was transferred to the genus *Athemellus* by SATÔ (1978). But at the next step, all the species of Japanese *Cantharis* were transferred and synonymized to the genera, *Athemus*, *Athemellus* and *Habronychus* (SATÔ, 1985; ISHIDA, 1986a; 1986b), except for two species, *C. plebeja* KIESENWETTER and *C. pallida* GOEZE which were remained in the genus *Cantharis*. The former was questionable species at that time, and became clear that it was not Japanese one (OKUSHIMA, in press). Only one European species, *C. pallida* GOEZE, recorded by KÔNO (1935) remains as the Japanese fauna for *Cantharis*. And *Telephorus sapporoensis* MATSUMURA was also transferred to the genus *Podabrus* by SATÔ (1986b).

Nevertheless, a remarkable species belonging to the genus *Cantharis* collected at the wetland was found a few years ago by our colleagues. Then, we studied carefully the species and concluded that it is a new species.

Besides, SATÔ (1986b) established a genus *Wittmercantharis* for reception of *C. curtata* KIESENWETTER and *C. vulcana* (LEWIS). This genus is related with a subgenus *Taiwanocantharis* of *Cantharis* in the structure of claws.

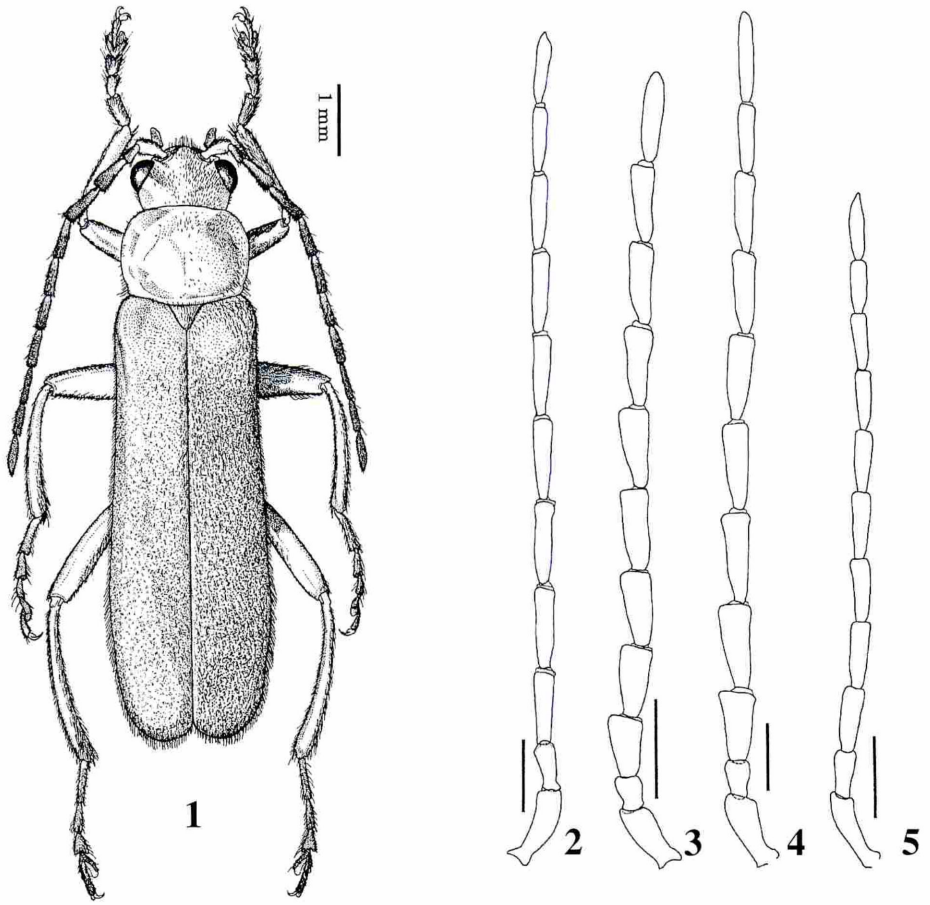
On the other hand, WITTMER and KASANTSEV (1997) revised the classification of the genus *Cantharis*, which include four subgenera, i.e. *Cantharis* s. str. LINNAEUS, 1758, *Telephprus*

SCHAEFFER, 1766, *Absidiella* WITTMER, 1972 and *Taiwanocantharis* WITTMER, 1982.

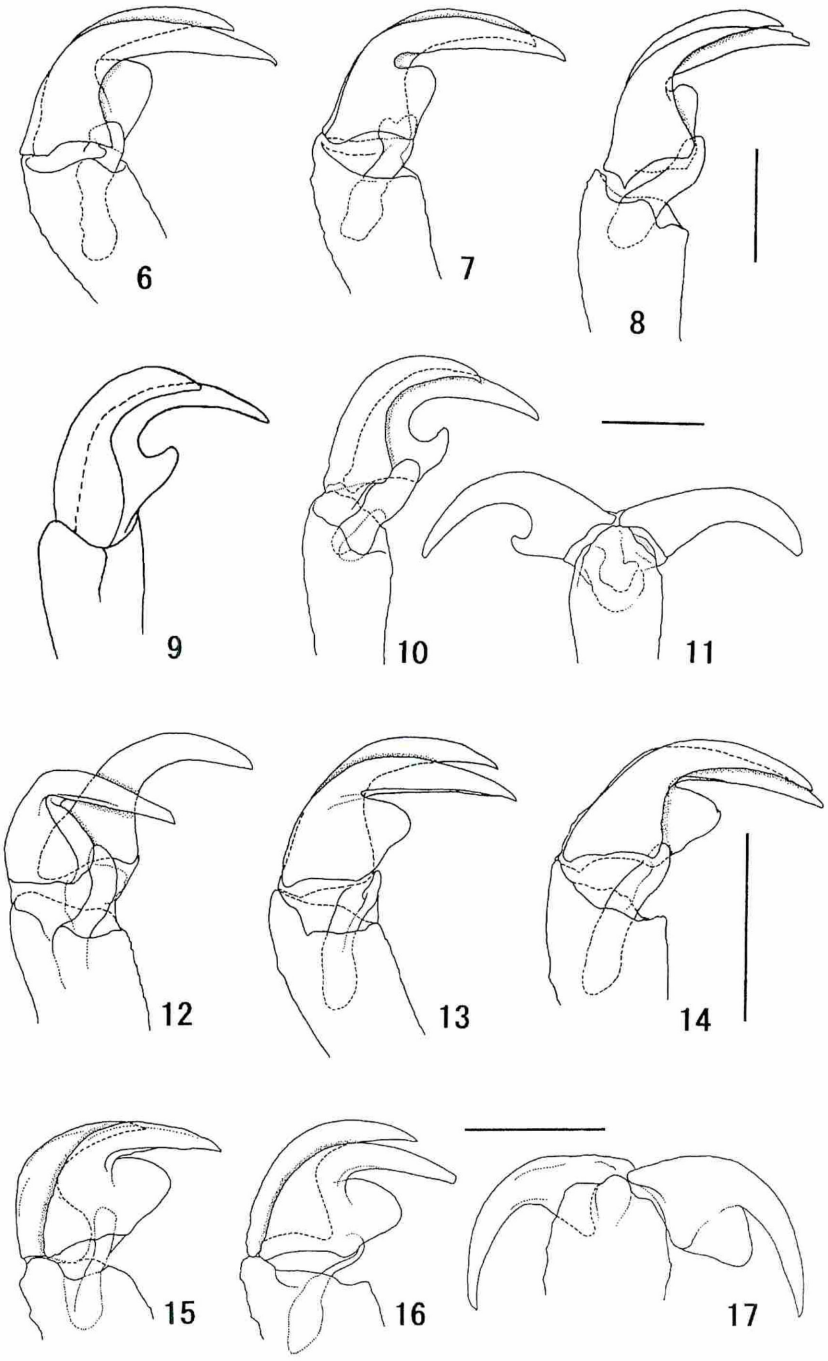
In the present paper, we would like to make taxonomic notes on the genus *Cantharis*, including *Wittmercantharis*, for the Japanese species and with an additional description of new *Cantharis* species.

The holotype, allotype and some paratypes described in the present paper are deposited in the collection of the Entomological Laboratory, College of Agriculture, Ehime University. The paratypes are preserved in the collections of the National Science Museum (Nat. Hist.), Tokyo, the Kurashiki Museum of Natural History and M. SATÔ.

We wish to express our hearty thanks to Dr. T. KISHIMOTO, Dr. V. KUZNETZOV, Dr. S. OHMOMO, Dr. H. OHARA, Dr. A. SHINOHARA, Dr. V. ŠVIHLA, Dr. H. YOSHITOMI, Messrs. S. HORI, K. HORIE, K. IIJIMA, S. ITOH, T. H. KANG, T. MIYATA and K. NOJIMA for their kind offer of the invaluable materials for us to study.



Figs. 1–5. *Cantharis* spp. 1, *Cantharis* (*Telephorus*) *pallida* GOEZE; 2–5, Antennae of *Cantharis* species. 2, *C.* (*T.*) *pallida* GOEZE; 3, *C.* (*T.*) *hereocharis* sp. nov.; 4, *C.* (*Wittmercantharis*) *curtata* KIESENWETTER; 5, *C.* (*W.*) *vulcana* (LEWIS). Scale bars in figs. 2–5 = 0.5 mm.



Figs. 6–17. Claws of *Cantharis* (*Telephorus*) species. 6–8, 12–14, male claws; 9–11, 15–17, female claws; 6, 9, 12, 15, claws of front legs; 7, 10, 13, 16, claws of middle legs; 8, 11, 14, 17, claws of hind legs; 6–11, *C.* (*T.*) *pallida* GOEZE; 12–17, *C.* (*T.*) *hereocharis* sp. nov. All scale bars = 0.1 mm.

Genus *Cantharis* LINNAEUS, 1758

Cantharis LINNAEUS, 1758, Syst. Nat., ed. X: 400. — WITTMER and KASANTSEV, 1997, Entom. basil., 20: 368.
Type species: *Cantharis fusca* LINNAEUS, 1758, designated by KIESENWETTER, 1860.

Body usually broad, stout and flat. Head rather flat; vertex transversely flattened; frons narrow; clypeus strongly arcuate, emarginate or slightly notched at apex. Mandibles stout. Eyes moderate, globular, and prominent. Antennae filiform, rather thick and never serrate.

Pronotum distinctly broader than long; front margin weakly arcuate; hind margin subtruncate; lateral margins distinctly arcuate and not parallel; anterior angles rounded, posterior one somewhat obtusely angulate or rounded; discal upheavals vague. Scutellum triangular or semicircular.

Elytra broad, usually shorter than 3 times as long as wide. Legs usually stout; outer claw of each leg usually provided with a tooth or lobe at base, but sometimes lacking.

Male genitalia ellipsoidal; ventral processes of parameres well developed; dorsal plate well developed in usual, but reduced in subgenus *Cantharis* s. str., never divided from side to side.

Remarks. WITTMER and KASANTSEV (1997) arranged the genus *Cantharis*, and recognized four subgenera, i.e. *Cantharis* s. str. LINNAEUS, 1758, *Telephorus* SCHAEFFER, 1766, *Absidiella* WITTMER, 1972 and *Taiwanocantharis* WITTMER, 1982, based on the characters of male genitalia and claws. Besides, *Wittmercantharis* M. SATÔ, 1986, is also treated as a subgenus of *Cantharis* in this paper.

As a result of the study on Japanese *Cantharis*, four species, including a new one, that belong to two subgenera and are recorded in the next paragraph.

Subgenus *Telephorus* SCHAEFFER, 1766

Telephorus SCHAEFFER, 1766, Elementa ent., 1766, t. 123.
Cyrtomoptila MOTSCHULSKY, 1860, Bull. Soc. Imp. Nat. Moscou, 32, (1859): 398.
Dicranodes MOTSCHULSKY, 1860, Bull. Soc. Imp. Nat. Moscou, 32, (1859): 398.
Oripa MOTSCHULSKY, 1860, Bull. Soc. Imp. Nat. Moscou, 32, (1859): 398.
Type species: *Cantharis pellucida* FABRICIUS, 1792, designated by WITTMER and KASANTSEV, 1997.

Remarks. The members of this subgenus are characterized by well developed dorsal plate in male genitalia and each outer claw of both sexes which has tooth or lobe at the base.

Cantharis (*Telephorus*) *pallida* GOEZE

(Figs. 1, 2, 6–12, 19–21, 25)

Cantharis pallida GOEZE, 1777, Ent. Beytr., I: 541. — TAKAHASHI, 1998, Kanagawa-Chûhô, (122): 44.
Cantharis (s. str.) *pallida*: KANG *et al.*, 2000, Korean J. Ent., 30: 151.
Cicindela lutescens FOURCROY, 1785, Ent. Paris: 61.
Cantharis bicolor PANZER, 1797, Fn. Germ., 39: 13, fig.

Cantharis rufa GYLLENHAL, 1808, Ins. Suec., I: 350.
Cantharis baikalica PIC, 1906, Échange, (263): 83. — KÔNO, 1937, Ins. matsum., 11: 97.

Male. Body somewhat elongate, stout, flat and almost covered with yellow pubescence. Color orange yellow; mandibles dark brown; antennae and tarsi infuscate anteriad; metasternum brownish black; hypomeron and abdominal sternites dark brown except for lateral and hind margins.

Head flat, somewhat convex at middle of frons, more or less depressed on clypeus and before eyes; disc microreticulate; clypeus weakly notched at the apex. Eyes small, globular and prominent. Antennae filiform, reaching to the half of elytral length; 1st segment club-shaped, 2nd to 11th subcylindrical, 2nd about 0.5 times as long as 1st, 3rd about 1.6 times as long as 2nd, 4th about 1.5 times as long as 3rd, 4th to 10th subequal, 11th about 1.4 times as long as 10th.

Pronotum broad, modified oval, 1.03–1.25 times as wide as long, 1.10–1.16 times as wide as head, apical margin strongly rounded, hind margin subtruncate, lateral margins slightly expanded and without upheavals; disc finely microreticulate. Scutellum small and triangular.

Elytra conjointly 1.24–1.40 times as wide as pronotum, 2.63–3.06 times as long as wide, subparallel at sides; disc somewhat transversely and rugosely punctate.

Prosternal process weakly emarginate apically. Middle of mesosternum flattened, with conspicuous median ridge. Metasternum provided with a median furrow. Latero-apical margin of each abdominal sternite more or less prominent. Legs moderately long, each outer claws of all legs with a small lobe at base.

Genitalia oval, somewhat flattened; apex of dorsal plate of parameres feebly sinuate inwardly; each ventral process of paramera slender; each laterophysis sword-shaped.

Length: 7.5–8.5 mm; breadth: 1.8–2.1 mm.

Female. Similar to male, but body thicker, head stouter, elytra broader, eyes smaller and antennae shorter. Antennae reaching to basal fifth of elytral length, with somewhat long 2nd segment which is about 0.7 times as long as 1st. Pronotum transverse, 1.17–1.20 times as wide as head and 1.22–1.35 times as wide as long. Elytra 1.21–1.50 times as broad as pronotum, 2.23–2.58 times as long as wide. Eighth sternite of abdomen sinuated apically and with a cleft at the center of apical margin.

Length: 7.8–8.4 mm; breadth: 2.1–2.4 mm.

Remarks. The detailed collecting data of the species from Hokkaido are given for the first time in the present paper. The above description was made based on the material of Hokkaido.

Specimens examined: [Hokkaido] 2♂♂, 1♀, Miwa, Koshimizu-cho, Abashiri, 21. VI. 1989, H. NAKANO leg.; 1♂, 1♀, Hamakoshimizu, 23. VI. 1958, K. BABA leg.; 2♂♂, Memanbetsu, 25. VI. 1992, T. KATO leg.; 7♂♂, 5♀♀, Kushiro Moor, 4. VII. 1992, V. KUZNETZOV leg.; 1♀, Okoppe-gawa, Okoppe-chô, 5. VII. 1994, S. HORI leg.; 1♂, Omushari-numa, Okoppe-chô, 21. VI. 1994, S. HORI leg.; 1♀, Onishigawa-shitusgen, Oumu-chô, 17. VII. 1994, S. HORI leg.; 2♂♂, Ôtsu-shicchi, Toyokoro-chô, 23. VI~7. VII. 1993, S. Hori leg.; 1♀, Wakkanai, 26. VII. 1993, H. OHARA leg.; 1♂, Kamichanbetsu, Shibecha-chô, Kushiro, 19. VI. 1993, K. IIJIMA leg.; 2♂♂, 3♀♀, Asahi, Teshikaga-chô, 15. VI. 1995, K. IIJIMA leg.; 2♀♀, Minamishibecha, Shibecha-chô, Kushiro, 20. VI. 1995, K. IIJIMA leg.; 3♂♂, 1♀, Iwahogi-yama, Kushiro-shi, 8~9. VI. 1991, K. HORIE leg.; 1♂, 1♀, Beniya-gensei-kaen, Hamatonbetsu-chô, 1. VII. 1992, S. ITOH leg.; 2♂♂, 2♀♀, Benten, Tomakomai-shi, Iburi, 23. VI. 2001, T. MIYATA leg.; 1♀, Bakkai, Wakkanai-shi, Sôya, 22. VI. 1991, T. MIYATA leg. [Rebun-tô] 1♂, Kafuka, 15. VI. 1984, H. KOBATAKE leg. [Sakhalin] 1♂, Minaminayoshi, 18. VII. 1930, M. HORI leg.; 2♂♂, Konuma, 15 and 28.

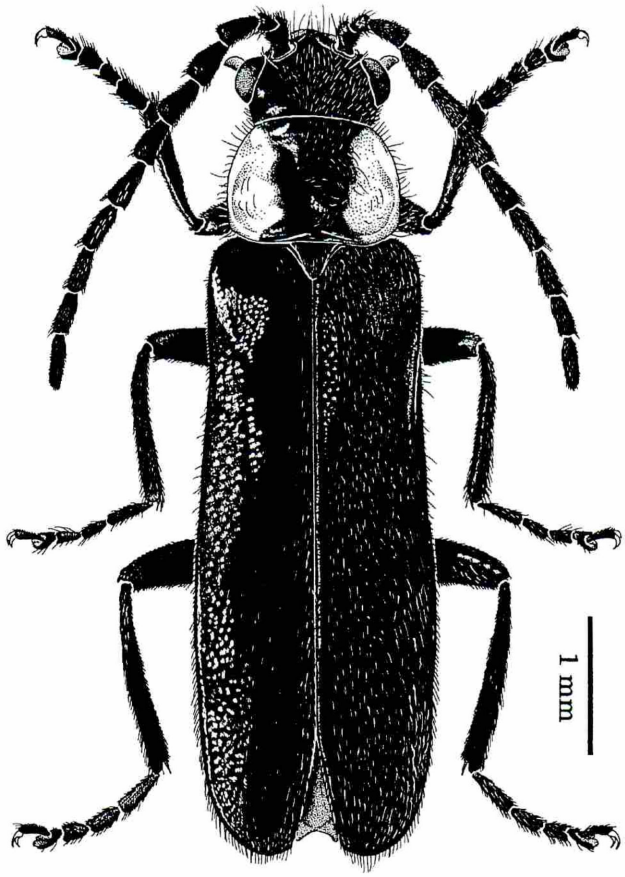


Fig. 18. *Cantharis* (*Telephorus*) *hereocharis* sp. nov.

VI. 1932, M. HORI leg.; 1♂, Komatsu, 19. VI. 1933, Saghalien Central Expt. Sta.; 1♂, Konuma, 20. VI. 1936, Saghalien Central Expt. Sta. [Korea] 1♂, Sangweonsa, Mt. Odaesan, Kangwondo, 21. V. 1989, A. SHINOHARA leg.; 1♂, 1♀, Mt. Daeam, Yanggu, KW, 24. V. 1998; 1♂, 1♀, Mt. Taibaik, Taibaik, Gangweon, 30. V. 1999. [Italy] 1♂, Castello, Calabria, 4. VII. 1989. [Algeria] 1♀, Bouira, 10. VI. 1971, HOFFER and HORÁK leg.

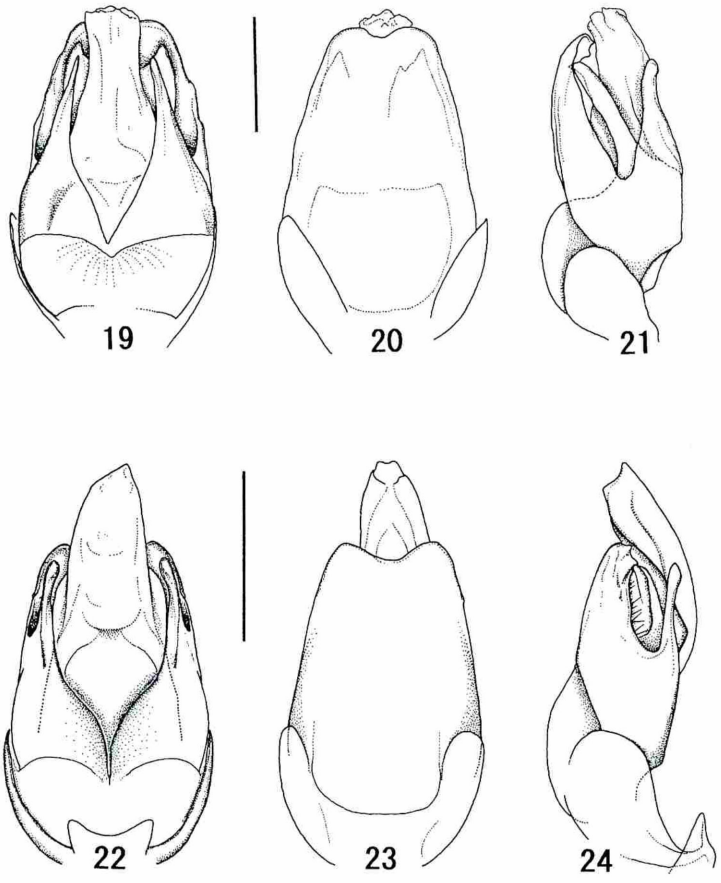
Distribution: Japan (Hokkaido, Rebun-tô), Sakhalin, Kurilen, Shikotan, Korea, Siberia—Europe, N. Africa.

Cantharis* (*Telephorus*) *heleocharis M. SATÔ, OKUSHIMA et ISHIDA, sp. nov.

(Figs. 3, 12–18, 22–24, 26)

Male. Body small, broad, flat, densely covered with aurocinereous pubescence all over, but sparsely so on pronotum. Color almost black, with brownish or brownish black appendages; each side of pronotum broadly and prosternal hypomeron orange yellow; lateral and posterior margins of abdominal sternites narrowly brownish.

Head small, flat, somewhat convex at middle of frons, depressed before eyes, hardly



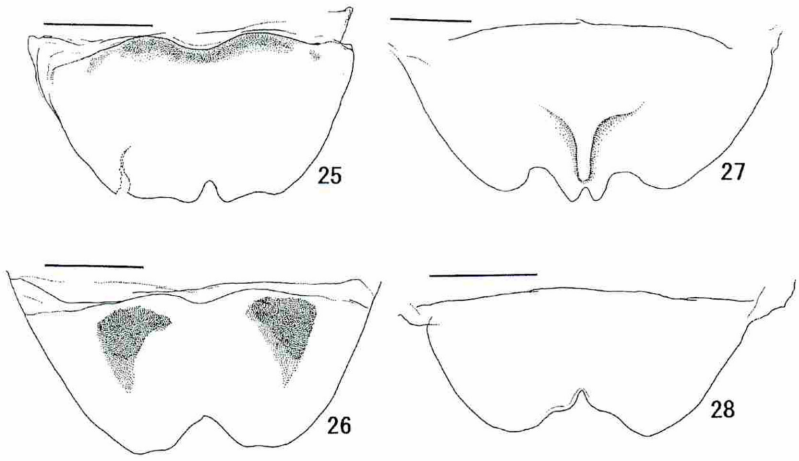
Figs. 19–24. Male genitalia of *Cantharis* (*Telephorus*) species. 19, 22, ventral aspect; 20, 23, dorsal aspect; 21, 24, lateral aspect; 19–21, *C.* (*T.*) *pallida* GOEZE; 22–24, *C.* (*T.*) *hereocharis* sp. nov. All scale bars = 0.5 mm.

depressed on vertex; disc microreticulate; clypeus feebly angulate, weakly pointed at apex. Eyes small, globular, and prominent. Antennae thick, short, feebly serrate and reaching to the half of elytral length; 1st segment about 3 times as long as wide, 2nd globular, about 0.5 times as long as 1st, 3rd to 5th weakly flattened and triangular, 6th to 11th somewhat subcylindrical, 3rd about 1.6 times as long as 2nd, 4th about 1.5 times as long as 3rd, 4th to 10th subequal; 11th about 1.4 times as long as 10th.

Pronotum broad, modified oval, shining, 1.38–1.53 (1.43 in the holotype) times as wide as long, 1.14–1.24 (1.21) times as wide as head, strongly rounded at apical margin and subtruncate at hind margin, slightly expanded at lateral margins, and without upheavals; disc finely microreticulate. Scutellum small and semicircular.

Elytra conjointly 1.22–1.32 (1.22) times as wide as pronotum, 2.56–2.79 (2.57) times as long as wide, the side subparallel; disc rather transversely rugose.

Prosternal process weakly emarginated apically. Middle of mesosternum flattened, with conspicuous median ridge. Metasternum provided with a median furrow. Abdominal sternites microreticulate. Legs short and stout; each outer claw of all legs with a small lobe at the base.



Figs. 25–28. Female eighth abdominal sternites of *Cantharis* species. 25, *C.* (*T.*) *pallida* GOEZE; 26, *C.* (*T.*) *hereocharis* sp. nov.; 27, *C.* (*W.*) *curtata* KIESENWETTER; 28, *C.* (*W.*) *vulcana* (LEWIS). All scale bars = 0.5 mm.

Genitalia oval, somewhat flattened; apex of dorsal plate of parameres feebly sinuate inwardly; ventral processes of parameres slender; laterophysis flattened.

Length: body 5.8–6.2 (6.2) mm.; breadth: 1.6–1.9 (1.9) mm.

Female. Similar to male, but body thicker, head stouter, elytra broader, eyes smaller and antennae shorter. Antennae attaining to basal one eighth of elytra. Pronotum transverse, broad, 1.53–1.61 (1.45 in the allotype) times as wide as head and 1.58–1.76 (1.67) times as wide as long. Elytra broad, 2.25–2.68 (2.32) times as long as wide, 1.11–1.20 (1.20) time as broad as pronotum. Eighth sternite of abdomen distinctly excised as V shape at the summit.

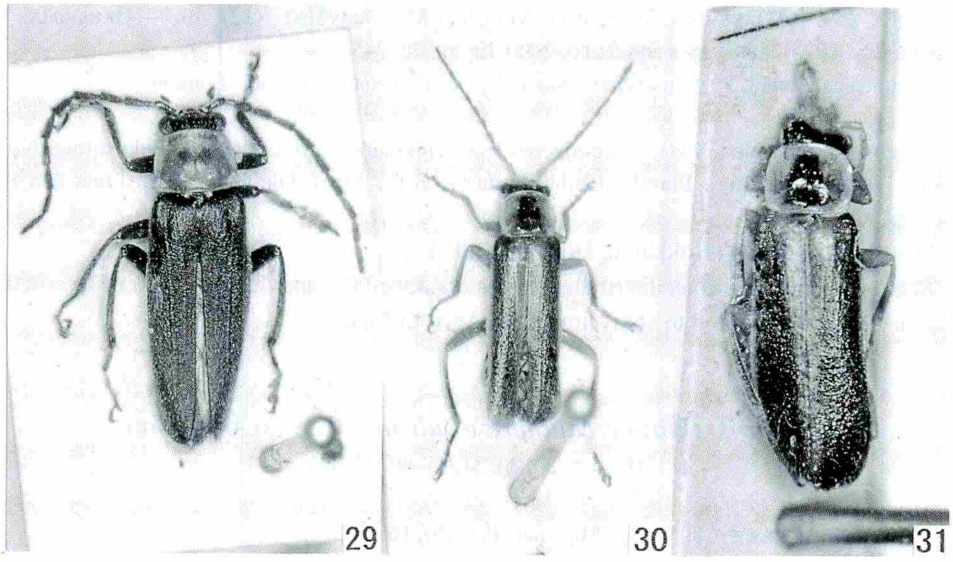
Length: body 6.3–7.0 (6.6) mm; breadth: 1.9–2.2 (2.2) mm.

Type series. Holotype: ♂, Shikinosato, Hakusan-chô, Isshi-gun, Mie Pref., 9. V. 1991, K. ISHIDA leg. Allotype: ♀, the same data as the holotype. Paratypes: 1♂, 1♀, the same data as the holotype; 1♀, Shikinosato, Mie Pref., 4. V. 1991, H. KAWAGITA leg.; 2♀♀, Hokka, Iga-Ueno, Mie Pref., 14. V. 2000, A. AMAGASU leg.; 2♀♀, Aoyama-kogen, Mie Pref., 2. VI. 1996, H. YOSHITOMI leg.; 10♂♂, 4♀♀, Kiryû, Aoyama-chô, Mie Pref., 17. V. 2001, K. NOJIMA leg.; 1♂, 1♀, Uradani, Aichi Pref., 6. VI. 1993, H. YOSHITOMI leg.; 1♂, 1♀, Togakushi, Nagano Pref., 25. VI. 1993, H. YOSHITOMI leg., 3♂♂, 2♀♀, Mts. Abukuma, Iitate-mura, Fukushima Pref., 27. V. 1990, S. OHMOMO leg.; 1♂, 1♀, Hanawa-cho, Fukushima Pref., 4. VI. 1989, K. S.,T. N., Y. T. leg.; 3♂♂, 6♀♀, Tamogi-numa, Rokkasho-mura, Aomori Pref., 28. V. 1994, T. KISHIMOTO leg.; 2♀♀, Ichiyanagi-numa, Rokkasho-mura, Aomori Pref., 29. V. 1994, T. KISHIMOTO leg.

Distribution: Japan (Honshu).

In general appearance, the present new species is somewhat allied to *C.* (*T.*) *pallida* GOEZE, though it can be differentiated from the latter by the black body color, the black marking of pronotum expanded longitudinally, the thick antennae and the structure of male genitalia.

The specific name, *hereocharis* means a goddess of marshy places in Greek. Because, all the specimens of the present species were collected on the wetland.



Figs. 29–31. Type specimens of *Cantharis* species. 29, Holotype of *Cantharis curtata* KIESENWETTER; 30, holotype of *Telephorus vulcanus* LEWIS; 31, type of *Cantharis guilleti* PIC.

Subgenus ***Wittmercantharis*** M. SATÔ, 1986, stat. nov.

Wittmercantharis M. SATÔ, 1986, Trans. Shikoku ent. Soc., 17: 259.
Type species: *Telephorus vulcanus* LEWIS, 1895, original designation.

Remarks. This subgenus was established as an independent genus at first, based mainly on the morphology of claws of Japanese two species, *Cantharis vulcana* (LEWIS) and *Cantharis curtata* KIESENWETTER by SATÔ (1986). The subgenus *Taiwanocantharis* WITTMER, 1982 of *Cantharis* distributed in Taiwan has the same characteristics of claws, i.e. outer claws of all legs are provided with a small lobe at the base in male, but without in female. Though in his paper, the relationship between *Wittmercantharis* and *Taiwanocantharis* was not mentioned. It is appropriate that *Wittmercantharis* is treated as a subgenus of the genus *Cantharis* in having the feature of male genitalia in the present paper. Comparing *Wittmercantharis* with *Taiwanocantharis*, the morphology of claws are closely related to each other, but the body form are differentiated. The former has a stout body and the subopaque elytra, but the latter has a slight body and metallically shining elytra in each composition species. Then, we propose that two genera mentioned above can be separated as the subgeneric rank.

Cantharis* (*Wittmercantharis*) *curtata KIESENWETTER, comb. rev.

(Figs. 4, 27, 29, 32–34, 41–43)

Cantharis curtata KIESENWETTER, 1874, Berl. Ent. Z., 18: 273.
Wittmercantharis curtata: SATÔ, 1985, Coleopt. Jpn. Color, 3: 114. — SATÔ, 1986, Trans. Shikoku ent.

Soc., 17: 259. — OKUSHIMA, 1997, Bull. Kurashiki Mus. nat. Hist., (12): 40. — OKUSHIMA, 1997, Elytra, 25: 332. — OKUSHIMA and SATÔ, 2000, Elytra, 28: 245.

Type specimen examined. 1 ♀ (Holotype), Osaka, deposited in Nat. Hist. Mus., London.

Specimens examined. 241 exs., collected from Hokkaido, Aomori, Akita, Fukushima, Niigata, Ishikawa, Toyama, Tochigi, Ibaraki, Chiba, Saitama, Gifu, Aichi, Okayama, Hiroshima and Kôchi Prefectures.

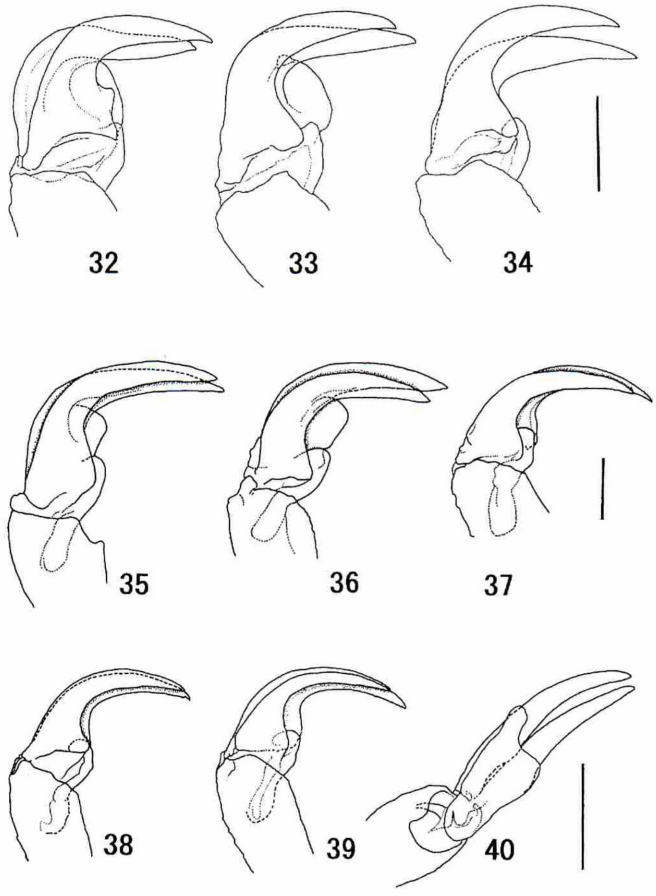
Distribution: Japan (Hokkaido, Honshu, Shikoku).

Remarks. This species is distributed on the open wetland and the grassland of riverbed, but appearance period is limited to short time from April to June.

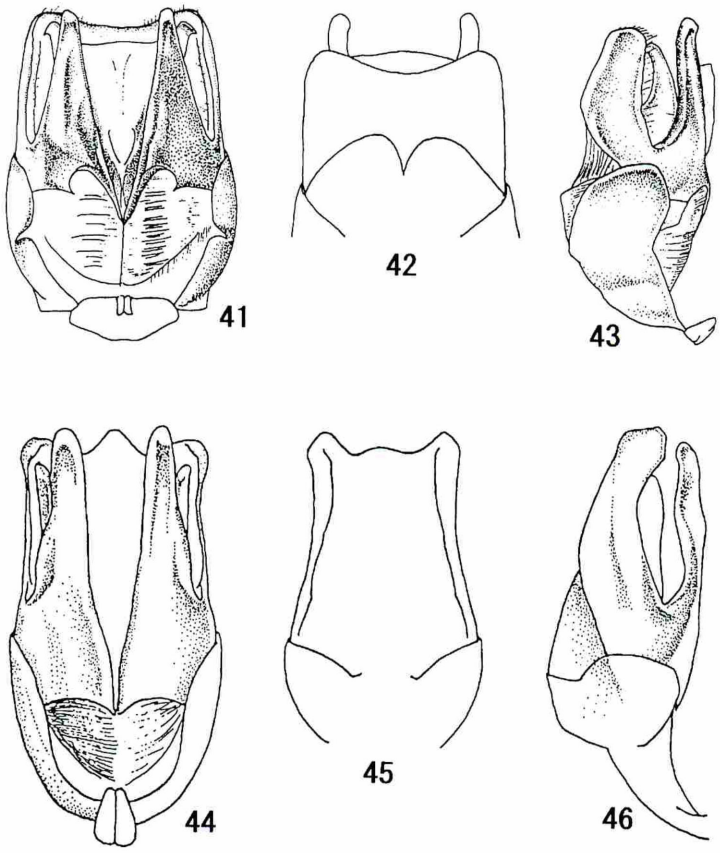
Cantharis (*Wittmercantharis*) *vulcana* (LEWIS), comb. rev.

(Figs. 5, 28, 30, 31, 35–40, 44–46)

Telephorus vulcanus LEWIS, 1895, Ann. Mag. nat Hist., (6), 16: 112.



Figs. 32–40. Claws of *Cantharis* (*Wittmercantharis*) species. — 32–37, male claws; 38–40, female claws; 32, 35, 38, claws of front legs; 33, 36, 39, claws of middle legs; 34, 37, 40, claws of hind legs; 32–34, *C.* (*W.*) *curtata* KIESENWETTER; 35–40, *C.* (*W.*) *vulcana* (LEWIS). All scale bars = 0.1 mm.



Figs. 41–46. Male genitalia of *Cantharis* (*Wittmercantharis*) species. 41, 44, ventral aspect; 42, 45, dorsal aspect; 43, 46, lateral aspect; 41–43, *C.* (*W.*) *curtata* KIESENWETTER; 44–46, *C.* (*W.*) *vulcana* (LEWIS).

Cantharis vulcana: NAKANE, 1963, Iconogr. Ins. Japon. 2 (Coleopt.): 172.

Wittmercantharis vulcana: SATÔ, 1985, Coleopt. Jpn. Color, 3: 115. — SATÔ, 1986, Trans. Shikoku ent. Soc., 17: 259. — IMASAKA, 1994, Gekkan-Mushi, (278): 36. — OKUSHIMA, 1997, Bull. Kurashiki Mus. nat. Hist., (12): 41. — TAKAHASHI and MANO, 1998, Gekkan-Mushi, (331): 41. — KANG *et al.*, 2000, Korean J. Ent., 30: 154.

Cantharis guilleti PIC, 1905, Échange, (243):113. **Syn. nov.**

Type specimens examined. 1♀(Holotype of *T. vulcanus*), Junsai Lake, deposited in Nat. Hist. Mus., London; 1♀(Type of *C. guilleti*), Japon, n. ns. pes, deposited in Natn. Mus. hist. Nat., Paris.

Specimens examined. 564 exs., collected from Hokkaido, Aomori, Yamagata, Fukushima, Gunma, Saitama, Tokyo, Kanagawa, Niigata, Yamanashi, Nagano, Shizuoka, Aichi, Mie, Tottori, Okayama, Hiroshima, Ehime Prefectures and Korea.

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

Remarks. This species was described based on a single female by LEWIS (1895). In the original description, he referred to the tarsal claws of this species as simple. Afterwards, PIC

(1905) described *Cantharis guilleti* closely related to *C. japonica* KIESENWETTER, which was transferred to *Mikadocantharis* by WITTMER and MAGIS (1978). According to the examination of PIC's type, it is identical with *vulcana*.

On the other hand, the genus *Mikadocantharis* is not related to *Cantharis*, but to *Athemus* in the general characteristics and in the structure of male genitalia. Therefore it is placed as a subgenus under the genus *Athemus* at present.

Key to the Japanese species of the genus *Cantharis*

1 (4) Male and female provided with a small tooth or lobe at the base of each outer claw of all legs. ..... Subgenus *Telephorus* SCHAEFFER
2 (3) Body large in size, 7.5–8.5 mm. Elytra almost orange yellow. ..... *C. pallida* GOEZE
3 (2) Body small in size, 5.8–7.0 mm. Elytra black. ..... *C. heleocharis* M. SATÔ, OKUSHIMA et ISHIDA, sp. nov.
4 (1) Male provided with a small tooth or lobe at the base of each outer claw of all legs, female with simple claws. ..... Subgenus *Wittmercantharis* M. SATÔ
5 (6) Body large in size, 8.1–9.8 mm. Elytra black. ..... *C. curtata* KIESENWETTER
6 (5) Body small in size, 5.7–7.2 mm. Elytra almost orange yellow. ..... *C. vulcana* (LEWIS)

要　　約

佐藤正孝・奥島雄一・石田勝義：日本産 *Cantharis* 属の種. ——— DELKESKAMP（1976）が編纂した Junk の甲虫目録ジョウカイボン科で日本の *Cantharis* 属に含まれる種は 13種であったが，その後の研究で１種を残して他の属に移された．この属は古くから知られていることから便宜的にも多様な種が含まれていた．そこで，近似属などを含めて日本産種を再検討した結果，*Wittmercantharis* 属を *Cantharis* 属の亜属として取り扱った．日本産 *Cantharis* 属を2亜属４種として，一部の種の再記載と検索表をつけここに報告した．併せて，本州の湿地で最近発見された新種，*C.* (*Telephorus*) *heleocharis* を記載した．

References

DELKESKAMP, K., 1976. Coleopterorum Catalogus, Supplementa. 165 (1). i+ 485 pp. W. Junk, Hague.

IMASAKA, S., 1994. First records of two Cantharid species from Kyushû, Japan. *Gekkan-Mushi, Tokyo,* (278): 36–37. (In Japanese).

ISHIDA, K., 1986a. A revision of the two genera, *Athemus* and *Athemellus*, of Japan (Coleoptera: Cantharidae). *Trans. Shikoku ent. Soc., Matsuyama,* **17**: 93–213.

———, 1986b. The genus *Habronychus* WITTMER of Japan (Coleoptera: Cantharidae). *Trans. Shikoku ent. Soc.,* **17**: 215–220.

KANG, T. H., J. I. KIM and K. M. KIM, 2000. Taxonomic Study of Korean Cantharidae (Coleoptera) III. Subfamily Cantharinae: Tribe Cantharini. *Korean J. Ent.,* **30**: 147–156.

KIESENWETTER, H. V., 1860. Synonymische Bemerkungen. *Berl. ent. Z.*, **4**: 94–98.

———, 1874. Die Malacodermen Japans nach dem Ergebnisse der Sammlungen des Herrn G. LEWIS

wahrend der Jahre 1869–1871. *Berl. ent. Z.*, **18**: 234–288.

KÔNO, H., 1935. Die Malacodermen aus dem Kurilen (Col.) (Zweiter Betrag zur Kenntnis des Käferfauna der Kurilen). *Ins. matsum., Sapporo,* **9**: 95–98.

——— , 1937. Die Malacodermen aus dem Kurilen, II. (Neunter Betrag zur Kenntnis des Käferfauna der Kurilen). *Ins. matsum.,* **11**: 96–98.

LEWIS, G., 1895. On the Dascillidae and Malacodem Coleoptera of Japan. *Ann. Mag. nat. Hist.*, (**6**), **16**: 98–123, pl. 6.

MAGIS, N., 1971. Contribution a l'etude Monographique du genre *Cantharis* LINNÉ (Coleoptera: Cantharidae). *Bull. Ann. Soc. r. belg. Ent.*, **107**: 47–63.

MATSUMURA, S., 1911. Erster Beitrag zur Insecten-Fauna von Sachalin. *J. Fac. Agr. Tohoku Imp. Univ., Sapporo*, **4**: 1–145, 2 pls.

OKUSHIMA, Y., 1997a. Cantharid beetles (Coleoptera, Cantharidae) of Aomori Prefecture, northern Honshu, Japan, I. *Bull. Kurashiki Mus. nat. Hist.*, (12): 37–51. (In Japanese with English abstract).

——— , 1997b. A record of *Wittmercantharis curtata* (Coleoptera, Cantharidae) from Shikoku, Japan. *Elytra, Tokyo,* **25**: 331–332.

——— and M. Satô, 2000. A record of *Wittmercantharis curtata* (Coleoptera, Cantharidae) from Hokkaido, Japan. *Elytra*, **28**: 245–246.

PIC, M., 1905. Descriptions albrégées et notes diverses (2e article). *Échange*, (243): 113–115.

——— , 1906. Noms nouveaux et diagonoses de Cantharini (Telephorides) Européens et exotiques. *Échange*, (**263**): 81–85.

SATÔ, M., 1978. Notes on " *Themus insulsus*" (Coleoptera: Cantharidae). *Trans. Shikoku ent. Soc.*, **14**: 41.

——— , 1985. Cantharidae. In KUROSAWA Y. *et al.* (eds.) The Coleoptera of Japan in color, **3**: 107–119, pls. 17–19. Hoikusha, Osaka. (In Japanese).

——— , 1986a. Taxonomic notes on Cantharidae of Japan, I. *Coleopt. News, Tokyo*, (72): 1–3. (In Japanese).

——— , 1986b. New Cantharoidea from Japan, II (Coleoptera). *Trans. Shikoku ent. Soc.*, **17**: 255–261.

TAKAHASHI, K., 1998. Check-list of Cantharidae of Japan. *Kanagawa-Chûhô, Odawara,* (122): 29–48. (In Japanese).

——— and S. MANO, 1998. *Wittmercantharis vulcana* collected on Tokushima Pref., Japan. *Gekkan-Mushi, Tokyo,* (331): 41. (In Japanese).

WITTMER, W., 1972. 55. Beitrag zur Kenntnis der palaearktischen Cantharidae und Malachiidae (Col.). *Ent. Arb. Mus. Frey,* **23**: 122–141.

——— , 1978. Ergebnisse der Bhutan-Expedition 1972 des Naturhistorischen Museum in Basel. Coleoptera: Fam. Cantharidae (4. Teil) und Bemerkungen zu einigen Arten aus angrenzenden Gebielten. *Entom. basil.*, **3**: 151–161.

——— , 1982. Die Familie Cantharidae (Col.) auf Taiwan (1. Teil). *Ent. Rev. Japan, Osaka*, **37**: 119–140, pls. 4–8.

——— , 1984. Die Familie Cantharidae (Col.) auf Taiwan (3. Teil). *Ent. Rev. Japan*, **39**: 141–166, pls. 4–9.

——— and S. KASANTSEV, 1997. On the classification of the genus *Cantharis* LINNÉ (Coleoptera, Cantharidae). *Entom. basil.*, **20**: 367–372.

——— und N. MAGIS, 1978. Zur Kenntnis einiger mit *Cantharis* L. Verwandter Gattungen. *Bull. Ann. Soc. r. belge. Ent.*, **114**: 133–139.

(Received September 25, 2002; Accepted September 30, 2002)

原稿作成の要領

欧文原稿

1. 原稿はプリントアウトしたものとフロッピーディスクに書き込んだものとを提出する．用紙はＡ４判を用い，左右に3 cm 以上の余白をあけ，タイプライター，ワードプロセッサーあるいはコンピューターで打ち出したものとする．行間はダブルスペースとし，表題や見出しを含めていかなる場合も大文字だけでは打たない．従って姓名のうちイニシャル以外はすべて小文字で打つこと（例：Yasuhiko Hayashi）．また英文原稿内では♂♀記号及び和文要約を除き邦文文字（日本語ホント）を用いてはならない．フロッピーディスクはマッキントッシュまたはＤＯＳフォーマットのいづれかで，原稿はテキストファイル化したものを提出すること．フロッピーディスクを提出できない場合は，プリント原稿をスキャナーで読み取るためイタリックやボールドなどの指定のない文字を使用し，下線や訂正の書き込みのない原稿（コピーでもよい）を一部付ける．
2. 報文原稿は，表題，著者名，所属機関とその所在地，または住所，刷り上がり 10 行程度までの（約150語）の英文の著者抄録 (Abstract)，本文，和文要約，文献の順に配列する．
   提出原稿は二部とし，内一部は無処置で，他の一部は動，植物の属およびそれ以下の学名に下線を引き，また人名には二重の下線を引く（第一字を除いて）．付図の挿入希望箇所は鉛筆などで表示しておく．引用文献は著者名のアルファベット順に並べ，下記の形式で記す．
   Blackwelder, R. E., 1936. Morphology of the coleopterous family Staphylinidae. Smiths. misc. Coll., 94 (13): 1-102
   —1952. The generic names of the beetle family Staphylinidae with an essay on genotypy. Bull. U.S. natn. Mus., 200: i-iv+1-483.
   Müller, J., 1925. Terzo contributo alla conoscenza del genere Staphylinus L. Boll. Soc.ent.ital., 50: 40–48.
3. 報文中の採集または検視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.
4. 原稿には原稿用紙と同質の表紙をつけ，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 40 字内外），著者名，連絡先を明記し，赤字で原稿及び図表の枚数，別刷りの必要部数，その他連絡事項など記入．
5. 図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．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，上の方向を示し，図の裏にその種名を入れる．もし原図版上に取り扱い指定文字を入れるときには，必ず青鉛筆を用いる．原図の大きさは，台紙を含めてＡ４判 (210 mm × 295 mm) 以内とされたい．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．
6. 図の説明及び表はそれぞれ別紙に書き，原稿末につける．

編集委員からのお願い

最近の投稿原稿には当会の投稿規定を甚だしく逸脱したものが送られてきます．投稿される原稿については，投稿規定並びに原稿作製の要領をよく参照されて作成してください．本文の入ったフロッピーディスクはマッキントッシュまたはＭＳ－ＤＯＳのフォーマットされたものに記録し，必ずテキストファイル化してください．ワードプロセッサー専用機は互換性のないＯＳのため，そのままでは取り込みは出来ません．ＤＯＳ変換したものをお送り下さい．

プリント原稿のみの場合には特に段落がはっきり判るように作成してください．また，段落内の文節や単語の間が開きすぎないようにしてください．スキャナーで取り込むときに文章がバラけて取り込まれ，文章が壊れることがあります．

引用文献については，編集でチェック出来ないものもあるので，本誌の書式をよく確かめてください．また文献名の省略形式も充分確認してください．

人名（欧文）は第１文字を大文字に，残り全てを小文字で打ち込んで下さい．編集部が自動でスモールキャピタル化します（全て大文字で印字するとスモールキャピタル化出来ません）．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）．

投稿原稿，別刷について

弊会では原稿の受入に関してレフリー制度を採用しております．ご投稿戴く原稿は第三者による査読をお受けになられた上でお送り下さい．

従来超過ページ負担無しを１０ページまでとしていましたが，当分の間１６ページまでとします．また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．現在最も高くついているのが製本代です．

和文要約について

評論への投稿原稿には和文要約を必ず付けて下さい．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．

hhc ヒューマン・ヘルスケア企業 Eisai エーザイ

一日いれば、くすり博士。

いつの時代にも、どこの国でも、薬は「いつも健康で、長生きしたい」「早く病気をなおしたい」という願いをこめて生み出され、医学とともに進歩してきました。
その薬の歴史を物語る貴重な資料がわかりやすく展示され、だれでも自由に見られるのが「内藤記念くすり博物館」です。
岐阜県川島町のエーザイ川島工園の中にあり、展示や映像や付属薬用植物園などを楽しく見ているうちに、薬に関するいろいろなことを学ぶことができます。
入場無料・月曜日は休館です。

エーザイ川島工園は、自然林を残した約14万坪の敷地の中に製剤工場や研究所や博物館などの建物が点在しており、公園のような工場なので「工園」と名付けました。

内藤記念くすり博物館

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エーザイ川島工園内

著 作 権

昆虫学評論および“ねじればね”に掲載された著作は原則として本会に属する．

1. 執筆者自身が自分の著作の一部を複製・翻訳などの形で利用する場合，これに対して当会では原則的に異議申し立てしたり妨げることはしない．ただし，執筆者自身でも全文を複製の形で他の著作物に利用する場合に限り，事前に本会へ文書で申し出を行い，許諾を求めなければならない．
2. 第三者から論文の複製あるいは転載に関する許諾の要請があり，当会において必要と認めた場合は，執筆者に代わって許諾することがある．

投 稿 規 程

1. 投稿は原則として当学会員に限る．登載は原則的には受領順によるが，全額実費負担の原稿は優先的に取り扱うことが可能である．但しレフェリー制の導入により掲載の順位の変更がありうる（原稿は適当な方の校閲を受けたものであることが望ましい）．
2. 昆虫学評論には，当分の間，欧文原稿のみを掲載し，和文原稿は当面“ねじればね”に掲載されるものとする．但し，原著には和文要約をつけることとする．またプレートは当分の間廃止し，図版はすべて本文内に収めるtext figure 扱いとする．但し，著者負担によるカラー・プレートは認める．原稿の長さは刷り上がり10ページ以内とし，超過ページの印刷経費は著者負担とする．
3. 原稿（本文，図，表および表紙）は別記の要領で作成し，２部（一部はコピーで）を編集幹事に書留で郵送する．
本文をワードプロセッサーで作成した場合はDOSフォーマット化されたフロッピーディスクに，またコンピューターで作成した場合はマッキントッシュまたはDOS-フォーマット化されたフロッピーディスク（1.44MB）に，ストリップテキスト化した後それぞれ書き込んで，プリントアウトした原稿とともに同時に提出することが望ましい．フロッピーディスクが提出されることによって校正や編集上の負担が著しく軽減される（当学会においてはPower Mac 7600/200にワードパーフェクトを乗せて編集している）．その他の詳しい原稿作成の要領については別ページを参照のこと．
4. 原稿の掲載上の体裁については編集委員に一任されたい．編集委員はレフェリーの意見に基づいて原稿の内容について著者に再検討や訂正を求めることがある．
5. 著者校正は原則として初校のみとする．校正での大幅な変更や追加は認めない．
6. 別刷は 50 部単位で作成し，費用は全額著者負担とする．
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和文原稿について

和文原稿は，原著に付ける和文要約を除いて，“ねじればね”誌上にのみ掲載するので，新しい分類学的処理を含む内容の論文は欧文で昆虫学評論へ投稿して下さい．“ねじればね”は年２回以上の発行として，１号８～16頁建てとします．分布，生態などの短報，分類学的な解説やノート，同定の手引き，その他役にたつ論説，情報など幅広い内容で紙面を作っていきたいと考えています．

昆虫学評論　**Entomological Review of Japan**

第57巻2号　Vol. 57, No. 2

平成14年10月30日発行

Published on Oct. 30, 2002

発行者　佐々治寛之

発行所　日本甲虫学会

〒546–0034　大阪市東住吉区長居公園1–23

大阪市立自然史博物館・昆虫研究室気付

印刷所　ナニワ印刷株式会社

〒530–0043　大阪市北区天満1–9–19

会費納入振替口座：00990–8–39672

CONTENTS　第57巻2号　目次

Short Communications