

## Descriptions of Some Melolonthid Beetles (Coleoptera, Scarabaeidae) from Taiwan

Hirokazu KOBAYASHI

3–16, Kamishakujii-minamichô, Nerima-ku, Tokyo, 177 Japan

**Abstract** Five new species and one new subspecies of melolonthid beetles are described from Taiwan. They are: *Holotrichia pubifemorata*, *H. yui*, *H. hualiensis*, *H. shizumui*, *H. omeia inexpectata* and *Metabolus nitididorsis*.

In this paper, the author will describe six new melolonthid beetles from Taiwan. They belong to the genera *Holotrichia* and *Metabolus*. One of them was treated by NOMURA (1977) under the name of *H. rufescens* MOSER, but MOSER's species occurs in the Chinese Continent. There are some differences between genuine *H. rufescens* and the species distributed in Taiwan. Therefore, the author will regard the latter as a new species.

Before going further, the author wishes to express his sincere appreciation to Mr. Ching-Kin YU of the Muh Sheng Museum of Entomology, Taiwan, for his kindness in entrusting those valuable specimens to the author for investigation. The holotypes designated in this study are deposited in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo, (NSMT), and of the Insect Museum of Department of Plant Pathology and Entomology, National Taiwan University, Taipei, Taiwan (NTUIM). Other specimens are preserved in the author's collection.

### *Holotrichia pubifemorata* H. KOBAYASHI, sp. nov.

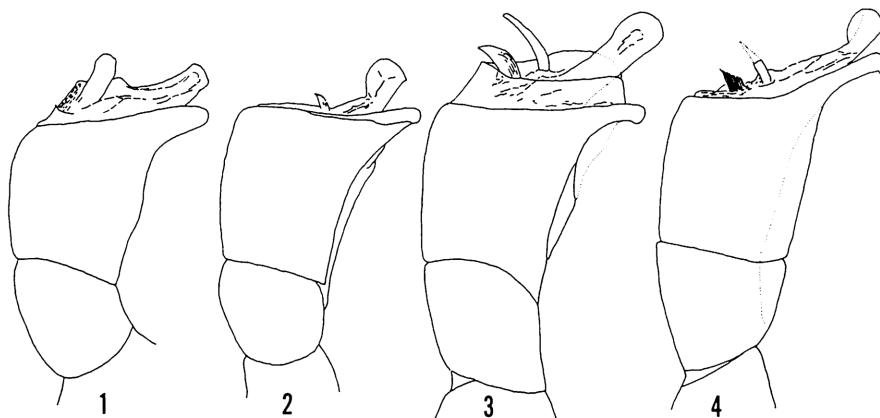
[Japanese name: Ashige-kuro-kogane]

(Figs. 1, 9)

Body reddish brown to dark reddish brown, head and scutellum somewhat dark-colored, antennae somewhat light-colored. Dorsal surface feebly shining, ventral surface (except for sides of 5th abdominal sternite), femora and tibiae rather strongly shining.

Clypeus weakly bilobate, margins bordered, surface coarsely and very densely punctate. Frons weakly convex, densely punctate as clypeus, fronto-clypeal suture widely arcuate, somewhat sinuate at middle. Vertex rather sparsely punctate, though smooth near posterior margin. Antennae 10-segmented, club composed of 3 lamellae, three-fourths as long as footstalk in male, shorter than that in female.

Pronotum 1.8 times as broad as its length, evenly and rather sparsely punctate,



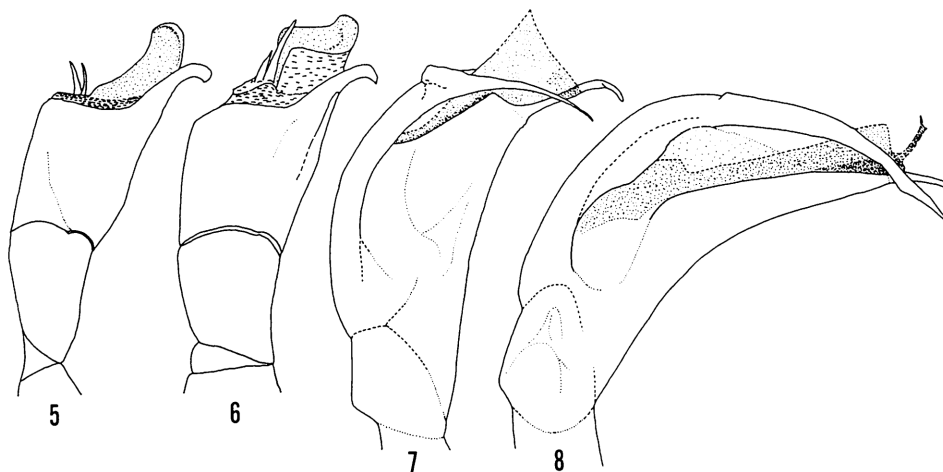
Figs. 1-4. Male genitalia of *Holotrichia* spp. — 1, *H. pubifemorata* sp. nov.; 2-3, *H. yui* sp. nov. — 2, from Sungkang, 3, from Chusheh (holotype); 4, *H. hualiensis* sp. nov.

with a longitudinal depression in anterior half of the middle, with a shallow round depression on each posterior corner; anterior margin bordered, lateral margins curved just behind the middle, gradually convergent to apex and base, broadly crenate, fringed with sparse hairs; anterior angles subrectangular, posterior ones somewhat angulate, posterior margin dressed with a row of punctures. Scutellum broader than its length, rather densely punctate at sides, almost impunctate at the middle. Elytra each with a sutural and four discal costae, 1st costa broadened posteriorly and touching sutural one, two outer costae very fine and inconspicuous, intervals sparsely and finely punctate.

Pygidium feebly convex in male, almost flattened in female, sparsely and irregularly punctate, fringed with rather long hairs on apical margin. Ventral surface of thorax densely covered with yellowish brown, long tawny hairs. Abdominal sternites finely and very sparsely punctate, sides of 2nd sternite bearing short hairs, sides of the 5th one bearing long hairs, though the other ones glabrous; anal sternite sparsely punctate, feebly and transversely sulcate in male, almost flattened in female, with a row of rather long hairs beside the apical margin. Anterior tibiae slender and tridentate, apical tooth small and rather sharp in male, large and outwardly curved in female; inner apical spur of moderate length. Middle femora rather densely bearing long tawny hairs, which are as long as its breadth, or much longer. Posterior femora very sparsely punctate, each bearing long tawny hairs in basal half and near posterior margin. Posterior tibiae sparsely punctate, with terminal spurs slender in male, broad and curved in female, the longest one being much longer than basal tarsal segment, which is as long as the 2nd one.

Length: 22.0-24.0 mm; breadth: 12.0-13.0 mm.

Holotype: ♂, Tayulin (2,900 m alt.), Hualien Hsien, 5-VIII-1986, K. BABA leg. (preserved in NSMT). Paratypes: 1 ♀, same data as for the holotype; 1 ♀, Alishan,



Figs. 5-8. Male genitalia of *Holotrichia* spp. — 5-6, *H. shizumui* sp. nov. — 5, from Chihtuan (holotype), 6, from Wushe. — 7-8, *H. omeia inexpectata* subsp. nov. — 7, from Tiengchih (holotype), 8, from Jiuyuetan.

Chiai Hsien, 26-VI-1970, T. KURODA leg.

This species is closely allied to *H. mizusawai* H. KOBAYASHI, 1986, but may be separated from the latter by the following points: ventral surface uniformly colored; clypeus more densely punctate; pronotum rather sparsely punctate; middle femora bearing dense hairs.

***Holotrichia yui* H. KOBAYASHI, sp. nov.**

[Japanese name: Mokusei-kuro-kogane]

(Figs. 2-3, 10)

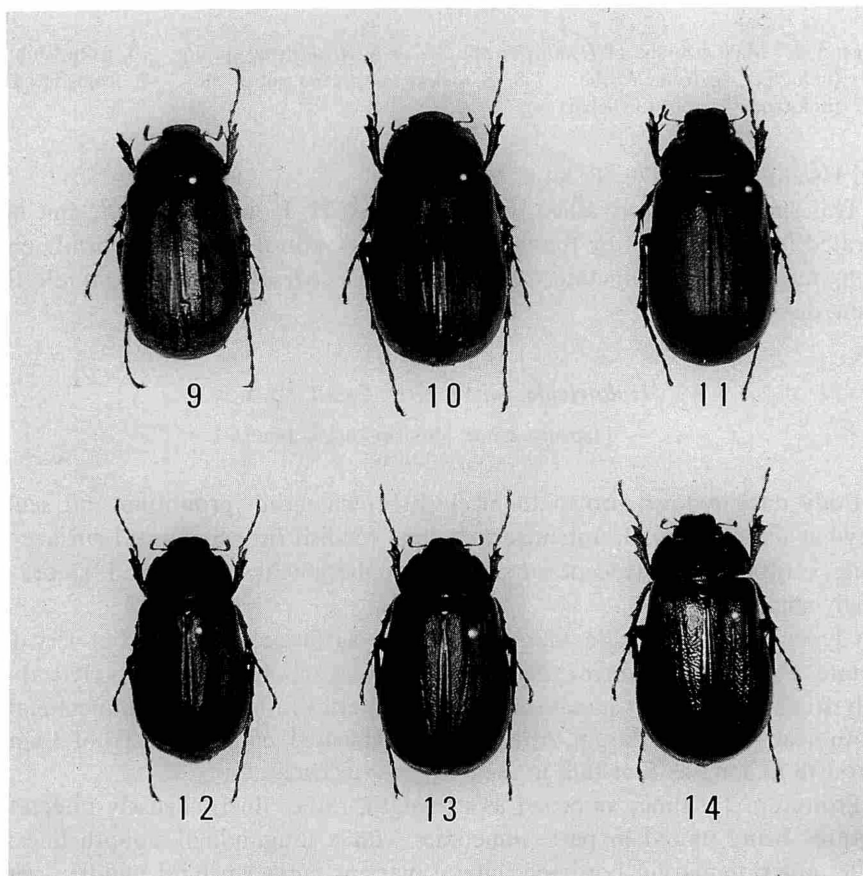
Body dark reddish brown to blackish brown, head, pronotum and scutellum somewhat dark coloured, antennae and tarsi reddish brown. Dorsal surface feebly shining, ventral surface (except for sides of 5th abdominal sternite) and femora rather strongly shining.

Clypeus weakly bilobate, margins bordered, surface rather finely but very densely punctate. Frons feebly convex, densely punctate as on clypeus, fronto-clypeal suture widely arcuate, somewhat sinuate at the middle. Vertex rather densely punctate, though smooth near posterior margin. Antennae 10-segmented, club composed of 3 lamellae, one-fourth as long as footstalk in male, shorter in female.

Pronotum 1.9 times as broad as its length, rather finely, densely punctate, the punctures being united in part, sometimes with a longitudinal smooth line at the middle; anterior margin bordered, lateral margins curved behind middle, gradually convergent to apex and base, broadly crenate and fringed with sparse hairs; anterior angles weakly produced, subrectangular, posterior ones somewhat angulate, posterior

margin dressed with a row of punctures. Scutellum broader than its length, rather sparsely punctate at sides, though almost impunctate at the middle. Elytra each with a sutural and four discal costae, 1st costa broadened posteriorly and touching sutural one, 3rd costa inconspicuous, intervals evenly and sparsely punctate.

Pygidium almost flattened in both sexes, finely and rather sparsely punctate, fringed with rather long hairs on apical margin. Ventral surface of thorax rather densely covered with yellowish brown, long tawny hairs. Abdominal sternites finely, sparsely punctate and each puncture with a microscopic hair, sides of 2nd sternite bearing minute hairs, sides of 5th one bearing long hairs; anal sternite rather densely punctate, feebly and transversely sulcate in male, almost flattened in female, with a row of rather long hairs beside anterior margin. Anterior tibiae slender and tridentate, apical and 2nd teeth large and blunt in female; inner apical spur rather long. Middle femora scattered with rather long tawny hairs, which are clearly shorter than its



Figs. 9–14. Habitus. — 9, *H. pubifemorata* sp. nov.; 10, *H. yui* sp. nov.; 11, *H. huaiensis* sp. nov.; 12, *H. shizumui* sp. nov.; 13–14, *H. omeia inexpectata* subsp. nov. — 13, male, 14, female.

breadth. Posterior femora sparsely punctate in apical halves, though coarse and somewhat aggregated behind, bearing two rows of hairs beside anterior and posterior margins, but the former usually indistinct. Posterior tibiae rather densely punctate, with terminal spurs slender in male, broad and curved in female, longer one much longer than basal tarsal segment, which is just shorter than the 2nd.

Length: 24.0–25.0 mm; breadth: 12.0–13.0 mm.

Holotype: ♂, Chusheh, Nantou Hsien, 14–VIII–1992, C. K. YU leg. (preserved in NTUIM). Paratypes: 1 ♂, same data as for the holotype; 1 ♂, 3 ♀♀, same locality as for the holotype, 28–VIII–1992, C. K. YU leg.; 1 ♂, Sungkang, Nantou Hsien, 22–VII–1990, C. K. YU leg.; 1 ♂, Sungkang, Nantou Hsien, 26–IX–1992, C. K. YU leg.

This species is somewhat allied to the preceding, but it may be separated from it by the following points: femora and tibiae blackish brown; antennal club much shorter in male; pronotum more densely punctate; abdominal sternites finely, sparsely punctate, each puncture with a microscopic hair.

***Holotrichia hualiensis* H. KOBAYASHI, sp. nov.**

[Japanese name: Karen-kuro-kogane]

(Figs. 4, 11)

This species is very closely allied to the preceding species of *H. yui*, but may be separated from it by the following points:

Clypeus rather coarsely, granulately punctate. Frons rather finely, granulately punctate. Pronotum very densely, somewhat confluent punctate, anterior angles subrectangular, not produced. First intervals of elytra rather densely punctate. Middle and posterior femora rather densely punctate, very sparsely bearing hairs. Posterior tibiae coarsely and very densely punctate.

Length: 25.0 mm; breadth: 12.5 mm.

Holotype: ♂, Pili-Shenmu, Hualien Hsien, 26–VI–1992, C. K. YU leg. (preserved in NTUIM).

***Holotrichia shizumui* H. KOBAYASHI, sp. nov.**

[Japanese name: Aka-kuro-kogane]

(Figs. 5–6, 12)

*Holotrichia rufescens* NOMURA, 1977, Tôhō-Gakuhô, (27), pp. 90, 92 (nec MOSER).

This species is very closely allied to the preceding species of *H. yui*, but may be separated from it by the following points:

Somewhat small-sized body. Pronotum rather densely punctate at middle, coarsely, very densely and somewhat confluent punctate at sides. Elytra with sutural and four discal costae, outer two costae narrow but evident. Pygidium more convex in both sexes, rather densely punctate.

Length: 22.0–23.0 mm; breadth: 11.0–11.5 mm.

Holotype: ♂, Chihtuan, Ilan Hsien, 7–VIII–1991, C. K. YU leg. (preserved in NTUIM). Paratypes: 1 ♂, 2 ♀♀, same data as for the holotype; 1 ♀, same locality as for the holotype, 16–VIII–1990, C. K. YU leg.; 1 ♀, Sulin, Taoyuan Hsien, 16–VIII–1990, C. K. YU leg.; 2 ♂♂, Lalashan, Taoyuan Hsien, 23–VI–1987, J. LO leg.; 1 ♀, Pilu Shenmu, Hualien Hsien, 3–VII–1992, C. K. YU leg.; 1 ♂, Wushe, Nantou Hsien, 24–VIII–1974, Y. SHIBATA leg.

This species was treated under the name of *H. rufescens* MOSER, 1912, from the Chinese Continent, but may be separated from it by the following points: body without purplish lustre; pronotum less than twice as broad as its length, lateral margin clearly crenate; basal tarsal segment of posterior tarsi shorter than the 2nd; antennal club shorter than the total length of 2nd to 7th segments united.

***Holotrichia omeia inexpectata* H. KOBAYASHI, subsp. nov.**

[Japanese name: Harage-kuro-kogane]

(Figs. 7–8, 13–14)

This subspecies may be separated from the nominotypical one by the following points:

Dorsal surface black with dull lustre in general, but sometimes reddish brown. Clypeus and frons more coarsely, densely punctate, the latter either bearing very sparse hairs or bare. Pronotum sparsely, finely punctate, posterior angles somewhat angulated. Posterior femora sparsely punctate. Anal sternite widely excavated at middle in male. Basal segment of posterior tarsi almost as long as the 2nd one.

Length: 22.0–23.0 mm; breadth: 11.0–11.5 mm.

Holotype: ♂, Tiegchih, Kaohsiung Hsien, 27–VI–1982, C. K. YU leg. (preserved in NTUIM). Paratypes: 1 ♂, 1 ♀, same data as for the holotype.; 2 ♂♂, Chusheh, Nantou Hsien, 19–VII–1992, C. K. YU leg.; 1 ♀, Chusheh, Nantou Hsien, 19–V–1993, C. K. YU leg.; 1 ♂, Pilu-Shenmu, Hualien Hsien, 9–IX–1993, C. K. YU leg.; 1 ♂, 2 ♀♀, Guandaoshan, Nantou Hsien, 11–V–1987, J. LO leg.; 1 ♀, Lalashan, Taoyuan Hsien, 12–V–1985, J. LO leg.; 1 ♀, Tatungshan, Taipei Hsien, 10–VI–1977, H. SAKAINO leg.; 1 ♀, Wulai, Taipei Hsien, 18–VI–1968, T. KIKUCHI leg.; 2 ♂♂, Jiuyuetan, Nantou Hsien, 25–VI–1976, M. KUBOTA leg.; 8 ♂♂, 7 ♀♀, Tiegchih, Kaohsiung Hsien, 11–V–1978, H. SAKAINO leg.; 3 ♂♂, 4 ♀♀, Tiegchih, Kaohsiung Hsien, 3–V–1983, S. SAITO leg.; 2 ♂♂, 3 ♀♀, Fenkangshan, Kaohsiung Hsien, 30–IV–1986, K. BABA leg.

In Taiwan, this species is variable in the coloration of body, structure of male genitalia and shape of female pygidium. These varieties are, however, continuous and not geographical.

***Metabolus nitididorsis* H. KOBAYASHI, sp. nov.**

[Japanese name: Tsuyahada-Kikogane]

(Figs. 15–16)

Body light yellowish brown to yellowish brown, shining. Head, pronotum and

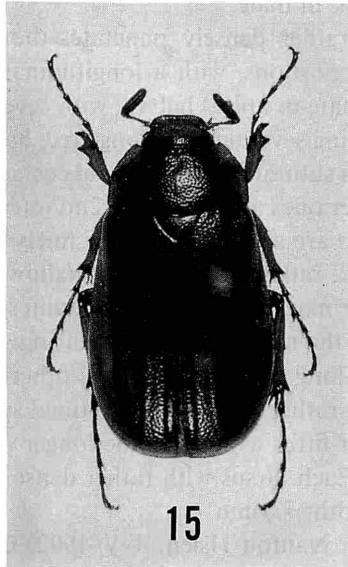


Fig. 15. Dorsal aspect of *Metabolus nitididorsis* sp. nov.

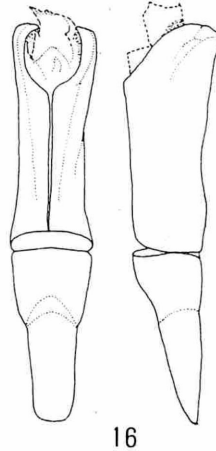


Fig. 16. Male genitalia of *Metabolus nitididorsis* sp. nov.; left, dorsal view; right, lateral view.

antennal club light reddish brown. Dorsal surface glabrous, except for posterior part of vertex and anterior and lateral margins of pronotum. Under surface of thorax rather densely covered with yellowish brown hairs.

Clypeus densely punctate, margins bordered and rather refracted, anterior margin feebly sinuate at middle. Frons densely punctate, punctures evidently larger than those on clypeus, with two boss-like elevations in the middle. Vertex finely, sparsely punctate, bearing inconspicuous short hairs on posterior parts. Antennae 9-segmented, club

slightly longer than footstalk in male.

Pronotum finely and rather densely punctate, though the punctures become somewhat larger on lateral portions, with a longitudinal depression on the middle; lateral margins vaguely crenate in apical halves, with several long hairs near anterior angles, anterior margin bearing several rather long erect hairs. Scutellum very sparsely, finely punctate. Elytra with a sutural and four lateral costae, 1st and 2nd costae evident and convex, though the outer ones are indistinct; 2nd interval coarsely, rather densely punctate, but the other ones are evenly and rather finely punctate.

Pygidium feebly convex, rather coarsely and shallowly punctate, bearing several rather long hairs on anterior margin. Abdominal sternites somewhat densely punctate at the sides, but sparsely in the middle, 2nd one bearing short hairs at the sides, and the 5th with several tawny long hairs at the sides, other parts almost bare. Anterior tibiae tridentate, apical spur rather long. Posterior tibial spurs different in length from each other, shorter one four-fifths as long as the longer one, which is slightly longer than basal tarsal segment. Each tarsus with rather dense hairs beneath.

Length: 12.5 mm; breadth: 7.0 mm.

Holotype: ♂, Chusheh, Nantou Hsien, 4-V-1992, C. K. YU leg. (preserved in NTUIM).

This species is closely allied to *M. formosanus* (NIJIMA et KINOSHITA, 1927), but it may be separated from the latter by the following points: elytra glabrous; head without hair except for posterior margin of vertex; pygidium feebly convex, rather coarsely and shallowly punctate.

## 要 約

小林裕和：台湾産コフキコガネ亜科の6新種。——台湾から*Holotrichia*属の4種，1亜種，ならびに*Metabolus*属の1種を新たに記載した。このうちで，従来，*Holotrichia rufescens* MOSERとしてきた種は，それとは異なる新種である。また，*Holotrichia omeia* CHANGとして取り扱われてきた種は，原産地のものとは異なることから新亜種とした。

## References

- KOBAYASHI, H., 1986. Scarabaeidae from Taiwan 13. *Gekkan-Mushi, Tokyo*, (179): 12-17.  
 ——— 1987. Scarabaeidae from Taiwan 16. *Ibid.*, (201): 13-16.  
 ——— 1988. Scarabaeidae from Taiwan 17. *Ibid.*, (206): 11-15.  
 ——— 1990. List of Formosan Scarabaeidae collected by Dr. K. BABA III. *Trans. Essa ent. Soc., Kurokawa*, (69): 49-56.  
 ——— 1990. Four new scarabaeid beetles (Coleoptera, Scarabaeidae) from Taiwan. *Elytra, Tokyo*, **18**: 73-81.  
 NOMURA, S., 1977. On the Melolonthini of Taiwan. *Tôhō-Gakuhô, Kunitachi*, (27): 85-109.